Technical Epistemologies

On the medical reception of Hellenistic philosophy

*

Submitted by Andrew Ballantine to the University of Exeter as a thesis for the degree of Doctor of Philosophy in Classics and Ancient History, September 2020.

Abstract

This thesis examines the transposition of Hellenistic philosophy into the medical sphere, with a focus on the Stoic, Epicurean and Pyrrhonian traditions. The intersection of Hellenistic philosophy and medicine is especially abundant; the Hellenistic philosopher, with his eudaimonic orientation, presents himself as a physician of the soul. The τέλος of the medical art – the production and maintenance of health – served as a practical template for the philosopher's administrations. As the Hellenistic period fades into the centuries of Roman hegemony, Stoic and Epicurean doctrines find their way into the medical tradition *per se* via the theories of Athenaeus of Attalia and Asclepiades of Bithynia respectively. However, despite the oft-stated affinity of philosophical and medical objectives, Stoicism and Epicureanism are refashioned as they cross disciplinary boundaries – in the case of Epicureanism, radically so. My thesis is that these adjustments are most intelligibly read as attempts by doctors to signify the capacity of their τέχνη to generate new ideas by disentangling their theories from the philosophies to which they were intellectually indebted. The method by which this is achieved, I will argue, is in large part dependent on the nature of the philosophy at root, the 'mother-doctrine'. Athenaeus was able, through selective adoption, to delineate a technical epistemology within the greater architecture of Stoic theory; Asclepiades, by contrast, was motivated to adapt the physical system he sought to appropriate. The Pyrrhonists, who interface with the medical sphere via their affiliation with the Empiricist sect in the second century AD, represent an alternative mode of interaction between the philosophical and medical traditions – the alliance of independent, differently oriented sects, the integrity of which, I will propose, depends upon the preservation of that independence. The Pyrrhonian Empiricists grant us further insight into the boundary between philosophy and τέχνη as disciplines in antiquity, a boundary which is also central to understanding the medical adoption/adaptation of Stoicism and Epicureanism.

Table of Contents

List of abbreviations

CMG – *Corpus Medicorum Graecorum*, Berlin and Leipzig: Teubner, 1908-1944; Berlin: Akademie Verlag, 1946-.

Deichgr. – Deichgräber K., *Die griechische Empirikerschule,* Berlin: Weidmann 1930 (repr. 1965).

DK – Diels H. & Kranz W., *Die Fragmente der Vorsokratiker,* Zurich: Weidmann, 1951-2 (6th edn.).

K. – Kühn K. G., *Claudii Galeni Opera Omnia*, Vols. 1-20, online edition, Cambridge University press, 2012 (originally published, Leipzig: C. Cnobloch, 1821-1833).

LS – Long A. A. & Sedley D. N., *The Hellenistic Philosophers, Vol. 1: Translation of the principal sources with philosophical commentary,* Cambridge University Press, 1987.

SVF - *Stoicorum Veterum Fragmenta,* Vol.I-III; von Arnim J. (ed.), Vol. IV indices by Adler M., 1903-1905, 1924, (repr.) Teubner, 1964.

Note on translations

All English translations of Greek and Latin passages are either specified in the text or recorded in the corresponding footnote. Translations from Long A. A. & Sedley D. N., *The Hellenistic Philosophers, Vol. 1: Translation of the principal sources with philosophical commentary* (1987) are marked ‘LS’ in the footnotes.

Introduction

‘Vain is the word of a philosopher which does not heal any suffering of man. For just as there is no profit in medicine if it does not expel diseases of the body, so there is no profit in philosophy either if it does not expel the suffering of the mind.’

- Epicurus[1]

‘It is not true that whereas there is an art, called medicine, concerned with the diseased body, there is no art concerned with the disease of the soul, or that the latter should be inferior to the former in the theory and treatment of individual cases. Therefore, just as the physician of the body must be ‘inside’, as they say, the affections that befall the body and the proper cure for each, so it is incumbent on the physician of the soul to be ‘inside’ both of these in the best possible way. And a person might understand that this is so, since analogy with them was set up at the start. For the correlative affinity with them will also make evident to us, as I think, the similarity of the cures and in addition, the analogy that the two kinds of healing have with each other.’

- Chrysippus[2]

0.1. This thesis examines the transposition of Hellenistic philosophy into the medical sphere, with a focus on the Stoic, Epicurean and Pyrrhonian traditions. I am interested in the adaptation of ideas which developed within one intellectual tradition – characterised, in this period, by its eudaimonic orientation, for the breadth of subjects it arranges in the gravity of a singular behavioural τέλος – by the specialised, technical occupation. The intersection of Hellenistic philosophy and medicine is especially abundant. The Hellenistic philosopher, with his sights on εὐδαιμονία, presents himself as a physician of the soul. The medical τέχνη acquires an analogic function; medicine’s τέλος, the production and preservation of health, along with its assumption that pain exists to be negated, provides the philosopher with a practical template for his own administrations – his therapies – to an afflicted soul. As the Hellenistic period fades into centuries of Roman hegemony, Stoic and Epicurean doctrines are filtered into the medical art *per se* via the theories of Athenaeus of Attalia and Asclepiades of Bithynia respectively, the founders of the Pneumatist and Asclepiadean sects. Thus, integrants of medicalised, ethically oriented philosophies are redirected into the medical τέχνη. And yet, this period is also characterised by the careful delineation of disciplinary boundaries, by doctors seeking to distinguish their craft from the philosophies to which they were intellectually indebted and for which their discipline served as a paradigm. Stoic and Epicurean physical doctrines are not transported without

[1] Porphyry, *Letter to Marcella,* 31 = Epic. fr. D54 in Baily (1926) p.133 trans. Bailey (= Usener 221).
[2] Quotation from the fourth book of Chrysippus’ *On Affections* (Περὶ παθῶν) in Gal. *PHP* V.2.22-24 trans. De Lacy (1978).

alteration from one domain into another; they are trimmed and refashioned as they traverse disciplinary boundaries, sometimes radically so. My guiding question with respect to doctrinaire philosophy and its filtration into medicine is as follows: given the 'correlative affinity' of Hellenistic philosophy and medicine, the putative similarity of their τέλη, why do doctrines translated from the former to the latter undergo such modification?

The Pyrrhonists, through their affiliation with the Empiricists in the second century AD, represent an alternative mode of interaction between philosophical and medical traditions. Though Galen would portray the Empiricist as being to medicine what the Pyrrhonist was to life,[3] the Empiricist sect originated centuries prior to Pyrrhonism (properly so-called) and adhered to an epistemology – one characterised as a dogmatic faith in the authenticity of sense-experience – that would appear, on first analysis, to be incompatible with the Pyrrhonist's universal suspension of judgement (ἐποχή). Nonetheless, an alliance, of a sort, was enacted as the sun set on the Pyrrhonist sect, for which Sextus Empiricus, avowed Empiricist and our most informative source for Pyrrhonian scepticism, is the most well-known exemplar. I am concerned to discover how, and the extent to which, the disparities between the schools came to be tolerated. My contention is that the Pyrrhonist-Empiricist alliance grants us further insight into the boundary between philosophy and τέχνη in antiquity, a disjunction which is also central to understanding the refashioning of Stoicism and Epicureanism at the hands of their medical descendants.

My task, then, is to clarify the boundary between the disciplines, the mechanism of filtration and conversion – selective adoption and adaptation – assembled where the branches of inquiry ought to meet. What motivates the enforcement of this boundary? What factors influence the nature of the boundary, its pattern of permeability, the severity of the transformation undertaken by ideas which are drawn across its threshold? Guided by these questions, I hope to further illuminate the complexity of medicine's relationship with philosophy in this period, to advance our understanding of the history, morphology and accommodation of medical specialisation in the intellectual landscape of the

[3] Gal. *Subf. Emp.* 9, 82.28 *et seq.* Deichgr.

period spanning the foundation of the Hellenistic schools in the late fourth century BC, to the death of Sextus Empiricus in the third century AD.

0.2. Medicine and philosophy in pre-Hellenistic antiquity

That the body is a mirror to its environment, a fixture of Rationalist, theory-guided medicine, is established more or less from the outset of western philosophy's inquiry into nature. Cosmic models sprung from universal ἀρχαί confuse the boundary between physics and physiology, whole and part. From the assumption of generality follows an inquiry into the relationship between complex organised systems. Theories of health and disease were the province of Presocratic natural scientists. Ideas which would linger throughout the theory-guided medical literature of subsequent centuries were seeded in Presocratic philosophy; the body's status as a unified congress of different elemental mixtures, each uniform part differentiated by the proportion of its most basic constituents, has its roots in the physiological theories of Empedocles of Akragas, based on his analysis of the cosmos into the elements – earth, air, fire and water.[4] That health amounts to the salubrious equilibrium of bodily elements or qualities can be traced to Alcmaeon of Croton, a fifth century philosopher-physician, purportedly of Pythagorean schooling,[5] who, elaborating from the Milesian proposition that the cosmos has a 'preferred state' characterised by balance,[6] attributed disease to the excess of any one of the body's constituent powers.[7] Intriguingly, Alcmaeon also exhibits a hint of proto-empiricism, reportedly announcing that only the gods have certain knowledge of invisible things, where mortals must make inferences from evidence.[8] We find no ἀρχή or ἀρχαί at the root of Alcmaeon's medical theory, despite his Milesian influence. One wonders if the practice of medicine, being natural philosophy *in application*, unsheltered by the oft-illusive self-affirmation of abstraction, confronted the physician with a boundary to human understanding.

---

[4] Aët. V.22.1 (DK 31A78). For the author of *On Ancient Medicine* (for which see shortly below), Empedocles was the chief representative of a medical practice guided by hypothesis, by cosmology developed independently of the medical art's independently established methodology. See [Hipp.] *VM* 20.

[5] D. L. VIII.83.

[6] e.g. Simp. *Phys.* 24.13 (DK 12B1).

[7] Aët. V.30.1 (DK 4B4).

[8] D. L. VIII.83. This claim reflects similar pronouncements attributed to Xenophanes of Colophon. See e.g. S. E. *M* VII.49.

But such caution is not common to all philosopher-physicians. Diogenes of Apollonia, philosopher of the late fifth century BC,[9] posited air as the first principle of reality,[10] and constructed a theory of health and disease based upon the primacy of his ἀρχή.[11] Democritus of Abdera, also of the late fifth century BC, whose body of work included treatises on prognostication, dietetics and medical regimen,[12] analysed bodily processes into the activity of atoms in void.[13] Questions of human physiology and the aetiology of disease fell within the purview of those who sought to resolve the totality of things into *prima materia.* What is more, the vitalist strain detectable in some Presocratic cosmologies[14] – and revived in natural science by Diogenes of Apollonia[15] – prepares the ground for more sophisticated parallels between the microcosm and the macrocosm, the world enclosed by the flesh and world enclosing the flesh, which would come to fruition in the medical literature of the fifth century BC.

One may characterise the Hippocratic Corpus by the tension it exhibits between medicine's subordination to natural philosophy and the doctor's self-conception as practitioner of an independent τέχνη. The Hippocratic authors, though united by their contributions to a distinctly medical body of literature, represent various perspectives on the value of philosophical speculation and *a priori* deduction to the realisation of the physician's aims.[16] Two texts are of particular relevance to this discussion. *On the Nature of Man* (*Nat. Hom.*) distinguishes in its opening sentences between those who, in expounding the nature of man, explore beyond its relation to medicine – clambering down to the most primitive rung of the epistemic ladder –, and those who confine their exposition to the territory pertinent to medical inquiry.[17] The boundary of the medical art is set at the 'obvious' (φανερόν);[18] man, insofar as he is characterized

[9] And something of an anachronism in the post-Parmenidean world, a throwback to Milesian monism.
[10] Simp. *Phys.* 152.18 (DK 64B4).
[11] Theoph. *Sens.* 43. (DK 64A19).
[12] D. L. IX.48.
[13] Arist. *Resp.* 471b30ff; Theoph. *Sens.* 60 (DK 68A135).
[14] Most clearly in that of Anaximenes of Miletus, who draws a direct parallel between the air with which our bodies are ensouled and the breath which permeates the world, identified with the ἀρχή (Aët. I.3.4.1-8 = DK 13B2). We might also consider Heraclitus' description of the world as 'ever-living fire' (Clem. *Misc.* V.104.2 = DK 22 B30). See Lloyd (1966) p.236-237.
[15] Simp. *Phys.* 152.18 (DK 64B4).
[16] Among the more philosophically inclined Hippocratic texts, *On Breaths* identifies air as the singular cause of both life and disease. *Airs, Waters and Places* conceives astronomy and meteorology as branches of medical inquiry. Contrast with *On Ancient Medicine,* introduced below.
[17] [Hipp.] *Nat. Hom.* 1.
[18] *Ibid.*

by his experience of health and disease, is analysed into four perceptible humours – blood, phlegm, yellow bile and black bile.[19] And yet the theory of health *Nat. Hom.* expounds is conspicuously indebted to natural philosophy; man 'enjoys the most perfect health when these elements are duly proportioned to one another…and when they are perfectly mingled. Pain is felt when one of these elements is in defect or excess or is isolated in the body without being compounded with all the others.'[20] The echo of medicalized Milesian cosmology and Empedoclean four-element theory can be felt. Moreover, *Nat. Hom.* locates the human body in a dialogue with the seasons; each humour is predominant in the season most sympathetic to its nature, thus, black bile – the cold, dry humour – is abundant in the autumn; winter, bringing moisture, brings about a preponderance of phlegm.[21] A taxonomy of diseases can be mapped onto the seasons as the worlds within and without permutate harmoniously.[22] *Nat. Hom.* expounds a physiology based on a scheme of correspondences with wider cosmological implications. What makes *Nat. Hom.* distinct from a philosophical work is that it arrives at natural science through its analysis of the body, an analysis that is deliberately constrained to the body's manifest constituents – the territory pertinent to medical inquiry.

On Ancient Medicine (*VM*), the second well-known Hippocratic text of particular importance to this inquiry, represents a crucial chapter in the history of medicine's relationship with philosophy. The author of *VM* is hostile to all endeavors to systematize medicine, to subsume the practice of medicine into a unifying physical theory. He rejects the premise that medicine is an outgrowth of natural philosophy; it is rather, as the title of his work suggests, a venerable art with an independent, well-reasoned methodology.[23] As in *Nat. Hom.*, the starting point of medical inquiry is set at the readily apparent, in this case with a focus on what the human introduces into his/her body – what foods he/she ingests, what liquids he/she imbibes.[24] The author grounds the history of medicine in regimen and dietetics,[25] and argues that, in matters of therapeutics, only a τέχνη founded

[19] [Hipp.] *Nat. Hom.* 4.
[20] *Ibid.* trans. Jones (1931).
[21] *Ibid.* 7. Phlegm being the unity of coldness and wetness.
[22] *Ibid.* 8.
[23] [Hipp.] *VM* 1.1, 12. Similar ideas are expressed in the Hippocratic texts *Loc. Hom.* 46, 84.17-24 and *De Arte* e.g. 4.227.12-15. *De Arte* is devoted entirely to defending medicine's status as an independent τέχνη.
[24] [Hipp.] *VM* 20.3.
[25] [Hipp] *VM* 3-8, 22.

on observation and experience can account for the variety of human dispositions;[26] to develop a singular hypothesis from a primitive substratum is to neglect the layers of complexity which compound as one ascends the ontological gradient.[27] Most striking – and most pertinent for our purposes – is the author's claim that 'it is impossible to have any clear knowledge about nature from any other source than medicine.'[28] Where his opponents conceive medicine as subordinate to natural philosophy, as a τέχνη that reveals itself through an Empedoclean-style analysis of human φύσις, the author of *VM* argues the opposite; it is only through the medical τέχνη – the experience-guided systemization of what the body is (or can be) in relation to the integrants of diet and regimen – that a map of 'what the human being is and by what causes it comes to be' can be plotted with precision.[29] The doctor's epistemological ambit – long-established, experience-rooted, therapeutically guided – is conceived, when grasped in its entirety, as the gateway into more penetrating physical analysis; [30] philosophy itself, with its roots in cosmological hypotheses, is portrayed as ineradicably misguided.

But if the author of *VM* intended his work to insulate medicine from philosophical encroachment, his failure is conspicuous.[31] In the fourth century BC, the physician Philistion of Locri developed a theory of disease from Empedoclean element theory;[32] he assigned to each element a 'power' (to fire 'the hot', to air 'the cold', to water 'the moist', to earth 'the dry') and identified disease with their imbalance.[33] Plato, contemporary of Philistion and intellectual descendent of Empedocles, elaborates a similar elemental theory of disease in his *Timaeus.*[34] But he goes further. A second category of disease is identified

---

[26] *Ibid.* 20.
[27] {Hipp.] *VM* 20-21.
[28] *Ibid.* 20.2 trans. Schiefsky (2005).
[29] *Ibid.* trans. Schiefsky (2005). See *Ibid.* p.30-31.
[30] [Hipp.] *VM* 20.2.
[31] When the Roman encyclopaedist Cornelius Celsus credited Hippocrates of Cos with the separation of medicine from 'the study of wisdom' (Cel. *Med.* pr. 8), it is possible that he was afflicted by a distorted perception of *VM*'s success.
[32] Anon. Lond. xx 25-50 = Longrigg VI.16.
[33] *Ibid.* Philistion, on the subject of disease, identified three species of cause: 1) those pertaining to the elements; 2) those pertaining to the condition of the body; 3) external causes. It seems, however, that the proximate cause of disease in most cases was an elemental imbalance. We learn from the *Anonymous Londinensis* that type 2 causes result from impeded breath which, on Philistion's analysis, is undertaken by the whole body. Gal. *ut. resp.* 1 informs us that Philistion believed the function of breath was to cool the body's innate heat, suggesting that type 2 causes result in heat's excess.
[34] Plat. *Tim.* 81E-82A.

with decomposition,[35] the ontological regression of the flesh to prior states which, in the theological context of the *Timaeus,* aligns disease with 'decreation', the breakdown of intelligent design.[36] Where Plato blends medical ideas into his cosmology, his pupil, Aristotle, though he endorses the continuum between medicine and philosophy,[37] was instrumental in formalising the methodological disparity between the two methods of inquiry.[38] That Aristotle had medical interests is uncontroversial. He wrote on the subjects of digestion,[39] nutrition,[40] and seminal production,[41] and conceived his dissections of animals as a gateway to the secrets of human anatomy.[42] Diogenes Laertius lists among Aristotle's bibliography two books on medicine, the Ἰατρικά,[43] Caelius Aurelianus quotes from an Aristotelian medical worked entitled *De adiutoriis* ('On Remedies', probably Περὶ Βοηθημάτων in Greek), and Aristotle was, of course, the son of Nicomachus, court physician to king Amyntas of Macedon.[44] But Aristotle's medical contributions must be understood in the context of the taxonomy of sciences he delineates in the *Nicomachean Ethics* (*NE*).[45] Here, and elsewhere,[46] Aristotle distinguishes between theoretical and practical/productive sciences; the former is the science of discovery, of incorporating reality into mind;[47] the latter is the science of begetting change, either by promoting certain patterns of behaviour (via φρόνησις) or purposefully generating products or states (via τέχνη).[48] Aristotle is acutely aware that different sciences, designed around the demands of their τέλη, require different levels of theoretical engagement from their

[35] *Ibid.* 82B-E.

[36] At Plat. *Tim.* 81B-E, the processes of growth and decay are explained in terms of Plato's primary triangles. We are invited to read Plato's second formulation of disease as a peculiar stain on the Creator's painstaking, purpose-driven, mathematical design. No explanation is given as to what causes the second category of disease. Evidently, Plato's attention is elsewhere. In the context of the dialogue, *Tim.* 82B-E reinforces the meticulousness with which the world has been constructed by leading the reader's mind *back down* the ladder of creation.

[37] Most clearly evident at *Resp.* 480b22-31.

[38] Aristotle's relevance to this thesis is too integral to be condensed into this introductory segment. A fuller exposition of his influence on Hellenistic doctors is found at **III.3.**

[39] e.g. Arist. *De part. an.* 650aff.

[40] e.g. Arist. *De gen. an.* 743a4ff.

[41] e. g. *Ibid.* 726b1-12, 735b32ff, 736a13ff.

[42] e. g. Arist. *HA.* 494b.

[43] D. L. V.25.

[44] *Ibid.* V.1.

[45] See esp. *NE* VI. I return to this chapter in more detail at **III.3.1.**

[46] e. g. Arist. *Met.* VI.1025b.

[47] Arist. *NE.* VI.3.

[48] *Ibid.* VI.4-6. See **III.3.1.**

practitioners.[49] One must, of course, be apt to demonstrate how one's practical administrations can be reconciled with theory, but exploring beyond the epistemological parameters determined by one's τέλος is, definitionally, a fruitless act.[50] Aristotle is crucial to this discussion for two reasons. Firstly, the hierarchy of sciences set out in *NE* can be read as the template for the ethics-driven, eudaimonic structure that unites the philosophical schools of the Hellenistic period. The pursuit of εὐδαιμονία – the τέλος to which sciences are steppingstones – informs the philosopher's self-perception as a doctor of the soul. It may also, I will argue, in particular cases,[51] orient the philosopher's attention away from the pathologies of the body. Secondly, as I hope to demonstrate, the doctors of the late Hellenistic period were in dialogue with the same hierarchy of sciences. The modifications to Hellenistic doctrine we will see effected by the Rationalists in this thesis are most intelligible when regarded as a response, of some kind, to medicine's position in Aristotle's hierarchy of sciences.

0.3. Structure of thesis

I begin with Stoic and Epicurean philosophy, their medical peculiarities and criss-crossing curricula, then, with the pieces in place, pivot to their medical utilisations. How these philosophies are employed by the medical art informs the structure of the early chapters. Chapter **I** is an exploration of human psychophysiology in Stoic cosmology. Two details are brought to the forefront: 1) the psychophysiological structure of the Stoic cosmos; 2) the importance of macrocosm-microcosm parity – engendered by point (1) – to Stoicism's ethical τέλος. I lay the foundations for the question which is taken up in chapter **III**, given the centrality of human psychophysiology to the Stoic project, coupled with its therapeutic τέλος, why did Stoicism only have a life within the medical sphere in a limited and rebranded form? In chapter **II** we turn our attention to Epicurean philosophy. Once again, the focus is twofold. My thesis is that Epicureanism's medical appeal was located in its epistemology. This alure existed not because of, but rather *in spite of,* Epicureanism's therapeutic affectation. Thus, I will emphasise the – at least, partial – inextricability of Epicurean epistemology and

[49] Most clearly illustrated by the analogy between the carpenter and the geometer at *NE* I.7 (See **III.3.2**). See Arist. *Sens.* 436a17-b2 for the methodological disparities between theoreticians and doctors in particular.
[50] e. g. Arist. *NE* I.7.
[51] See **II.5.**

physics, and suggest that Epicureanism's relationship to medicine is more complex and problematic than is perhaps immediately apparent. We will note the capacity of τέλη to generate conflict between disciplines – in this case, when the practical realities of medicine *per se* conflict with the philosopher's analogic salve.

Chapters **III** and **IV** address the medical adoption/adaptation of Stoicism and Epicurean philosophy respectively. In chapter **III**, we examine the relationship between Stoicism and Pneumatism, the medical sect founded by Athenaeus of Attalia in the first century BC, whom Galen names as a student of Posidonius of Apamea, the most prominent Stoic philosopher of the period.[52] We answer the question posed in chapter **I**, explore the mechanisms by which Athenaeus defined his discipline against the philosophy to which he was intellectually indebted, and analyse the boundary between Stoicism and Pneumatism in the appropriate Hellenistic, and post-Aristotelian context. We will also examine the parallels between physiological pathology in Athenaeus' theory, and psychological pathology in the extant fragments of Chrysippus' ethical-therapeutic treatise *On Affections.* I will argue that, to the extent that Stoicism's transposition into medicine was frictionless – as it surely was when compared to the mutations undertaken by its rival –, it can be explained by the philosophy's unified curriculum.

In chapter **IV**, we examine the relationship between Epicureanism and the medical theory of Asclepiades of Bithynia, Greek medicine's first celebrated exponent in Rome, dated to the late second, or early first centuries BC.[53] Asclepiades is a complex figure; his debt to Epicureanism remains the subject of dispute.[54] Because of the complexities involved in disentangling Asclepiades' philosophical heritage, I have elected to address this question after the boundary between Stoicism and Pneumatism has been expounded and some of the contextual foundation has been laid, eschewing a chronological structure. I will argue in chapter **IV** that Asclepiades did develop his medical theory from Epicureanism, and that the modifications he introduces to Epicurean physics should be read, in part, as motivated claims to intellectual independence, both for himself and for his discipline. I treat Asclepiades' modifications to Epicureanism

[52] Gal. *CC* 2.
[53] For the controversy surrounding Asclepiades' dates, see **II.1**, n.3.
[54] For an overview of the scholarly debate concerning Asclepiades' Epicurean heritage, see **IV.I.2.** A brief introduction to this debate is given at **0.4** below.

individually – for each is independently revealing –, and argue that his most famous innovation, his rejection of a localised ἡγεμονικόν, stems not from his philosophical pretensions, but from his desire to reconcile the rudiments of Epicurean psychology with contemporary discoveries in neurophysiology. By attending to the features of Epicurean physics which Asclepiades sought to preserve, we learn the source of Epicureanism's medical appeal, which determines the pattern of permeability ingrained into the boundary Asclepiades sought to enforce between his medical theory and the physics that inspired it. I will argue across chapters **III** and **IV** that the radical nature of Asclepiades' modifications to Epicureanism, contrasted with the adjustments Athenaeus makes to Stoicism, is determined by the properties of the adapted philosophy.

In chapter **V** we turn our attention to the Pyrrhonian Empiricists. What does the cross-disciplinary alliance of the anti-doctrinaire have to tell us about the conjunction/disjunction of medical and philosophical inquiry in the waning centuries of the period under study? We explore the disparate – and to a degree, oppositional – origins of Pyrrhonism and Empiricism. We examine how these disparities manifest and are accounted for in the work of Sextus Empiricus and inquire as to why, given these disparities, the alliance was preserved. I pose the question: what accounts for the novelty of Pyrrhonian Empiricism, when contrasted with the fate of Pyrrhonism's doctrinaire rivals as their tenets were filtered into medicine? The question contains part of the answer; Pyrrhonism expounds no doctrines for doctors to appropriate. But why the marriage to Empiricism? The answer, I will suggest, may lie in the current of influence from the medical sect to the philosophy with which it would – for some exponents – grow partially aligned. Empiricism, through its replacement of λόγος with a plentiful species of ἐμπειρία, a means of pursuing health without breaching the surface of phenomena, provided Aenesidemus on Cnossus, the founder of first century Pyrrhonism, with a mode or argumentation which could be reformulated non-dogmatically. In the context of my thesis as a whole, my contention is that the Pyrrhonist-Empiricist alliance further clarifies the boundary between τέχνη and philosophy in antiquity, the salient disjunction that will recur throughout my investigation.

0.4. Preliminary overview of the scholarly landscape

While the study of ancient medicine has seen its popularity flourish in recent decades, and while the intersection of medicine and philosophy has been a feature of the subject for as long as it has generated interest, both the impact of Hellenistic philosophy on the medical tradition and the emergence of medicine as a distinct discipline in the late Hellenistic and early Roman periods have received comparatively little scholarly attention. Whereas scholars such as Philip van der Eijk have drawn attention to the 'substantial overlap' that existed between medicine and philosophy, and have (rightly) cautioned against restrictive labelling in both domains,[55] less attention is afforded to how ancient physicians sought to define *themselves*, how they navigated this substantial overlap without seeing their professional identities dissolve into the wider, epistemic architecture of philosophical inquiry. This is an inquiry into the mechanisms of professional self-classification. For the physicians of our period, this involved the enforcement of epistemic boundaries *against* philosophical incursion. These boundaries are the focus of this thesis.

Overviews of the scholarship which accompanies each of our case studies – Athenaeus and Stoicism, Asclepiades and Epicureanism, Sextus Empiricus and Empiricism/Pyrrhonism – are provided at the outset of the appropriate chapters.[56] In the case of Athenaeus, the brevity of this section is reflective of the doctor's limited scholarly treatment, which is itself a reflection of the paucity of evidence surrounding Athenaeus and his school. Though there are signs of a revitalized interest in both Athenaeus' medical theory and its Stoic pedigree – particularly Coughlin (2018), 'Athenaeus of Attalia on the Psychological Causes of Bodily Health' and recent as-yet-unpublished work by David Leith[57] – interest in Athenaeus has hitherto focused primarily on the status of his taxonomy of causes, recorded in Galen's *De causis continentibus* 2, as a source for, or elaboration of, the Stoic analysis of causation.[58] Though I devote a lengthy section (**III.4**) to the intersection of Stoic and Athenaean causal theory, it is, in the context of my

[55] van der Eijk (2005) p.10.
[56] **III.1**, **IV.1**, **V.1** respectively.
[57] Leith's analysis of Athenaeus' medical theory was foundational to my own exploration of this topic at **III.2**, wherein his contribution to this subject is set out. Coughlin's work, as I set out in **III.5.3.2**, helped clarify the elaborate trisection of Chrysippean, Posidonean, and Athenaean notions of psychological pathology.
[58] esp. Frede (1980) and Hankinson (1987b).

research, a single aspect of a broader inquiry into the disjunction of Stoicism and Pneumatism, the epistemological dimensions of the latter within the encompassing structure of the former.

Asclepiades is a very different case. The relative breadth and complexity of Asclepiadean testimonia has, in recent decades, inspired a more rigorous scholarly tradition. Since the publication of J. T. Vallance's *The Lost Theory of Asclepiades of Bithynia* (1990), the first text to give Asclepiades' theory the independent attention it deserves, scholarly interest in Asclepiades has focused acutely on the physician's relationship to Epicureanism, with Vallance himself arguing for the discontinuity of Epicurean and Asclepiadean physics, and others such as Casadei (1997) and most recently Leith (2009, 2012) arguing *contra*, that despite the significant differences between the two systems, Asclepiades' medical theory – where health and disease are resolved into the activity of ἄναρμοι ὄγκοι, 'seamless masses', apparently in void – owed a considerable debt to Epicurean atomism. David Leith's forthcoming book[59] should go some way towards progressing Asclepiadean scholarship beyond the question of the doctor's Epicurean heritage, and my own adventures in this territory are reflective of this spirit. I am less interested in the question of *whether* Asclepiades was influenced by Epicureanism – I believe, as I set out at **IV.2.3** below, that the similarities between the two systems are too apparent to ignore –; I am interested in the question of *why*, given this influence, Asclepiades modifies Epicurean doctrine to the extent that he does. Chapter **IV** represents my contribution to this developing conversation.

The conjunction of Pyrrhonism and Empiricism has received more considered attention in recent decades. Roberto Polito's 2007 article,[60] 'Was Skepticism a Philosophy? Reception, Self-Definition, Internal Conflicts' is, in part, an address to the question of why the Pyrrhonist-Empiricist alliance was advantageous to the Pyrrhonian school. James Allen's 2010 article, 'Pyrrhonism & Medicine', examines the relationship between Pyrrhonian scepticism and both the Empiricist and Methodic schools of medicine, inspired by Sextus Empiricus' somewhat anomalous endorsement of the latter school in a controversial passage of his

[59] Unpublished at the time of the completion of my thesis.
[60] Recorded as (2007b) in the bibliography and footnotes henceforth.

Outline of Pyrrhonism.[61] Allen's earlier work on sign-inference, the landmark *Inference from Signs: Ancient Debates about the Nature of Evidence* (2001), is indispensable to my analysis of Sextus' work, illuminating, as it does, the internal contradictions which arise from the disunity of his identities – his professional persona, 'Sextus the Physician/Sextus the Empiricist', and the persona under which he writes the *Outlines of Pyrrhonism* and *Against the Mathematicians*, 'Sextus the Philosopher/Sextus the Pyrrhonist'. In chapter **V**, I further explore the boundary between these identities, with Allen's (2001) text as my initial guide.

0.5. A note on Galen

Antiquity's most prolific medical writer – if not its single most prolific contributor – has an ancillary role in this thesis. Though Galen has much to impart on the relationship between medicine and philosophy, to incorporate his disquisitions on this subject into my thesis would be to expand its parameters beyond the optimal dimensions of inquiry. Galen's principal philosophical influences – his Aristotelian element theory, his Platonic psychology[62] – will be touched upon in this thesis; understanding Galen's philosophical inclinations is integral to the process of navigating around the distortive proclivities that complicate his value as a source for oppositional theories. But they are supplementary to my purpose. I constrain my analysis to the medical adoption/adaptation/accommodation of the philosophical schools that emerged during the Hellenistic period of antiquity – the Stoics, the Epicureans and the Pyrrhonian sceptics. To the extent that Galen was engaged with these schools, the tenor of that engagement was (for the most part) oppositional. The limits I impose on the scope of my inquiry, motivated, as set out in **0.1**, by the therapeutic dimension that unites the schools in question, have the secondary advantage of narrowing my focus to doctors who – at least, until very recently – have received comparatively little scholarly attention. Galen, owing to the fertility of his bibliography, is perhaps too frequently regarded as representative of post-Hippocratic, Graeco-Roman medicine as a whole, at the expense of his contemporaries and physicians of generations prior. I use Galen in my research for his value as a commentator on the medical schools and practitioners on whom my focus falls.

---

[61] S. E. *PH* I.236-241.

[62] For Galen and Aristotle see **III.2.1.2**. For Galen and Plato see **III.5.**

0.6 Summary

In the following thesis, I examine the juxtaposition, in antiquity, of philosophy-as-therapy and the medical τέχνη *per se*, of administrations to the soul, conveyed by language, and administration to the body, imparted through practical therapeutics. Exploring this juxtaposition confines my thesis to under-researched territory along two vectors. The first: in the case of Athenaeus and Asclepiades, the relevant physicians and their schools have garnered comparatively little scholarly attention. The second: to the extent that these physicians have been explored, the mechanisms by which they defined themselves *against* what I shall henceforth refer to as their 'mother-doctrines' – the philosophies to which they owed a conspicuous intellectual debt – and their motivations for employing those mechanisms, have received limited attention. As for the Pyrrhonian Empiricists, I hope to bring the complexities of the Pyrrhonist-Empiricist relationship into sharper relief, to demonstrate not only the extent to which the medical and philosophical schools became entwined, but how the coherence of this intellectual alliance depended on the enforcement of rigid disciplinary distinctions – that is, on the integrity of the boundary between one's technical and one's philosophical pursuits.

*

I

Stoic Cosmobiology

On the moral value of organic cosmology

*

I.0 The purpose of this chapter is to delineate the ontological character of the human body/soul duality in early Stoic philosophy. My intentions are as follows; 1) to present the physical ideas whose medical application I explore in chapter **III** in their original, philosophical context; 2) to foreground the centrality of human psychophysiology to all three branches of Stoic philosophy – ethics, physics, logic – in order to appropriately frame our inquiry into why Stoic doctrine, in its medical application, is disconnected from its heritage. I lay the foundations for the following question. Given how the nature of the body/soul duality is integral to the structure and behaviour of the Stoic cosmos as a whole – a behaviour that imparted to the Stoic sage his τέλος[1] – why did Stoicism only have a life within the medical sphere in a limited and rebranded form? Why are there no Stoic doctors, who might constrain their epistemological ambit according to medical necessity in a technical/professional context, but otherwise embrace the philosophy that underpins their theory?

In light of their absence, I will examine what it means to incorporate human psychophysiology into every component of *a philosophy,* and how the explanatory potential of the body to philosophy engenders a holistic understanding of the body/soul duality apropos of its environment which, though it may furnish the doctor with the underlying structure of a theory of health, may also, on contact with the practical realities of medicine, require reconfiguration. Stoicism sets its sights on boundary disintegration. The closer one comes to achieving virtue (ἀρετή, identified with εὐδαιμονία), the more one is dissolved into a greater organism. While Stoic physics, as we will see, is fertile enough to

[1] Plut. *St. Rep.* 1035 C-D (LS 60 A), quoting Chrysippus' *Physical postulates*: 'There is no other or more appropriate way of approaching the theory of good and bad things or the virtues or happiness than from universal nature and from the administration of the world…for the theory of good and bad things must be attached to these, since there is no other starting point or reference for them that is better, and physical speculation is to be adopted for no other purpose than for the differentiation of good and bad things.' For an overview of Stoic ethics, including its Aristotelian influence as expressed in its teleological structure, see Inwood & Donini (1999) p.675-73 esp.684-687. A more focused account of teleology in Stoicism can be found in Striker (1996) p.221-280. For a Stoic definition of τέλος, see Stob. 2.77,16-27 (LS 63 A).

accommodate the medical τέχνη – that is, sufficiently abundant to allow internal, technical epistemologies to take root – Stoicism *per se* is fixated on 'the whole', the entity whose perfection accounts for its status as the moral paradigm. In anticipation of chapter **III**, we must consider how, in light of this distinction between ethics-oriented 'cosmobiology' – the attribution of human characteristics to the cosmos in order to facilitate an instructive relationship between nature and its myriad reflections – and the doctor's more immediate τέλος, it might profit the physician to distance his profession from the philosophy to which he is indebted, even if, in this case, he finds little in the physics of the mother-doctrine to be directly in contention with his craft.

Concerning the structure of this chapter, in contextualising the body/soul duality in Stoicism it is necessary to begin by examining the qualitative nature of the totality – with all its psychophysiological peculiarities – before narrowing our focus to the individual human body, and individual human soul, within the context of the whole. **I.3-5** comprise an analysis of physiology in Stoic physics. **I.3** deals with the principles, **I.4** the whole, and **I.5** the ontological character of the human body/soul duality. In service to my argument that, for the Stoics, exploring human physiology was a means to a cosmological, theological, and ultimately ethical end, it is important to consider how, and to what extent successfully, the Stoics contrived to demarcate the discrete human aggregate within a cosmos that was physically analogous to, and could therefore theoretically be summarised by, the human microcosm. **I.1** is an introduction to Athenaeus of Attalia, physician and founder of the Pneumatist school whose theory was derived from Stoic physics. **I.2** is an overview of our evidence concerning early Stoicism. Concerning the omission, in this chapter, of details which the reader will think pertinent to this thesis, though aspects of the Stoic causal theory will be touched on in this chapter, a more detailed exposition of causality in Stoicism is withheld until chapter **III.4** where we will examine it in tandem with its medical elaboration. Our analysis of medical analogy in Chrysippus' *On Affections* is withheld until **III.5**.

I.1 Athenaeus of Attalia

The following exposition is constrained by the nature of Stoicism's adaptation into medicine. Stoic doctrine finds its way into the medical sphere via the theory of Athenaeus of Attalia, founder of Pneumatist sect. Though an in-depth analysis of

the boundary between Stoicism and Pneumatism awaits us in **III**, a brief introduction to the doctor and his school will clarify the tenor of this chapter.

A Greek physician standardly believed to have established his school in the latter half of the first century BC,[2] Athenaeus' influence is inadequately reflected in the attention he has received in modern scholarship; greater academic interest has been dissuaded by the relative paucity of testimonia for Athenaeus and his school.[3] We know nothing of Athenaeus' life save for his birthplace in Attalia, a town in the ancient region of Cilicia in southern Asia Minor, and that he was, according to Galen, a pupil of Posidonius of Apamea, the most prominent Stoic philosopher of the period.[4] The connection between Athenaeus and the Stoics is explicitly attested by Galen in *De causis continentibus* (*CC*), wherein Galen asserts that Athenaeus' preference for discussing diseases in terms of their 'sustaining' or 'cohesive' causes (αἴτια συνεκτικά, see esp. **III.4.2**), resulted from his having based his theory of disease on Stoic doctrine and studied with its most significant contemporary exponent.[5]

As a Rationalist who developed his medical theory from Stoic precedents, physical theory was integral to the exposition of medicine as he conceived it; the importance of physics to his conception of his art is attested in a passage from the pseudo-Galenic *Introductio sive medicus* (*Int.*). In this text, Athenaeus is reported to have claimed that the starting point of the exposition of medicine – of instruction as to its practices and their appropriate justification – is physical theory (ἡ φυσικὴ θεωρία).[6] The theory undergirding Athenaeus' medical exposition was

[2] This estimation is based on Galen's account in *CC.* 2. Kudlien (1962) argues for the dating of Athenaeus derived from this account. Flemming (2012) p.75-76 provides a more recent defence of the dates derived from *CC* 2. An alternative dating, now largely discredited, placing the establishment of the Pneumatist school in the early years of the Roman Principate, is argued for in Smith (1979) p.230-233 (particularly p.230, n.72), derived from Wellmann (1895).

[3] See **III.1.1** for an overview of the evidence for Athenaeus and Pneumatism.

[4] Gal. *CC* 2. Galen's testimony, which we should note is preserved only in later Arabic and Latin translations, does not explicitly specify that the Posidonius of whom Athenaeus was a 'pupil and a disciple' is *the* Posidonius of Apamea, but the context in which he is mentioned makes this conclusion a natural one. Athenaeus was *conversatus* with Posidonius in Niccolò de Reggio's Latin translation of the Arabic [*CMG Suppl. Or.* II. 134.3-6], indicating that he had a direct, personal relationship with the Stoic philosopher. As Flemming (2012) p.75 points out, the proximity of Attalia to Rhodes, where Posidonius was established from the beginning of the first century BC, lends plausibility to the claim that Athenaeus studied with him personally for a period of time in the early part of the first century BC, rather than him having been acquainted with Posidonius' teachings through his works as suggested in Smith (1979) p.230-233 and later Nutton (2013) p.207-208.

[5] Gal. *CC* 2

[6] ps.-Gal. *Int.* 2.1. (= XIV.676-678 K.). The author proceeds to outline the justification advanced generically by the Rationalists for grounding their medical theory in natural philosophy: only by understanding what

a blend of Stoic physics and the traditions of Rationalist medicine; he developed a theory of health and disease that combined the Stoic doctrines of four element theory (**I.3.5**), sustaining causes (**III.4.1**), through-and-through coextension (**I.3.7**) and pneumatic tension (**I.5.1**) with what was, by the first century BC, the well-worn assumption that physical health resulted from the salutary equilibrium of internal bodily elements or qualities which were sensitive to environmental changes and could be rebalanced with a doctor's guiding hand.[7]

For the purposes of medical inquiry, Athenaeus proposed that the body be analysed into hot, cold, wet and dry qualities. These, to quote the definition attributed to him in the pseudo Galenic *Definitiones Medicae* (*Def. Med.*), are 'the first, apparent, simplest and least things from which a human being has been put together, and the last, apparent, simplest and least into which [the human body] has its resolution'.[8] In addition, he was an exponent of the Stoic theory of πνεῦμα (**I.3.8**-**9**, **I.5**) as the creative-cohesive substance (**I.3.5**,**8**), characterised by its tension (ἕξις, **I.5.1**), which penetrates the cosmos in its entirety and 'by which everything is held together and regulated'.[9] πνεῦμα is the mediator of health and disease in Athenaeus' theory; it pervades the human body through-and-through (**I.3.7**) and acts upon each of its parts directly.[10] The physical states which emerge from its agency are susceptible to the influence of qualitative alterations in both the external environment, such as changes in temperature, and within the composition of the body, such as those brought about by drugs or venom.[11] Any

---

is in accordance with nature can a doctor understand what is contrary to it. A reliable physical doctrine is required against which any deviations from a desired norm can be recognised and, in accordance with which, measures can be taken to re-establish equilibrium. It is unclear whether the author is drawing specifically on Athenaeus in his summary of the Rationalist position, but the structure of the passage leaves this possibility open. The importance of physical theory to Athenaeus' approach to medicine is nevertheless unambiguously attested; he was a doctor who understood medicine to be a process which one developed from the germ of natural law.

[7] This model, as we shall see at **III.5** below, is also prefigured in Chrysippus' conception of psychological health. Indeed, as we shall see, the 'well-worn assumptions of Rationalist medicine' are already present in Stoicism's therapeutic orientation. They are applied, however, to psychological, rather than physiological pathologies. I will argue in **III.5** that the analogy Chrysippus draws between philosophy and medicine is dependent on the structural parallelism of physical and bodily health in Stoic physics, a consequence of the Stoic conception of harmony, self-similarity and mutual coextension.

[8] ps.-Gal. *Def. Med.* 31 (= XIX.356 K.): 'τίνα ἐστὶ τῆς ἰατρικῆς στοιχεῖα; στοιχεῖά ἐστι τῆς ἰατρικῆς, ὡς τινὲς τῶν ἀρχαίων ὑπέλαβον, τὸ θερμὸν καὶ τὸ ψυχρὸν καὶ τὸ ὑγρὸν καὶ τὸ ξηρόν, ἐξ ὧν πρώτων φαινομένων καὶ ἁπλουστάτων καὶ ἐλαχίστων ὁ ἄνθρωπος συνέστηκε καὶ εἰς <ἃ> ἔσχατα φαινόμενα καὶ ἁπλούστατα καὶ ἐλάχιστα τὴν ἀνάλυσιν λαμβάνει.'

[9] ps.-Gal. *Int.* 9.5 (= XIV.698 K.): '…ὑφ' οὗ τὰ πάντα καὶ συνέχεσθαι καὶ διοικεῖσθαι.'

[10] Gal. *CC* 2; ps.-Gal. *Int.* 9.6. (= XIV.699 K.).

[11] Gal. *CC* 2.

of the four qualities – the hot, the cold, the wet and the dry – could have an ultimately deleterious effect upon the body's health if their excess or deficit, induced by changes originating within or without the human body, upsets the body's natural, salutary, qualitative equilibrium.[12] Such an imbalance impairs the quality of the body's πνεῦμα which, owing to its presence in every part of the body, manifests as disease.[13] Disease is therefore the ultimate condition in a sequence of (sometimes overlapping) events whose causal relationship required systematic classification. Athenaeus posited a three-part system for classifying causes in medicine which, as we shall see (**III.4**), owes a substantial intellectual debt to the Stoic analysis of causality.[14] These are the cohesive/sustaining cause (αἴτιον συνεκτικόν), the antecedent cause (αἴτιον προκαταρκτικόν), and the 'preceding' cause (αἴτιον προηγούμενον).[15] As this is the area where Athenaeus is, I will argue, most innovative, and also the area where we are most reliant upon Athenaean testimonia in our reconstruction of the original Stoic doctrine, the taxonomy of causes in Athenaeus' theory of disease and its Stoic precedent are dealt with separately in chapter **III**.

What I wish to foreground at the outset of this chapter is the anti-cosmological nature of Athenaeus' element theory. Where the Stoics analysed the cosmos into the traditional elemental substances: fire, air, earth and water, Athenaeus concerned himself only with the elemental qualities: the hot, the cold, the wet and the dry.[16] I will argue at **III.2** that Athenaeus did not propose an alternative element theory to rival that of Stoic physics, but instead constrained his epistemological ambit to that which was germane to medical inquiry. His insistence that the body be discussed in terms of qualities, not substances, indicates that he was moved to enforce the boundary of his discipline, to insulate himself, his school and his τέχνη from the philosophy to which he owed a debt. It is in considering the motivation behind Athenaeus' enforcement of medicine's epistemological perimeter that it becomes necessary to understand not only the physiological character of Stoic cosmology – which may, in the first instance, have contributed to its medical appeal – but the philosophical – and more

[12] Gal. *CC* 2.
[13] *Ibid.*
[14] *Ibid.*
[15] *Ibid.*
[16] e.g. ps.-Gal. *Int.* 9.5 (= XIV.698 K.); Gal. *Hipp. Elem.* 6.1.

particularly, the *ethical* – character of Stoic physiology, which may underly the physician's inclination to autonomise his profession, to emancipate Stoicising medicine from its obligations to the mother-doctrine. We must understand how Stoicism's τέλος prefigures the school's conception of the body/soul duality in order to understand how medicine's τέλος prefigures Pneumatism's retreat from the origins and wider context of its theory. Natural though it may have seemed to analogise Stoicism's ethical project to the τέλος of the medical art (**III.5**),[17] philosophers are not doctors; doctors are not philosophers.[18] Their divergent goals constrain the breadth and character of their inquiry. Where instances of overlap occur, in the case of doctrinaire Hellenistic philosophy, their actions are instrumental to the realisation of 'correlatively affinitive', but ultimately distinct τέλη.

I.2 Background and evidence

Founded in Athens by Zeno of Citium in the final years of the fourth century BC and named for the Painted Colonnade (ἡ ποικίλη στοά) on the north side of the agora where their doctrines first found form, the Stoic school remained one of the most influential schools of philosophy throughout the Hellenistic period and later antiquity. Although precedents for the varied aspects of its teachings are many and wide-ranging, the Stoic school, along with its Epicurean rival, is customarily identified with a paradigm shift in western philosophy accelerated by the cultural upheaval that characterised the Hellenistic period; the new model prioritised the subjectivity, status and wellbeing of the individual over the more abstract inquiry into the external world that had typified the practice of natural philosophy from its Presocratic, Milesian roots.[19] The revolution begins with Socrates, but it is in the

[17] As in e.g. Chrysippus at Gal. *PHP* V.2.22-4. See esp. **III.5.2**.

[18] This is true, at least, of doctrinaire philosophers and rationalist doctors. As indicated in my introduction, and we shall see in chapter **V**, the relationship between Pyrrhonism and Empiricism presents us with a different model of the philosophical-medical intersection. But even the case of Sextus Empiricus, foremost among the Pyrrhonian Empiricists, internal contradictions arise from divergent τέλη (see esp. **V.3.1**). I will argue throughout **V** that the Pyrrhonist-Empiricist alliance was facilitated by the disjunction of the Pyrrhonian Empiricist's professional and philosophical identities.

[19] Early twentieth century scholarship made much of this transition. Bevan (1913) p.32 described Stoicism as 'a system put together hastily, violently, to meet a bewildered world.' cf. Wenley (1925) p.vi in which Stoicism is 'a protest rather than a science, an outgrowth of emotional stress rather than of intellectual curiosity.' While such categorisations are grossly insufficient – reflective, as they are, of a long outgrown historical perspective that located the pinnacle of Greek philosophy in the teachings of Plato and Aristotle (see Zeller (1870) p.1, who states this plainly in the first line of his (apologetically written) work *Stoics, Epicureans, and Sceptics*) – scholars of the period were nonetheless correct to identify a causal relationship between the transformation of the Greek world at the end of the fourth century BC and the

Hellenistic period that philosophy acquires its therapeutic peculiarity.[20] Stoicism orients itself towards the question of the correct mode of human behaviour; the philosopher acts in pursuit of εὐδαιμονία, [21] life's intrinsic τέλος. Chrysippus of Soli, the third head of the Stoa and the school's most influential theorist, states expressly that the study of nature is undertaken in pursuit of an ethical ideal.[22] This is not a claim that subordinates the study of physics to the study of ethics; rather, it is a claim that softens the distinction between the philosophy's theoretical and practical/behavioural components, between 'what is' and 'what ought to be expressed through our behaviour'.[23] The cosmobiological justification for this interconnectivity of philosophical pursuits is treated at **I.3-5** below, but we should make clear from the outset that the human being – his/her physical composition and behaviour – pervades Stoic philosophy as the Stoic soul pervades the body. Biological analogy eventually finds its way into the Stoics' presentation of their own philosophical curriculum; Diogenes Laertius reports that the Stoics compared philosophy itself to 'an animal, logic corresponding to bones and sinews, ethics to the fleshier parts, and physics to the soul.'[24]

---

new philosophical emphasis on subjectivity; in light of social transformation engendered in the wake of Alexander's conquest, Hellenistic philosophy orients itself towards the conduct of the individual.

[20] Nussbaum (1994) p.16-24 expounds the distinction between Hellenistic, medicalised ethics and its Platonic precedent.

[21] A word often translated as 'happiness' but understood as a state of activity – *i.e.* happiness-as-verb rather than happiness-as-noun. For the Stoics, this equates to 'living in agreement with nature' (Stob. 2.75, 11-76, 8 (LS 63 B)). The goal-oriented ethical template is formalised in Arist. *NE* I (see **III.3.1**). Where the Stoics part from Aristotle's framework is in their identification of εὐδαιμονία with 'living in agreement with nature' thus conceptualising ethics, *contra* Aristotle, as an 'exact science founded on the nature of the world'. Long & Sedley (1987) p.374. See also Inwood & Donini (1999) p.684-687.

[22] Plut. *St. Rep.* 1035 C-D (LS 60 A). Note that the quotations preserved are taken from Chrysippus' work on *Physical Postulates*. The study of physics is justified in ethical terms in a text which takes physics as its subject. Rather than being parasitical on physics, ethics is in the foundations. Correspondingly, as we shall see in our discussion of Chrysippus' *On Affections* in **III.5**, physics is no mere foundation for Stoic ethics; the two are not so easily distinguished. See further n.24.

[23] Annas (2007) p.58-87 argues against interpreting Stoic physics as foundational to Stoic ethics. Living according to nature, she concludes, is the same thing as living according to virtue in Stoic philosophy, which does not permit us to organise the various philosophical fields in terms of linear dependence.

[24] D. L. VII.40. Trans. Hicks (1925). He continues: 'Another simile they use is that of an egg: the shell is logic, next comes the which, ethics, and the yolk in the centre is physics. Or, again, they liken philosophy to a fertile field: logic being the encircling fence, ethics the crop, physics the soil or the trees. Or, again, to a city strongly walled and governed by reason.'

The various analogies in the list imply conflicting degrees of unity between the three parts of Stoic philosophy, which are probably reflective of the lack of agreement within the Stoic school over its many centuries of existence. The allegorical animal, for example, whose bones and sinews are identified with the logical component, suggests a more central role for logic in Stoic philosophy than the garden or egg analogies in which logic plays the role of the perimeter – arguments advanced in defence of a core philosophy, with a degree of separation from the ideas themselves. Moreover, not all the analogies recorded in D. L. VII. 40 are internally coherent; 'soil' and 'trees', identified with physics in the garden analogy, are synonymised despite seeming to have vastly different implications for the relationship

The influence of Stoicism on the greater architecture of western thought and culture has proven as enduring as it was and is pervasive. Yet despite its reach, and the eclectic nature of the extant testimonia, the picture we construct is far from perfect. We are reliant, for the most part, on peripheral sources, the earliest of which date from the mid-first century BC, roughly two and a half centuries after the Stoic school was founded.[25] With a couple of exceptions, though none themselves fully intact,[26] Stoic texts survive to us only as fragments preserved in much later, typically hostile works, such as those of Plutarch and Galen. The distortive nature of their Stoic expositions must always be respected, but both authors' preference for verbatim quotation has nonetheless made their works invaluable to the historian of Stoic philosophy.[27] We are in want of a sympathetic secondary text - à la Lucretius' *De Rerum Natura* – that demonstrates Stoic physics systematically and argues for its merits; the tenor of our sources ranges from the undisguised hostility of Plutarch to the performative neutrality of Cicero, whose philosophical treatises comprise our earliest accounts of Stoic doctrine. Diogenes Laertius' *Lives,* typically dated to the third century AD, is the latest text which we will frequently cite; its peculiar value derives from the catalogues of the works of the early Stoic philosophers which Diogenes Laertius has preserved, and which enlighten us to both the scope of early Stoicism and the areas to which individual Stoics might have afforded special emphasis.[28] Such considerations are necessary, for there is a paucity of sources that delineate the specific

---

between physics and ethics. Complicating matters further, Sextus Empiricus writes at *M* VII.17-19 that the Stoics identified ethics with the yolk of the egg, and physics with the white, that they identified physics with the height of the crop, and ethics with the yield. Such disagreements in our sources likely reflect those of individual Stoics – Sextus writes at *M* VII.19 that Posidonius (reportedly, recall, Athenaeus' teacher) favoured the animal analogy over that of the garden, for example, on the grounds that it better encapsulated the unity of the parts. I would suggest that the disagreements pertaining to the relative prominence of the parts in these analogies (or the order in which the philosophy should be taught (D. L. VII.40-41)) speak to the extent to which the branches were entangled; attempts to identify the *limits* of each part and communicate them by analogy arrived at no definitive image. In the case of physics and ethics, at least, the branches, rather appropriately (e.g. **I.3.7**), are coextensive. For this holistic conception of Stoic philosophy and its parts, see Annas (2007) p.58-87. The question of the unity of Stoic physics, ethics and logic as depicted in D.L.39-51 and S. E. *M* 17-19 is also touched upon in Inwood (2012) p.231-233.

[25] Mansfeld (1999) p.6-13.

[26] The verses of Cleanthes have fared better than most. The longest of the verses is the *Hymn to Zeus,* preserved in Stobaeus *SVF* 1.537, cf. Epict. *SVF* 1.527, Clement *SVF* 1.557, 550. We also have part of Chrysippus' *Logical Investigations* (*P. Herc.* 307) preserved in the library at Herculaneum.

[27] This is particularly true of Galen's *On the Doctrines of Plato and Hippocrates* (*PHP*), whose value as a source for Chrysippus' philosophy of mind will be explored in chapter **III.5**.

[28] Though unfortunately these are not always complete; the bibliography of Chrysippus, for example, breaks off half-way due to damage to the source text from which the extant manuscripts derive. See Mansfeld (1999) p.6.

innovations of each of the three heads of the Stoa in the third century BC. Where distinctions can be made between the doctrines of the three originators of Stoic thought I shall endeavour to make them, for it would appear that the anthropomorphisation of Stoic cosmology was a process that developed in sophistication over the course of the school's inaugural century, with each head of the Stoa contributing something towards its realisation.[29] More specific textual problems will be treated as they become relevant to the discussion. In summary, we are left to reassemble Stoic cosmology from the peripheries, a practice with intrinsic limitations one would be remis not to acknowledge from the outset.[30]

I.3 Mixture and self-similarity in Stoic physics

We begin our investigation into the physiological peculiarity of Stoic cosmology with an analysis of its underlying principles. Mixture and self-similarity are the focus of this section. My thesis, with respect to these properties, is twofold. 1) the discontinuity of Pneumatism and Stoicism is explained by disparities in breadth of focus. Stoicism, with its ethical orientation, is fixated on the structure and behaviour of the whole. But what emerges from its doctrines is a system of micro-harmonies, each reflective of the whole, evident at different scales and across different locations, in whose gravity one may delineate a technical epistemology. It is, however, for the specialist to determine the epistemic ambit of his craft (see esp. **III.2-3**). I will argue in **III** that the branding of Stoicising medicine as 'Pneumatism' is an effort to consider Stoic physics independently of Stoic ethics, however 2) because of Stoicism's self-similarity, Athenaeus' theory of health is 'correlatively affinitive'[31] with the physical expression of Stoicism's ethical τέλος (see **III.5**). This physical parallelism, I will argue throughout chapters **I-IV**, is partially responsible for Stoicism's relatively frictionless filtration into the medical

[29] We trace the evolution of this process in **I.4** below.

[30] In keeping with the theme of holism in Stoic philosophy, Erskine (1990) p.4-5 makes the point that the interrelatedness of the various branches of philosophy in Stoicism is a boon to the historian seeking to reconstruct Stoic thought from any point in the greater architecture of their philosophy, as their political thought, to take the focus of Erskine's work as an example, must be consistent with what we can assemble of their physical and cosmological doctrines, which must in turn cohere with Stoic ethics etc. Theoretically, at least, the holism of Stoic philosophy should make each recovered piece of information relevant to the philosophy as a whole.

[31] De Lacy's (1976) translation of ἀντιπαρατείνουσα οἰκειότης at Gal. *PHP* V.2.22-24 in which Chrysippus' justification for his use of medical analogy in *On Affections* is quoted. See **III.5** and esp. **III.5.2** for how Chrysippus employs this analogy.

τέχνη, as a comparison with Epicureanism's adaptation into medicine will illuminate (see esp. **II.5**).

I.3.1 Harmony

The Stoic cosmos was celebrated by its adherents and admirers for the coherence of its parts. The Stoic aspiration was to exemplify cosmological harmony in microcosm, identified with perfect reason, which is in turn identified with virtue (ἀρετή).[32] When Cicero, drawing on the Stoics, writes in the fourth book of the *Tusculan Disputations* (*Tusc.*) that 'virtue is an equable and harmonious disposition of the soul…best summed up as right reason', and that 'viciousness' (*vitiositas*) is its antithesis, the root-cause of psychological disturbance, his presentation of internal harmony requires a physical component to be intelligible.[33] Reason, for the Stoics, is a physical thing. To embody it is to marry the physical disposition of one's soul to that the macrocosm, the whole – to 'live in agreement with nature', a process Zeno identified in his work *On the Nature of Man* with 'living in accordance with virtue'.[34] Cicero's pathologizing of psychological disharmony in *Tusc.* IV.XV.34-35 echoes an analogy Zeno reportedly drew between diseases of the body and soul – both arise from disproportion, the root-cause of all manifest imperfections;[35] weakness, softness, ugliness, ill-health and the unsettled soul, all emerge from disproportionality, whose negative connotation results from its status as a deviation from what is exemplified by the whole.

Two points, though obvious, must be made at the outset. The first is that the goal of 'living in agreement with nature' is only tenable if human psychological processes are such that they can harmonise with comparable transformations integral to the behaviour of the whole. A psychological – which is to say, an active, physical – link between the human and the cosmos is assumed.[36] The second is

---

[32] Stob. 2.75, 11-76. 8 (LS 63 B); D. L. VII.87-9 for the identification of 'living in agreement with nature' with the Stoic τέλος. Sen. *Ep.* 76.9-10 (LS 63 D) for the identification of reason with virtue. See also Plut. *St. Rep* 1050F, 1051A (LS 61 R) in which Chrysippus is quoted as explaining vice as a deviation from the rationale of nature.

[33] Cic. *Tusc.* IV.XV.34-35 trans. King (1945).

[34] D. L. VII.87.

[35] Gal. *PHP* V.231-33. Here, Galen quotes Chrysippus quoting Zeno. The passage is revisited in more depth at **III.2.2** and **III.5.3.1**.

[36] Sen. *Ep.* 124.13-14 (LS 60 H) distinguishes man and God/the cosmos in two ways. 1) God is immortal. 2) God's perfection is a natural occurrence; man strives for perfection via practice, but he can emulate natural perfection because his psychological composition is sufficiently intricate to harmonise with that

that harmony itself provides the Stoic philosopher with his τέλος.[37] To embody reason is to embody harmony; to harmonise with the cosmos is to mirror its structural and behavioural concinnity in the disposition of one's soul. Just as virtue is a physical disposition, nature is the moral paradigm.

Harmony is predicated on the idea that every part of a superior phenomenon is dependent on, and augmented by, its relationship to every other constituent. The harmony of the parts ensures the integrity and moral-aesthetic value of the whole. Micro-harmonies can be delineated within the cosmos – the Stoics associated wisdom with a love for music and literature[38] – but their value, such as it is,[39] lies in their aesthetic affinity with the perfection of the whole. The human body and soul can never be understood separately from the environment in which they are parts in Stoic physics; they exist in service to the preservation, and simultaneously to the accentuation, of a greater structural cohesion.[40] As we shall see, the unity of the human aggregate and his/her environment is consequent of the physical properties which he/she shares with the natural world, properties

---

of the whole. Plants and animals, the two lower forms of life in Stoic psychophysiology, lack the appropriate complexity. See **I.5.2** below.

[37] Cic. *Fin.* 3.21: 'Man's first attraction is towards the things in accordance with nature; but as soon as he has understanding, or rather becomes capable of 'conception' – in Stoic phraseology ἔννοια – and has discerned the order and so to speak harmony that governs conduct, he thereupon esteems harmony far more highly than all the things for which he originally felt an affection, and by exercise of intelligence and reason infers the conclusion that herein resides the Chief Good of man, the thing that is praiseworthy and desirable for its own sake'. Trans Rackham (1911). In the quotation of Cleanthes at Clem. *Protr.* 6.72.2 (LS 60 Q), the first adjective Cleanthes uses to describe the good is τεταγμένον, 'well-ordered'. Stob. 2.66, 14-67, 4 (LS 61 G) reports that the Stoics compared the behaviour of the Stoic sage to the playing of the flute or lyre by an accomplished musician. As long & Sedley (1987) p.383 point out in their brief commentary on this source, the Stoics demonstrate their debt to Plato in their treatment of virtue as an expertise concerned with the whole of life as professional pursuits embody the same process, only more narrowly defined. The musical analogy seems to have particular relevance to the Stoic's pursuit of a harmonious psychological disposition. When Stobaeus goes on to write (2.67, 5-12 (LS 26 H)) that the Stoics say that 'only the wise man is a lover of music and literature etc.', the implication is that professional/artistic pursuits embody the Stoic pursuit of ἀρετή in microcosm, with music and literature being concerned with realising an aesthetic τέλος that is somehow correspondent to the natural order.

[38] Stob. 2.67,5-12 (LS 26 H).

[39] Asserting that micro-harmonies – that is, localised occurrences of 'agreement with nature' – have value at all in Stoicism is potentially problematic. They belong – at least, in orthodox Stoicism (cf. S. E. *M* XI.65-67) – to the category of 'preferred indifferents' (D. L. VII.101-103; Stob. 2.79,18-80; 82,20-1 (LS 58 C)). They are not essential to the attainment of ἀρετή (D. L. VII.103, 128, concerning Posidonius, is an anomaly) but are ascribed 'value' – *i.e.* the status of being preferential – on the basis of their accordance with the whole (e.g. Stob. 2.83,10-84,2; 2.84,18-85, 11 (LS 58 D-E). See further **I.5.3** and **III.3.3** for the – I think, significant – implications for the Stoic analysis of indifferents on Stoicism's medical adaptation.

[40] Cic. *ND* II.37 – 'For as Chrysippus cleverly put it…man himself…came into existence for the purpose of contemplating and imitating the world.' Trans. Rackham (1911). See **I.4.4** below.

which permeate the cosmos in its entirety. We begin with the principles into which 'the whole' can be resolved.

I.3.2 Corporeality[41]

For the Stoics, existence is bodily.[42] Body (σῶμα) is defined as 'that which has threefold extension, together with resistance.'[43] This is the traditional mathematical definition of body, recalling Aristotle's definition of body as 'that which is bounded by surfaces',[44] supplemented with the additional criterion 'with resistance' (μετὰ ἀντιτυπίας), which marries the geometrical definition to that which indicates the power to interact.[45] This property is fundamental. Body, for the Stoics, is anything 'capable of acting, or being acted upon.'[46] This definition is an inversion of a well-known anti-corporealist argument of Plato, proposed in the *Sophist*.[47] Plato argued that 'being' was predicated on an entity's capacity to act or be acted upon.[48] That justice and wisdom are observed, through their effects, to act upon the soul lead Plato to conclude that corporeality could not be an essential criterion for being.[49] The Stoics accepted Plato's definition, but insisted that 'the incorporeal is not of a nature either to act or to be acted upon.'[50] Physical expressions of psychological transformations, such as the body's capacity to redden with shame or turn pale with fear, are advanced in defence of the corporeality of psychological functions.[51] Since virtue and justice are dispositions of the soul, evident through one's interactions with one's peers and

---

[41] With respect to Stoic physics, a distinction has been made in recent scholarship between 'corporealism' and 'materialism' and works which treat these terms as synonymous have been criticise for offering only a partial reconstruction of the Stoic system. See Gourinat (2009) p.46-47. References to 'corporealism' with be applied preferentially throughout this thesis.

[42] See Brunschwig (1994) p.92-157 for a comprehensive analysis of Stoic ontology, including the enduring relationship between 'existents' and 'subsistents' throughout the history of the school. Both belong to the genus 'Something' – subsistents, though incorporeal, satisfy the criterion of reality –, but 'something' is an 'existent' only if it is a body. The four incorporeal subsistents (see further **I.3.4**) standardly acknowledged by Stoic ontology – place, void, time, and the λεκτόν – need not distract us too greatly for the time being, though we will have something to say about 'place' and 'void' shortly below at **I.3.4**, and λεκτά at **I.5.4**. Sedley (1999) p.395-402 provides a succinct analysis of how the Stoics conceived of incorporeal 'subsistence' is a corporeal cosmos. For an overview of λεκτά, see Schenkeveld & Barnes (1999) p.197-213.

[43] Ps.-Gal. *Qual. Inc.* 19.483, 13-16 (LS 45 F). Cf. D. L. VII.135.

[44] Arist. *Met.* XI.1066b.

[45] Hahm (1977) p.10-11.

[46] Cic. *Acad.* 1.39 (LS 45 A). Cf. S. E. *M* VIII.263; Nemes. 81, 6-10 (LS 45 C).

[47] Sharples (1996) p.33-34.

[48] Plato *Soph.* 247e1.

[49] *Ibid.* 247d-e.

[50] S. E. *M* VIII.263.

[51] Nemes. 81, 6-10 (LS 45 C).

broader environment,[52] they must be corporeal. The distinction we intuit between abstractions and tangible bodies evaporates when we consider how Stoicism regards every nominally discrete component of the cosmos to be a disposition of ψυχή, of the cosmic soul (**I.4**).

I.3.3 Continuum

The Stoic cosmos is a structural and material continuum. It is infinitely divisible and contains no interior limits outside the realm of thought.[53] What constitutes a part in such a system is not intuitive. Chrysippus reportedly wrote in *On Motion* that while the world is complete body, 'the parts of the world are not complete because they are disposed in certain ways relative to the whole and are not *per se.*'[54] The conception of part as defined by its limit is replaced by the ontological classification of disposition relative to that of the whole. Boundaries are constructs in thought.[55] Plutarch, in *On common conceptions*, objects to this counter-intuitive doctrine. He asks how it can 'fail to be self-evident that man consists of more parts that man's finger, and the world than man?' then indicates the Stoics as the only faction who maintain that 'man does not consist of more parts than his finger, nor the world than man.'[56] Plutarch's polemic conflates the absence of 'complete parts' in Stoic ontology with the Stoic theory of mixture,[57] blurring the distinction not merely between part and part but between part and the whole. His choice of 'man' as the microcosm is not arbitrary, however; as we have already seen and

---

[52] D. L. VII.53, 89; Plut. *Virt. mor.* 440E-441D (LS 61 B).

[53] Stob. I.142, 2-6 (LS 50 A); Proc. *In. Eucl. El. I* 89, 15-18 (LS 50 D). Thought constructs appear to be external to the corporeal-incorporeal dichotomy that otherwise defines Stoic ontology. They belong, therefore, to the genus 'Not Something'. See Brunschwig (1994) p.92-157, esp. 95-104. Seneca *Ep.* 58.12-15 (LS 27 A) attributes to the Stoics the idea that non-existents 'such as Centaurs, giants, and whatever else falsely formed by thought takes on some image despite lacking substance' are included within nature. If we take the view that limits are imaginary rather than incorporeals as Plutarch (*Comm. not.* 1078E-1080E (LS 27 C)) suggests then limits can be likened to fanciful constructions developing cladistically from sense-reality.

In the Chrysippean cosmos, examined at **I.4.4** and **I.5** below, the question of limits is more complex. Heterogeneity of tenor (ἕξις, **I.5.I** below) may account for a certain type of limit in Stoic ontology: that between objectively discrete parts. The mind, however, is free to wander beyond the structures of objective cosmophysiology and make imaginary parts of whatever it chooses; said parts are deprived of their corporeality by the structural nature of the continuum. Scade (2013) p.82-87 makes this distinction. It is worth noting, however, that the providential nature of the Stoic cosmos and the all-penetrative nature of the rational principle (**I.3.5**-**8**) would seem to make rationality ontologically prior to heterogeneous tensile dispositions of πνεῦμα. Tensile boundaries are ultimately the thought constructs of the Stoic God, expressed in motion.

[54] Plut. *St. Rep.* 1054E-F (LS 29 D).

[55] See *supra* n.53.

[56] Plut. *Comm. not.* 1078E-1080E (LS 50 C). See S. E. *M* XI.22-6 for a more measured account of the Stoic conception of the relationship between parts and wholes.

[57] See below **I.3.5.**

will continue to see, there is plenty in Stoic cosmology that permits this macro-microcosm parity. It is not a confusion of boundaries but a thoughtfully constructed self-similarity of constitution and behaviour. The absence of internal limits assists in the realisation of this symmetry.[58]

The properties of the Stoic (specifically, the Chrysippean) cosmos that allow for internal heterogeneity will be expounded at **I.5**. For now, we note that Stoic ontology distinguishes three kinds of body in a material continuum. These are bodies comprised of separate elements which act as a singular entity such as an army or a fleet, bodies comprised of contiguous parts such as a house or a ship, and unified bodies such as sticks and stones of which organic entities, heterogeneously qualified yet sprung from a singular seed, are a subset.[59] Note that, on Chrysippus' reasoning, unified bodies inside the cosmos are not themselves complete; their claim to being unified is contingent on their disposition relative to the unified whole.[60]

I.3.4 Void and Place

Void provides the cosmos – the whole relative to which discrete entities are 'parts' by disposition – with its external boundary. The perfection of the entity depends upon its finitude; the corporeality of the cosmos is juxtaposed against the incorporeality of its τόπος. In their facilitation of cosmic behaviour, void and place are integral components of the All – *i.e*. the cosmos and environs – but do not act and are not acted upon.[61] The Greek astronomer Cleomedes, reporting Stoic orthodoxy, writes of void and place as states of 'subsistence', an ontological category distinct from 'existence'. [62] They are incorporeal 'somethings'. 'Void' describes that which can be occupied by body, where 'place' is the name given to occupied void.[63] They represent the emptiness into which, and back from which, the cosmos expanded and contracted periodically.[64] Void extends without

[58] The removal of internal boundaries makes human behaviour a disposition of the whole, not a facsimile of it. To perfect logic, for example, is not to *mimic* the rationality of nature in speech but to *embody* it. See Amm. *In Ar. An. pr.* 7.19 (LS 26 E) for the Stoic's rejection of the conception of logic as instrumental, which I am suggesting is born of this self-similarity.
[59] Plut. *Con. Praec. SVF* 2.366. Long (1982) p.37-38.
[60] Plut. *St. Rep.* 1054E-F (LS 29 D).
[61] Sedley (1999) p.397. S. E. *M* IX.332 for the distinction between 'whole' and 'all', that which prevents 'cosmos' from being synonymous with the modern conception of 'the universe'. The principle distinction is that the former has structure, the latter, being indeterminate, has not. See Scade (2013) p.87-88.
[62] Cleom. *Cael.* I.1.20-24. See Bowen & Todd (2004) p.23, n.12.
[63] S. E. *M* X.3-4 *i.e.* void is potential place, place potential void.
[64] See below **I.3.10.**

limit in every direction from the cosmos since Stoic physics permits no other substance to delineate its boundary.[65] The cosmos is the singular body.

I.3.5 Principles

Body can be analysed into two conceptually distinct but physically inseparable principles (ἀρχαί): the active and the passive, God and matter, soul and body.**[66]** No straightforward Stoic definition of ἀρχαί is extant but we know that their properties of being ungenerated, indestructible and without form distinguished them from the 'elements' (στοιχεῖα) in Stoic ontology – from fire, air, water and earth**.**[67]

I.3.6 Permanence

Sense-impressions result from the activity of these binary, basic, corporeal, indestructible determinants. Impressions of generation and destruction are no more than that. By the Hellenistic period, a consensus had emerged among doctrinaire philosophers that 'nothing either comes to be out of nothing or perishes into nothing.'[68] Generation and destruction are misclassifications of recombination; '…birth arises out of existing things and passes away into what exists because it is bounded by things which abide as immortals…that by which

---

[65] Cleom. *Cael.* I.1.112-123.

[66] D. L. VII.134. See **I.4** for the soul-bod dichotomy. 'God' is also identified with reason (λόγος) in D. L. VII.134. Sedley (2002) p.41-83 remains the most thorough exposition of the nature and origin of the Stoic conception of God.

[67] D. L. VII.134. For the elements, see *Ibid.* VII.137; Stob. I.129, 2-130, 13 (LS 47 A). By adhering to this conception of the elements, the Stoics locate themselves in a tradition in ancient physics that started with Empedocles and included both Plato and Aristotle. That the elements are not 'elemental' – that is, not *fundamental* – locates Stoic ontology within a contemporary orthodoxy. Aristotle introduced 'matter' (ὕλη), the unqualified universal substrate, into the domain of natural philosophy (e.g. Aris. *Met.* 8.1042a). Plato distinguished the four elements (each a matrix of convex polyhedra, resolvable into triangles) from their first cause, the providential demiurge (Plat. *Tim.* 53-57. See Gourinat (2009) p.49.). The elemental substrate is variously referred to as the 'receptacle' (ὑποδοχή, Plat. *Tim.* 49a, 51a) of the first cause or as a malleable substance (ἐκμαγεῖον, Plat. *Tim.* 51a) awaiting impression (see Sedley (2002) p.55). In a parallel tradition, Democritean atomism would have fire, air, water and earth reduced to sense impressions sprung from the groupings and collisions of primitive corpuscles. Positing sub-elemental principles, be their transformations mechanistically or intelligently ordained, is a common property of classical Greek thought, one that binds all discrete entities together at the level of their *prima materia*.

In its insistence that the unqualified passive principle retains its corporeality after all additional qualities have been removed (an impossible scenario in actuality), the Stoic conception of principles has more in common with the Platonic model of the material substratum than its Aristotelian parallel. Although I agree with Sedley (2002) that Stoic physics owes more to Plato than to Aristotle (and that what it shares with Aristotle's physics can be explained by their shared debt to fourth century Platonism), how the Stoics conceived of philosophy's purpose is perhaps better conceived as a continuation of Aristotle's legacy, with implications for how the philosophy would be received in the medical domain.

[68] Calc. *In Tim.* 293 (LS 44 E).

and that from which generated things come into being.'[69] The lifecycle is a localised measurement of the moving image of the cosmos. It is reflective – perhaps variously so (**I.3.10**) – of the lifecycle of the whole.

I.3.7 Mixture

The principles are two: that which acts and that which is acted upon.[70] They are opposites, but they are codependent (the simplest harmony). Creativity would go unexpressed without a substrate; unqualified matter would be shapeless and unmoving.[71] Their polarity is integral, but they are physically inextricable.[72] The Stoics 'say that god is mixed with matter, pervading all of it and so shaping it, structuring it, and making it into the world.'[73] The active principle acts on the world from within. Significantly, for the purpose of this exposition, we find the signature of providential manipulation recurrently likened to 'seed'. Diogenes Laertius describes the Stoic God as 'the seminal reason of the universe'.[74] Calcidius, reporting Stoic doctrine, likens the passage of 'complete and universal reason' through prime matter to that of 'seed through the genital organs.[75] Ongoing transformation is likened to perpetual generation; the world proceeds from an all-pervasive seed. Physics and theology are grounded in embryology. Unlike Plato's demiurge, the Stoic God/active principle is present in the world, manifest in transformation; his role is more than merely cosmogonical.[76] In Stoicism, God is nature. He is a unified organism, moral paradigm, and universal seed, an imprint of embryology on reality's transformations in consort with the elevation of harmony to the status of essential good.

Mixture is integral to Stoicism (as it is to Stoicisms' medical expression (**III.2**)). The Stoic theory of 'blending' (κρᾶσις) has two essential components; 1) constituents of mixture retain their original properties, they are not altered

---

[69] *Ibid.*
[70] D. L. VII.134.
[71] S. E. IX.15-6.
[72] That more than one ostensibly distinct physical principle could occupy the same space provokes Plutarch's hostility in *Comm. Not.* 1077D (*SVF* 2.396). He argues that if two individually qualified entities can occupy the same space then notions of spatial restrictions disintegrate. Chrysippus, however, states plainly in *On the Growing Argument* (*SVF* 2.397) that 'two *individually qualified* entities cannot be present in the same substratum.' Body is binary, the interplay of substance and qualification. See Reesor (1989) p.14.
[73] Alex. Aph. *Mixt.* 225,1-2 (LS 45 H).
[74] D. L. VII.136.
[75] Cal. *In Tim.* 193 (LS 44 E). See also Aristocles in Eus. *Pr. ev.* 15.14.2 (LS 46 G).
[76] Bénatouïl (2009) p.24, n.4. Sedley (2002) p.42.

indefinitely; 2) constituents are mutually coextensive. According to Alexander of Aphrodisias, Chrysippus,[77] following Aristotle,[78] distinguished between the juxtaposition of substances, whereby the qualities of the constituents are preserved, and fusion, whereby a third body is generated from the mutually destructive union of prior substances.[79] Chrysippus posits κρᾶσις as a third species of mixture which resembles fusion in its through-and-through coextension and juxtaposition in the capacity of blended constituents 'to be separated again from one another.'[80] In preserving the constituents of the blend, the Stoics devised a species of mixture that allowed for perennial reconfiguration; the principles remain constant throughout the transformations.[81] Plutarch describes mutual coextension as a state in which 'the constituents must come to be in one another, and the same thing must both be enveloped by being in the other and by accommodating it, envelope it.'[82] He objects that 'since the blending forces both things to pervade each other and no part to lack any part but every part to be filled with all', neither substance is truly enveloping or being enveloped by the other,[83] thus stumbling into the doctrine's purpose. Positing though-and-through coextension is the answer to the question of how an apparently tenuous active principle could pervade corporeality entirely.[84] Both Plutarch and Diogenes Laertius refer to Chrysippus' postulation that a drop of wine could pervade the sea,[85] a challenge to Aristotle's argument that 'dominant' materials – *i.e.* materials in larger quantities – transform lesser materials into themselves.[86] Stoic physics preserves the wine, and makes a claim for its existence in every part of the sea.

---

[77] Our sources for mixture in Stoic physics tend to restrict us to arguments associated with Chrysippus, though there is strong evidence to suggests that the Stoic conception of 'blending' predates him. Plut. *Comm. not.* 1078B-D (LS 48 E) records an incident of this particular doctrine being memorably attacked by Arcesilaus, the founder of Academic scepticism, whose lifetime predates the death of Cleanthes, and thus Chrysippus' ascent to prominence: '…for if blendings are through and through, what prevents not only the armada of Antigonus, as Arcesilaus said, from sailing through the leg that has been severed, putrefied, thrown into sea and dissolved, but the 1,200 triremes of Xerxes along with 300 Greeks from having a battle within the leg?'

[78] Arist. *GC* I.10

[79] Alex. Aph. *Mixt.* 215,14-218,6 (LS 48 B). The example given of the former is a juxtaposition of beans and wheat. Medical drugs are said to be generated via the latter process.

[80] *Ibid.*; Stob. I.155,5-11 (LS 48 D) preserves an example of how wine might be separated from water with a sponge as a visual representation of this doctrine.

[81] See *supra* **I.3.6.**

[82] Plut. *Comm. not.* 1078B-D (LS 48 E).

[83] *Ibid.*

[84] The nature of active principle is explored immediately below, **I.3.8.**

[85] D. L. VII.151; Plut. *Comm. not.* 1078E (LS 48 B).

[86] Arist. *GC* 328a26-8.

I.3.8 Creativity

God is activity. The seed-model of activity (**I.3.7**) makes of God an omnipresent creativity, mixed with his creation; every point, however small, is sprung from his intention. Since the active principle is inextricable from the passive, God and cosmos may be synonymized in Stoicism.[87] Diogenes Laertius records three Stoic definitions of κόσμος: 1) God the artificer, consisting of all substance; 2) the world-order *i.e*. the product of creation; 3) both.[88] That a distinction, in language, can be made between artefact and artificer depends on material's binary nature. Attending to the hylozoic peculiarity of Stoic cosmology, born of this synonymy of nature and God, the three definitions of cosmos in Diogenes Laertius might be expressed, respectively, as soul, body under soul's manipulation, and God, the organic cosmos. Psychophysiology provides God/the cosmos with his structure.

As to the nature of the creativity, there are two Stoic traditions.[89] Zeno, the founder, identified the active principle with 'designing fire which methodically proceeds towards creation of the world, and encompasses all the seminal principles according to which everything comes about.'[90] He distinguished two kinds of fire: sublunary fire which 'is undesigning and converts fuel into itself', and designing fire 'causing growth and preservation', the 'fire which constitutes the substance of the stars.'[91] His successor, Cleanthes, deviated little from his teacher's model; he identified the active principle with fire and heat.[92] Imbuing fire with creative power is not unique to the Stoics. The roots of this association are Heraclitean,[93] and parallels with Aristotelian αἰθήρ have also been noted.[94] Note that the precedent for the Zenonian tradition is exclusively philosophical. The influence of the medical τέχνη on Stoic physics/theology is not yet detectable.

---

[87] Sharples (1996) p.45.
[88] D. L. VII.
[89] Aët 1.7.33 (LS 46 A).
[90] *Ibid.*; Stob. I.213,15-21 (LS 46 D) for the attribution of this doctrine to Zeno.
[91] Stob. I.213,15-21 (LS 46 D).
[92] Cic. *ND* II.23-34, 28. The biological justification for this designation is revisited at **I.4.3** below.
[93] Heraclitus (DK 22 B30): 'Order was not made by god or man. It always was and is and shall be an ever-living fire, flaring up in regular measures and dying down in regular measures.' Trans. Waterfield (2000). See Long (1996) p.35-57.
[94] Sedley (1999) p.388. Although much effort is made on Aristotle's part to distinguish his quintessence from Empedoclean elements, he nonetheless proposes a rarefied, primary substance that is ungenerated, unalterable, indestructible and divine. It is defined by its perpetual motion, and thus susceptible to misidentification with fire. e.g. Arist. *De cael.* I.3.270b, 1-31.

The second tradition identifies creativity with πνεῦμα, 'a breath pervading the whole world, which takes on different names owing to the alterations of the matter through which it passes.'[95] It is the substance for which Athenaeus' medical school was named. The Stoic doctrine of πνεῦμα is attributed to Chrysippus.[96] πνεῦμα has two parts, air and fire, the substances defined by the qualities cold and hot respectively.[97] The motive for this innovation is revealed by an assessment of the historical context. There is some evidence to suggest that the function of πνεῦμα in Stoic physics predates Chrysippus' premiership, but this function was restricted to biology; Diogenes Laertius traces a Stoic tradition of identifying the agent of bodily motion with 'warm breath' back to the school's founder.[98] We note also the Aristotelian precedent that analogised πνεῦμα to the substance of the heavens.[99] However, for an arguably more decisive influence, we reorient our attention to medicine.

I.3.9 Medical interlude

At the expense of the preeminent status of heat in Hellenistic physiology, πνεῦμα was in ascendance. Herophilus of Chalcedon and Erasistratus of Ceos, pioneering anatomists of the third century BC, both identified the mediator of motion and perception with πνεῦμα.[100] But the root proponent of this new phase in medical thought was Praxagoras of Cos, a practising physician of the late fourth and early third centuries BC and teacher of Herophilus of Chalcedon.[101] Praxagoras maintained that πνεῦμα, with which the arteries are replete,[102] transfers motion from the heart, the seat of intellect,[103] to the sinews.[104] The attribution of diseases which entail sensory disfunction to disruptions in the flow of πνεῦμα points to Praxagoras having identified a role for the substance in

---

[95] Aët 1.7.33 (LS 46 A).
[96] Whose theory of soul/πνεῦμα is the subject of Galen's objections at *PHP* V.3.
[97] Gal. *PHP.* V.3.8; Alex. Aph. *Mixt* 224,14-17, 23 -6 (LS 47 H) for πνεῦμα as fire and air.
[98] D. L. VII.157. We might infer, owing to the providential role of fire in Zeno's cosmology (e.g. Stob. I.213,15-21 (LS 46 D)), that 'warmth' was identified with the agent of motion and breath was the mediator.
[99] E.g. Arist. *De Gen. An.* 2.3.736b33-737a1. See Hahm (1977) p.158 and **I.3.9**, n.115 below.
[100] For Herophilus, see Gal. *UP.* X.12 (= III.812 K.); *Caus. Symp* I.2 (= VII.88-89 K) and *De tremore* 5 (= VII.605 K). For Erasistratus, see Gal. *Atr. Bil.* 5 (= V.125 K.); *Loc. Aff.* VI.5 (= VIII.429 K). In Gal. *Nat. Fac.* II.8 (= II.110-11 K) Galen further attacks Erasistratus for ignoring those who argue that biology consists of the four qualities, of which heat is of primary importance.
[101] Hahm (1977) p.160; Sedley (1999) p.388, Cambiano (1999) p.600-601. For a recent introduction to Praxagoras of Cos, see Lewis (2017) p.1-11.
[102] Fr. 12 Lewis.
[103] Frs. 20, 22 Lewis.
[104] Fr. 28 Lewis; Lewis (2017) p.275-284.

perception.[105] Certain diseases that entail cognitive impairment were also attributed to disruptions of πνεῦμα,[106] suggesting a mediatory role for πνεῦμα in cognition.[107] Moreover, according to Galen, Praxagoras identified respiration as the process by which psychic πνεῦμα is nourished,[108] prompting Fritz Steckerl to argue that Praxagoras identified πνεῦμα with ψυχή.[109] Though Orly Lewis has recently revealed Steckerl's conclusion to have been somewhat overzealous,[110] the overlap between Praxagorean and Chrysippean πνεῦμα on the question of the mediating substance of perception and cognition indicates Praxagoras – and the movement he initiated[111] – as an influence on Chrysippus' amendment to Zenonian physics.[112]

It is worth taking a moment to consider this transposition of medical orthodoxy into natural philosophy. Orly Lewis' principle and most convincing objection to Steckerl's reading of Gal. *De ut. resp.* 1.2-3.10 (= fr.16 Lewis) as evidence for Praxagoras' theory of πνεῦμα-*qua*-soul is that expounding the soul's nature lay beyond the intellectual purview of the physician in the third century BC.[113] This introduces us to a theme that will accumulate significance as we progress, namely, that a discipline's epistemological ambit determines the kinds of claims which a practitioner will be inclined to make; knowledge is gathered in pursuit of a τέλος and one's τέλος determines the questions one undertakes to answer. This does not prevent ideas from traversing disciplinary boundaries once they have taken shape, but the nature of the τέλος naturally leads practitioners to conclusions that are unlikely to have originated elsewhere. The medical roots of Chrysippean πνεῦμα merit foregrounding for two reasons. 1) The Stoics'

[105] Frs. 25, 27 Lewis; Lewis (2017) p.284-287.
[106] Fr. 25 Lewis.
[107] Lewis (2017) p.287-292. We are forced to be more circumspect in attributing to Praxagoras a theory that identified πνεῦμα with cognition.
[108] Fr. 16 Lewis = Gal. *De ut. resp.* 1.2-3.10.
[109] Steckerl (1958) p.21.
[110] Lewis (2017) p.292-298.
[111] It is not my intention to downplay the influence of Herophilus and Erasistratus on Chrysippus' innovation, merely to emphasise Praxagoras' role in initiating this tradition. Chrysippus was certainly aware of Herophilus and Erasistratus' physiology, and took their theories seriously. See e.g. Gal. *PHP* I.6. for Chrysippus' refutation of Erasistratus' theory that the left ventricle of the heart was replete with vital πνεῦμα; *ibid.* III.1.12-15 for Chrysippus on different variations of (quasi-)encephalocentrism, which likely correspond to the divergent theories of both Herophilus and Erasistratus.
[112] For more on Chrysippean πνεῦμα, see **I.4.4** and **I.5** below. Note that Chrysippus (Gal. *PHP* III.1.21-25) appeals to the authority of Praxagoras in his defence of the Stoic psychophysiological model that identified the heart as the seat of the soul.
[113] Lewis (2017) p.294-295, 297. Note also Leith (2020) for Herophilus and Erasistratus' treatment of the ἡγεμονικόν.

identification of πνεῦμα with the active principle – and, indeed, the broader psychophysiological significance of πνεῦμα from the third century BC[114] – was derived, in no small part, from medical innovation;[115] the monopolization of the faculties of soul by πνεῦμα arose from medical science, uncovered on the path towards a discipline-specific τέλος. (Thus, the appellation 'Pneumatist' evokes a branching continuity, reaching both for Chrysippean Stoicism and an older, technical pedigree). Chrysippus adopted an idea with relatively narrow explanatory utility and expanded its potential to cosmobiology (see esp. **I.4.4**).[116] 2) Chrysippus adapted the Stoic doctrine of the active principle to conform to a contemporary physiological orthodoxy; the 'new reality' of human physiology had implications for the macrocosm. For the Stoics, the physiology of the cosmos is understood through the inspection of the human body.

I.3.10 ἐκπύρωσις

Though the principles are indestructible, the world-order is not; its lifecycle is regenerative. Diogenes Laertius gives us an account of Stoic cosmogony: God, fate, present in new waters like a seed in seminal fluid, makes 'matter serviceable to himself for the successive stages of creation.'[117] The model is one of self-birth and self-orchestrated maturity. Aristocles, reporting Stoic doctrine, writes of the world's end that 'at certain fated times the entire world is subject to conflagration,

[114] e.g. Epic. *Ep. Hdt.* 63. πνεῦμα is yet more integral to Asclepiadean psychology. See **IV.4**.

[115] As noted above (**I.3.8**), the role played by πνεῦμα in early Stoic psychology was likely far more limited, preceding as it did the preeminence of πνεῦμα in third century medical science. The existence of some precedent within the school likely facilitated Chrysippus' innovation – and gave him grounds to retroactively assert its Stoic pedigree – but I am confident that the preeminent status of πνεῦμα in the medical sphere was vital to Stoicism's identification of πνεῦμα with soul (ψυχή). The movement instigated by Praxagoras of Cos and upheld by Herophilus and Erasistratus constitutes the most significant shift in psychophysiological orthodoxy between the premierships of Zeno and Chrysippus.

The Aristotelian precedent was also, clearly, a facilitating factor. As noted at **I.3.8**, Aristotle analogizes πνεῦμα to αἰθήρ in *De Gen. An.* 2.3.736b33-737a1; innate πνεῦμα is identified with the 'instrument' of movement in *De An.* III.10 – it is not the first cause of movement, as it is in Chrysippean physics, but the corporeal instrument of an incorporeal ψυχή. We should also note the role of air as a mediator of sensation in e.g. *Ibid.* II.7-8. However, given the correspondence between Chrysippus' innovation and the transformation in medical orthodoxy, it seems likely that the Aristotelian influence was more faciliatory than it was the decisive. Praxagoras is the authority cited by Chrysippus at Gal. *PHP* III.1.21-25 in defence of his cardiocentricism. Aristotelian psychophysiology is not easily pieced together from his extant writings, but we can be confident that innate πνεῦμα was a single piece of a more complicated puzzle, with specific (if unclear) rolls for πνεῦμα, blood (e.g. *Insomn.* 459b7ff) and heat (e.g. *Part. An.* 653b5). For a discussion of Aristotle's psychophysiology see the articles reprinted in van der Eijk (2005) p.119-135, 206-237. For Aristotle's relationship to medical literature see **III.3.2.**

[116] For the identification of the active principle with soul, see **I.4** and **I.5.2** below.

[117] D. L. VII.135-136 trans. Hicks (1925).

and then is reconstituted afresh.'[118] Stars portray the signs of nascent conflagration.[119] The cosmos is by degrees dissolved into the active principle, which then sets about recreating its components in same manner as before, reproducing the same cycle.[120]

A reading of this process – shared, at least, by Cleanthes[121] – makes of the cosmos a mortal animal, as much the subject of life and death of any as its organic constituents. Chrysippus moved to dissociate ἐκπύρωσις with destruction, arguing that 'since death is the separation of soul from the body, and the soul of the world is not separated but grows continuously until it has completely used up its matter on itself, the world must not be said to die.'[122] But note that Chrysippus' defence of the world's immortality is built on the assumption of cosmic physiology; his argument resolves the cosmos into the principles 'body' and 'soul'; the inseparability of these principles protects the world from death. Where generation and destruction are linguistic devices giving shape to certain kinds of qualitative change,[123] one wonders how far depriving the cosmos of death disaligns its macro-microcosm parity with the human part; the human soul is not permanently destroyed at his/her death; its tenor (see **I.5**) is lost for a time, but consider how the doctrine of everlasting recurrence would revive the human as it does the whole, orchestrating, cyclically, his/her maturity through successive stages of creation *ad infinitum*.[124] In the periodic obliteration of its body, the

[118] Aristocles in Eus. *Pr. ev.* 15.14.2 (LS 46 G).

[119] Alex. Lyc. 19, 2-4 (LS 46 I), quoting Zeno: 'everything which burns and has something to burn will burn it completely; now the sun is a fire and will it not burn what it has?' The destructive capacity of sublunary fire seems to have qualified its creative cousin for agency in the pseudo-destruction (see below) of the cosmos. The assumption that the world was destined for destruction via the agency of a particular element can be mapped onto an ancient mythological tradition, long in place by the Stoic school's inception. But note how Stoic eschatology expands what was typically the purging of humankind to the obliteration of all internal qualities. The cosmos, like its human microcosm, perishes in fire.

[120] The doctrine of everlasting recurrence is offered by Chrysippus as a potential consequence of cosmic lifecycle in Lact. *Div. inst.* 7.23 (LS 52 B). Its likelihood is supported by the Stoic identification of God with cosmos (see *supra* **I.3.8**), whose perfection must be such that it is difficult to see how successive self-amendments would be theologically justified. cf. Eus. *Pr. ev.* 15.19.1-2 (LS 52 D); Simp. *In Ar. Phys.* 886, 12-16 (LS 52 E).

[121] Salles (2009) p.118-131, esp. 124-126 on Cic. *ND* II.118.

[122] Plut. *St. Rep.* 1052C-D (LS 46 E) quoting Chrysippus' *On Providence* book I. Note also the distinction made in Phil. *Aet. Mundi* 90 (LS 46 M) between Cleanthes' model of the conflagration, in which the world is changed into fire, and that of Chrysippus who supposed the world became the less intuitively destructive 'light.'

[123] Calc. *In Tim.* 293 (LS 44 E) see *supra* **I.3.6.**

[124] Cf. D. L. VII.135-136.

lifecycle of the cosmos reflects that of the human, its structural and behavioral template.[125]

I implied at **I.3.6** that the human lifecycle was reflective of the journey to/from ἐκπύρωσις in more than one dimension. Perhaps we can also identify a parallel between ἐκπύρωσις and the (theoretical) perfection of Stoicism's ethical τέλος. Conflagration amounts to the annihilation of the world's internal boundaries – variants of ἕξις (**I.5**) in the Chrysippean model –; it is the world's underlying monism, its all-rationality, brought to the surface. At the point of conflagration, the cosmos is conceived as most divine.[126] Striving for ἀρετή is the process of dissolving oneself, through the elimination of one's psychological affections,[127] into cosmic harmony. It is the instant where the human is his/her most divine. It is also, of course, practically unachievable; Chrysippus was willing to acknowledge the idealistic nature of this moral standard.[128] But the journey towards rational perfection through the progressive alleviation of one's affections is, it seems, receptive to analogy with progressive conflagration. The ethical journey of the idealised sage is mirrored in the behaviour of the whole.

I.4 The World-Soul

With the pieces in place, the cosmobiology of this chapter's title can be explored in depth. Our questions, going forward, are as follows. What does it mean to posit a cosmic psychology? What does this tell us about the relationship between Stoic philosophy and the human psychophysiology?

I.4.1 ψυχή

In the prevailing wisdom of antiquity, a living being is necessarily ensouled. A Stoic definition of what it is to be ensouled is found in Origen's *On Principles*: 'Ensouled things are moved by themselves when an impression occurs within

[125] Stoic philosophy would itself present this relationship the other way around. I mean to stress here that the Stoics (and many before them) impose human characteristics on their conception of the divine/cosmos. See below **I.4.2.**

[126] e.g. Plut. *St. rep.* 1052C-D (LS 46 E); Origen *Cels.* 4.14 (LS 46 H).

[127] See **III.5** for a Stoic explanation of psychological pathology**.** Sen. *Ep.*92.3 (LS 63 F) '…the wise man's mind should be such as befits god.' Note the proclamation at Epict. *Diss.* 2.14.7-8 (LS 63 E) that it is for the Stoic to alter his wishes to fit the pattern of what occurs to him, to lose *himself*. For Posidonius (see Clem. *Mis.* 2.21.129.4-5 (LS 63 J), this amounts to being 'completely uninfluenced by the irrational part of the soul.'

[128] Plut. *St. rep.* 1041F (LS 66 A). See also Panaetius' frank admission that he was 'a great distance from a wise man' quoted in Sen. *Ep.* 116.5 (LS 66 C).

them that calls forth an impulse.'[129] Sextus Empiricus gives us two definitions of the Stoic soul: 'that which sustains the whole compound' and 'the commanding-faculty.'[130] ψυχή is thus shorthand for both centremost part and the whole, the source and its continuous consequences. The commanding-faculty (ἡγεμονικόν) is the soul's 'highest part', the source of reason, sense-perception and sense-interpretation.[131] Says Chrysippus, quoted in Calcidius: 'The soul as a whole despatches the senses (which are its proper functions) like branches from the trunk-like commanding-faculty to be reporters of what they sense, while itself like a monarch passes judgement on their reports.'[132] Aëtius records a similar Stoic analogy, where seven parts of the eight-part soul extend from the ἡγεμονικόν, the eighth part, like the tentacles of an octopus.[133] Five of these parts are the senses. The remaining two are the vocal and generative parts.[134] All are expressions of the ἡγεμονικόν – the vocal, generative and sensory components – are dispositions of the same substance.[135] The Stoic soul is the corporeal progenitor of animation, sentience and intelligence. To postulate a world-soul is to distribute these qualities throughout the cosmos, to identify the cosmos as an animate, sentient and intelligent organism, generative of its constituents and one whose manipulation of λόγος – its self-orchestration – is reflected in the structure of human speech.[136]

I.4.2 Zeno

That nature is endowed with soul was central to Stoic cosmology from its inception. We find three arguments attributed to Zeno that grant the world the faculties of soul. The argument from superiority: 'That which has the faculty of

[129] Origen *Princ.* 3.1.2-3 (LS 53 A).
[130] S. E. *M* VII.234.
[131] Aët. 4.21.1-4 (LS 53 H).
[132] Calc. *In Tim.* 220 (LS 53 G).
[133] Aët. 4.21.1-4 (LS 53 H), albeit an octopus with seven tentacles.
[134] *Ibid.*; Gal. *PHP* III.1.10.
[135] See **I.4.4** and **I.5** below.
[136] Long (1982) p.49-53 for the role of λεκτά in distinguishing the human from the animal soul in Stoicism. I touch on this again at **I.5.4.** Note Plut. *St. Rep.* 1047A (LS 31 H): 'Chrysippus defines rhetoric as an expertise concerned with the order of continuous speech and its arrangement. Furthermore, in book 1 he has even written the following: 'I think one should cultivate not just a frank and unaffected order but also, apart from speech, the appropriate kinds of delivery in relation to the fitting tones of voice, facial expressions and gestures.'' The τέλος of rhetoric is an aesthetic ideal exemplified by cosmic reason (λόγος) *i.e*. the harmony of its self-arrangement. Parallels might also be drawn between the role of λόγος in 'shaping impulse scientifically' (D. L VII.86) during human development and 'dialectic' (D. L. VII.41-44) as conceived in Stoicism, the science of uncovering truth through rational discourse – *i.e.* shaping the world in speech such that what is spoken is consistent with reality.

reason is superior to that which does not; nothing is superior to the world; therefore, the world has the faculty of reason.'[137] The argument from part to whole: 'Nothing devoid of sensation can have a part of itself which is sentient; the world has parts that are sentient; therefore the world is not devoid of sensation,'[138] and the argument from generation: 'Nothing that is inanimate and irrational can give birth to an animate and rational being; but the world gives birth to animate and rational beings; therefore the world is animate and rational.'[139] The Platonic provenance of Zeno's vitalistic cosmology should be acknowledged,[140] so too the Platonic/Socratic heritage of the arguments in its favour.[141] Zeno parts ways from Plato is his insistence that the substance of soul is corporeal; animation, sentience and rationality are dispositions of the active principle.[142]

Each argument is a mechanism for delocalizing human psychic faculties. Zeno follows Plato in locating soul – and by extension virtue – in the behaviour of the world.[143] Plato, having established the role of god (or gods) in ordering the cosmos,[144] maintains in *Laws* 10 that god and mortals, being both moral agents – *i.e.* in possession of reason – participate in a shared conception of the good.[145] The world provides the template for correct human behaviour, consonant as it is with the human part through their shared morality through their shared rationality through their corresponding souls. When Zeno identified the goal of life with 'living in agreement with nature, which is living in accordance with virtue',[146] his ethical teleology is predicated on this moral parity which, in Stoic cosmology, is a

---

[137] Cic. *ND* II.21 trans. Rackham (1911) modified for brevity. cf. S. E. *M* IX.104.
[138] Cic. *ND* II.22 trans. Rackham (1911), cf. S. E. *M* IX.85.
[139] Cic. *ND* II.22 trans. Rackham (1911), cf. S. E. *M* IX.101. Cicero's speaker, the Stoic philosopher Balbus, goes on to relate in *ND* II.22 what he introduces as one of Zeno's favourite comparisons: 'If flutes playing musical tunes grew on an olive-tree, surely you would not question that the olive-tree possessed some knowledge of the art of flute-playing; or if plane-trees bore well-tuned lutes, doubtless you would likewise infer that the plane-trees possessed the art of music; why then should we not judge the world to be animate and endowed with wisdom, when it produces animate and wise offspring?'
[140] Plat. *Tim.* 30a-c.
[141] *Ibid.* For the Platonic version of the argument from superiority see S. E. *M* IX.107. See Plat. *Phil.* 29a-30a (cf. Xen. *Mem.* 1.4.8) for the Socratic version of the argument from generation. The argument from part to whole, though not found in Plato, would seem to rest on Platonic premises e.g. Plat. *Tim.* 30c. See Hahm (1977) p.136-140 for a more thorough account of the provenance of Zeno's cosmobiology.
[142] Cic. *Acad.* 1.39 (LS 45 A) for Zeno's conception of body (and *supra* **I.3.2**); Aët. 1.7.33 (LS 46 A) for the nature of the active principle in the early Stoic tradition (and *supra* **I.3.5**, **I.3.8**). We infer the materiality of the Zenonian world-soul by comparing what we know of Zeno's physics with the arguments he adopted from Plato.
[143] Cf. Plat. *Laws* 10.899-901.
[144] Plat. *Laws* 10.899.
[145] *Ibid.* 10.903d.
[146] D. L. VII.87.

physical connection. It is worth noting how the arguments advanced in support of the world-soul start from the assumption that the human part is rational; conclusions are drawn about the nature of the cosmos from observations of complex human behaviour. The early history of western philosophy is the story of *a posteriori* abstractions from part to whole; philosophy uses human intelligence as the model for God's psychological topography. λόγος, in Stoicism, is contingent upon and/or identified with ψυχή,[147] the principle of creativity which cannot be extracted from the material it works. For Zeno, as for Plato, the human aggregate is the gateway to understanding the cosmos which, on account of this parity, is subsequently upheld as the moral paradigm. If the Stoic studies physics to an ethical end,[148] then this process is mediated by his conception of human psychology.

I.4.3 Cleanthes

Cleanthes replicates the doctrine of his master with minimal elaboration. His independent treatment in this section is justified only by the organic peculiarity of his arguments for cosmic vitality.[149] The premise that 'it is a law of Nature that all things capable of nurture and growth contain within them a supply of heat' is attributed to Cleanthes in Cicero's *De natura deorum* (*ND*).[150] By Cicero's account, Cleanthes argued for the presence of heat in each of the four elements and concluded 'from the fact that all the parts of the world are sustained by heat that the world itself also owes its continuous preservation for so long a time to the same or similar substance.'[151] As Hahm observed,[152] this is the argument from part to whole but with a material peculiarity; the part is the organism, the whole is the cosmos, and we make the journey from premise to conclusion via the constituents of the cosmic body, sustained and enlivened by all-penetrating fire.

---

[147] In Zeno's case, ψυχή and λόγος were likely considered functionally synonymous. The situation will become more complex following Chrysippus' premiership. See **I.5.2** below for the graded dispositions of πνεῦμα in Chrysippus' physics/psychology.

[148] Plut. *St. Rep.* 1035 C-D (LS 60 A).

[149] Hahm (1977) p.140.

[150] Cic. *ND* II.23 trans. Rackham (1911). He continues (II.23-24):…for everything of a hot and fiery nature supplies its own source of motion and activity; but that which is nourished and grows possesses a definite and uniform motion; and as long as this motion remains within us, so long sensation and life remain, whereas so soon as our heat is cooled and quenches we ourselves perish and are extinguished.' The arguments Cleanthes advanced in support of this premise are recorded in *ND* II.24.

[151] Cic. *ND* II.28, see *ibid* 25-27 for Cleanthes' argument for the presence of heat in each of the four elements. Note that Cicero's speaker established at II.25 that heat is the property of the 'all-penetrating fiery element.'

[152] Hahm (1977) p.141.

The preservative property of the active principle is fundamental to Stoicism's analysis of causes, whose medical implications and (putative) elaborations are examined in chapter **III.4**.[153] But note for the moment the organic character of heat's sustaining/life-giving quality. According to Cleanthes, the 'fiery principle is interfused with the whole in such a way as to constitute the male and female generative principles, and so to be the necessary cause of both the birth and growth of all living creatures, whether animals or those whose roots are planted in the earth.'[154] Fire is responsible for generation, sustenance and growth in both the part and the whole. The cosmos lives as an organism lives. While it retains its Platonic identify as rational exemplar,[155] it is analogised further with its organic components through the mechanisms of its existence.

Cleanthes proceeds to identify heat with soul and reason in *ND* II.29. At *ND* II.31 we find that Cleanthes repeated Plato's argument that self-animation is a property of soul and added that the uncaused animation of heat made it the only candidate for its substance. Heat's all-penetrating nature, proven to Cleanthes' satisfaction in *ND* II.25-27, makes of the world an animate organism, compelled by its soul. Plato's doctrine is transposed into the flesh-plenum of Stoic cosmobiology; corporeality and mutual coextension necessitate the soul's bodily signature; observation of universal traits in organisms – the parts through which philosophy demystifies the whole – might have suggested its nature. It is through Cleanthes' interpretation of the world-soul that the enigma of the organic cosmos presents itself: how does one delineate the organic part within the organic

[153] See esp. **III.4.2.**
[154] Cic. *ND* II.28.
[155] I specify Platonic and not Zenonian. For while the materiality of the world-soul is absent from our sources for Zeno's vitalist cosmology, it remains possible that the doctrines Cicero attributes to Cleanthes are of an older provenance.

whole?[156] Stoicism – particularly in its earliest formulations[157] – is resistant to clear internal boundaries, the continuum of part and whole is in service to the philosophy's τέλος.

I.4.4 Chrysippus

Under Chrysippus' guidance, Stoic cosmology found its most enduring form. The structure of the soul hereon becomes integral to how the Stoics rationalise nature as a whole. The anatomy of the Stoic soul begins with the ἡγεμονικόν, which the Stoics, when attending to the microcosm, located in the human heart.[158] According to Galen, the doctrine has an embryological provenance; the Stoics maintained that the heart was generated first in the womb, which then becomes the agent of the rest of the body's assembly,[159] making of its 'shell' an extension of its rationality. Congruently, the 'exterior' components of the Stoic soul are manifestations of the instrumentality of the ἡγεμονικόν.[160] Sight, for example, is 'breath which extends from the commanding-faculty to the eyes', hearing is the same substance, reaching from the ἡγεμονικόν to the ears.[161] The division in the

[156] An answer suggested in *ND* relates to the idea that not every locus in the cosmic animal is equally possessed of the faculties of soul. We note in *ND* II.29 a distinction between human intelligence and that of 'lower animals' in Cleanthes' cosmology, who are moved only by 'something resembling intelligence.' That human intelligence might be congruently inferior to that of the cosmos can be inferred from this passage; their inferior capacity for sensation is said explicitly in *ND* II.30-31. The text, in the order in which it is preserved, would have the heat that sustains the world be more intense than that which sustains the individual. The argument seems to be that if the inferior heat of the human is sufficient to produce sensation, then not only must the cosmos be sentient but its capacity for sensation must outstrip our own. But how can the whole exceed in sentience constituents of its constitution? How can an animal feel more perfectly than parts of its own body? This formulation has no precedent in Zeno and seems reliant on assumptions that have not been established in the text. If we accept that *ND* II.30-31 are insufficiently developed, the possibility that the text has been incorrectly ordered presents itself. Hahm (1997) p.268 argued convincingly that *ND* be rearranged so that II.40-44 be inserted between II.29 and II.30, such that the comparison becomes that between the warmth with which 'men and animals' are imbued and the 'stainless, free and pure' heat of self-governed celestial bodies. The comparison is therefore between part and part and not between part and whole. Cleanthes identified the sun with the cosmic ἡγεμονικόν (Plut. *Comm. not*. 1075D (LS 46 L), see *supra* **I.4.2**, **I.4.4** below). It is quite possible that *ND* records a comparison he made between the purest concentration of the world-soul and a disposition of soul that had been tempered by its peculiar qualification (see **I.5** below). Though the cosmos may include in its psychology flushes of 'free and pure' artistic fire, the cosmic soul is plenary. That the world-soul has structure (for the mechanics of which in Chrysippean cosmology, the model we are best able to discern, see **I.5.1-2**) does not compromise macro-microcosm parity if said structure is reflected in the architecture of the human soul.

[157] See *supra* **I.3.3**. As noted at n.53 and elaborated below (**I.4.4** and **I.5**), the situation in Chrysippean Stoicism is more complex.

[158] D. L. VII.159, Gal. *Foet.* 4.698, 2-9 (LS 53 D).

[159] Gal. *Foet.* 4.698, 2-9 (LS 53 D).

[160] Long (1982) p.47-48. For the nature of those components see Aët. 4.21-4 (LS 53 H); Gal. *PHP* III.10-11 and *supra* **I.4.1**.

[161] Aët. 4.21-4 (LS 53 H). The identification of breath (πνεῦμα) with the substance and instrumentality of the ἡγεμονικόν alerts us to Aëtius' Chrysippean source.

soul between root and branches, ἡγεμονικόν and emanations, was likely present in Stoic psychology from its inception.[162] The expansion of this terminology to the cosmos was possibly a later development; Cleanthes is the earliest Stoic for whom a conception of a cosmic ἡγεμονικόν can be attested.[163] Evidently, a division introduced to explain the relationship between an intuitively singular rational faculty and the variegated facets of psychic experience was discovered to have broader explanatory utility which Chrysippus, armed with a more versatile and a yet more physiological conception of nature's qualifying principle (**I.5**), would modify and elaborate.

Where Cleanthes softened the boundaries between the organic part and the organic whole, Chrysippus posited a unity between the human soul and that of the greater organism, contingent on the symmetry of their faculties and structure. As we have seen, Chrysippus identified the active principle with πνεῦμα, 'breath' (**I.3.8**). πνεῦμα in the human body is identified, at least in part,[164] with the substance of the soul; in *On the Doctrines of Hippocrates and Plato* (*PHP*), Galen quotes from Chrysippus' *On the Soul*: 'The soul is πνεῦμα connate within us, extending as a continuum through the whole body as long as the free-flowing breath of life is present in the body.'[165] It is on this premise that Stoic psychophysiology would go on to have a presence in the medical sphere, where subtle variations in all-penetrative πνεῦμα suggest implications for the body as a whole.[166] Yet note that in its original context, πνεῦμα is the binding agent of Stoic anthropocentricism, shaping nature into philosophy's τέλος. Moreover, the substance of the human soul could not be analyzed independently from that which permeates the whole.

Identifying πνεῦμα with ψυχή facilitates the flow of soul in and out of the body.[167] Though the substance of one's soul is in perennial flux the structure is

---

[162] D. L. VII.110.

[163] Plut. *Comm. not.* 1075 D (LS 46 L). See *supra* n.156. Though doubtless the Zenonian model suggested this development.

[164] See **I.5** below.

[165] Gal. *PHP* III.1.10.

[166] See chapter **III.**

[167] Calc. *In. Tim.* 220 (LS 53 G) preserves the following argument from Chrysippus: 'it is certain that we live and breathe with one and the same thing. But we breathe with natural breath. Therefore, we live as well with natural breath. But we live with soul. Therefore, the soul is natural breath.' Breathing is the process by which the internal and external worlds intuitively meld. The substance of ψυχή is taken into the body, directly and automatically. Its status as the substance of the *human* soul is obviously dependent on its presence in the body – 'the soul is pneuma *connate* within us' (Gal. *PHP* II.1.10, above) – but its status as

preserved. This structure, as we have seen, is concentrated at the ἡγεμονικόν located in the heart, whence it flows 'as if from the source of a spring', spreads through the body and distributes its faculties.[168] This pattern of concentration is reflected in the world-soul; πνεῦμα pervades the cosmos from the ἡγεμονικόν, identified with αἰθήρ in Chrysippus' cosmology and located at the periphery of the continuum: the heavens.[169] The structure of the world-soul resembles an inversion of that of its human components; the cosmos is governed from its periphery, the human from his/her centre. But we should note a precedent set by Aristotle regarding the 'true' centre (the μέσος) of any given animal; in *De Caelo*, Aristotle distinguishes between the geometric centre of the body of an animal and the true centre of that animal.[170] An animal's true centre is the locus from which it is governed and Chrysippus (and Cleanthes before him) upholds his precedent in transposing the seat of control to the stars.[171] Presenting the cosmos in the vocabulary of human psychology contributes to its demystification, but it also solidifies the parity between the human part and the whole. Zeno's proclamation that the philosopher's τέλος is the emulation of nature becomes less abstract in Chrysippean cosmology if one recognises the mechanisms of nature's transformations as one's own – and breathes them in.

πνεῦμα performs a comparable function in Chrysippus' cosmology to that of divine fire or cohesive heat in the physics of his predecessors; it is the αἴτιον συνεκτικόν (the sustaining/synectic cause) of animation, sentience and intelligence throughout the cosmos, identified with ψυχή.[172] According to Diogenes Laertius, the doctrine that 'the world is a living being, rational, animate and intelligent, is laid down by Chrysippus in the first book of his treatise *On Providence,*'[173] a title that reminds us that the function of nature's soul is the

---

a portion of the world-soul – as the agent of intelligent qualification in the Stoic cosmos – is retained within and without the human form.

[168] Calc. *In. Tim.* 220 (LS 53 G). cf. Gal. *PHP* III.1.10-11.

[169] D. L. VII.139.

[170] Arist. *De Cael.* 2.13.193b6-15. Our discussion of Aristotle's influence on the structure of the Chrysippean world-soul should not be limited to this passage from *De Caelo.* As we saw above (**I.3.8** and **I.3.9**, n.115) πνεῦμα is first analogised to αἰθήρ in Arist. *De. gen. an.* 2.737b.33-737a1. It is unclear, however, how far Chrysippus drew directly from Aristotle in the development of his theory of πνεῦμα/the world-soul; theoretical conceptions of πνεῦμα underwent diverse and considerable changes within the Peripatetic school during the interim between the two philosophers (c.f. for example Diocles of Carystus fr.78, 80 van der Eijk and Strato of Lampsacus fr.108-112 Wehrli).

[171] Hahm (1977) p.151.

[172] For the constituents of Stoic aetiology, see **III.4.1**. For the difficulties inherent in uncovering the original Stoic doctrine of αἴτια συνεκτικά, see **III.4.2**.

[173] D. L. VII.142 trans. Hicks (1925).

providential crafting of its parts. That the activity of the cosmos is directed at itself where the human soul is moved to emulate the template of the macrocosm – the world beyond the skin – amounts to the principal distinction between the two agents. Recall, however, that the 'micro-soul' is itself a constituent of nature's providential expression. 'The world alone is perfect,' says Cicero's Stoic speaker in *ND*, and therefore the world alone 'is virtuous, rational and divine.'[174] Self-sufficiency separates the human aggregate from the cosmos; the human requires a paradigm upon which to map his/her behaviour. This relationship is summarised in *ND*. The explanation is attributed to Chrysippus:

> …just as a shield-case is made for the sake of a shield and a sheath for the sake of a sword, so everything else except the world was created for the sake of some other thing; thus the corn and fruits produced by the earth were created for the sake of animals, and animals for the sake of man: for example the horse for riding, the ox for ploughing, the dog for hunting and keeping guard; man himself however came into existence for the purpose of contemplating and imitating the world; he is by no means perfect, but he is a small fragment of what is perfect.[175]

The teleological character of this passage is explicit.[176] The human, like the sword sheath, was designed to receive the object for which it was created: in this case, the moral value of 'accordance with the whole'.[177] Identifying ψυχή with πνεῦμα literalizes the reception of this purpose; through its share of nature's psychic faculties – on which I elaborate below (**I.5.3**) – the human is afforded the necessary apparatus for enabling nature's self-contemplation. The hierarchy of nature's constituents (**I.5.2**), where the human is instrumental only to the cosmos considered as a whole, has a psychological justification in Chrysippus' cosmology. In the next section, we explore with more acuity the topography of nature's thought processes.

I.5 Dispositions of πνεῦμα

It is appropriate, given the centrality of πνεῦμα to Stoicism in its most abiding formulation and to the theory of Stoicism's medical descendants, that a section

[174] Cic. *ND* II.37 trans. Rackham (1911) cf. D. L. VII.143.
[175] Cic. *ND* II.37-38 trans. Rackham (1911).
[176] For the relationship between psychology, cosmology and teleology see below **I.5.3.**
[177] Cf. Cic. *Fin.* III.17.20-22.

of this chapter be devoted to the substance itself. In this section, we explore both the ethical and cosmobiological implications of nature's psychological topography and answer the question of how the ontological character of the human body/soul duality is expressed in Chrysippean Stoicism.

I.5.1 ἕξις

Discrete bodies within the whole are sustained by the tenor of their πνεῦμα, their ἕξις.[178] Tenors are αἴτια συνεκτικά:[179] units of reality's ongoing assembly conceived as 'currents of air'.[180] By their agency 'bodies are sustained. The sustaining air is responsible for the quality of each of the bodies which are sustained by tenor; in iron this quality is called hardness, in stone density, in silver whiteness.'[181] πνεῦμα is the sustaining cause of both a body's structural integrity and its abiding characteristics. These functions are interrelated; the preservation of a discrete body is predicated on that of its defining characteristics. ἕξις is a product of pneumatic motion: 'there exists in bodies a kind of tensile movement which moves simultaneously inwards and outwards, the outward movement producing quantities and qualities and the inward one unity and substance.'[182] The simultaneity of inward and outward motion makes of discrete entities the consequence of a tension; they are acted on internally by opposite forces through whose interplay their features manifest.[183] Qualities spring from the nature of this ἕξις, they are 'breaths and aeriform tensions which give form and shape to the parts of matter in which they come to be.'[184] Boundaries are thus delineated by

[178] Derived from the verb *ἔχειν,* 'to have' or 'to hold.'
[179] For species of cause in Stoic aetiology, see **III.4.**
[180] Plut. *St. Rep.* (LS 47 M).
[181] *Ibid.* quoting from Chrysippus' *On Tenors.*
[182] Nemes. 70,6-71,4. (LS 47 J). Philo calls this 'breath which turns back on itself' in *Quod deus sit immutabilis* 35-6 (LS 47 Q).
[183] Gal. *Musc. Mot.* 4.402,12-403,10. (LS 47 K) explains this internal activity with an analogy of a bird in flight. Though the bird appears motionless when viewed from below, it is in fact 'counterbalancing its innate downward inclination due to the weight of its body by the upward motion resulting from its soul's tension.' Processes unseen account for the appearance of stasis. The analogy to flight indicates the *exactness* of the process. The harmony of the cosmos is fine-tuned; it can be detected in the tension with which the simplest features are actively sustained.
[184] Plut. *St. Rep.* (LS 47 M). An enigmatic passage from Simplicius (*In Ar. Cat* 237,25-238,20 (LS 47 S)) introduces a Stoic distinction between innate identifiers resulting from *ἕξις* and characteristics which define the particular – those dispositions which, while they can be removed, cannot be intensified or relaxed. He offers virtue and the straightness of a stick as two examples of this type. According to Simplicius, tenors, for the Stoics, 'are not specified by their duration or strength but by a certain peculiarity of mark.' We examine the distinction between common and peculiar qualification at **I.5.5** below, but it is unclear if this is what Simplicius is referring to. My best guess is that 'virtue' and 'straightness' are consequent on *ἕξις* but are not peculiar dispositions of πνεῦμα in the manner of say, bitterness or sourness which, be they relaxed or intense in a particular embodiment, correspond to an internal

subtleties of ἕξις;[185] an omnipresent rational cause diversifies its effect by varying the tautness of its movement across the spectrum of resultant phenomena.

I.5.2 Hierarchy of psychic faculties

πνεῦμα is all-penetrating. λόγος too, since the cosmos is intelligently designed, is omnipresent.**[186]** But the faculties of πνεῦμα, the complete spectrum of the soul's potential expressions, are not evenly distributed. A passage from the pseudo-Galenic *Introductio sive medicus* attributes three different 'kinds' of innate πνεῦμα to Stoic physics: 'The breath which sustains stone is the tenor kind, the one which nurtures plants is physical and the psychic breath is that which, in animate beings, makes animals capable of sensation and of moving in every way.'[187] ἕξις is the most basic kind, the process by which bodies are sustained. φύσις is responsible for nutriment and growth and ψυχή is the cause of animation. A passage from Philo's *Allegories of the Laws* presents this gradation as cumulative: 'Physique (φύσις) is tenor in actual motion. Soul (ψυχή) is physique which has acquired impression and impulse.'[188] The tensile motion of πνεῦμα accounts for both the coherence of the stone and the growth of the plant.[189] The capacity to receive and act upon impressions is an elaboration of φύσις. Philo also introduces a fourth, yet higher faculty of λόγος, that is the rational, deliberative component.**[190]** Reason distinguishes humans from animals, and develops in the child from the psychic faculties that he/she shares with irrational (though sentient) lifeforms.**[191]** This highest grade is the deliberative mind (νοῦς) which, in its complexity – *i.e.* in the depth and variety of the options it bestows upon on the human – is most closely reflective of the underlying intelligence responsible for the hierarchical organisation of the cosmos just expounded.

---

phenomenon. Virtue and straightness are contingent upon standards imposed by the architecture of the external world.

[185] Scade (2013) p.82-87.

[186] NB Philo *Leg. alleg.* 2.22-3 (LS 47 P) where the 'powers' expounded below are functions of intelligence.

[187] Ps.-Gal. *Intr.* 14.726,7-11 (LS 47 N).

[188] Philo *Leg. alleg.* 2.22-3 (LS 47 P); cf. Philo *Quaestiones et solution in Genesim* 2.4 (LS 47 R), where soul is identified with a higher faculty of *ἕξις*.

[189] Long (1982) p.46, Long examines psychic functions in Stoicism from p.45-53.

[190] Philo *Leg. alleg.* 2.22-3 (LS 47 P) cf. Philo *Quod dies sit immutabulis* 35-6 (LS 47 Q); D. L. VII.138-139.

[191] D. L. VII.86; Long (1982) p.47.

I.5.3 Ethical interlude

In VII.86-87, Diogenes Laertius sets out the hierarchy of psychic faculties in Stoicism – albeit without Chrysippus' physical explanation – then proceeds: 'this is why Zeno was the first (in his treatise *On the Nature of Man*) to designate as the end 'life in agreement with nature'…which is the same as a virtuous life, virtue being the goal towards which nature guides us.[192] Stoicism maintained from its nascency that the life lived in agreement with nature was the preserve and τέλος of the rational being.[193] Thus, the Roman Stoic Seneca argued that 'goodness' was attainable only by man and God.[194] The latter possesses it by nature, the former by practice.[195] Rationality is evidenced by harmony (**I.3.1**). The harmony of nature is the template for correct human behaviour, accessible via the contemplative faculty.[196] What this behaviour amounts to is self-mastery; reason recognises the value of curbing one's desires, nurturing friendships, upholding public duty, acting in service to a prevailing sense of order such that virtuous acts are correctly motivated *etc*.[197] In ascribing each level of psychic complexity to the tensile movement of πνεῦμα, Chrysippus, though he delineates the boundary between man and nature more clearly than his predecessors, perfects this concrescence of physics and ethics by improving the resolution on the mechanism that assigns mankind its τέλος.

Rationality emerges as the child matures. Nature guides the child to a harmonious disposition of the soul.[198] Objectively, this involves a subtle transformation in the tenor of his/her πνεῦμα. But the subjective experience of one's development of the higher faculties of soul – which is, simultaneously, the recognition of those same faculties behind the ordered nature of the cosmos[199] – is worth considering. According to both Seneca and Cicero, for the Stoics, apprehension of nature's subtleties – the details of the moral paradigm – proceeds by process of analogy.[200] Analogy, in Stoicism, depends on physical,

---

[192] D. L. VII.87 trans. Hicks (1925).
[193] Striker (1996) p.228. cf. Cic. *ND* II.37-38.
[194] Sen. *Ep.* 124.13-14 (LS 60 H).
[195] *Ibid.*
[196] Cic. *Tusc.* IV.XV, 34-35. See *supra* **1.2.1.**
[197] Sen. *Ep.* 120.3-5 (LS 60 E); Stob. 2.58, 5-15 (LS 60 K) for examples of innately virtuous characteristics.
[198] D. L. VII.90 – 'For the starting-points of nature are never perverse.' Trans. Hicks (1925). cf. Plut. *St. Rep.* 1041E (LS 60 B).
[199] Striker (1996) p.229.
[200] Cic. *Fin.* III.33; Sen. *Ep.*120.3-5 (LS 60 E).

structural parallelisms (see further **III.5**). The mind ascends by logical inference from the readily observable to the formerly concealed – to the nature of ἀρετή, the τέλος of logical human action.[201] In Seneca's account, psychological processes are discerned through analogy with the physiological: 'we were familiar with bodily health. From this we have worked out that there also exists a health of mind. We were familiar with bodily strength. From this we have worked out that there also exists strength of mind.'[202] Seneca proceeds to set out the sequence of observations that leads from one's basic familiarity with bodily health and strength to one's thorough comprehension of the nature of the sage.[203] On this account, recognising health as a desirable physiological state is the seed from which Stoic ethical doctrine develops according to nature; the notion of a preferable psychological disposition, evidenced through action, is an extrapolation from rudimentary physiological observations. Correspondence of bodily and psychological models is taken as self-evident; inquiry into mind begins with its example in the localised human aggregate.[204] Bodily health is not typically considered an inherent good in Stoic ethics (see further **III.3.3**),[205] but our preference for health over disease is an innate preconception,[206] the acknowledgement of which provides the basis for our inquiry into what *does* constitute an inherent good. For the Stoic philosopher, therefore, the attraction of bodily health is the starting point. The τέλος of the Stoic philosopher is to abstract from the particular a universal model of appropriate human behaviour, consistent with the physical/theological realities uncovered in the process.

I.5.4 Cosmobiology

Macro-microcosm parity enforces one's behavioral obligations to the natural order. We would be remis not to acknowledge the biological analogies offered in our sources concerning nature's psychological topography. Diogenes Laertius,

---

[201] Striker (1996) p.229-230; Cic. *Fin.* III.33.

[202] Sen. *Ep.*120.3-5 (LS 60 E).

[203] For examples of physiological-psychological parity in Chrysippus, see the quotation from *On Affections* in Gal. *PHP* V.2.22-4 for the role of Stoic philosophy in ameliorating diseases of the soul and Gal. *PHP* IV.6.1-6 for a biological model of psychological strength. This passage relies on the identification of τόνοι (stretched ropes, cords. See I.5.4 below and n.209-210) with both physiological and psychological sinews.

[204] cf. *supra* **I.4.2**.

[205] D. L. VII.101-3 lists both health and strength among the 'indifferents', a category in Stoic ethics that is removed from moral value. Stob. 2.79, 18-80,20-1 (LS 58 C) lists health and strength among indifferents that are 'in accordance with nature', accounting for their value in the logical discernment of the ethical ideal.

[206] See Plut. *St. Rep.* 1041E (LS 60 B); D. L. VII.53.

expounding the distribution of intelligence in the Stoic cosmos – which he calls animal, animate and rational – writes that providence passes as ἕξις through some of its parts 'as through the bones and sinews'.[207] The parts which are sustained by ἕξις are compared to the rigid, physiological scaffolding that supports a complex being. There is a parallel here with Chrysippus' psychophysiological application of the word τόνος – stretched ropes or cords, employed to denote tension, a faculty of ἕξις – preserved in Galen's *PHP*, whereby the substance of the soul takes on a sinewy character.**[208]** Chrysippus refers to human psychology, but the cosmobiological implications are apparent. The grasp of the world-soul on its material elaborations is an exercise of physical strength, reflected in the capacity of the sinews.**[209]** As the cosmos as a whole is sustained by way of ἕξις, the topography of the world-soul attains a kind of musculature.[210]

The passage from Philo's *Allegories of the Laws* that deals with the hierarchy of psychic faculties in Stoicism takes this macro-microcosm parity further. Philo writes of ἕξις that it is 'shared by lifeless things, stones and logs, and our bones, which resemble stones also participate in it.'[211] Stones and logs are inanimate in the manner of bones, restricted in their localised psychic faculties yet necessary constituents of an organic whole. 'Physique', Philo continues, 'also extends to plants and in us there are things like plants – nails and hair.'[212] Nails and hair grow on the body like plants upon the earth, according to nature, but without impulse. Impressions and impulses are the preserve of rational and irrational

---

[207] D. L. VII.138-139.

[208] Gal. *PHP* IV.6.1-6.

[209] Hahm (1977) p.155 makes much of the possible synonymy of τόνοι and νευρά (cord-like physiological structures) in texts predating *On Affections.* But the only reliable example of the two terms being used interchangeably is the Hippocratic text *On Joints* (*De art.* 11). How far Chrysippus' conception of *τόνος* was influenced by anatomical texts is unclear, but the possibility remains open. Certainly, the elision of *τόνος* (a Stoic concept that predates Chrysippus, see n.210 below) with ἕξις (a Chrysippean invention) combines the sustaining capacity of πνεῦμα with a notion of strength, which makes it amenable to the obvious physiological analogy.

[210] The perennial tension this evokes is carried further by the musical connotation of τόνοι, from which we derive the English 'tone'. Plut. *St. Rep.* 1084d reports the Cleanthean conception of τόνος as the physical 'striking of fire' identified with the virtues of 'force and strength.' Cleanthes' model affords 'force and strength' a creative agency. The 'striking' of a body implies a subsequent reaction, a sounding and vibration from the object struck. cf. Clem. *Strom.* V.8, 48 where Cleanthes reportedly likened the sun, the cosmic ἡγεμονικόν, to a plectron, an implement that induces music from the lyre by skillfully plucking its strings. The active principle is the musician, the passive principle, the instrument. See Hahm (1977) p.155-156. The musical analogy is salient in a cosmology of localised micro-harmonies, all participating in a greater, moral-aesthetic perfection.

[211] Philo *Leg. alleg.* 2.22-3 (LS 47 P).

[212] *Ibid.*

animals alike;[213] the faculties of the zoetic soul are included under the umbrella of the eight-part human soul. Although the human aggregate is a unified body, subtleties in ἕξις permit the analysis of the whole into psychically distinct regions, reflecting the cosmos back upon itself.

The rationality of the human soul – that which elevates it above the zoetic – is not analogised to any part of the external world in Philo's account or elsewhere.[214] Rather, as we have seen, it is the behaviour of the human which is intended to reflect the rationality of the macrocosm. Realising one's τέλος requires deliberation; deliberation is a function of language.[215] Language, distinguished from utterances,[216] is composed of λεκτά, 'sayables' or more primitively, 'thinkables'.[217] λεκτά are incorporeals by whose instrumentality the rational being navigates the corporeal world with a greater awareness than its irrational counterparts, and therefore with a greater moral obligation.[218] The unity of language and reason, encapsulated in λόγος, is as old as Greek philosophy itself. A parallel may be drawn between the organisation of the cosmos via λόγος and its description in language. Developing a coherent model of the world – the seeds of which are posited first in thought and then refined through dialectic[219] – is to perform in language and in microcosm what the Stoic God performs upon itself.[220] The connexion between human psychophysiology and cosmology in Stoicism is profound. Each of the world's psychic expressions finds an analogue in the human aggregate, and vice versa.

I.5.5 Peculiar qualification

How, then, is the human individuated? Stoic ontology recognises four 'genera' of body: substrate, qualified, disposed and relatively disposed.[221] These are

---

[213] *Ibid.*

[214] Except insofar as it resides pre-eminently in the ἡγεμονικόν, which Chrysippus localised at the periphery of the cosmos (see D. L. VII.139 and **I.4.4** above). Its function in Stoic cosmology, however, by which its presences is evidenced, is omnipresent.

[215] This argument is made in Long (1982) p.50-53.

[216] D. L VII.57.

[217] Long (1982) p.50-51; Schenkeveld and Barnes (1999) p.197-213.

[218] Long (1982) p.52-53.

[219] The dialectical element of Stoic sense-making enforces the inter-reliance of human beings in uncovering truth. In this respect – though I wander beyond what is explicit in the source material – humanity itself might better fulfil the role of microcosm than the individual human form; it is through their *cooperative* effort that the cosmos is created in language.

[220] Note in particular our sources pertaining to the Chrysippean interpretation of 'dialectic' as a mechanism for truth-finding. e.g. D. L. VII.41-44, 46-48; Alex. Aph. *In. Ar. Top.* 1,8-14 (LS 31 D).

[221] Simp. *In Ar. cat.* 66,32-67,2 (LS 27 F).

metaphysical lenses through which bodies can be interrogated. The answer to our question will most likely be found in the subdivision of the second category: the distinction between 'common' and 'peculiar' qualification. The distinction is intended to reconcile physical with epistemological reality. According to Plutarch, the Stoic answer to the 'growing argument' – that to grow is not to develop but to be replaced by a different entity – was to divide the metaphysical analysis of the human being into two: on the one hand, he/she is substance, a dynamic aggregate of common qualifications amounting to 'the human'; on the other, he/she is a body of peculiar qualification.[222] On the former analysis he/she is 'always in flux…neither growing nor diminishing nor remaining as it is at all'; on the latter he/she 'remains and grows and diminishes and undergoes all the opposite affections to the first one – although it is its natural partner, combined and fused with it, and nowhere providing sense perception with a grasp of the difference.'[223] Plutarch bemoans the absence of sensory evidence for the human's dual nature as reported by the Stoics but what he sought (or purported to have sought) would be found in the dimension of time; the doctrine of peculiar qualification is best summarized by Simplicius:

> …if in the case of compound entities there exists individual form – with reference to which the Stoics speak of something peculiarly qualified, which is both gained, and lost again, all together, and remains the same throughout a compound entity's life even though its constituent parts come to be and are destroyed at different times.[224]

The peculiar qualification arrives and departs as a unity and transcends localised physical transformations undertaken over time. It is the inalienable property by which the individual is recognised as him/herself, the progenitor of particularity.[225]

---

[222] Plut. 1083A-1084A (LS 28 A). The growing argument is traced back to Epicharmus, supposed pupil of Pythagoras. Plutarch attributes the metaphysical division of the human into substance and peculiar quality to Chrysippus. See Sedley (1999) p.403-404.

[223] Plut. 1083A-1084A (LS 28 A); cf. Oxyrhynchus papyrus 3008 (LS 28 C) – '…since the duality which they say belongs to each body is differentiated in a way unrecognisable by sense-perception. For if a peculiarly qualified thing like Plato is a body, and Plato's substance is a body, and there is no apparent difference between these in shape, colour, size and appearance, but both have equal weight and the same outline, by what definition and mark shall we distinguish them and say that now we are apprehending Plato himself, not the substance of Plato?'

[224] Simp. *In Ar. De*. an. 217,36-201,2 (LS 28 I).

[225] Sedley (1999) p.404.

It is, however, a somewhat ill-fitting constituent of an otherwise intelligible cosmic psychophysiology. How the Stoics expressed the peculiar quality in physical terms is uncertain. We intuit that peculiar qualities are posterior to common qualities,[226] but to identify peculiarity with a complex of common qualities – as the fourth century philosophy Dexippus does in his commentary *On Aristotle's Categories*[227] – is unconvincing, for minor adjustments to one's character and appearance, inevitable over time, would necessarily alter the character of the peculiar quality.[228] Alternatively – and I think more likely – there is an additional psychic imprint that pervades the aggregate, a pattern of pneumatic tension that radiates peculiarity, despite the sum of the human's common qualifications being repeated across species and reflected in the nature and behaviour of the cosmos as a whole. The human is thus an aggregate of innate cosmic processes, sustained by ἕξις, nurtured by φύσις, imbued with all the faculties of ψυχή and bonded by shared reason to the moral perfection of the natural order. His/her limits are defined by subtleties of ἕξις and his/her peculiarity is consequent on an inalienable imprint, a feature common to a sequence of dynamic patterns – the body-soul interconnexion – over time, which is itself a transient manifestation within a greater cosmic organism, whose presence is a feature common to the sum of dynamic patterns which comprise its body and its soul.

I.6 Conclusion: The moral value of organic cosmology

My intentions for this chapter have been as follows. 1) To set out Stoic physics in its original, non-medical context; 2) to emphasize Stoicism's τέλος by foregrounding the ethical consequences of its physical doctrine and 3) to draw attention to the physiological peculiarity of Stoic cosmology. This final pursuit has two purposes. The first, as I set out in the introduction, is to lay the groundwork for the question of why Athenaeus' transposition of Stoic physics into medicine appears to have been stringently selective, given the centrality of health and physiology to the original doctrine. The second is to demonstrate how physiological models are employed in Stoic philosophy, and to what end. The tension, as should now be clear and as shall unfold further throughout **III**, is

[226] And find support for thus at Syrianus *In Ar. Met.* 28,18-19 (LS 28 G).
[227] Dex. *In Ar. Cat.* 30,20-6 (LS 28 J).
[228] Sedley (1999) p.405.

between Stoicism's psychophysiological analysis of the cosmos and the Pneumatist's anti-cosmological analysis of the body and the soul.

Stoic ethics identifies in nature the formula for correct human behaviour, consistent with an innate rationality that orchestrates the world's perfection and guides the human by his/her deliberative mechanism – evidenced in the metaphysical dexterity of language – towards ἀρετή, participation in natural perfection, the integration of oneself into a complete all-thinking whole. The Stoic cosmos is hylozoic; every constituent is living tissue, moved/sustained by reason/soul. But it is only when considered as a unity that the world assumes the role of moral paradigm; harmony is evident at every layer of analysis – from the interaction of the principles, the elements, the parts of the body, fruits and animals, animals and humankind – but it is to the *sum* of these congruities which the ethicist aspires.

Stoic ethics is a dialogue between part and whole. It is only the human component who is capable, by virtue of his/her psychophysiology, to recognize the ethical implications of the totality, to see oneself reflected back. Macro-microcosm parity enforces one's behavioral obligations to the natural order, such that cosmobiology is the base ingredient for Stoicism's psychological salve. The part mirrors the whole by means of a shared psychophysiological topography, differentiated only by the variable of relative perfection. What the cosmos creates of itself the human creates in language, wielded as an epistemological tool for dividing truth from falsity and reflective, in its rationality, of designing λόγος. Moreover, for the Stoics, human psychophysiology is the gateway to *a posteriori* comprehension of the All. It should not, therefore, come as any surprise that human health, as demonstrated in both Zeno and Seneca, is conceived as a gateway to understanding ἀρετή**.** The questions we must answer going forward and which we will pick up in chapter **III**, are as follows. 1) How far can Stoic physics accommodate the physician's τέλος? 2) How far is Stoic *philosophy* – Stoic physics appropriately oriented, with its holistic fixation – compatible with that same τέλος? 3) To what extent can Stoicising medicine ever be considered 'Stoic' when τέχναι are defined by constraints to epistemology, by the aversion of one's gaze away from the totality?

*

II

Atoms, εἴδωλα, ἀταραξία

On the therapeutic τέλος of Epicurean philosophy

*

II.0 On to Epicureanism. As in chapter **I**, my intentions for this chapter are multiple, but all are foundational to my analysis of the Epicureanism's medical adaptation, the subject of **IV**. My goal is to delineate the body-soul duality in Epicurean physics with the intention to 1) present the physical and epistemological ideas whose transposition into medicine I explore in **IV** in their original philosophical context and 2) contextualise Epicurean psychophysiology as a component of an ethics-oriented, 'medicalised' philosophy in which knowledge of physics was instrumental to the pursuit of ἀταραξία (psychological equanimity).

As set out in my introduction (**0.3**),[1] I will argue over the course of this thesis that the changes we see Graeco-Roman doctors make to Hellenistic doctrine become more intelligible if understood as a reaction to an entrenched hierarchy of disciplines, formalised by Aristotle, that dominated Hellenistic ethics and subordinated all intellectual pursuits to that of the intrinsic Good. In the case of Epicureanism, I will argue at **II**.**5** (and pick up the thread in **IV**) that the doctrine, which styles itself a psychological panacea, developed its physics only so far as to accommodate the role of psychological medicament. Moreover, I will suggest that practical realities of the medical profession may have proven incompatible with the Epicurean τέλος. In order to do this, an overview of the content and function of Epicurean physics is necessitated and will occupy us at **II**.**3**. As with **I**, the distribution of emphasis in this chapter is dictated by the nature of Epicureanism's medical adaptation. Thus, where we had little to say of Stoic epistemology in the last chapter, this branch of Epicurean philosophy will receive significant attention below, both in tandem with the outline of Epicurean physics at **II**.**3**, and independently at **II.4.** I will argue in **IV** that the medical appeal of Epicurean philosophy lay principally in the domain of epistemology. Epicurean

[1] See further **III.3**, esp. **III.3.1**.

epistemology rests on the assumptions of its physics; it cannot be abstracted from the particulate model of reality on which it depends.

II.1 Asclepiades of Bithynia

As in the previous chapter, the following discussion of Epicureanism is shaped by the nature of its medical appropriation. The following summary is simply that; controversies surrounding the nature of Asclepiades' influences/adaptations are addressed in **IV.1.2.**

A native of Cius (later Prusias ad mare) in Bithynia (modern northwest Turkey) Asclepiades established himself in Rome during the latter part of the second century BC. As Greek medicine's first celebrated exponent in Rome,[2] controversy abides as to whether Asclepiades be considered a late-second century physician or one whose influence was greater felt in the early part of the first century BC.[3] Whatever the correct chronology, Asclepiades' status in Rome amounts to a critical development in the history of Greek medicine; Asclepiades of Bithynia is an axial figure, a steppingstone between the third century Hellenistic anatomists and the tradition of Graeco-Roman medicine exemplified by Galen of Pergamon in the second century AD.

Asclepiades' theory of health and disease drew extensively from Epicurean atomism.[4] He proposed that matter could be analysed into ἄναρμοι ὄγκοι, subsensible particles that behave like Epicurean atoms in their perpetual motion

[2] The earliest, though apparently unsuccessful, attempt to establish Greek medicine in Rome was, according to Pliny (*NH* XXIX.6), made by one Archagathus ('The Executioner') in the late 3rd century BC, whose purported brutality stymied his attempts to develop a substantial following. Greek doctors would continue to drip into Rome in the coming century, but it would not be until the late second century BC that Rome would boast its own major medical authority.

[3] Asclepiades' arrival at Rome in the closing decades of the second century BC is uncontested; how much of the first century he saw remains unclear. Rawson (1982) placed the date of his death before 91 BC. Vallance (1990) accepts Rawson's chronology without additional analysis. The orthodox view was questioned in a recent article by Rebecca Flemming (2012) p.67-69, who argues that the conventional date relies too heavily upon a single sentence in Cicero's *De. or.* The sentence in question (I.62: …*neque vero Asclepiades, is quo nos medico amicoque usi sumus tum eloquentia vincebat ceteros medicos, in eo ipso, quod ornate dice bat, medicinae facultate utebatur, non eloquentiae.*), in which Cicero has the orator L. Crassus speak of having enjoyed Asclepiades' services as a doctor and a friend in a dialogue set in 91 BC, is ambiguously worded, and Crassus' application of the perfect tense in referring to Asclepiades should not automatically be taken to suggest that he was dead before the dialogue took place. Flemming suggests, in accordance with evidence from Sextus Empiricus (*M* VII.80), that Asclepiades lived into the second decade of the first century BC, which would have afforded him the necessary time to establish his reputation in Rome and produce the most plausible chronology for his various pupils and followers.

[4] For the debate surrounding this claim, see **IV**.**1.2**. Cael. Aur. *Cel. Pass.* 1.14.105-7 (see further **IV.2.2**) is our principal source for the theory summarised in this paragraph.

through a limitless void. They, like atoms, are perceptible only to reason. They have primary qualities – size, shape and tangibility – but are without secondary, phenomenal qualities – colour, smell, taste *etc*. Health is maintained by the free and balanced motion of ἄναρμοι ὄγκοι through void-gaps (πόροι, pores) in the body while, in most cases, disease results from the impaction of ὄγκοι in any particular locality. Asclepiades' epistemology also indicates a profound Epicurean influence.[5] I will argue in **IV**.**5** that the appeal of Epicurean physics to the Bithynian lay chiefly in its inextricability from Epicurean epistemology. I dedicate **II.3-4** to illuminating this bond.

Where the boundary between Stoicism and Pneumatism is characterised by selective permeability (see esp. **III.2**), the place where Epicureanism and the medical art touch is defined by explosive transformation. Asclepiades makes the following modifications to Epicurean doctrine, which inform the content of this chapter: 1) he denied the body a localised ἡγεμονικόν. This is the doctrine that brought him most attention from commentators outside the medical field (**IV.4**); 2) he claimed that everything occurs through necessity, eschewing Epicureanism's intrinsic anti-fatalism (**IV.3**);[6] 3) most controversially (for modern commentators), he proposed that the ἄναρμοι ὄγκοι were frangible; they can be broken into fragments of infinite parts.[7] Questions of anti-fatalism, psychology and the properties of the atom will occupy our attention throughout this chapter. We examine the relationship between each of these physical doctrines and Epicureanism's ethical τέλος so as to establish their negotiability if the system were to jettison its ethical obligations and re-orient itself towards facilitating a physician's goals. In Asclepiades' interaction with Epicureanism, negotiability is the decisive variable. I will argue at **IV** (esp. **IV.5.3**) that this quality is determined by the dependency of Epicurean epistemology on the physical doctrine under scrutiny. Asclepiades modifies Epicurean philosophy around the peripheries of an immutable core, the unyielding knot of physical and epistemological premises.

[5] I address the controversies surrounding this subject at **IV**.**5.**

[6] Cael. Aur. *Cel. Pass* 1.14.115.

[7] Cael. Aur. *Cel. Pass.* 1.14.105-107. **IV**.**2** for the broader consequences of this doctrine. At **IV.2.5** we examine the possible motivations for Asclepiades' introduction of corpuscular fragility into a physics derived from Epicureanism.

II.2 Background and Evidence

The Epicurean school was founded in Athens in the last decade of the fourth century BC by the eponymous philosopher, an Athenian citizen raised on the island colony of Samos.[8] Near the midpoint of his life, having crafted elsewhere the foundational principles of the philosophy he would continue to nurture,[9] Epicurus returned to his metropolis and founded The Garden, a secluded community of friends and followers (including, most scandalously, women and slaves) throughout which his doctrines were disseminated and discussed.[10] Where Stoicism was a steppingstone in a tradition whose influence on western philosophical and religious thought has gone unbroken,[11] the broader history of the Epicureanism, encompassing all of its manifold receptions, is marked by lengthy periods of silence and disinterest. For all its early popularity, the school fades from history after the third century AD. Its influence goes undetected until the early seventeenth century, when the principles of Epicurean physics would be rediscovered and incorporated into the foundations of modern science.[12]

Concerning testimonia, we are better posed to reproduce in a more consolidated form Epicurean cosmology than we are with the Stoic equivalent. This is consequent, in part, on the fidelity of later Epicureans to the doctrines of the founder; though evidence of inter-Epicurean disagreement over the school's development has been uncovered – particularly concerning the location of the ἡγεμονικόν in light of anatomical discoveries (**II.3.9**)[13] – the template goes

[8] D. L. X.1. Among the early teachers under whom the young Epicurus studied, Nausiphanes, the follower of Democritus, is attested in multiple accounts. D. L. X.13-14 cites the *Chronology* of Apollodorus and Ariston's *Life of Epicurus.*

[9] Sedley (1998) p.128-132 makes a compelling case for books I-XIII of Epicurus' magnum opus, *On Nature,* having been completed before he established himself in Athens in 306/306 BC. Epicurus taught for four years in Lampsacus (D. L. X.15), on the Asian mainland, where much of the first thirteen books of *On Nature* were likely written.

[10] D. L. X.2, 10-11.

[11] The founding of this tradition is most commonly – though somewhat arbitrarily – attributed to Plato, most famously by Alfred North Whitehead in his book *Process and Reality* (1929, p.39 in the 1979 corrected edition), in which he argued that the European philosophical tradition consisted of 'a series of footnotes to Plato'. It is worth noting, given Plato's peculiar reticence regarding Democritean philosophy, that the materialist tradition Epicurus inherited from Democritus and Leucippus is among the few exceptions from Plato's direct influence. What Epicureanism shares with Stoicism, as I will argue over the course of this thesis, is more directly inherited from Aristotle and pertains to the teleology of the Epicurean ethical project.

[12] O'Keefe (2010) p.5.

[13] Sedley (1998) p.68-70. An exegetical treatise by Demetrius of Laconia, recovered from the library of Philodemus at Herculaneum (P. Herc. 1012), acknowledges a discussion within the Epicurean school concerning whether Epicurus might have been mistaken in his cardiocentricism. I treat the anatomical

unchallenged throughout the history of the school.[14] Epicureanism undergoes no transformation comparable to that of Stoicism under Chrysippus' premiership; the picture we construct of Epicurean cosmology is the product of layered reiterations of foundational doctrines, rather than an ongoing reconciliation of conflicting testimonia towards a broad consensus which accounts for alterations over time.

Of more tangible significance, we have a greater wealth of Epicurean testimonia than we do for any other Hellenistic school. Among the surviving works of Epicurus are three didactic letters, preserved intact: the *Letter to Herodotus,* the *Letter to Pythocles,* and the *Letter to Menoeceus,* concerning physics, cosmology and meteorology, and ethics respectively, and a collection of aphoristic *Principal Doctrines* (*RS*), all which are preserved in the tenth book of Diogenes Laertius' *Lives*.[15] From Epicurus we also possess (occasionally substantial) fragments from his magnus opus, *On Nature,*[16] recovered from Philodemus' library in Herculaneum, a further collection of aphorisms entitled the *Vatican Sayings* for the location where the manuscript was discovered, and an assortment of fragments quoted in Greek writings and the Latin works of Cicero and Seneca. Though what survives of Epicurus' corpus amounts to a sliver of his literary output,[17] we are fortunate to possess summaries of Epicurean physics and ethics in the founder's own words. There are some limitations; Epicurus tells us that the *Letter to Herodotus* – the longest of his extant epistles and most important for our purposes – was intended as an epitome of his physical system,[18] designed to abbreviate for the student his principal doctrines at the expense of the 'exact details' which he presumes his reader can access should they wish.[19]

---

discoveries that prompted this dispute in some depth at **IV.4**, where I examine their influence on Asclepiades' psychological model.

[14] To acknowledge this is not to echo Eduard Zeller's (1870 p.394-396) hostile pronouncement that no system other than Epicureanism 'troubled itself so little about the foundation on which it rested' nor 'confined itself so exclusively to the utterances of its founder' on account of their 'servile dependence' on his doctrine, for all that Zeller's view found antecedents in antiquity (e.g. Numenius in Euseb. *Praeb. Evang.* 14.5.3, see Fish & Sanders (2011) p.1). Zeller's conclusions were insufficiently founded. As Sedley (1989) p.97-99 argues, the Epicureans were not unique in their adherence to the canonical texts of their school's founder; what distinguishes the Epicureans from, for example, the Stoics in this area is that Epicurus laid out his doctrine systematically, and in great detail (with a possible significant exception (see **II.5**)), where Zeno seems to have left vast areas of his philosophy unclarified.

[15] The *Principal Doctrines* are generally considered to have been arranged by Epicurus himself, as opposed to having been subsequently gleaned from his texts. Gaskin (1995) p.5.

[16] Specifically, fragments from Books II (two copies), XI (two copies), XIV, XV, XXV, XXVIII and four further unidentified books. See Sedley (1998) p.98-99.

[17] D.L. X.26-27 – Epicurus 'eclipsed all before him in the number of his writings.' Trans. Hicks (1925).

[18] Epic. *Ep. Hdt.* 35. Chapter citations in Epicurus' epistles are taken from D. L. X.

[19] Epic. *Ep. Hdt.* 83.

Moreover, the body of work the *Letter to Herodotus* purports to summarise is naturally limited to that which predates its composition. Sedley identifies this body of work as books I-XIII of *On Nature* which,[20] in its completed form, was thirty-seven books in length.[21] This may account for the more significant omissions we identify in the text, cross-referenced with later Epicurean sources.[22]

The *Letter to Herodotus* is typically used to supplement and contextualize our most complete source for Epicurean physics, the didactic Latin epic *De rerum natura* (hereafter *DRN*) by the Roman poet Lucretius, written in the first century BC. Addressed to one Memmius,[23] and crafted for a Roman elite, *DRN* reconstructs Epicurean physics in Latin verse, 'sweetening'[24] with poetry the breadth of Epicurean cosmology from the nature of the atom to the roots of meteorological phenomena by way of human sense-mechanics and the impressions that guide reason towards nature's subsensory mechanisms, then further still to the character of εὐδαιμονία/ἀταραξία. *DRN* is Epicurus' cure-all, rendered palatable. Much of what Lucretius writes of Epicurean physics can be checked against the *Letter to Herodotus.* Where Lucretius does include details of physical doctrine that are absent from Epicurus' epitome, we have little cause to suspect him of deviating from the founding doctrine; David Sedley has done much to establish Lucretius' 'fundamentalist' devotion to Epicurean doctrine, evidenced by his lack of engagement with contemporary inter-Epicurean debates or with the philosophy's first century opponents,[25] and has argued convincingly that the first fifteen books of Epicurus' *On Nature* was Lucretius' singular Epicurean source.[26] Lucretius tells us that he is walking in the footprints of Epicurus.[27] When he is not

[20] Sedley (1998) p.100, 131-132
[21] D.L X.27.
[22] See for example **II.3.8** below.
[23] Almost certainly (or, at least, almost certainly based upon) the historical C. Memmius, whom Cicero implores (*Ep. Fam*. 13.1.3-4) on behalf of Athenian Epicureans not to demolish what remained of Epicurus' house. See Clay (1983) p.212-225 for the relationship between Lucretius and his reader, of which the historical Memmius is but a single facet.
[24] Twice in *DRN* – first at I.936-950 and then again at IV.11-25 – Lucretius likens his poetry to the 'sweet yellow honey' smeared upon the rim of a goblet of bitter medicine. I examine this imagery and what it says of Epicureanism curative self-image at **II.5.1**.
[25] Sedley (1998) p.62-93. Also, Clay (1983) p.24-25.
[26] Sedley p.134-165. The only section of *DRN* which cannot be sourced from *On Nature* is the plague episode at VI.1138-1286, which is derived from Thucydides. Considering Lucretius' devotion to the tenets of *On Nature* I-XV in the rest of the text, deviations from Thucydides' account should be read as reflective of Epicurus' position as articulated in those books. See **II.5.3** below.
[27] Lucr. III.1-30.

transposing the first books of *On Nature* into verse, he is celebrating the wisdom of their author or justifying their translation into poetry.[28]

Beyond Epicurus and Lucretius, we possess fragments of the inscription of Diogenes of Oenoanda, an Epicurean of the second century AD who had his works inscribed on a portico wall in the eponymous polis. Non-Epicurean – and frequently hostile – testimonia include Seneca, Sextus Empiricus, Cicero, Plutarch and Diogenes Laertius.

II.3 Physics and the scientific method

The following exposition will follow the order of information set out in the *Letter to Herodotus* (hereafter *Ep. Hdt.*) as far as is useful. I withhold the discussion of the mechanics of sensation until **II.4.1**. The discussion of the swerve (*clinamen*/παρέγκλισις), absent from *Ep. Hdt.*, is inserted at **II.3.8.** Throughout this section I focus on the emphasis Epicurus imposes on the capacity of the human mind to apprehend nature's hidden apparatus so as to demonstrate how Asclepiades' adopted scientific method was originally perceived to lead inexorably to the following materialist conclusions. In contrast with **I.3**, epistemology, rather than ethics, is our focus in this section and the next. As we shall see, my thesis is that the physics-ethics interconnexion is not so closely entwined in Epicureanism as it is in Stoicism; with respect to ethics, Stoic physics is a template (**III.5**); Epicurean physics is a justification (**II.5.6**). As we shall see, the abatement of pain is seldom aligned with the activity of atoms – indeed, when atomism is moulded to accommodate an ethical stipulation, as with the *clinamen* (**II.3.8**), the backwards engineering of anti-fatalism into corpuscular materialism is manifest in the resultant (at least, apparent) incoherence. The consequences of this partial disjunction for Epicureanism's medical adaptation will unfold through chapters **II-IV.**

[28] cf. Lucr. III.1-3 and IV.1-25. Lucretius' claims to originality, such as that made at I.921-929, pertain to the form of *DRN*, not the content.

II.3.1 Permanence and biological regularity

The first law is conservation.[29] Nothing can be generated *ex nihilo* or destroyed; the elements are permanent. Therefore, nothing can be added to or subtracted from the All.[30] From *Ep. Hdt.*:

> …nothing comes into being out of what is not. For in that case everything would come into being out of everything, with no need for seeds. Also, if that which disappears were destroyed into what is not, all things would have perished for lack of that into which they are dissolved.[31]

Refutation of *ex nihilo* generation and destruction is, as we have already seen (**I.3.5**) a common gambit in ancient philosophy.[32] The empirical character of Epicurus' exposition is, however, a distinctive attribute of his method of speculation.[33] Immediately prior to the passage above, Epicurus impresses on Herodotus the importance of sensation in grounding inferences to the non-evident.[34] In the context of *Ep. Hdt.,* the appeal to sensation at *Ep. Hdt.* 38-39 confirms his empiricist criteria. We observe biological regularity and understand that generation necessitates a pre-existent seed. Furthermore, the constancy of sense-reality suggests a minimum into which matter can be destroyed, a magnitude to be reincorporated into a newer structure.[35] Asclepiadean physics preserves the quantity of matter in the universe, but the interpolation of corpuscular fragility would appear to have consequences for the permanence of reality's substructure (see **IV.2.4.3**).[36]

The cyclicality of phenomena – dissolution and reconstitution in place of destruction *ex nihilo* and spontaneous generation – is not addressed directly in *Ep. Hdt.* but Lucretius communicates its essence. He appeals to the self-

---

[29] This is the first physical principle Epicurus addresses in *Ep. Hdt.,* and very likely the subject of *Nat.* I. Sedley (1998) p.110-114.

[30] A distinction is once again enforced between the cosmos and All. Like the Stoics (cf. S. E. *M* IX.332), the Epicureans conceive the All as an infinite totality; unlike the Stoics, the Epicureans theorized that the totality included an infinite number of additional worlds both similar and dissimilar to the one which we inhabit. See Epic. *Ep. Hdt.* 45; *Ep. Pyth.* 88.

[31] Epic. *Ep. Hdt.* 38-39 (LS 4 A).

[32] c.f. Calc. *In Tim.* 293 (LS 44 E); **I.3.6.**

[33] Sedley (1999) p.364.

[34] Epic. *Ep. Hdt.* 37-38 (LS 17 B); Asmis (2009) p.85-86. See **II.4.3** below.

[35] Cf. Lucr. I.225-237, 241-249, 670-676.

[36] The thesis of Betegh (2006) p.261-284 is important to consider in relation to this adaptation. See **IV.2.4.3.**

replenishing character of nature in his proof of matter's eternal conservation.[37] The themes of birth and death within a world-order of permanent constituents persist through *DRN.* The organic model of death and birth as respectively nourishing and nourished is applied to an ecology of compound bodies, organic and non-organic alike, perishing into one another,[38] permanent in their constituents but impermanent in their permutations. Biological regularity is held to be indicative of deeper truths concerning physical reality. This is notable both as an example of Epicurean scientific reasoning and of how philosophy incorporates biological phenomena into a broader cosmological schema. There are parallels with Stoic cosmobiology, but they can only be taken so far. Where Epicureanism locates in biology the template for complex but constrained patterns of development, a sign from which subsensible mechanics can be inferred; Stoicism identifies the starting point for cosmological, theological and ethical extrapolation. Vitality is not emergent in Stoic physics, it is fundamental.

II.3.2 Body and Void

Where questions can and have been raised about the Stoics' commitment to materialism,[39] Epicurean cosmology permits no such ambiguity. Epicurus tells us in *Ep. Hdt.* that 'the totality of things is bodies and void' and that 'beyond these nothing can even be thought of, either by imagination or by analogy with what is imagined.'[40] Phenomena spring from the as-yet-unspecified interactions of primary bodies. Only absence is incorporeal, be it empty of all matter or functioning as a substratum for material interaction.[41] As was the case with the

[37] *Ibid.* I.250-264.
[38] E.g. *Ibid.* I.665-674.
[39] See Gourinat (2009) p.46-70 and **I.3.2**, n.41.
[40] Epic. *Ep. Hdt.* 39-40. (LS 5 A).
[41] Body and void are *per se* existents but void is not an element in its own right. Epic. *Ep. Pyth.* 86, for example, implies an ontological distinction between the indivisible elements and the plane of their activity. Body and void do not replace one another as bodies traverse the domain of their activity; the replacement of a portion of void by body would contradict the law on conservation; void must not perish as a body passes into it, nor be generated *ex nihilo* in its wake. They must, therefore, be coextensive. Epicurus recognises no qualitative distinction between 'void' and 'room' and 'intangible substance' (ἀναφῆ φύσιν, a technical expression of his own invention) in *Ep. Hdt.*39-40, or elsewhere (cf. S. E. *M* X.2). Aët. I.20.2 (LS 5 D) corroborates that for Epicurus 'the difference between void, place and room is one of name'. S. E. *M* X.2 suggests that Epicurus' intangible substance remains qualitatively identical irrespective of whether it is occupied. It is, after all, defined simply as the absence of resistant touch. Terms such as 'void' and 'place' have utility insomuch as they denote whether a portion of the 'intangible substance' is occupied at point of analysis: void is unoccupied place; place is occupied void. The intangible substance is therefore all-present. Sedley (1999) p.369 likens Epicurean void to a computer screen; transformations in the display do not affect the nature of the screen.

law of conservation, the exposition of the basic division in *Ep. Hdt.* appeals immediately to the empiricist criteria for their existence.[42] Epicurus' inquiry into nature proceeds from the assumption[43] that non-evident truths can be determined *a posteriori* from images (εἴδωλα) corresponding to phenomena. The mechanical underpinnings of this assumption await us in **II.4.1**. It is sufficient, for now, to note only that observation precedes rational judgement in Epicurean analysis. That bodies exist is stated in *Ep. Hdt.* to be 'universally witnessed by sensation'.[44] An equivalent passage in *DRN* sets our more precisely Epicurus' claim.[45] Body is defined by spatial extension and tangibility.[46] What is intangible is void by definition.[47] Extra-geometrical properties of sense-data vary across phenomena, where shape and tangibility apparently do not.[48] These additional properties must therefore be parasitical upon bodies for their existence.[49] Geometry, in concert with tangibility, is the most self-evidently independent attribute of the observable world.

What is more, these bodies are 'observed to move'.[50] Epicurus conceives motion as reliant on an intangible substratum.[51] Where the Stoics posited void as a non-physical boundary, by whose presence they may designate the cosmos bodily, finite and whole, the Epicureans, in the atomist vein, introduced void into the structure of the cosmos. Lucretius asks that we attend to our senses in confirming the atomists' conclusion.[52] The function of a body is to block. It is rigid, without flexibility or give.[53] Universal corporeality begets a static world, at odds with the mutating reality of our senses.[54] The example: 'if there is motion, there

[42] Sedley (1999) p.366.
[43] An 'assumption' that is, of course, based on Epicurean physical doctrine. Epicurean physics and epistemology are, as we shall see throughout **II.3-4** mutually justifying. The consequence of this are further explored throughout **IV**.
[44] Epic. *Ep. Hdt.* 39.
[45] Lucr. I.419-444.
[46] *Ibid.* I.433-436.
[47] *Ibid.* I.437-439.
[48] *Ibid.* I.433-436.
[49] See **II.2.3** below.
[50] Epic. *Ep. Hdt.* 40.
[51] *Ibid.* This was originally an Eleatic proposition advanced as part of an effort to invalidate motion as apprehended by the senses. The Eleatics held that void, which could not be thought of, could not exist, and therefore neither could motion. There is only 'what is', the monad, undifferentiated and static. Early atomism is a response to the Eleatic position which accepts their premise but seeks to refute their conclusion. See e.g. Arist. *Phys.* VI.187a1-3.
[52] Lucr. I.334-345.
[53] *Ibid.* I.336.
[54] Lucr. I.336-339.

is void; there is motion, therefore there is void' is employed by several ancient authors to exemplify sign-inference in the Epicurean mode.[55] Epicurus' scientific methodology is adapted from a materialist precedent. He accepts, as Leucippus and Democritus did,[56] the epistemic value of phenomena but differs from his atomist predecessors in his account of their ontology.[57]

Further empirical proofs for Epicurean void in *DRN* concern porosity. In the Epicurean view, the permeation of solid bodies by more diffuse substances necessitates void-gaps: moisture seeps through solid rock; food, once consumed, permeates an entire animal; voices permeate walls; cold permeates bones.[58] Diffusive substances penetrate solid objects via their imperceptible interstices which offer no resistance to mobile bodies. Everything in the Epicurean sense-cosmos is porous to an extent, and that extent depends on how densely a structure's constituent bodies are arranged. The size of the void gaps present in a solid object determines its relative weight, and weight differentials between objects of identical proportions are offered as a further empirical proof for the presence of void in solid objects.[59] The basic division is non-evident, but is identified via reason in accordance with that which is 'universally witnessed by sensation.'[60]

II.3.3 Phenomena

In *Ep. Hdt.,* Epicurus distinguishes *per se* existents – bodies and void – from 'properties or accidents' of these.[61] *Per se* existents exist independently; 'accidents' are non-essential attributes – *i.e.* perceptible consequences of the interactions of bodies within void, parasitical on prior entities and transient in their

---

[55] Philod. *Sign.* 11.32-12.31 (LS 18 F); S. E. *M* VII.211-216.
[56] e.g. Arist. *GC* 324b35-325b5 (DK 67A7).
[57] See **II.4.2** below.
[58] Lucr. I.346-355.
[59] Lucr. I.362-367. Lucretius' argument here relies on a property of atomic motion that has not yet been established in the text, the innate 'downward' motion.

At I.370-384, Lucretius concludes his argument for the existence of void within the structure of the cosmos by anticipating and contradicting a familiar counterproposition: motion within an infinitely divisible plenum via mutual displacement, which was the model for qualitative change favoured by the Stoics, and by Aristotle before them. The example he gives is that of a fish swimming through water by displacing the sea around it – here offered as a symbolic representation of all independent motion within an essentially fluid continuum – and argues that even in this specific instance the water must be interspersed with void gaps in order for motion though its mass to be facilitated. The appearance of fluidity and other intermediary physical states are consequences of solid bodies colliding and combining in particular ways within an intangible substratum.

[60] cf. Epic. *Ep. Hdt.* 39-40.
[61] Epic. *Ep. Hdt.* 40.

manifestation.[62] The 'properties' of bodies and void refer to their permanent, defining attributes, those characteristics which cannot be removed from an entity without destroying it.[63] They are concomitant with *per se* existents but do not share their ontological status.[64] For bodies, these are tangibility, weight and three-dimensional extension – *i.e.* size and shape.[65] For void, these are three-dimensional extension and intangibility.[66]

Every other characteristic of the sensible world, however intuitively basic or abstract, is a consequence of body and void. Sense-reality, being the sum of such characteristics, is an abundance of transitory entities whose only permanent characteristics are those which are predicated on basic binary. Crucially, however, sense-reality is not illusory. Though its epistemic appearances have no *per se* existence, they are, nonetheless, objects in corporeal reality. Democritus, having come this far, confined the accidents of bodies to the realm of popular illusion.[67] Epicurus adopted the contrary approach. Accidents of bodies, though not independently existent, are real in Epicurean epistemology at the level at which they are perceived.[68] That observer-dependence does not preclude 'existence' in Epicurean ontology is elucidated in a fragment from the third century Epicurean scholarch Polystratus' *On Irrational Contempt,* an anti-sceptical work. Polystratus argues that observer-dependent or 'relative' phenomena are non-illusory because their consequences 'are plain for everyone to see', making a familiar appeal to self-evidence as a sufficient indicator of a sense-object's

[62] Epic. *Ep. Hdt.* 70-71. Time, the dimension by which the impermanence of accidents is decided, is itself an accident. It is described by Demetrius of Laconia, an Epicurean of the second century BC, as an 'accident of accidents' (S. E. *M* X.219-227), posterior, in the abstract, to the transformations of posterior phenomena. cf. Lucr. I.458-463.

[63] Lucr. I.450-451. See *Ibid.* I.445-482 for the poet's systematic elimination of other pretenders to the status of *per se* existent. Having distinguished accidents and properties from *per se* existents Lucretius turns his attention to abstract pretenders such as time and facts concerning past events – the components of history. The former (n.62 above) is a consequence of perception which cannot be understood separately from the sequence of events it relates to. The latter are considered either 'accidents of the world' or of specific geographical locations. They too are thus 'accidents of accidents', which continue to resonate in the sensible world because the bodies with which the participating phenomena were composed and the space in which they acted must continue to exist. See Clay (1982) p.125 for this argument and the problems it poses. See also Sedley (1999) p.371.

[64] S. E. *M* X.219-227.

[65] Epic. *Ep. Hdt.* 54.

[66] Lucr. I.453.

[67] D. L. IX.44; S. E. *M* VII.135.

[68] Epic. *Ep. Hdt.* 72. Cic. *Fin.* I.21 interprets this decidedly anthropic component of Epicurean epistemology as the wilful disregarding of the distortive capacity of perspective. For Epicurean sensory mechanics and criteria for truth, see **II.4.1** and **II.4.2** respectively.

essential truth.[69] Polystratus concedes that relative predicates such as 'bigger' or 'heavier' do not have the same status as a sense-object's innate characteristics – for example, the qualities of being 'gold' or 'stone' – but acknowledging an ontological hierarchy of accidental properties does not invalidate the truth-value of any species of appearance.[70] 'Gold' and 'stone', through consistent in their epistemic appearances across the full variety of observers, are no more independently existent than observer-dependent phenomena. Both are consequent on the primitive activity of bodies in void. Every phenomenon, both the relative and the intrinsic, gestures towards its hidden source.

II.3.4 Atoms

Asclepiadean ἄναρμοι ὄγκοι, as I shall argue in **IV.2**, were elaborated from the principles of Epicurean atomism.[71] To be ἄτομον is to be uncuttable. To analyse reality into atoms and void is to impose a limit on the divisibility of material. While atomism is the bedrock of Epicurus' physics, he dedicates only three sentences of *Ep. Hdt.* to elucidating his atomic thesis:[72]

> …of bodies some are compounds, others the constituents of those compounds. The latter must be atomic and unalterable – if all things are not going to be destroyed into the non-existent but be strong enough to survive the dissolution of the compounds – full in nature, and incapable of dissolution at any point in any way. The primary entities, then, must be atomic kinds of bodies.[73]

On Gabor Betegh's reading of *Ep. Hdt.* 40-41, Epicurus was primarily concerned with establishing that atoms are incapable of *qualitative* change, such as to their shape, of which division is but one potential cause.[74] The existence of the phenomenal world may presuppose an ineradicable element, but the constancy of the phenomenal world – the recurrence of myriad patterns that restrains its

---

[69] Poly. *De cont.* 23.26-26.23 (LS 7 D).
[70] *Ibid.*
[71] At **IV.2.2** I make the case for Asclepiades first having posited particles which were more or less analogous to Epicurean atoms. The introduction of frangible ἄναρμοι ὄγκοι into an essentially Epicurean physical system (minus, we have every reason to believe, the atomic swerve (see **II.3.**8, **IV.3** and **IV.5.3.3**) represents a development in Asclepiades' thinking.
[72] Betegh (2006) p.261-284 remains the most revealing study of Epicurus' defence of his atomism focusing on the following three sentences from *Ep. Hdt.* 40-41. See further **IV.2.4.3**.
[73] Epic. *Ep. Hdt.* 40-41 (LS 8 A).
[74] Betegh (2006) p.278, 282.

transformations[75] – depends on the immutable nature of the *prima materia*.[76] This conclusion is reached *a posteriori* from observed regularities in nature. To do away with this root doctrine is to invite consequences that a doctor who elaborated his theory of health from the initial conditions of Epicurean physics – as I shall argue Asclepiades did in **IV.2.3** – would be required to address. We will examine how phenomenal constancy might have been preserved in Asclepiades' system at **IV.2.4.3**. My thesis, following Asmis and Leith,[77] is that a balancing mechanism had to be incorporated into Asclepiades' physics in order to preserve truth-value of sense-data in Epicurean terms.

The property of the Epicurean atom that precedes its immutable nature is the absence of void within its boundary. Compound bodies, being assemblages of atoms, are divisible along the interstices between their atomic parts.[78] The compound is reticulated by void-gaps and is thus impermanent, physically divisible; atoms are ἄτομον because they contain no unoccupied space; the body-space binary depends on their monadic structure.[79] Body is unalterable. Phenomenal transformations are permutations of permanent corpuscles. The unitary nature of the atom is shared by the ὄγκος, but Asclepiades found cause to develop a wholly distinct theory of material's intrinsic properties.

II.3.5 (In)finitude

To be finite is to be bounded by a distinct substance, as the atom is bounded by void. The universe is unbounded; there is no third *per se* substance capable of describing its limit.[80] Atoms are infinite in number; void is infinite in extent. A finite number of atoms in an infinite expanse would never collide; a finite plane could not contain infinite matter.[81] Though atoms are infinite in number, the variety of sizes and shapes they might can take is restricted.[82] Lucretius explains that an infinite variety of sizes and shapes would engender the existence of atoms of an infinitely large magnitude, which is inconceivable.[83] Moreover, the manifestation

[75] See Lucr. I.584-598 for this argument from observed regularities in nature.
[76] Betegh (2006) p.261-284.
[77] Asmis (1983); Leith (forthcoming) II.1.2.
[78] Lucr. I.531-539. Fragility is measured in internal, unoccupied space.
[79] Sedley (1999) p 372.
[80] Epic. *Ep. Hdt.* 41-42; Lucr. I.958-1020; Furley (1999) p.419.
[81] Epic. *Ep. Hdt.* 42; Lucr. I.1008-1051.
[82] Although finite, the number of possible shapes and sizes must nevertheless be larger than is conceivable to account for the diversity of phenomena contained within the sensible world. Sedley (1999) p.373.
[83] Lucr. II.481-2.

of the phenomenal world relies on the components of its substructure functioning beneath the level of perception, lest the εἴδωλα (see **II.4.1**) produced by their activities be intermittently obscured by their own dimensions.[84] Epicurus denies the possibility of atoms being large enough to perceive in *Ep. Hdt.* but does not elaborate his reasoning.[85] The empirical absence of atoms large enough to be perceived *per se* might have been sufficient to propose an upward limit on their magnitude. A downward limit might result from the same arguments against infinite divisibility, but it is not obvious that a finite size range would result in a finite number of atomic shapes.[86] A more complete explanation depends on the Epicurean theory of minima, a further – I believe, illuminative (**IV.2.4.2**) – point of departure with the Asclepiadean elaboration.

II.3.6 Minima

Epicurean atoms can neither be cut nor traversed to infinity.[87] This distinction is most helpfully understood as the difference between physical and theoretical divisibility.[88] Minima, which are units of magnitudes constituting the 'minimum in the atom', are physical (not epistemological) constituents, but the dichotomy retains its explanatory utility.[89] Heterogeneity of atomic shapes implies the existence of a yet more fundamental species of component that is subject to variform arrangements across type; the 'partlessness' of the atom is difficult to defend when one considers the variety of atomic shapes and therefore the number of possible configurations of a yet more fundamental magnitude.[90] According to Lucretius, the theory of minima, in concert with the upward limit on the size of the atom necessitated by experience, results in the restriction of the number of shapes in which an atom can exist, as only a limited – if inconceivably immense – number of configurations are possible within fixed boundaries of size.[91]

---

[84] Sedley (1999) p.373. On account of the mechanics of sensation laid out at **II.3.1**, a macroscopic atom could not be perceived in the manner of a compound. It would register solely as an impediment to εἴδωλα**.**
[85] Epicurus *Ep. Hdt.* 55-6. The corresponding segment in *DRN*, to which Lucretius alludes at II.498-499. is unfortunately absent.
[86] Sedley (1999) p.373-374.
[87] Epic. *Ep. Hdt.* 56.
[88] Long (1974) p.33-34.
[89] Sedley (1999) p.376.
[90] Long & Sedley (1987) p.41.
[91] Lucr. II.482-496.

The arguments for minima in *Ep. Hdt.* 56-57 are derived from Eleatic arguments about motion and infinity.[92] When Epicurus writes that it is impossible to conceive how an infinitely divisible magnitude could be traversed,[93] his argument recalls Zeno's dichotomy paradox, wherein motion across a structural continuum is supposedly refuted on the grounds that every arbitrary distance can be resolved into infinite fragments of infinite divisibility.[94] The echo of Zeno in Epicurus is unsurprising given atomism's history. Aristotle, from whom our knowledge of early atomism is primarily derived, maintains that the tradition began as a reaction to Eleatic arguments against motion and plurality; every atom functions, in effect, as a discrete Parmenidean unity.[95] It remains unclear as to whether the early atomists addressed divisibility beyond the question of frangibility;[96] Aristotle's silence on this matter strongly suggests that Epicurus was the first to apply Zenonian arguments to the composition of the atom. On Simplicius' account, where the early atomist appealed frequently to the smallness and the partlessness of the atom, Epicurus stressed only its immutability,[97] a detail whose foregrounding makes the Asclepiadean elaboration much more significant (see **IV.2.4.2**). Precedent for Epicurus' theory of minima can be identified outside the atomist tradition in the work of the third century Dialectician Diodorus Cronus, whose theory of partless bodies and space will be revisited in the next section.[98]

A concluding note on minima pertaining to Epicurus' scientific method. Having epitomised his argument for minima in *Ep. Hdt.* 56-57, Epicurus analogises physical minima to the minimum in sensation in order to explain how they

[92] These arguments are 1) traversal necessitates partless minima (cf. Zeno's dichotomy paradox); 2) an atom containing infinite parts is an atom of infinite size (cf. Lucr. I.619-622.); 3) since the finite body has a distinguishable extremity and since one can conceive of the whole in sequence from one extremity to the next, the act of doing so and holding such an object in thought would be equivalent to 'reaching infinity in thought' should that object's boundary circumscribe an infinite number of parts, which should be impossible. See Furley (1967) p.8-27 and White (1992) p.203-208 for the interpretation of (3) as a direct challenge to Aristotle's argument in *GC* 1.2. for the impossibility of the dissolution of a finite magnitude into limit entities.

[93] Epic. *Ep. Hdt.* 56-57.

[94] Arist. *Phys.* 233a21-28, 239b9-14 (DK 29A25).

[95] e.g. Arist. *Phys.* 187a1-3; *GC* 324b35-325a6, a23-b5.

[96] Long (1974) p.34.

[97] Simp. *In Ar. Phys.* I fr.216 (= Usener 268); cf. the argument of Betegh (2006) p.261-284, *supra* **II.3.4, IV.2.4.3**.

[98] The influence of Diodorus on the Epicurean theory of minima is detectable in the consequences of the theory of minima for the nature of motion, which is probably a later addition to Epicurus' system. See **II.3.7** below.

function, mathematically, as constituents of the atom.[99] An experiential phenomenon is used to illuminate the nature of the subsensible; Epicurus argues that the smallest magnitude of which the human can conceive is by its nature partless (thus shapeless) yet extended, inviting the reader to infer that the 'real' minima possess the same counterintuitive mode of extension.[100] Moreover, sensible minima are neither coextensive nor contiguous with their neighbouring magnitudes but are nonetheless conceived as parts in a sequence 'in their own peculiar way'.[101] This has been interpreted as a response to Aristotle, who argued that partless constituents of a conglomerate magnitude could never be in contact with one another without being fully coextensive – *i.e*. matching whole to whole – because they would otherwise have to be connected part to part or part to whole and both of these alternative options necessitate parts.[102] Epicurus does not detail the 'peculiar manner' in which minima are in sequence in his extant works; we may infer from this absence in *Ep. Hdt.* that Epicurus considered – at least, in the writing of *Ep. Hdt.* (and likely its source) – that the analogy with sensible minima was sufficient to communicate how a sequence of minimum magnitudes is possible without contiguity. The analogy is therefore not an explanatory aid, but the explanation itself. That we can comprehend – if not adequately articulate – the mathematics of non-contiguous, sequential arrangements is supposed to indicate an analogous process beneath perception. This is typical of Epicurus' scientific method, but in this instance the inference is strained. Sensible minima can exist independently, where real minima are the limits of atomic magnitudes.[103] If sensible minima can exist independently then they must have fixed dimensions around which one could cut. The revelation of such dimensions would problematise their 'partlessness' and non-contiguous sequential arrangement. Epicurus acknowledges the analogy's imperfection when he denies real minima the possibility of independent motion – *i.e.* that which is not incidental to the motion of the atom – and thus their capacity to recombine in the manner of

[99] Epic. *Ep. Hdt.* 58-59. Lucr. I.746-52 uses this analogy as further proof for the existence of minima, but this does not appear to be Epicurus' intention in *Ep. Hdt.*
[100] Epic*. Ep. Hdt.* 58.
[101] *Ibid.*
[102] Aristotle *Phys.* VI.1. See Long & Sedley (1987) p.42. Aristotle himself (*Phys.* V.3.226b34-227a6) seems to have been aware of the loophole which Epicurus exploits; he writes that succession requires only that one thing to be after another with nothing of the same kind between them. See White (1992) p.203.
[103] Lucr. I.602-604.

the atom.[104] I submit that this distinction, if it does not outright undermine the utility of the analogy with the sensible, leaves it vulnerable to criticism within an epistemological framework that shared many Epicurean presuppositions. Given that Asclepiades dispenses with Epicurean minima when he posits frangible elements but – as I will argue in **IV.5** – retains an essentially Epicurean scientific methodology, this vulnerability is worth acknowledging. I will argue at **IV.2.4.2** that Asclepiades was comprehensively aware of the consequences of replacing atoms with frangible ὄγκοι in a system whose basic Epicurean foundations he otherwise sought to retain. We should remain open to the possibility that instances where Epicurean methodology may not be fully successful on its own terms were exploited for the physician's ends.

II.3.7 Atomic motion

The mechanism of motion in a cosmos that is resolvable into partless magnitudes is worth considering, as it is a further component of Epicurean physical doctrine that Asclepiades – I will argue knowingly (**IV.2.4.2**) – discards. The doctrine starts with Diodorus Cronus,[105] to whom a thesis of 'staccato' or 'granular' motion is attributed based on his analysis of space and time into minimal and partless entities.[106] Motion cannot occur between partless units of extension as there is no intervening magnitude through which to pass. Moreover, an object cannot be partly present in a partless space. A partless body must therefore 'jump' from partless place to partless place in sequence, never mov*ing*, but acknowledged to *have moved* from unit A to unit B.[107] The Epicurean doctrine of partless minima entails this mode of locomotion. Simplicius confirms that the Epicureans accepted Diodorus' thesis, for all that it goes unmentioned in *Ep. Hdt.*[108] Asclepiades' rejection of minima entails his rejection of this species of movement. His awareness of this would indicate his intimate familiarity with Epicurean physics, the broader – *i.e.* non-medical – consequences of his modifications to Epicurus' system, and (at least, potentially) the efforts he took to justify his element theory *against* that which he inherited (see **IV.2.4.2**).

---

[104] Epic. *Ep. Hdt.* 59.
[105] Following a line of reasoning first made and dismissed in Arist. *Phys.* VI.1.
[106] S. E. *M* X.85. The argument at *M* X.119-20 is likely derived from Diodorus. See Sedley (1999) p.359.
[107] S. E. *M* X.86.
[108] Simp. *In Ar. Phys.* 934.23-30. Whether the adoption of Diodorus' thesis came from Epicurus or a later Epicurean is ultimately not relevant for our purposes.

In the Epicurean tradition, atoms have an innate tendency to move downwards, 'borne by their own weight'.[109] The reasons are empirical: objects of perception tend towards the surface of the earth unless diverted or obstructed from without.[110] Epicurus infers *a posteriori* that this uniform quality of motion must be intrinsic to the behaviour of the atom. Lucretius lists the falling of meteors, solar heat and bolts of lightning to earth as illustrations of the natural inclination of phenomena towards the surface of the earth.[111] Structures in nature which tend upwards such as trees, crops and flames are dismissed as being subject to external pressures from beneath; disentangled from those pressures they would fall to earth as would a tree branch severed from its trunk.[112] Epicurean atoms fall with equal velocity irrespective of discrepancies of size and weight.[113] Epicurus grasped, correctly, that size/weight discrepancies only affect the speed of an object if the medium it traverses has some innate resistance, such as air and water.[114] Void is, by definition, the absence of resistance. Consequently, every atom will move as 'fast as thought' until a moment of impaction, after which it will rebound at the same speed.[115] Motion is perpetual, an adaptation of Democritean atomism proposed in light of Aristotle's critique of

[109] Epic. *Ep. Hdt.* 43-44; Lucr. II.83-85, 217.

[110] As to the value of 'up' and 'down' as descriptors of direction in an infinite totality, Epicurus argues in *Ep. Hdt.* 60 that we must comprehend 'up' and down' relative to our own (most commonly oriented) perspective. Konstan (1972) p.269-278 remains the most convincing analysis of this confusing passage. Standing upright, 'up' extends infinitely above us, 'down' extends infinitely beneath us. Note that the human being is thus the measure of direction not only in the cosmos of which he/she is a transient component but also of the limitless totality, of which his/her cosmos is, correspondingly, a transient component. For Epicurus' account to hold true across all locations then the earth must necessarily be flat and orthogonal to the trajectory of unimpeded atomic motion – a detail which brings Epicureanism into conflict with most rival cosmologies in this period. Aristotle had argued for the sphericity of the earth both on valid astronomical grounds (*De cael.* II.14.297b23-298b20) and on grounds relating to his theory of the centrifocal motions of elements which depended upon the earth having a central point that was consistent across the area of its surface (*De cael.*II.14.297a8-b23). Lucretius I.1058-1067, in an attempt to defend what one suspects might have been an increasingly untenable position hundreds of years after it was proposed, seeks to ridicule proponents of a geocentric cosmos with a spherical earth at its axis and, in doing so, accidentally anticipates a number of the consequences of his heliocentric reality. See Furley (1999) p.421. It is intriguing, given our interest in how tightly Epicurean epistemology ties perception to reason to objective truth, that there appears to be nothing in the nature of atomic motion (elaborated further in this section and the next) that necessitates the construction, over time, of a flat earth as opposed to a spherical one, or one of any other shape. The flat plane is necessary only as a baseline from which the uniform direction of innate atomic motion can be deduced – *i.e.* it is necessary *for the proof* that atoms, unimpeded, fall in parallel lines towards the earth but it is not a necessary consequence of monodirectionality itself.

[111] Lucr. II.184-215.

[112] *Ibid.*

[113] Epic. *Ep. Hdt.* 61; Lucr. II.225-243.

[114] Lucr. II.223-242.

[115] Epic. *Ep. Hdt.* 61.

the atomist tradition in *Physics* IV.[116] In the case of compounds, while the speed of the compound itself is variable, being vulnerable to the influence of any number of contingent factors which come into play at the level at which compounds interact, the greater portion of the atoms with which it is comprised are understood to be colliding and rebounding at their natural speed but doing so within the compound's boundaries for the duration of its existence.[117] As we shall see in **IV.2**.**3**, the properties of corpuscular motion set out in this paragraph are shared by the atom and the ὄγκος.

The final component of atomic motion in Epicureanism – and the most conspicuous discrepancy between the motion of the atom and the ὄγκος – is the swerve (*clinamen*/παρέγκλισις). It is also Epicurus' most dramatic divergence from the atomist tradition he inherited. It fulfils two purposes, one cosmogonical and one ethical, pertaining to its role in enabling human volition. The latter purpose is examined in the next section. As to the former, particles traveling in parallel lines at identical speeds require an additional event to precipitate collision. The swerve is a necessity of Epicurean cosmogony; Lucretius cites the formulation of reality itself as the proof of its existence, once the empirical basis for the other properties of atomic motion have been established.[118] Swerves, on Lucretius' account, occur intermittently and have done so forever.[119] This and the inherent unpredictability of the swerve – there are no conceptual apparatus whereby one can ascertain which atom(s) will be next to swerve and when a swerve might occur – are the only aspects of its nature we can confidently assert. It seems safe to assume that all atoms will inevitably swerve and will do so an infinite number of times, owing to their permanence. But beyond this, scholars have been left to speculate as to whether the swerve constitutes a permanent adjustment in direction – that is, until the atom is impacted – along an oblique angle, or a momentary orthogonal 'side-step' motion from one vertical trajectory into another.[120] It remains the most mysterious component of Epicurean

[116] Arist. *Physic.* IV.8, 215a 19-22. Epicurus confirms the perpetual motion of atoms at *Ep. Hdt.* 43-47. See Inwood (1981).
[117] Furley (1999) p.422. The exception being those atoms shorn from its surface to produce εἴδωλα. See II.3.1 below.
[118] Lucr. II.216-224.
[119] *Ibid.*
[120] Purinton (1994) p.115-146, (1999) p.260-261 champions the oblique swerve. Sedley (1983a) p.41-42; Asmis (1984) p.279-280 and Englert (1987) champion the sidestep view, to name a handful of examples.

physics;[121] its capacity to frustrate arises, in part, from its backwards engineering into an inherited tradition of mechanistic materialism from the predecided (non-Democritean) ethical axiom that human behaviour is (at least partially) volitional. It is in the swerve's second, non-cosmogonical purpose where the psychological τέλος of Epicurean physics is most conspicuous.[122] Attempts to assemble a remedy for the problems created by the *clinamen* from Epicurean testimonia have proven inconclusive.[123] The incursion of anti-fatalism into atomism is where we must now turn.

II.3.8 Ethical Interlude: The physics of *libera voluntas*

In *De finibus* (*Fat.*), Cicero dismisses the swerve as a 'piece of childish fancy' and 'an arbitrary fiction', expressing his belief that it 'is the capital offence in a natural philosopher, to speak of something taking place uncaused.'[124] Epicurus' insistence that human experience – under which we should include the subjective experience of human activity – be validated, and the concessions he makes in pursuit of this end, exposes his philosophy to attacks that the early atomists were invulnerable to. The attempt to reconcile his atomism with the peculiarities of his τέλος – instrumental to which, we will see below, was his anti-fatalism – begets Epicurus' most eccentric doctrine. Democritus before him did not perceive the

---

For our purposes, the unclear mechanics of the swerve are secondary to the ethical perspective on the swerve's necessity.

[121] Much of the controversy surrounding the swerve, with respect to both its unclear mechanics and the nature of its relationship with volition (see **II.3.8** bellow) is an inevitability of limited source material. Epicurus does not mention the swerve in *Ep. Hdt.,* nor does he refer to it in any of the extant fragments of *On Nature,* an absence most surprising in those fragments which deal with the question of free will (*Nat.* 34 (LS 20 B, C)) and in which an appeal to its physical basis would seem appropriate. Despite these curious omissions, we lack sufficient cause to attribute the doctrine to anybody other than Epicurus himself. I refer again to Sedley (1998) p.62-91 on Lucretius' fundamentalism; *Nat.* is very likely Lucretius' sole Epicurean source. The swerve is not an elaboration that can be excised from Epicureanism without harming the school's basic ethical assumptions (**II.3.8**). Certainly, the swerve was attributed to Epicurus in antiquity. The only Epicurean text that mentions the swerve besides *DRN* is the inscription of Diogenes of Oenoanda 32.1.14-3914 (LS 20 G), which celebrates Epicurus as the atomist who discovered the swerve – and therefore non-necessitated movement – where Democritus before him had failed to do so. Cicero, moreover, blames Epicurus for the doctrine (*Fin.* I.19, *Fat.* 21-25).

[122] Beyond the simple fact that the cosmos exists (and thus that atoms interact), one's experience of one's own choice-making capacity would appear to be the primary data-point from which it is inferred. See **II.3.8** below.

[123] Purinton (1999) p.255-257 provides a summary of the variety of positions attributed to Epicurus concerning the precise relationship between his doctrine of atomic swerves and his libertarianism. I reference some of them further below. Diversity of opinion is, in this instance, an outgrowth of the swerve's inherent mystery. The fullest recent analysis of the Epicurean swerve is O'Keefe (2005), who summarises conflicting interpretations of Epicurus' libertarianism/incompatibilism, along with the Epicurean sources that support each interpretation, at p.10-25.

[124] Cic. *Fin.* I.19. trans. Rackham (1914).

'undisturbedness' (ἀθαμβίαν) he promoted to be dependent on non-necessitated action,[125] a detail in the background of Cicero's declaration at *Fin.* I.21 that 'where Epicurus alters the doctrines of Democritus, he alters them for the worse.'[126]

The occurrence of the swerve – by which I specify the initial deviation of trajectory prior to impaction – is alone independent of the otherwise prevalent mechanics of causality and logical necessity. Each swerve, as Cicero identifies, is an aberrant event which takes place without an obvious external cause. In its absence, mechanistic processes would underpin all activity within the Epicurean totality, as they do in Democritus' system.[127] In its presence, mechanistic processes persist but share the ontological territory with an anomalous species of movement. The result is chaotic. If we make the assumption that not every collision in the Epicurean model results directly from a swerve – *i.e.* there are, within what Cicero refers, in Rackham's translation, as the 'riotous hurly-burly of atoms' underpinning ordered perception,[128] impactions resulting directly from impactions, the effects of caused effects – such processes must retain their functionality where swerves are not occurring, and an atom must be subject to those same processes immediately after the occurrence of a swerve. Epicurean physics is therefore a hybrid of predictable and unpredictable activity, adhering

[125] See e.g. Cic. *Fin.* V.87 for Democritus' ethical pursuit. For necessity in early atomism, see e.g. Aët I.25.4 (DK 68A43). Reconciling what we know of Democritean physics with our Democritean ethical fragments and testimonia – many of which evoke a proto-Epicureanism (e.g. John of Stobi, *Anthology* 3.1.46 (DK 68B219), 3.5.17 (DK 68B188); Clem. *Paid.* I.6.2.1-3 (DK 68B214); Cic. *Fin.* V.87 above) – is far from straightforward. Vlastos (1945-1946) is the classic article on this subject. Part II.VI (1946) deals with the reconciliation of necessity with Democritean ethics. At p.56, Vlastos attributes to Democritus a form of proto-compatibilism (though he does not use this term) where 'chance', like 'colour', is a species of subjective illusion in Democritean cosmology, 'existent' only at the level at which we, who are similar illusions, interact with the world. One wonders, elaborating from Vlastos' take on Democritean necessity, if Epicurus' insistence that phenomena are non-illusory might have denied him access to this method of conceptually detaching the self from primitive determinism. The 'anti-reductionist' interpretation of the swerve (e.g. Sedley (1983a); Annas (1993). See O'Keefe (2005) p.17, and 65-109 for O'Keefe's 'anti-eliminativist' interpretation) holds that, in introducing the non-mechanical aspect of atomic motion, Epicurus was motivated by the preservation of emergent psychological properties in a cosmology that would otherwise consign them to illusion. This is significant for our purposes as it casts the swerve not only as a doctrine unveiled by Epicurus' scientific method but as a necessary component of Epicurean *epistemology* – *i.e.* the basis for the method – the structure of which I will argue in **IV**.**5** Asclepiades incorporates more or less unadjusted into his medical cosmology. See **IV**.**3** for Asclepiades on determinism, and what this implies of his conception of the medical purview. At **IV.5.3.3** I address the potential tension between Asclepiades' epistemology and his determinism.

[126] Trans. Rackham (1914).

[127] Cic. *Fat.* 21-25; Diog. Oen. 32.1.14-3.14 (LS 20 G).

[128] Cic. *Fin.* 1.20 trans. Rackham (1914).

to seemingly incompatible rule-systems simultaneously. Causality is integral to the system, but it is not universally prevalent.

The effort to forestall universal causality results from Epicurus' belief that human activity is not (or, at least, not entirely) the product of necessity, dictated from the bottom up by the mechanical activity of one's constituent atoms, but the product of volitions. Epicurus' argument for free will in our fragments of *On Nature* (*Nat.*) rests on the assumption that rationality emerges from choice;[129] deliberation loses its efficacy in a world where the future is determined.[130] Fatalism – that the possibility of self-betterment is out of human hands – runs contrary to Epicureanism's ethical τέλος.[131] Cic. *Fat.* 21-25 reports Epicurus' rejection of logical determinism, the principle that every statement, including those about future contingents, must either be true or false. To accept this is to concede that truth 'for all eternity…is certain, and if certain then necessary too, which he [Epicurus] considers enough to prove both necessity and fate.'[132] In the *Letter to Menoeceus* (*Ep. Men.*) Epicurus compares a cosmology ruled by causal necessity with one presided over by interventionalist gods and concludes that the latter case may indeed be preferable because the gods can be influenced (however minutely) through supplication.[133] Evidently, ἀταραξία was conceived as the pursuit of the human *agent*, she who is free to pursue her own goals. Ethics, the child of reason, depends upon an undetermined future, so much so in the Epicurean view that Epicurus cites the very existence of common behavioural standards as proofs of human volition: 'the fact that we rebuke, oppose and reform each other as if the responsibility lay also in ourselves, and not just in our congenital make-up and in the accidental necessity of that which surrounds and penetrates us.'[134] To those who venture that all human behaviour, irrespective of how rational it may appear outwardly and/or subjectively, results from mechanistic processes, Epicurus responds that the conduct of his opponents will always contradict their fatalistic claims – they apportion praise and blame as if the recipients were responsible for their actions.[135] Moreover, the fact that they

[129] Epic. *Nat.* 34.21-2, 26-30 (LS 20 B, C).
[130] By suggesting that this was Epicurus' principle concern, I am agreeing with O'Keefe (2005) p.123-152. Cic. *Fat.* 21-25 is the strongest piece of evidence in support of this interpretation.
[131] Cic. *Fat.* 21-25; Epic. *Ep. Men.* 133-134.
[132] Cic. *Fat.* 21-25 (LS 20 E).
[133] Epic. *Ep. Men.* 133-134.
[134] Epic. *Nat.* 34.26-30 (LS 20 C).
[135] Epic. *Nat.* 34.26-30 (LS 20 C).

engage Epicurus on this point implies that they hold him personally responsible for his faulty suppositions and that they, by appealing to his reason, have the capacity to influence him.[136] To argue against our conception of ourselves as rational agents is self-refuting.[137] We are in want of an account from Epicurus himself of how this argument can be translated, *a posteriori*, into physical doctrine. We have only a short rebuke of his materialist predecessors for turning 'a blind eye to themselves' in the formation of their causal doctrine, and thus failing to observe the contradiction between their actions and their physics.[138] That the swerve was backwards engineered into materialism physics from an ethical observation is suggested by this passage. It is our subjective experience of choice making that Epicurus foregrounds. This, like all phenomena,[139] presupposes a primitive physical signature.

The swerve and *voluntas* are explicitly connected in *DRN* II.251-293,[140] our fullest source for this controversial doctrine. Lucretius makes a distinction between compelled motion – reeling from a blow, for example – and self-instigated motion against the tide of external forces – recovering one's balance after having been struck –, then relates this binary system of movement to the activity of atoms.[141] The form of Lucretius' argument is typically Epicurean: fundamental laws are ascertained via analysis of the manifest; reason journeys from εἴδωλα to the interplay of *per se* entities.[142] An external observation is cited, that of the behaviour of racehorses in the instant before they break out of the gates,[143] yet the appeal is also to our subjective experience of *voluntas*: 'yet *in our breasts* there is something that has the power to fight against this [external] force and resist it'.[144] Though the example is of a man regaining balance after having been struck, an event we might observe befalling another, the use of the

[136] *Ibid.*; Epic. *SV* 40. See O'Keefe (2005) p.87-89. O'Keefe adopts this type of argument in his defence of Epicurus' anti-eliminative materialism (p.88).
[137] O'Keefe (2005) p.89.
[138] Epic. *Nat.* 34.26-30 (LS 20 C).
[139] Except, apparently, ἀταραξία itself. See **II.5** (esp. **II.5.6**). It is on the question of how the Epicurean realises his philosophy's τέλος that Epicurean reductionism is least in evidence. It is therefore the point where Epicurean physics and ethics seem most loosely entwined.
[140] Also, Diog. Oen. 32.1.14-3.14 (LS 20 G).
[141] Lucr. II.271-283, 284-293 respectively. O'Keefe (2005) p.26-37 for a recent analysis of this passage.
[142] O'Keefe (2005) p.28-29.
[143] Lucr. II.264-270.
[144] Lucr. II.279-280 trans. Melville (1997), my italics. In Latin: '…tamen esse in pectore nostro quiddam quod contra pugnare obstareque possit.' Note that the chest is the location of the mind in Epicurean psychology (I.3.9). The inference seems clear, the mind has the capacity to resist the infinite chain of causes and effects.

first-person plural binds our experience to that which we are invited to consider. This detail is worth noting. It reminds us that the ethics-oriented τέλος of Epicurean philosophy permits that Epicurus' scientific method be applied to internal experiential (*i.e.* phenomenological) data – one's experience of one's own psychological activity – as well as that which is perceived externally. When we consider (as we shall in **IV.3** and **IV.5** (esp. **IV.5.1.2** & **IV.5.3.3**)) that the *clinamen* is absent from Asclepiadean physics, where the Epicurean scientific method survives almost entirely intact,[145] we will note how the physician's τέλος orients his attention away from this species of experiential data (**IV.5.1.2**) even if the method of sign-inference he applies to external phenomena is adapted without adjustment.[146]

The mechanics of the relationship between swerve and *voluntas* are unspecified in *DRN*.[147] This absence has made for considerable controversy over the history of scholarly interest in this subject. Early twentieth century orthodoxy held that voluntary actions were posterior to uncaused atomic activity; volitions were caused by swerves; the swerves were not the products of volitions.[148] In his seminal work *Two Studies in the Greek Atomists* (1967), David Furley advanced the most enduring challenge to this position. He argued that the strict 'bottom up' formulation fails to do justice to Epicurus' libertarianism, making the case that a random event at the atomic scale must bring about a correspondingly random event in human behaviour and that it was beneath the acumen of one such as Epicurus to overlook so conspicuous a point of contention.[149] He suggested instead that most instances of choice in Epicurean causal analysis were, in fact, mechanistic in origin, and that the swerve – in his view, a very rare event – was introduced into the mix to guard against the possibility that every human act was preordained.[150] Various alternative models have been suggested since Furley's

---

[145] **IV.5.1**.

[146] O'Keefe (2005) p.26-32 makes a credible case for the claim that the principle purpose of *DRN* II.251-293 is to distinguish self-originated 'mind-steered' motion from motion with an external cause. The former mode of activity is of limited relevance to medical inquiry, where the latter, predictable aetiology, analysed into primitive activity (as far as is medically relevant), falls within the epistemic purview of the physician. See further **IV.5.3.3.**

[147] Indeed, when Lucretius explains *voluntas* at *DRN* IV.877-896, he not only neglects to mention the swerve but presents human volitions as the consequences of impinging atomic constellations on the spirit (see **I.3.9**). Human activity reads as mechanistic in this passage, but our susceptibility to the influence of impinging εἴδωλα/ideas is clearly only part of Epicurus' analysis of motivated human behaviour.

[148] Bailey (1928) p.435-436, (1947) p.840-843, 1287.

[149] Furley (1967) Study II, p.163-164.

[150] Furley (1967) Study II.

objection. Walter Englert argued that volitions precede swerves; swerves are necessary for a decision, once made, to be physically enacted but are not the causes of volitions themselves.[151] David Sedley proposed a more explicit 'top down' model, in which swerves are caused by volitions; he speculates that volitions, rather than overriding physical laws, direct atoms down alternative pathways which are already accounted for in the Epicurean system.[152] Jeffery Purinton, at the century's culmination, reinstated the case for the old orthodoxy by arguing that a satisfying reconciliation of Epicurus' atomism with his libertarianism is, in the final analysis, unattainable.[153] Tim O'Keefe argues that the swerve has 'no impact on Epicurus' general metaphysics, philosophy of mind, or action-theory', but simply allows for deliberation and efficacious action – it preserves the openness of the future.[154] This controversy concerning the swerve arises from what reads as a disfigurement in Epicureanism considered as a unified philosophy; it speaks to the resultant incoherence of forcing the base-mechanics of a pre-existing physical system, founded by Leucippus and Democritus, into alignment with an externally derived – and ostensibly conflicting – ethical stipulation.

Whether or not Epicurus found a way to reconcile his materialism with his libertarianism/anti-fatalism, the τέλος of Epicureanism is conspicuous in the doctrine of the swerve. O'Keefe argues persuasively that it is the fatalism of the Democritean system to which Epicurus primarily objects.[155] Fatalism, more so than theism,[156] deprives us of self-mastery and the opportunity to attain ἀταραξία through the exercise of reason. The inclusion of the swerve emancipates the human from the tyranny of fate and enables the Epicurean project,[157] but this comes at the expense of the robustness of Epicurean causal theory. I will return to the swerve and its absence in Asclepiades' medical theory at **IV.3** and **IV.5.3.3**. Two simple points can be made here, on which I will elaborate in **IV**. 1) The question of fatalism will very likely have been considered external to the physician's τέλος. 2) The practice of medicine necessitates *predictable* systems

[151] Englert (1987).
[152] Sedley (1983a). See also Long & Sedley (1987) p.110-112.
[153] Purinton (1999).
[154] O'Keefe (2005) p.149-152 (quotation from p.149). He refers to his interpretation as 'ultra-minimal' (p.150).
[155] *Ibid.* p.65-109.
[156] Epic. *Ep Men.* 133-134.
[157] *Ibid.*; Cic. *Fat.* 21-25.

of cause and effect at the level of the human being's *prima materia* (or at least, the 'elements of medicine' (see **III.2**)). There is a question, however, as to whether the scientific method Asclepiades adopts from Epicurus and wields in defence of Rationalist medicine is reliant, in some way, on the swerve. I will address this at **IV**.**5.3.3.**

II.3.9 Psychology

We end the section with a note on Epicurean psychology, a branch of Epicurean philosophy that does not survive its transposition into medicine intact but the manner of its modification, I propose at **IV.4**, is particularly illuminating.

The Epicurean ψυχή fulfils a comparable function to that of the Stoics (**I.4.1**).[158] It is the progenitor of thought, sensation, motion, and emotion and is equally corporeal to the flesh and bones with which it is (in the case of Epicureanism) juxtaposed.[159] The soul is a composite of elemental substances, three of which are analogous to external phenomena: fire, air and wind; only the fourth, a fine material which 'lacks a name', is unique to sentient entities in the Epicurean cosmos.[160] The nature of the juxtaposition of soul-atoms is mutually interpenetrative;[161] the four substances combine into a fifth: a unique substance which nonetheless retains the powers of each of its constituents so completely that particular psychic functions can be attributed to particular constituents.[162] There is an association in *DRN* III.266-322 between the function of particular

[158] That is, if we limit our analysis of the Stoic ψυχή to its functions with respect to human behaviour, as far as is possible. The Epicurean ψυχή has no function outside the body save for its dissolution back into its *prima materia*. It is worth noting, however, that the Epicurean ψυχή operates in dialogue with εἴδωλα, impressions impinging on the senses and the mind which prefigure human responses. In this respect, there is a component of the Epicurean ψυχή that exists behind the body, sense/thought-provoking if not sensate and thinking.

[159] Epic. *Ep. Hdt.* 63-67. When Epicurus writes that the soul is 'a body', he is specifying that the soul is an individuated substance, rather than simply reiterating that the constituents of the soul are bodily at the most primitive level of analysis. See Everson (1999) p.542-544.

[160] Aët. 4.3.11 (LS 14 C); Lucr. III.262-322. The constituents of the Epicurean ψυχή are only documented in secondary sources. Epic. *Ep. Hdt.* 63 speaks only of the soul resembling wind with an admixture of heat.

[161] Lucr. III.262-265.

[162] Aët. 4.3.11 (LS 14 C); Lucr. III.262-322. Fire produces bodily heat and is responsible for anger; air, distinguished from πνεῦμα by its stillness, is responsible for rest; πνεῦμα is the source of self-governed motion in humans and animals, accounting for fear and the flight response when predominant in the limbs. The unnamed substance is the origin of sensation; its minute particles are interspersed throughout the soul in a manner that is analogous (though imperfectly) to how those of the soul are distributed in the body. An addition ingredient was necessary for which there was no simple external analogue. Lucr. III.281 refers to the unnamed substance as the 'spirit of spirit'. The problem with this analogy is that the unnamed substance is a constituent of the soul where the soul is not a constituent of the body; it is a separate substance that exists within the boundary of the animal.

constituents of ψυχή and emotional displays upon which personalities are modelled.[163] It is an idea that Lucretius introduces then downplays, perhaps anxious of the implications that a rigorized materialist explanation of personality might have for Epicurean anti-fatalism.

Psychic functions are differentiated into those of mind (*animus*) and those of spirit (*anima*).[164] The mind functions as the base of intellectual and emotional activity in Epicurean psychology, located in the chest.[165] Its functional synonymy with the Stoic ἡγεμονικόν caused later writers to interpret this as a claim about the function and location of the ruling-part-of-the-soul.[166] The mind is an individuated part of the body in the manner of any other organ or limb.[167] It rouses itself to action quicker than anything else in human awareness, producing its effects at a faster rate than any other compound entity.[168] The spirit, to which all other functions of the soul are attributed, is distributed throughout the rest of the body and is so thoroughly interpenetrated with the mind as to constitute, in effect, a seamless emanation from a deliberative nexus, confined within the limits of the flesh.[169] The mind is conceived as distinct from the spirit though precisely where it ends and where the spirit begins is ambiguous.[170] There is evidence to suggest that Epicurean psychophysiology came under scrutiny from within the school itself in the wake of third century anatomical advancements; the discovery, through dissection, of the nervous system, went some way to confirming the brain's function as the source of animation.[171] An exegetical treatise on foundational Epicurean texts by Demetrius of Laconia, an eminent Epicurean and rough contemporary of Asclepiades of Bithynia, informs us of an internal debate

---

[163] See n.162 above. We consider the implications of this for Asclepiades' rejection of the quadripartite model of the soul at **IV.4.1.**

[164] Lucr. III.136-176.

[165] *Ibid.* III.139-140.

[166] Aët. 4.5.5 states explicitly that Epicurus located the ἡγεμονικόν in the thorax.

[167] Lucr. III.94-97.

[168] *Ibid.* III.182-185. At *Ibid*. III.185-190 he goes on to argue that the speed of the mind must be on account of the exceedingly rounded and exceedingly minute nature of its atoms. Everson (1999) p.551.

[169] Lucr. III.139-176. This relationship is structurally analogous to that of the Stoic ἡγεμονικόν and the other seven parts of the soul.

[170] *Ibid.* III.420-424:

'Please now apply both these names to one thing;
When for example I speak of spirit and show
That it is mortal, understand me also
To speak of mind since it is one with the other
And the whole is combined.' – trans. Melville (1997).

[171] Sedley (1998) p.68-70.

in Epicureanism concerning the location of the mind that was stimulated by anatomical developments.[172] I will argue in **IV.4.3** that Asclepiades' rejection of a localised ἡγεμονικόν was influenced, in part, by the same developments that vexed contemporary Epicureans.

As mind and spirit are functionally interdependent, so too are soul and body. Epicurus writes at *Ep. Hdt.* 63-64 that though the soul 'has the greatest share in causing sensation' it would not possess this faculty were it not confined within the aggregate.[173] The soul's functions are realised through its presence in the flesh. This emphasis on body-soul coaffection is ethically motivated; the obliteration of the soul's faculties along with the body is a necessity of the Epicurean project, one that asks us to believe that 'death is nothing to us'; emancipation from sensation is emancipation from the moral universe, whose restrictions have no meaning beyond εἴδωλα.[174] To this end, Lucretius, in *DRN* III, seeks to persuade his reader that the body and soul develop in tandem from the same initial seed, that they mature and wither in concert.[175] The mechanism of sensation, which we explore shortly below (**II.4.1**), is upheld as the exemplar of psychophysiological synthesis.[176] The union of bodily and psychological pain is also cited in *DRN* III as evidence of their mutual interdependence,[177] a detail which I argue in **II.5.2** is crucial to understanding how Epicureanism seeks to ameliorate bodily pain by applying its medicine directly (and exclusively) to the mind.

II.4 Epistemology[178]

Psychology forms a natural bridge from physics to epistemology. I will demonstrate in **IV.5** that Asclepiades' epistemology is, in essence, Epicurean, and that Epicureanism's epistemological component is the source of the system's

[172] P. Herc. 1012. cols. XLII-XLVII. See Sedley (1998). p.70.
[173] Epic. *Ep. Hdt.* 63-64.
[174] Epic. *Ep. Men.* 124-127.
[175] Lucr. III.445-459.
[176] See **II.4.1**. Note Lucr. III.624-633. Making a memorable case for the soul's dependence on the body, Lucretius cites the reliance of painters and poets to represent disembodied spirits as if they were 'still endowed with their senses' – *i.e.* bodily in appearance if not in tangibility – as evidence of the inseparability of body and soul in art as in thought as in reality.
[177] *Ibid.* III.152-176.
[178] What I refer to as Epicurus' epistemology in this section, Epicurus himself would call the κανονική (canonic), a word derived from the Greek κανών, a 'measuring stick': appropriately, a tool for discerning what the senses, unaided, cannot. The κανονική, according to Sextus Empiricus (*M* VII.22), is the science of determining the evident, and reasoning from the evident the nature of that which is hidden from sensation

medical appeal in a period where the popularity of medical Empiricism compelled Rationalists to develop more sophisticated epistemologies in defence of their theory-driven craft.[179] Throughout **II.3**, I sought to emphasise the dependency of Epicurus' physics on his epistemology. In this next section, I stress the dependency of Epicurus' epistemology on his physics. My intention is to demonstrate that Epicurus' scientific method could not be adapted independently of the philosopher's materialism.

II.4.1 Mechanics of sensation

We have seen throughout **II.3** that Epicurean epistemology has two premises. 1) Experiential data in non-illusory. 2) Subsensible reality is accessible to *a posteriori* reasoning via experiential data.[180] In this section and the next, we examine the former premise on which the latter is based, beginning with the mechanics of sensation.

Epicurus' explanation of the mechanics of sensation at *Ep. Hdt.*46-53 focuses almost exclusively on those preceding vision; vision is the paradigm for all modes of sensory activity in the text. Auditory and olfactory processes are touched on very briefly; they function by means of the same underlying mechanics distinguished only by the sense organ affected and, consequentially, the quality of the data.[181]Perception for Epicurus, as it was for Democritus,[182] is mediated by εἴδωλα – 'images'.[183] εἴδωλα, as set out in *Ep. Hdt.*, are streams of atoms emitted from the surface of an object, bounced from its dimensions by internal vibrations,[184] that penetrate the sense organ(s) and transmit to the observer the object's epistemic appearances in a manner that is commensurate with the condition and capabilities of the sense organs by which they are received.[185] In the case of vision, εἴδωλα preserve in transit the arrangement they held when constituents of the source-object;[186] they are projected surface-layers, one atom thick, which extend the properties of shape and colour beyond their source in an

[179] See **IV**.**2**. For an introduction to Empiricist epistemology, see **V**.**2.2.**
[180] S. E. *M* VII.211-216 encapsulates Epicurus' scientific methodology succinctly.
[181] Epic. *Ep. Hdt.* 53.
[182] Theoph. *Sens.* 55-7, 60-7, 73-6. (DK 68A135).
[183] Epic. *Ep. Hdt.* 46.
[184] An effect of the ongoing atomic collisions within its boundary. This process is essential for maintaining the object's structure. See *Ibid.* 50.
[185] Epic*. Ep. Hdt.* 46-53.
[186] *Ibid.* 48.

unbroken effluence unless they are distorted by external causes.[187] The ongoing emission of εἴδωλα by objects of perception is not revealed by diminishment in the object's size due to a process of 'reciprocal replenishment'; compound bodies, for as long as their structural integrity is preserved, 'catch' atoms from the spaces between compounds as quickly as they shed them.[188] εἴδωλα travel at maximum speed – 'as quick as thought'[189] – because the atoms suffer no (or vanishingly few) collisions on their journey from object to receptor; they penetrate the senses with no appreciable break in continuity.[190] The continuous impingement of the observer by atoms 'traveling at the highest speed' ensures that any alteration to the nature of the object will immediately register perceptively.[191]

Perception is the bombardment of the sensate with atoms shorn from structures in a shared external world. εἴδωλα are not themselves perceived, being too minute to register directly.**[192]** Instead, they establish contiguity between subject and object and allow sense objects, however far removed, to be perceived as if by touch.**[193]** Although vision is the paradigm in *Ep. Hdt.*46-53, the senses are best expressed as variants of tactile experience distinguished by the properties of the receptor. The touch-to-sight analogies Lucretius offers in *DRN* IV.256-268 are intended to confirm the similarity of object and εἴδωλον, such that mediating εἴδωλα are not taken to be corruptive of the 'true external world' – *i.e.* the world of objects, not transmissions.**[194]** Touch, considered as an independent sense, is not reliant upon εἴδωλα, therefore the corroboration of touch and sight

[187] S. E. *M* VII.206-210.
[188] Epic. *Ep. Hdt.* 48.
[189] *Ibid.*
[190] Epic. *Ep. Hdt.* 48.
[191] *Ibid.*
[192] Lucr. IV.256-268.
[193] Cf. the Asclepiadean claim that 'the common sense is touch' in Cal. *In Tim.* 214. See **IV.4-5.**
[194] Lucr. IV.256-264 compares 'the images that strike our eyes' with wind that 'blows slowly on us' and points out that 'we do not feel each particle of wind or cold' as a separately delineated entity, but rather we experience the wind as a whole, as the sum of its cumulative impressions. Note also *ibid.* IV.230-236, where Lucretius exploits the fact that 'a given shape handled in the dark' corresponds to its visual impressions 'in clear daylight', as evidence for sight and touch being derived 'from a like cause'. This passage does, however, raise the question of the role that light must play in the visual process. A counterintuitive explanation involving the 'black air of darkness' (*caliginis aer ater*) is hinted at IV.337-343, which generates more problems than it solves. This is arguably the area of the Epicurus' explanation of sensation that is most unsatisfactory. The insufficiency seems to be born of the desire to construct a unifying mechanistic process whereby all species of experiential data can be explained. See Asmis (1999) p.269-270.

confirms the reliability of the mediator.[195] The example at *DRN* IV.265-268 is an enlightening metaphor for the epistemic value of εἴδωλα. Lucretius relates the mechanics of vision to how the properties of a stone can be discerned by touch. He points out that although contact is only ever made with the stone's outermost layer, it is not the surface of the stone that the observer is experiencing, but the hardness deep within.[196]

A final point – experience is not passive. Sense receptors translate by means of 'application' (ἐπιβολή) impinging εἴδωλα into intelligible data.[197] This mechanism is clarified by analogy with the Epicurean imagination,[198] the principle source for which is *DRN* IV.722-822. The spaces between objects pullulate with εἴδωλα that are yet more delicately textured than those which strike the senses.[199] They penetrate the mind directly and provoke thought, yet our minds are not the cauldron of chimerical imagery that such a model might foment;[200] because of their gossamery nature, 'the mind cannot clearly see any except those which it strains to perceive'.[201] Through application we curate the content of our thoughts, assembling imaginary objects from the εἴδωλα that move unseen, but do so within reach of our awareness.[202] Sense organs play a congruent role in the interpretation of εἴδωλα; [203] the eye strains to focus on an object at the expense of the clarity of its environs. Consequently, the condition of the organ informs the character of the sense-impression attained through application. If the tongue, confused by disease, cannot detect the sweetness of the honey, the 'smooth atoms' which prefigure its defining taste will pass over its surface undetected.[204] Jaundiced eyes mingle the εἴδωλα with yellow seeds.[205]

---

[195] Asmis (1999) p.270.

[196] Lucr. IV.265-268. His argument is that if the layers beneath the surface were somehow to disappear then the surface-layer, still extant, would be imperceptible. Therefore, our engagement with the surface permits inferences to be drawn about the object considered as a whole.

[197] Epic. *Ep. Hdt.* 50. Asmis (1999) p.271.

[198] An explanatory technique employed by Asmis (1999) p.271-282, following Lucr. IV.808-817.

[199] Lucr. IV.724-729.

[200] Lucr. IV.732-744 explains Centaurs and denizens of the imaginations as chimerical assemblages of errant images. But, as we shall see, an element of artifice is required of the thinker in order to assemble such an entity in mind.

[201] *Ibid*. IV.802-803. Trans. Melville (1997).

[202] *Ibid.* IV.779-803.

[203] *Ibid.* IV.808-813.

[204] *Ibid.* IV.644-670. We revisit this passage at **II.5.5** when we examine how pain and diseased might be identified with movements of atoms in Epicurean physics.

[205] *Ibid.* IV.332-336.

II.4.2 Criteria for truth

The active participation of the organ in sensation would seem to potentiate distortion, but Epicurean epistemology asserts the truth-value of *all* sense impressions.[206] Epicurus' *Κανών* – a lost work on Epicurean scientific methodology, known to us via references in later texts – holds that perceptions, preconceptions and feelings – at root, the experience of pleasure and pain – are the criteria of truth.[207]

The role of perception (αἴσθησις) in the κανονική is to furnish the observer with an accurate impression of the object of inquiry as it has reached his/her sense receptors at a given angle, distance and time. A loud sound heard from a great distance registers as faint. But the witness is not misled; he/she experiences the sound as it exists at his/her vantage.[208] Similarly, one's experience of colour, shape and size are affected by perspective, but this does not alter the fact that the εἴδωλα received exist in objective, external reality; alterations undertaken in the intervening space correspond to the object's epistemic appearances at precisely the distance from which they are received.[209] We receive the object as it can be interpreted, according to our senses, from our locus of subjectivity. Even if our senses are impaired, the impressions we receive correspond to external objects, but the inferences we draw from those impressions are vulnerable to error. The truth-value of perception is foundational to that of the latter criteria.[210]

Feelings (πάθη) are distinct from perceptions, but they are closely intertwined. Twice in *Ep. Hdt,* Epicurus identifies them as a distinct species of criterion, but one whose function in his scientific methodology is similarly foundational.[211] Feelings (curiously, given their centrality to Epicurean ethics) are not expounded separately in *Ep Hdt.* but the inference that they constitute internal responses to external stimuli – *i.e.* perceptions – is unlikely to be controversial. The τέλος of Epicureanism orients the philosopher towards the attainment of pleasure/the abatement of pain, a πάθη and the measure (κανών) of all good.[212] Aversion to

[206] *Ibid.* IV.469-521; S. E. *M* VII.7206-2010, VIII.63.
[207] D. L. X.31.
[208] S. E. *M* 206-210.
[209] *Ibid.*; Lucr. IV.455-463; Plut. *Col.* 1109C-E (LS 16 I).
[210] Asmis (1984) p.63-80.
[211] Epic. *Ep. Hdt.* 38, 82. In both instances, it is clear that feelings and perceptions fulfil a similar role in the aetiology of sign-inference. Together, they are the first effect in the mechanism of deliberation.
[212] Epic. *Ep. Men.* 129. Asmis (1999) p.275.

pain and attraction to pleasure are the guiding principles of Epicurean ethics. Merging feelings with the aetiology of sensation enforces their truth-value; if perceptions are prospects on an objective world, feelings are instinctive value judgements on objective data – an awareness of the condition of one's soul in response to some external event.**[213]** They are the arbiters of moral truth;**[214]** their ethical value rests on their epistemological value, which is in turn contingent on the physical mechanism of sensation. Moreover, feelings have self-reflexive value as evidence of non-evident physical realities. Epicurus attributes his knowledge of the soul to self-analysis, directed at perceptions and feelings.[215] Epicureanism's thorax-centric psychophysiology, discussed at **II.3.9** above, has a phenomenological basis: if we attend to our perception of internal processes, it is evident that our most potent emotional responses originate in the chest.[216]

Preconceptions (προλήψεις) are the third species of criterion. They are constituents of 'general understanding' (καθολικὴν νόησιν) – *i.e.* axioms synthesized out of repeated experiences;[217] the word 'man' evokes the concept of 'man', an abstraction, parasitical on cumulative experience, which does not require elaboration.[218] Epicurean preconceptions are distinct among equivalent doctrines because the impressions from which they are synthesized are imposed on human sense/psychological apparatus from without, rooted in perceptions (εἴδωλα) from the objective world.**[219]** Not all preconceptions are common – preconceptions of places/acquaintances *etc.* must depend on one's peculiar experiences – but common preconceptions are upheld as evidence for universal moral truths, such as the attraction of pleasure,**[220]** and form the epistemological basis for Epicurean theism, unverified by the senses yet imprinted on the mind.**[221]**

---

[213] They are not, however, identified with particular atomic configurations in any of our extant sources. We might expect the equanimity one experiences in the absence of negative stimuli to have some sort of fundamental physical signature. But πάθη in *Ep. Hdt.* are conceptualized only as a kind of introspective perception. The physical nature of the data uncovered is not detailed. I return to this below at **II.5.5**.

[214] Hinted at in Plut. *Col.* 1109C-E (LS 16 I).

[215] Epic. *Ep. Hdt.* 63, 68.

[216] Lucr. III.140-142.

[217] D. L. X.33 is our principle text for the nature of preconceptions. They are also generally agreed to be the subject of Epic. *Ep. Hdt.* 37-38, alongside perceptions and feelings. For their dependence on perception, see Long & Sedley (1987) p.89; Asmis (1984) p.63-80, (1999) p.276-283.

[218] D. L. X.33.

[219] Asmis (1999) p.279.

[220] Cic. *Fin.* I.29-30; Epic. *Ep. Men.* 128.

[221] Epic. *Ep. Men.* 123-124; Cic. *ND* I.43-9. The Epicurean spokesperson in *ND* points to the imprint of divine existence in all men's minds, common across all races and cultures. He uses the term προλήψις to refer to a shared outline – the basic, unaugmented notion that there *are* gods, independent of cultural

Common preconceptions emerge from accumulated memories and the thorough cross-referencing of experiences. They coalesce into a body of empirical knowledge that forms the basis for rational enquiry.[222] Epicurus avoids the word πρόληψις in *Ep. Hdt.* 37-38,[223] but he clearly has this criterion in mind when he appeals to his recipient's intuitive understanding of the meaning behind his words.[224] Accepting common preconceptions as axioms is a necessary preliminary step to philosophical enquiry, permitting progress from premise to conclusion instead of suffering an infinite regress through endless premises.[225]

II.4.3 Sign-inference

The non-evident yields its secrets via inference from the evident. Examples of this method in application have been encountered on several occasions over the course **II.3**; knowledge of the Epicurean cosmos is built from a foundation of perceptions, feelings and preconceptions.[226] Suppositions offered via reason alone are valueless before they are confirmed or contested by sense-evidence.[227] 'The study of nature', Epicurus writes in *Ep. Pyth.* 87, 'must not conform to empty assumptions and arbitrary laws but follow the promotions of the facts.'[228]

Claims made about the non-evident must therefore be consistent with experience;[229] they must be 'uncontested' by the facts apprehended by the senses.[230] A sign does not independently (and by necessity) induce the mind to infer some component of non-evident reality but must be read in concert with a wealth of established preconceptions. For example, Epicurus reminds his reader in *Ep. Hdt.* that there is nothing in his account of εἴδωλα that is contested by the

---

adornments – and says that it is on the basis of the κανών that we are permitted to proceed from acknowledging this outline to positing their existence by unanimous consent.

[222] Philod. *Sign.* 11.32-12.31 (LS 18 F); *Ibid.* 34.29-39.17 (LS 18 G) for sign-inference by similarity, a method of inference that is contingent upon the continuity of perceptions.

[223] Perhaps because frontloading his epitome of his physics with technical epistemological terminology would not be conducive to clarity. Long and Sedley (1987) p.89.

[224] Epic. *Ep. Hdt.* 37.

[225] Asmis (2009) p.86.

[226] With the former being the most primitive component of the deliberative mechanism.

[227] D. L. X.34; S. E. *M* VII.211-216. This detail must be accounted for if one is to read the quotation of Antiochus of Ascalon in S. E. *M* VII.201 – in which the assertion that we 'apprehend nothing at all with reason' is attributed to Asclepiades – as evidence of Asclepiades' deviation from the Epicurean precedent, as Polito (2006) p.324 does. I return to this discussion at **IV.5.1.1.** below.

[228] Trans. Hicks (1925).

[229] S. E. *M* VII.211-216 is the fullest account of Epicurean methodology, which uses 'if motion, therefore void' as the illustrative example. See *supra* **II.3.2.**

[230] Long and Sedley (1987) p.95.

senses;[231] the peculiarities of his doctrine of sense-perception follow from conclusions reached earlier on in his epitome, which subsequently form the basis of more focused inquiry. Reason may formulate its own conclusions within the limits of that which is consistent with perceptions.[232] When a variety of possible inferences can be drawn, closer inspection, such as that of a person recognised as a potential-acquaintance from distance, can yield more precise conclusions.[233] But in cases where our opinions cannot be rendered more precisely through more thorough sensory inspection – such as that of the nature of the atom/ὄγκος,[234] for example – we should acknowledge that Epicurus' scientific methodology does not appear to guarantee a *correct* conclusion, merely one that is consistent with perceptions; we might more accurately categorise these nature-guided inferences to the non-evident as productive of 'that which cannot, through attendance to experience, be revealed to be false'. With this in mind, consider the following questions. How far can Asclepiades, unbound by Epicurus' ethical obligations but adapting Epicurean epistemology for his own ends, exploit this acknowledged room for error? How far can he tinker with the roots of Epicurean physics without jeopardizing the integrity of Epicurean epistemology, if his own goals gave him cause? How much of Epicurean physics is, as it were, negotiable?

II.5 The Epicurean panacea

In this final section, we examine the τέλος of Epicurean philosophy and the philosopher's self-conception as a physician of the soul. I will argue that, despite the rhetorical value of therapeutic imagery to the philosopher's cause, the relationship between Epicureanism and the medical τέχνη may, in fact, have been oppositional. I will make two related claims about the depiction of medicine in Epicurean sources: 1) Epicureanism privileges the abatement of psychological pain over the physiological (**II.5.1-2**) and develops its physics only as far as is necessary to accommodate its role as *psychological* medicament, a base-

[231] Epic. *Ep. Hdt.* 48.

[232] In Lucr. VI.703-11, for example, the poet tells us that it is acceptable to posit a variety of contradicting non-evident causes to evident data – a dead body, considered from a distance, could have arrived at that condition by several means – as long as our speculation does not stray from what is self-evident.

[233] S. E. VII.211-216; D. L. X.34.

[234] The example given of that which cannot be verified, conclusively, via closer inspection in Lucr. V.509-503 is the cause of the appearance of celestial motion. Lucretius limits himself to expounding only what is *possible* in accord with the physical-epistemological premises established in the proceeding books of *DRN.* Evidently, atomism was considered to have been established beyond doubt by Epicurus, but it is not necessarily the case that others making use of his methodology, such as Asclepiades, would be obligated to agree with him. See **IV.5.3.**

ingredient in the philosopher's salve (**II.5.5-6**); 2) when Epicurean philosophy presents itself as an effective panacea for the distresses of the mind it does so in acknowledgement that the medical art had failed to produce an analogous salve for the distresses of the body (**II.5.3**).

The depiction of medicine in Epicurean sources is an area that has received little attention by scholars of Asclepiades of Bithynia. In exploring the motivations behind Asclepiades' modifications to Epicureanism, it is worth asking a) what questions does Epicurean physics leave unanswered that a physician, beginning from quasi-Epicurean physical and epistemological suppositions, can, pursuant to the peculiar demands of his discipline, apply his attention to? b) Could the hostility of the mother-doctrine to Asclepiades' τέχνη have been a motivating factor in Asclepiades' movement away from Epicurean atomism? Could we, for example, read the institution of corpuscular fragility in Asclepiadean physics – a radical departure from the adopted system whose significance Asclepiades cannot have been unaware of – as – at least, in part – an act of defiance against the impositions of a hostile philosophy?[235] This final point, which we will revisit in more depth in (esp.) **IV.2.5.2**,[236] is impossible to prove definitively. I hope, however, that by drawing attention to the depiction of medicine in Epicurean sources, I will permit us to consider Asclepiades' deviations from the mother-doctrine in their appropriate context.

II.5.1 Philosophy as salve

The τέλος of Epicureanism is curative. Torquatus, the Epicurean spokesperson in Cicero's *De Finibus,* summarises the pursuit of Epicurean ethics as follows:

> …the greatest pleasure according to us is that which is experienced as a result of the complete removal of pain. When we are released from pain, the mere sensation of complete emancipation and relief from uneasiness is in itself a source of gratification.[237]

In *Ep. Men.* 128, Epicurus holds emancipation from pain and anxiety to be the aim of all the Epicurean's activities and in the third of his *Key Doctrines* (*RS*)

[235] I stress 'in part'. For the (possible) practical advantages of the doctrine of frangible ἄναρμοι ὄγκοι, see **IV.5.1.**
[236] Though the question guides the entirety of **IV.2**.
[237] Cic. *Fin.* I.37 trans. Rackham (1914).

he states plainly that 'the removal of all pain is the limit of the magnitude of pleasures. Wherever pleasure is present, as long as it is there, pain or distress or their combination is absent.'[238] There is nothing in principle, then, to suggest that Epicurean ethics is antithetical to medicine; if pain and anxiety are the enemies of pleasure, and the highest form of good is to be attained by (and identified with) the eradication of these πάθαι, then anybody boasting a reliable method of alleviating bodily pain will have accomplished at least half of the objectives of the Epicurean teacher (presuming that a certain amount of psychological perturbation will be removed with pain's abatement).[239] However, the word 'reliable' is doing most of the work in the previous sentence. If medicine were understood to represent an *unreliable* method of relieving pain – curing some, failing to cure others, contributing to the pain of a few, without a sufficiently robust theory of when professional intervention is and is not productive[240] – we might ask if the accumulated efforts of physicians move humanity closer or farther from the attainment of psychological equanimity; mightn't their inconstancy qualify as an irritant (at the very least), and therefore as a stimulant of pain? Might it not be preferable, in light of this confusion, to accept the inevitability of certain forms of pain and cultivate a mindset that permits one to endure it?

The value Epicurus identifies in medicine resides to its rhetorical utility. A fragment from Epicurus makes an explicit analogy between the appropriate function of the doctor and that of the philosopher:

> Vain is the word of a philosopher which does not heal any suffering of man. For just as there is no profit in medicine if it does not expel diseases of the body, so there is no profit in philosophy either if it does not expel the suffering of the mind.[241]

---

[238] Epic. *RS.*3 (LS 21 C).

[239] A presumption we are entitled to make on the grounds of the closeness with which body and soul are bonded in Epicurean psychology. See *supra* **II.3.9** and **II.5.3** below.

[240] There is an acknowledgement in Arist. *Met.* I.981a that the medical τέχνη cannot invariably bring about its end. The practice of medicine, on Aristotle's account, entails encounters with the particular. Particularity draws one outside the domain of theoretical knowledge. See Chiaradonna (2013) p.381-391. That no single patient is perfectly similar to any other, and therefore that the medical τέχνη cannot, without scrupulous attendance to particularity, devise a system that would guarantee results is a recurring theme throughout the Hippocratic Corpus, e.g. *Epid.* I.23 and *VM* 20 (briefly addressed in **0.2**). We will return to Arist. *Met.* I.981a at **V.2.2** in my discussion of the origin of medical Empiricism in the debate convening τέχνη and ἐμπειρία.

[241] Porphyry, *Letter to Marcella,* 31 = Epic. fr. D54 in Bailey (1926) p.133 trans. Bailey (= Usener 221).

As presented in **0.1**, and we shall see further in (esp.) **III**.**5.2**, the tradition of using clinical terminology to describe psychological pathology is beloved of the Stoics and the Epicureans alike, but where the Stoic use of medical analogy serves to emphasise a physics-rooted teleological affinity between Stoic philosophy and the medical art (**III.5**), I submit that Epicurus' apparent disinterest in exploring the physical signature of pain in his cosmology (set out at **II.5.4** below) recontextualises the above passage as, above all, an affirmation of disciplinary boundaries. When Epicurus likens his practice to that of a physician he marks out, very clearly, the subject of his administrations; medicine is expected to expel diseases from the body; philosophy is expected to expel suffering from the mind.

Over the course of this section, I will argue that in the absence of a consistent and appropriately rigorous atomist account of suffering in Epicurean physics there is, inevitably, a relaxing of the ties that bind the behaviour of the human to that of his/her constituent atoms;[242] the philosopher does not engage with his 'patient' (to continue the analogy) at the level of his/her constituents; the receptivity of the patient to the philosopher's medicine, his words, can only be discerned through their attitude, their subsequent patterns of behaviour. Where the physician applies himself to the health of the body, seeking to bring about a desirable *physical* state, the philosopher is looking elsewhere, towards a territory which, when mastered, will protect one's equanimity from the assaults of bodily pain. When Epicurus writes in *SV* 54 that 'one should not pretend to philosophise, but actually philosophise. For what is needed is not a semblance of health, but real health', it is not difficult to establish the epistemological domain in which 'real health' is understood to reside.[243]

II.5.2 Precedence of mind over body

Across our sources for Epicurean ethics, psychological equanimity always takes precedent over bodily pleasures. While Epicurus writes in *Ep. Men.* that 'the end belonging to the blessed life' is freedom from pain in the body and disturbance in the soul, he continues by impressing on his reader that the process of 'sober reasoning' lies at the root of the pleasant life, that 'which tracks down the causes of every choice and avoidance, and which banishes the opinions that beset the

[242] I will address the limitations of our sources on this subject at **II.5.4** below.
[243] Epic. *SV* 54 (LS 25 D).

soul with the greatest confusion.'[244] Uncertainty, the father of fear, is the Epicurean *bête noire.* His attitude concerning the abatement of physical pain is that one must undertake to recognise its causes then avoid them.[245] The temptation to make a comparison with the 'Rationalist' approach to medicine is forestalled by the fact that the prudence Epicurus advises at *Ep. Men.* 132 is not dictated by a theory of the root causes of pain – of pain as expressed by the activity of atoms – but by the empirical observation that certain behaviours, undertaken to excess, have negative consequences; 'sober reasoning' guides the Epicurean through the phenomenal world by attending to evident facts.

In such instances where pain is unavoidable one must cultivate the appropriate outlook to permit one to endure it and, in doing so, alleviate the psychological distresses that bodily pain might engender; Epicurus reminds us in *RS* 4 that pain is not unending, and that the worst pains afflict us for the shortest time.[246] It is here that knowledge of the physical account of Epicurean psychophysiology seems pertinent. Recall from **II.3.9** the arguments for the interconnectivity of body and soul in *DRN* III.152-176 pertaining to the twin-experiences of pain in body and mind; as fear has physiological symptoms, bodily wounds have psychological effects. Epicurean ethics seems to presuppose that the psychological collateral of bodily pain can be tempered via the cultivation of the correct psychological disposition. The goal is to deprive bodily pain, as far as it possible, of its capacity to adversely affect the mind. A remarkable letter, addressed to one Idomeneus, written towards the end of Epicurus' life, encapsulates this attitude:

> On this blissful day, which is also the last of my life, I write this to you. My continual suffering from strangury and dysentery are so great that nothing could augment them; but against them all I set gladness of mind at the remembrance of our past conversations.[247]

---

[244] Epic. *Ep. Men.* 127-132. (LS 21 B).
[245] *Ibid.*
[246] This sentiment is echoed in a quote preserved in Seneca's *Epistulae Morales* (Sen. *Ep. Mor.* XXX.14.), where Epicurus argues that pain at death is to be recognised for its brevity. Sedley (1998) p.163-165 argues that the Epicurean attitude towards the toleration of pain was intended to be included in the final version of *DRN,* which Lucretius never lived to finish. See **II.5.3** below.
[247] D. L. X.22 trans. Hicks (1925).

For Epicurus, sufferings such that 'nothing could augment them' were rendered tolerable through recourse to pleasant memories. On his account, his psychological equanimity was such that his agonies were inert, his mind unaffected by their raging. What this amounts to, in physical terms, is the detachment of the mind from the spirit-body interconnexion (therefore, to a degree, from the sensation of pain) as far as the physics of the mind-spirit-body interconnexion will allow. This we have mostly been left to infer, for the aetiology of pain in the body-soul duality is not expressed in reductionist terms in Epicurus' extant writings. We have better luck with Lucretius, as we shall see at **II.5.5** below. However, as I will argue, Lucretius' allusions to the atomic roots of pain in the body and mind are insufficiently rigorous to indicate a substantive Epicurean physical basis for the aetiology or hierarchy of pain. Lucretius does, however, confirm the mind's partial independence from the spirit at *DRN* III.144-151; the mind may have experiences that are unregistered by the spirit and may 'wander' independently of other psychophysiological activity. It is surely this capacity for independent activity that allows for claims such as that in D. L. X.22 to be made, but how this is accounted for in physical terms remains unspecified.[248]

Epicurean justification for the primacy of psychological pleasure over that of the body can be found in our first century testimonia, closer to the period of Asclepiades' popularity. Cicero reports of Epicureanism in the *Tusculan Disputations* that 'the body rejoices just so long as it perceives a present pleasure; but the mind perceives both the present pleasure, along with the body, and foresees the one that is coming without allowing the past one to fly away.'[249] As made clear in *RS* 4, bodily pains (so too pleasures) are creatures of the present moment. The mind's capacity to project into the future and contextualise present sensations – a function, we should note, of its partial independence from sensory constraints[250] – makes it the superior component of the mind-body aggregate. Epicurus' letter to Idomeneus, quoted above,

[248] The temptation is to posit that the higher concentration of soul-atoms in the mind/chest is the cause of this additional freedom of activity. To those who might question, on this basis, if Asclepiades' rejection of a localised ἡγεμονικόν, coupled with his determinism, can be read as further evidence of the physician's disinterest in the independence of thought, I will argue at **IV.4.3** why I think this is unlikely to be the case.
[249] Cic. *Tusc.* 5.95. (LS 21 T) I favour the Long & Sedley translation on this occasion. This is partly for reasons of brevity, but also because King's (1945) translation of *animum* as 'soul' is insufficiently specific for my purposes.
[250] Lucr. III.144-151.

informs us that the mind's capacity to project into the past and soothe itself with pleasant memories was a further factor in assigning its supremacy. The Epicurean spokesman in Cicero's *De finibus* argues that mental pleasures, though rooted in the pleasures of body, are the greater of the two.[251] The inscription of Diogenes of Oenoanda, moreover, laments that the immediacy of present concerns can blind people to the superior value of psychological equanimity.[252]

What I want to establish, going forward, is that although freedom from bodily and psychological pain jointly constitute the Epicurean τέλος, the elevation of psychological equanimity over physiological concerns casts the afflictions of the body not as diseases to be cured, but as physical states to be avoided, via prudence, or withstood, through cultivation of mind; ἀταραξία functions as a ballast against pain which is conceived as a temporary perturbation that the mind, unbound – to a certain extent – by sensory constraints, is able to endure. I will propose at **II.5.5** that the Epicureans were disinterested in pursuing the medical potential of their physics on account of their preoccupation with ἀταραξία as a state of psychological equanimity. In the next section, we explore the possibility that the medicine art *per se* may have been conceived as an impediment to ἀταραξία.

II.5.3 Medicine in *DRN* VI.1138-1286

The depiction of the medical art in *DRN* VI.1138-1286 cannot be ignored in our pursuit of a prevailing Epicurean attitude towards medicine as an independent discipline. Here, the Athenian plague of 430 BC is rendered in excruciating detail. VI.1138-1286 stands out in *DRN* as very likely the only section of the poem for which Epicurus' *magnum opus,* his work *On Nature,* was not Lucretius' source.[253] Instead, lines 1138-1286 are modelled on the description of the plague in Thucydides' *History of the Peloponnesian War* II.47-54 and retain the order of material first presented in Thucydides' text. The ready availability of Lucretius' source for *DRV* VI.1138-1286 has long permitted scholars to identify in each deviation from the source material an expression of Lucretius' Epicureanism. One

[251] Cic. *Fin.* 1.55.
[252] Diog. Oen. 38.1.8-3.14 (LS 21 V).
[253] Sedley (1998) p.160.

such alteration concerns the failure of doctors to cope with the disease. Thucydides writes:

> At the beginning the doctors were quite incapable of treating the disease because of their ignorance of the right methods. In fact, mortality among the doctors was highest of all since they came more frequently in contact with the sick. Nor was any other human art or science any help at all. Equally useless were prayers made at temples, consultation of oracles, and so forth...[254]

By contrast, Lucretius writes succinctly of the medical art that it 'muttered', or perhaps 'refrained from speaking' in 'silent fear' (*…mussabat tacito medicina timore*), providing no respite to the victims of the plague.[255] On first analysis, the purpose of each passage is the same; the point is that medicine was unequal to the task of preventing the plague from spreading. However, as J. H. Phillips notes in his 1982 article 'Lucretius on the Inefficacy of the Medical Art', the difference in tone is stark.[256] Only Lucretius references the *fear* exhibited by the doctors at the bedsides of the afflicted. Thucydides, by contrast, spares the Athenian doctors the accusation of quivering in their ineptitude; when he writes that mortality among the doctors was the highest of all – a detail omitted by Lucretius – he affords their deaths a certain nobility;[257] they suffered as they sought to give assistance to the dying, a hopeless task, but one undertaken nonetheless.

H. S. Commager, in his influential 1957 article 'Lucretius' interpretation of the plague', wrote of the pattern of Lucretius' supposed 'lapses' from Thucydides in *DRN* VI.1138-1286 that they betray the Roman poet's tendency to view 'physical phenomena in moral or psychological terms – especially in terms of fear and desire, held by Epicurean doctrine to be the two principle obstacles to happiness'.[258] Subsequent scholarly efforts found a broad consensus on this issue. For all that questions remain as to how explicit Lucretius intended the moral

---

[254] Thuc. II.47 trans. Warner (1953). I include the lines concerning the inefficacy of all human sciences and divine exhortations to emphasise that Thucydides is not singling doctors out for their failure, he is singling them out for their exceptionally mortality rate. Lucretius omits adapting these lines at VI.1197ff. He references the inefficacy of divine reverence at VI.1276-1277, falling in line once again with Thucydides' structure (cf. II.52), but the accusation of inefficacy at VI.1197ff is curiously reserved for the medical art.

[255] Lucr. VI.1179.

[256] Phillips (1982) p.234.

[257] *Ibid.*

[258] Commager (1957) p.106.

lesson of *DRN* VI.1138-1286 to be, there is little doubt that the plague serves a symbolic function in the poem. Lucretius writes at III.459-461 that 'just as the body is prone to foul diseases and harsh pain, so we can see the mind to suffer anxiety and grief and fear';[259] psychological perturbation is a disease for which Epicureanism is offered as the cure. The Athenians who fell victim to the plague of 430BC were denied Epicurus' medicine; his teachings, we are led to suppose, would have afforded them some comfort. Lucretius casts himself as a marketer of Epicurus' salve. In the metaphorical architecture of *DRN*, where Epicureanism is medicine and Lucretius' poetry is the 'sweet yellow honey' smeared on the goblet's rim,[260] what metaphorical function does the medical τέχνη *per se* serve, when it appears starkly on the page?

Taking Lucretius' deviation from Thucydides at VI.1179 as our evidence, medicine *per se* is an inferior (and ultimately ineffectual) body of knowledge to that which Epicureanism preserves. The doctor's *fear* – the great Epicurean bane – stems from an encounter that exceeds his understanding, a confrontation with the limitations of his τέχνη. Had he placed his faith in Epicureanism, we are invited to presume, he would, confronted by the horrors of the plague, be free from the fear that consigns him to silence. But if Epicureanism can be likened to medicine, it is intended as a psychological balm.[261] Though Lucretius would disparage practitioners of the medical art for their failure to understand the causes of the plague, he reveals nothing in the text that might suggest how the physicians would be better served, in practical terms, had they understood the plague's atomic roots.[262] He offers no alternative medical theory, but hints instead at an alternative moral outlook. In making the case for *DRN* VI being incomplete, David Sedley points out that the Epicurean position on how physical pain can be tolerated if one cultivates the appropriate mindset (**II.5.2** above) is absent from *DRN*, though the plague episode hints at its intended inclusion.[263] Following the logic of Lucretius' poem, the missing piece of the lesson at *DRN* VI.1138-1286 is not a superior medical theory, but a superior *alternative to* medicine. When Lucretius writes at VI.1226 of medicine's inability to find a cure common to all

[259] Trans. Melville (1997).
[260] Lucr. I.936-950.
[261] A point I develop further at **II.5.5** below.
[262] Despite his discussion of disease in these terms at *DRN* VI.660-664.
[263] Sedley (1998) p.161-165.

who were afflicted, the image evoked is that of a discipline grasping at solutions, perhaps occasionally chancing on a remedy for some, but never developing an reliable methodology for the effective treatment of all.[264] We must ask if the uncertainty indulged by practitioners of medicine, a necessary concession to the practical realities of their art, is antithetical to the cultivation of the 'correct mindset'; uncertainly begets fear, the abolition of which is the path to ἀταραξία.

The question of how much we are entitled to infer about the general Epicurean attitude to medicine from *DRN* will be addressed shortly below (**II.5.4**), but the argument that Lucretius was negatively disposed towards medicine is supported by evidence from elsewhere in the text. As Phillips notes, the discovery of medicine is absent from Lucretius' account of the progress of civilisation in *DRN* V.772-1457.[265] The closest Lucretius comes to making note of medical advancement is a reference to primitive humankind's ignorance of the proper method for the treatment of wounds at V.994-998. This thread is not picked up in his account of civilisation's later stages, but the implication is certainly that a proper method of treating physical injuries existed to be found.[266] This would not, of course, come close to representing the full scope of the medical τέχνη as it existed in the Hellenistic world, and certainly not with regard to Rationalist medicine, which claims non-evident causes as its domain of study.[267] Lucretius will likely have conceded that a few practical measures could be taken to alleviate physical pain in contexts where the causes are self-evident – *i.e*. techniques which were arrived at empirically, with predictive effects. But beyond that, the medical art is not included among the inventions that moved the humanity closer to equanimity, such as the discovery of fire, the advancement of language and the eventual concession to the necessity of law. When physicians do appear towards the poem's conclusion, they are vessels for the demonstration of the paralysing effects of fear.

While the argument can be made that the deviation at *DRN* VI.1179 is a consequence of mere poetic styling – a device incidentally, of which

[264] Or at least, a method for determining when it was appropriate for physician to intervene – *i.e.* when success was attainable. *DRN* VI.1226-1234 represents a further alteration from Thucydides, where the psychological consequences of the plague seem to take precedence over the danger of physical contagion. See Commager (1957) p.112-113 for further analysis of *DRN* VI.1226.
[265] Phillips (1982) p.234.
[266] *Ibid.* p.234, n.5.
[267] *Ibid*.

Epicureanism was largely disdainful[268] – we should note that Lucretius' depiction of the inefficacy of the medical art is consistent with the privileging of psychological equanimity over the bodily across our Epicurean testimonia.[269] So too is the heightened psychological emphasis at VI.1226-1234 and elsewhere, when contrasted with Lucretius' source.[270] The interpretation of *DRN* VI.1179 as a knowing disparagement of the medical art is also consistent with the absence of a fully-developed Epicurean theory of health and disease in any of our extant testimonia. We might ask if the pursuit of ἀταραξία is inconsistent with the realities of medical inquiry, such that the medical potential of Epicurean physics was never sufficiently explored.

II.5.4 Cautionary interlude

Before we continue, we must address the limitations of our source material in making the case that the physics of bodily disease was underexplored in Epicureanism. Hypotheses such as that which I advance at **II.5.5**-**6** below are assembled from extant material and may date poorly on discovery of new additions to the Epicurean cannon. Is it possible that an Epicurean theory of health and disease has been lost to us?

Of the list of works attributed to Epicurus in D. L. X.27-28, the two most likely homes for such a theory are *On Diseases and Death – to Mithras* (Περὶ νόσων και θανάτου)[271] and the one of the lost books of *On Nature.* Nothing of the contents of the former work is known. But I would suggest that combining the subject of disease with death points towards the letter's ethical, and likely non-medical purpose. We know that the Epicurean position on death was that its capacity to incite fear was, on the final analysis, unfounded.[272] There is also, as we have seen (**II.5.1-2**) ample evidence to suggest that Epicurus' most frequent (if not only) response to the question of bodily pain was that one must cultivate a mindset that deprives pain of the same capacity to induce fear – which is to say,

---

[268] See, most obviously, our fragments from Philodemus' work *On Poems*. The fact that Philodemus himself wrote poetry (Cic. *Pis.* 68-72 and the various epigrams in the fifth book of the *Anthologia Graeca*) suggests that we exercise caution when upholding Lucretius' chosen medium as evidence of a deeper dissent from Epicurus' doctrines. While he may not, at *DRN* VI.1179, be reproducing a direct attack on the medical τέχνη located somewhere in Epicurus' *On Nature*, it is unlikely that there is anything in his source text that prohibits him from emphasising the art's inefficacy.

[269] *Supra* **II.5.2**.

[270] Commager (1957).

[271] The full title of which, including '…and death' (και θανάτου) was persevered in P. Herc. 1012, col.38.

[272] E.g. Epic. *Ep. Men.* 124-127.

to respond to pain as one responds to one's mortality: it is inevitable, but it need not disturb the mind. The title thus inclines me to believe that the methodology of coping with these inevitabilities was the subject of the text, rather than something approaching a physical exposition of disease. Death cannot be cured; the pairing of death with disease suggests that the topic of the letter was not medical, but ethical/psychological.

A more likely location of the Epicurean theory of health is one of the missing books of *On Nature.* We can be confident in assuming that Lucretius' hints towards an atomistic model of disease (see **II.5.5**) are sourced from somewhere in Epicurus' *magnum opus*.[273] But we cannot, as we shall see (**II.5.5-6**), reconstruct from references in *DRN* alone a unifying atomistic theory of disease or pain, let alone a *bone fide* Epicurean theory of medicine. If such a theory existed, I would question why Lucretius would decline to mention it in *DRN*, eager as he is to celebrate the discoveries of his school's founder. If the subtext of *DRN* VI.1138-1286 is that knowledge of Epicureanism would have prepared the Athenians for the horrors which befell them, then surely partaking in Epicurus' medical knowledge would have further spared the victims of the plague from the fear and uncertainty which Lucretius brings to the forefront of the episode. Against this, one might raise the strong possibility that *DRN* VI was unfinished,[274] or that Epicurus' theory of health was confined to a book of *On Nature* with which Lucretius was less familiar.[275] But it seems to me that in either case, Epicurus' medical pronouncements, if they existed at all, were far from the forefront of his philosophy. As we saw in **II.5.3** above, the logic of *DRN* VI.1138-1286 as it existed at the time of Lucretius' death indicates that Epicurus' explanation of how bodily pain could be tolerated is the missing components of the poet's unfinished lesson, not a hypothetical medical theory;[276] the depiction of Epicureanism as a psychological salve is manifestly the driving impetus for the inclusion of this episode. It remains plausible that Epicurus' theory of health was written in one of the more 'obscure' books of *On Nature.* But given Epicurus' own apparent role in assigning each book their relative importance,[277] we can at least be confident in

[273] Sedley (1998) esp. p.62-93 on Lucretius' 'fundamentalism', p.133-165 on Lucretius' plan and its execution.
[274] Sedley (1998) p.157-165.
[275] *Ibid.* p.99-102 for discourse on the 'popular books' of *On Nature,* p. 135-144 (esp.) for Lucretius' source.
[276] *Ibid.* p.163.
[277] Epic. *Ep. Hdt.* 35.

asserting that if a perfunctory theory of health and disease was recorded somewhere in *On Nature,* its significance to the Epicurean project was minimal.

II.5.5 An atomistic theory of disease?

Our departure into ethics in **II.5.1-3** has returned us to the physics at the root of medical theory, and to the question of the Epicurean explanation of disease. If the medical art was guilty of indulging in the kinds of uncertainty that were antithetical to Epicureanism's τέλος, then a theory of medicine designed from Epicurean principles is the obvious desideratum.[278] However, no unifying theory of health and disease is presented from within the school itself.[279] Asclepiades' initial attempt to develop a theory of health and disease within Epicurean physical constraints – which I will argue for at **IV.2.2** – implies that he saw something of value in Epicurean physics,[280] but we are under no obligation to project on him an interest in Epicurean ethical concerns. Keeping in mind the textual limitations addressed at **II.5.4** above, I posit that the reluctance displayed by Epicurean sources to pronounce, authoritatively, on issues of bodily health – that is, independently of appeals to psychological equanimity – is suggestive of a certain moral wariness on the part of the Epicurean philosopher, such that the medical utility of Epicurean physics had not been properly explored. If there was work yet to be done then such work demanded a physician's estrangement from the question of psychological equanimity – more broadly, someone who could exploit the utility of the Epicurean physics-epistemology interconnexion independently of ethics. Crucially, a non-Epicurean. In this section, I will argue that Epicureanism develops its physics only so far as to account for its ethical τέλος, leaving the question of the physics of disease largely unexplored. At **II.5.6** below, I make the case for the disjunction of physics and ethics in Epicurean sources.

Our best source for an atomistic theory of disease is Lucretius who, in *DRN* VI, conceives of disease in the same terms as he does thunder, earthquakes and

---

[278] It is, of course, not at all obvious that a philosopher of the third century BC would consider it the task of philosophy to develop a detailed medical theory. Aristotle's comments on the place of medicine within philosophy are significant here, but I delay my examination of the Aristotelian framework until **III.3** and will revisit it in the context of Asclepiades' relationship with Epicureanism at **IV.2.5.2**. My motivations are structural. I provide detailed examples of the kinds of deviation we see physicians make from their adopted philosophical models before I shine light on the (at least, partially) clarifying framework.

[279] The hints in *DRN* towards an atomic theory of pain indicate only a perfunctory acknowledgement in Epicurus' doctrine. See **II.5.6** below.

[280] And I propose that the value Asclepiades identified in Epicurean physics – as has, by now, been appropriately foreshadowed – was rooted in Epicurean epistemology. See **IV.5.**

volcanic eruptions;[281] they are inevitabilities of natural mechanics (at least, within the context of the cosmos we inhabit), explicable in materialist terms. His conception of disease is here encapsulated:

> For is there anyone that feels surprise
>
> If fever rising with its burning fire
>
> Attacks the limbs or if some other pain
>
> Afflicts the body, caused by some disease?
>
> The foot swells suddenly; sometimes a stab of pain
>
> Shoots into the teeth or even into the eyes.
>
> The fiery rash breaks out, creeping over the body,
>
> And burns whatever part it seizes on,
>
> Crawling relentlessly across the limbs.
>
> All this is caused by the multitude of atoms;
>
> For sure the earth and sky of ours contain
>
> Sufficient store of noxious disease
>
> To spawn a growth of ills immeasurable.[282]

Lucretius uses the variety of ailments which assault the human body as an analogy for the meteorological events which take place in the cosmos;[283] the lesson is that the mechanics underpinning the phenomenal world are sufficiently complex to account for everything in perception, however seemingly uncaused.[284] But how much do we learn about the nature of disease from this passage? Only that diseases are accidents prefigured in atomic configurations,

---

[281] Lucr. VI.655-673.

[282] Lucr. VI.655-664 trans. Melville (1997).

[283] *Ibid.* VI.655-673.

[284] Lucretius also compares the size of man relative to the cosmos to the size of the cosmos relative to the all at VI.650-654. A macrocosm-microcosm relationship is being promoted to several different ends. The human and the cosmos adhere to the same laws. The human and the cosmos are, in the final analysis, vanishingly small constituents of a whole. I mention this to draw attention to the fact that elucidating the nature of disease is not the focus in VI.655-673. Lucretius' chosen examples seem intended to enforce the analogy. Note particularly the parity between the 'fiery rash…creeping over the body' (VI.660), the realms of heaven being set aflame (VI.669-670), and the volcanic imagery evoked by 'Fever rising with its burning fire' (VI.655).

multiple and variform. Lucretius goes no further in explaining the nature of such configurations. Instances of specific ailments are further elaborated in the text, but never in the spirit of divulging a unifying (or, even, an isolated) atomic explanation for the aetiology of disease. In the case of epilepsy, to use a memorable example from *DRN* III, symptoms arise because the atoms which comprise the mind are tossed around within the body like an ocean in a storm and endure for the duration of the tumult.[285] No first cause is offered, but nor should we expect one; Lucretius's objective is not to demystify epilepsy; he is using it, in context, to illustrate the mind's mortality.[286] The description is intended to illuminate a property of the soul for the purpose of guiding that of the reader towards quiescence. The elemental basis of an epilepsy is a premise at III.487-509, not the conclusion.

In the overture to the description of the plague, less than three hundred lines from the end of *DRN,* when Lucretius finally announces his intention to explain the nature of disease *per se*, he fails to deliver on this promise.[287] He confines his explanation to epidemic diseases and identifies pestilences with baleful arrangements of atoms in the air which are inhaled, imbibed or ingested via infected waters and foodstuffs.[288] What makes such patterns harmful is not elaborated, though there is an interesting ethnographic diversion into how unfamiliar environments more readily produce disease in travellers.[289] Unfortunately, rather than exposit the mechanics of this, Lucretius merely offers some examples of how different climates produce different people and how diseases are often geographically specific.[290] But with the possible exception of this short account – which, in the context of the poem, is principally a prelude to the description of the plague whose credentials as a didactic device have been

[285] Lucr. III.487-509.
[286] *Ibid.* III.459-525 for fuller context. The capacity of medicine to heal the mind as it does the body is also used as evidence for the mortality of the mind. There is at least the implication in the analogy at III.510-512 that the body can be healed by medicine, but its mention is incidental. It is not clear what kind of psychological healing Lucretius is referring to in these lines – epilepsy, in his description, passes when 'the disease is spent' (III.502) – but in the context of the poem, reading the line as a generic an analogy for the curative property of Epicureanism does not seem like too great a reach. cf. Porphyry, *Letter to Marcella,* 31 = Epic. fr. D54 in Bailey (1926) p.133 (= Usener 221).
[287] At least, in the detail we are accustomed to expect at this stage in *DRN* VI. His limited explanation does succeed in providing the *basis* of an alternative to divine agency as the cause or epidemic diseases.
[288] Lucr. VI.1090-137.
[289] *Ibid.* VI.1103-1130. A 'diversion', because the plague that befell Athens to which this section is a preamble was hardly the result of an unfamiliar environment.
[290] Lucr. VI.1103-1130.

thoroughly established[291] – physical disease is never the focus in *DRN*; its function is typically to illustrate a component of broader physical/psychophysiological doctrine, such as the examples of VI.655-673 and III.459-535 respectively, or as part of an analogy for psychological disquiet, the disease for which Epicureanism is the cure. I suggest that this apparent reticence indicates Lucretius' reluctance to engage fully with an atomistic explanation of disease. We may contrast Lucretius' treatment of disease at *DRN* VI.655-664 and 1090-1137 with that of meteorological and other natural phenomena from VI.96.[292] Despite the analogy Lucretius wants to draw between diseases of the body and events within the cosmos, phenomena whose roots are perfectly external to the boundaries of the body permit Lucretius to explicate their nature with more confidence.[293] The depiction of disease as an arrangement of atoms raises more questions. Disease is not an external, delineable phenomenon. It is an event that occurs within the body and the ultimate condition of a process which has implications for the physical relationship between the human body and the external world. There is, I suggest, a certain untapped potential in Epicurean physics when it comes to the question of disease, one whose lack of actualisation manifests as a vulnerability in *DRN*. The question demands a mechanical explanation which is never supplied by our sources for Epicurean philosophy but is – at least partially – supplied by Asclepiades in terms consistent with Epicurean conditions (see **IV.2.2**).

To return, then, to *DRN* VI.655-664, there are two noteworthy explanatory limitations of the atomic model of disease which a physician – working from Epicurean physical principles but directing his efforts towards a distinct τέλος – is at liberty to resolve. The first relates to the mechanics of how atoms in the body interact with those whose nature precipitates disease. Disease is nominally a phenomenon of the body, but we may define it more precisely as the ultimate condition of a sequence of events which take place on either side of the human boundary. It is unclear from Lucretius' account where it is that the atomic roots of disease manifest. When he writes of pain afflicting the body that is caused by

[291] Given how Lucretius fails to explain the nature of disease in this section, his claim to be about to do so at VI.1090 reads like a pretext to steer the poem towards his intended moral conclusion.
[292] Of which the passage at *DRN* VI.655-664 is, in fact, a component.
[293] Moreover, theorising as to the elemental causes of meteorological phenomena has no explicit bearing on any practical discipline in which the merits of a theory can be conclusively tested.

some disease,[294] are we to infer that the pattern of atoms he attributes to disease is an event occurring inside the body, or something the body is affected by, or both? We might presume that nocuous patterns of atoms interact with those of the body to produce a new arrangement from which the symptoms spring, but we are left to question whether these outside patterns are innately nocuous or if disease is co-dependent on conditions in the body. As we have seen, in the case of epidemic diseases – standardly distinguished as a class of their own – the agent of contagion is located in the air, but the ethnographic element of the exposition at VI.1090-1137 invites us to speculate that the precomposition of the body has a role to play either in one's susceptibility to disease or in the creation of disease through the juxtaposition of something in the body with potentially destructive compounds in the atmosphere.[295] But speculate is all we may do. There is no explanation as to how, *at the atomic level*, disease interacts with the body.[296] *DRN* VI.1090-1137 is the closest we get to an Epicurean account of how the body interacts with the atmosphere in the aetiology of disease. Not only does this account limit itself to epidemic disease, ignoring the other possible causes of disease besides exposure to pestilence,[297] it also raises more questions about the nature of the internal-external relationship in the origin of disease than it answers.

Asclepiades' core thesis goes some way towards filling in this absence. Disease in the body is explained by the impaction of ἄναρμοι ὄγκοι in the body's elemental constitution.[298] That impaction might be caused by nocuous combinations of the same base material originating externally is consistent with

[294] Lucr. VI.657-658.

[295] This is the case, of course, with Epicurus' account of perception (*Ep. Hdt.* 46-53, *supra* **II.4.1-2**). The same atomic patterns can have different effects on different individuals' sense receptors. See the example of honey on the taste receptors of the healthy vs. the unhealthy at Lucr. IV.644-670. Atoms in the body interact with atoms in the honey to create the experience of taste; the 'sweetness' detected by the healthy tongue is undetected by the unhealthy subject despite their partaking of an identical substance. Of course, in this example the body is already diseased – the inability to detect sweetness is perceived as a malfunction resulting from disturbed atoms in the body (IV.668-670) – but the possibility remains that potentially destructive configurations in the atmosphere could only adversely affect the body in concert with some feature of its atomic precondition.

[296] We get so far as the non-specifically deleterious patterns of atoms being inhaled, imbibed, or ingested and then passing into the chest (VI.1150-1152). The aetiology of the manifestation of disease following this is left to our imaginations.

[297] Thus, we should be wary of inferring that infected air, food and water were the only ways in which disease could be precipitated in the Epicurean conception of disease. Though Lucretius certainly presents VI. 1090-1137 as if it contained a universal explanation for disease.

[298] Cael. Aur. *Cel. Pass.* 1.14.105-7; S. E. *M.* III.3-5.

both Epicurean doctrine and our sources for Asclepiades' elemental conception of human physiology. Anonymus Londinensis writes of the role of the pores in regulating the material flowing into and out of the body in Asclepiades' theory.[299] The body is engaged in an ongoing reciprocal exchange of elements with the outside world – this, too, is Epicurean doctrine.[300] But it is only in our sources for Asclepiades that we see it incorporated into a general theory of disease.[301] There is something in the elemental composition of a contiguous pattern that precipitates impaction. Sextus Empiricus includes the body's permeability in his list of the hypotheses which underpin Asclepiades' explanation for fever.[302] The mechanics of internal-external interaction in the onset of disease is part-way addressed. The role of pre-existing conditions within the body's material composition at the point of interaction with a pattern which precipitates disease remains unclear.[303] But in a theory that makes so much of the variable of porosity, we are probably safe to assume that pre-existing conditions in the body had a role to play in the manifestation of disease. We should note that Asclepiades' theory addresses this limitation without recourse to corpuscular fragility;[304] exchange 'ὄγκοι' for 'atoms' in *Cel. Pass.* 1.14-105-7 and we have an Epicurean addendum to an area neglected in Epicurean testimonia.

The second deficiency in Lucretius' account is related to precisely what it is about a compound that makes it harmful to the human form. All diseases are united by their capacity to bring about and sustain pain. How is this quality prefigured in the atomic arrangement of each disease? What have all diseases – or, yet more generally, what have all pain-giving phenomena – in common, at the atomic level?[305] A partial Asclepiadean answer may be inferred: in most cases, pain describes a state of impaction in the body's constituent ὄγκοι precipitated by patterns of ὄγκοι which, according to nature, bring about such an effect under particular conditions. The question remains as to how this property might manifest

[299] Anon. Lond. xxxix.1-32.
[300] See *supra* **II.4.1**.
[301] The account of pestilence at Lucr. VI.1090-1137 also incorporates this phenomenon into the aetiology of disease. But limitations of this passage are addressed above.
[302] S. E. *M.* III.3-5.
[303] S. E. *M.* III.3-5 does allude to the role of 'present circumstances' in regulating the volume of the continuous effluences that occur 'from us to the outside' but this seems to be a consequence of impaction, and therefore a feature *of* disease as opposed to a contributing factor.
[304] For the argument that the institution of corpuscular fragility was a later development to a theory that stuck more closely to Epicurean physical doctrine, see **IV**.**2.2.**
[305] Cf. Lucr. VI.809-825.

itself. Here, unfortunately, our sources are unclear. If there is a role for the frangibility of the ὄγκοι in this context, it is not obvious. More likely, given the significant possibility that the fundamentals of Asclepiades' theory were in place before he instituted this particular modification (**IV.2.2**), a solution, if presented, would broadly conform to Epicurean presuppositions.

II.5.6 The physics of pain in *De rerum natura*

The problem of pain is of greater significance for our purposes, with implications for the disparity between Stoicism and Epicureanism's medical adaptation. In this final section, I will suggest deficiencies in the Epicurean physical account of pain creates a weakness in the bond between the physical and ethical branches of Epicurean philosophy, such that the former might be considered independently of the latter – selectivity of the sort that Stoic physics and ethics will not permit.

If we analyse the aetiology of pain into 1) 'pain inciting atomic configurations' and 2) their 'pain sustaining' equivalent,[306] we find that neither are expounded in the depth we might expect given the centrality of the pain-pleasure continuum to Epicurean philosophy.[307] Lucretius comes close to offering a physical account of both causal constituents of pain, but neither example is sufficiently rigorous to indicate their source in a comprehensive theory of the underlying physics of pain. The first example, a candidate for (1), is a reference in *DRN* IV to the atomic basis of pleasant and unpleasant tastes:

> …when bodies of the diffusing flavour
>
> Are smooth, they sweetly touch and sweetly stroke
>
> All the wet trickling regions of the tongue.
>
> But contrawise they prick the sense and tear it
>
> In their encounter, the more they are filled with roughness.[308]

The association between coarseness and unpleasantness of taste does not permit us infer that all bodily pain is caused by the introduction of abrasive atoms into the body. Lucretius is quite careful to point out, in the context of a broader

---

[306] (2) is accounted for Asclepiades' theory. Of (1) we have no mechanical explanation.

[307] A deficiency that is further illuminated via cross-analysis with the comparative unity of physics and ethics in Stoicism. See my discussion of fourth book of Chrysippus' *On Affections* at **III.5.**

[308] Lucr. IV.622-626 trans. Melville (1997) slightly modified.

exposition on the nature of the human sensation, that it is a function of the tongue to be susceptible to such variations of shape, hence the pleasure/pain that one experiences through eating ends at the palette.[309] If we recall the explanation of epidemic diseases at *DRN* VI.1090-1137, in which the atoms which precipitate disease enter the body through the mouth, it seems significant that no connection is drawn between foul tasting food or drink and the ingestion of tainted foodstuffs.[310] We learn from the discussion at IV.664-674 that the pain-giving properties of sharp atoms are dependent on their interaction with the appropriate receptors – hence variations in taste between different animals/people – but we stretch the appropriate domain of speculation when we posit that different degrees of susceptibility to disease – such as those implied at VI.1090-1337 – are contingent on analogous receptors elsewhere in the body.

The second example, and candidate for (2), appears at *DRN* II.963-967 as part of an answer to the question of why Epicurean atoms are unable to experience pain:

> Pain occurs when particles of matter
>
> Attacked by some force in the limbs and flesh
>
> Quiver and tremble in their deep abodes;
>
> And when they settle back into their places
>
> That is soothing joy.[311]

While we may infer from the above that pleasure, in physical terms, is an equilibrial state and pain represents a localised divergence,[312] I submit that this account is remarkably sparse given the centrality of the pleasure-pain dichotomy to the Epicurean project. The model, as presented, fails to account for the distinction between psychological and bodily pleasure,[313] how disturbances to the

---

[309] Lucr. IV.627-632.

[310] We do see the relationship between disease and taste referenced at IV.664-670. But here the capacity of disease to alter one's perception of taste is the focus, and it is once again used as an analogy for the explanation of something evidently more important. Lucretius uses this phenomenon as evidence for how different internal configurations of atoms (for the disease body has had its atoms 'thrown into confusion'(see below)) react differently to stimuli hence the role of subjectivity in assigning pleasant and unpleasant tastes.

[311] Trans. Melville (1997).

[312] Consistent with Epicurus' negative definition of pain at e.g. *RS* 4.

[313] *Supra* **II.5.2.**

atomic structure of the body might impact that of the mind and how the mind can be remodelled as immune to this apparent domino effect.[314] That joy is associated with the process of restoration at *DRN* II.966 implies that Lucretius' subject is kinetic pleasure and bodily pain,[315] not the psychological disposition that constitutes the greater share of the Epicurean τέλος. The physical signature of ἀταραξία (and its distortions) is not expounded. Moreover, given what we know of atomic motion,[316] the image of atoms 'quivering and trembling in their deep abodes' (*sollicitata suis trepidant in sedibus intus*) hardly evokes an intelligible alteration from an initial, salutary state. It is perfunctory, going no further than explaining that movements in one's constituent atoms are, in fact, the root-cause of pain. Lucretius' objective in this passage is to explain that pain can only be caused within a compound entity – one in which there can be an ideal and a deleterious combination of constituents; his description lacks a mechanical explanation as to what it is for atoms to be 'out of place'; we infer only: 'where is not conducive to pleasure'. No further elaboration is offered elsewhere in the text.

The model hinted at *DRN* II.963-967 is consistent with depictions of disease elsewhere in *DRN*, which are most frequently identified with one's atomic structure having somehow been upset by hidden stimuli.[317] But while this might explain distorted cognitive or sensory functions – the end to which such internal conditions are invoked elsewhere in *DRN* – mere disequilibrium is not presented as an explanation for pain in these alternative examples; this we are left to infer from the context established at *DRN* II.963-967 above. I submit that Asclepiades' conception of disease as resulting from the impaction of elemental bodies is consistent with the model hinted at in this passage and should be read as an attempt to elaborate an existent but ultimately cursory analysis of pain in materialist terms.[318] Moreover, that the analysis *is* so perfunctory tells us much about Epicureanism's priorities, and the cursory nature with which the ethical

[314] An effect that, as we saw at **II.3.9** and **II.5.2**, is suggested at Lucr. III.152-176 but never explained in physical terms. Lucretius evokes this causal relationship as an argument for body-soul interconnectivity, for which he has an ethical objective.
[315] Cf. Cic. *Fin.* 2.9-10.
[316] *Supra* **II.3.7.**
[317] e.g. Lucr. III.487-509; IV.664-670. Fever through an excess of bile is offered as one of unnumbered possible causes at IV.664. The association of bile with bitterness and therefore with rough constituents is valid. However, disturbing the body's functional equilibrium through unspecified means and tearing at sense receptors in the tongue are far from synonymous.
[318] We return to thus argument at **IV**.**2.2.**

poles are rooted in physical theory has implications for how the doctrine might be adapted into medicine.

Neither the final goal of ἀταραξία nor the strains one must eradicate to reach it are explicitly identified with movements of atoms in our sources. Epicurean ethics finds its basis in the philosophy's rejection of teleology and divine administration; understanding the cosmos in terms of the ungoverned interaction of thoughtless bodies is intrinsic to freeing oneself of fears born of theological anxiety. But beyond this, how might we translate the soothing of a troubled mind into the movements of atoms?[319] What happens, at the atomic level, when Epicurus' medicine is administered? We might assume that such a process must have a very particular atomic signature – comparable, to a degree, with the Stoic identification of preferred psychic states with a salubrious equilibrium of elements in the soul[320] – yet none is offered.[321] Epicurus' arguments against teleology and providence, grounded in mechanistic – though crucially non-deterministic[322] – physics and supported by a model of sense-receptivity that finds in the evidence of the senses the secrets to uncovering all truths, would seem to have been regarded as a sufficient physical foundation on which to base his ethical claims. I submit that this disjunction permitted Asclepiades to consider Epicurean physics independently of their ethical function, and thus to take Epicurean physics in a direction that was inaccessible to the natural philosopher, as in the case of his determinism, or simply outside the philosopher's goal-dictated purview, as in his elaboration of the hitherto cursory Epicurean analysis of pain and disease. The consequences of any modifications made to the doctrine require justification only in physical and epistemological terms. Furthermore, any such alterations would only serve to distance himself from broader Epicurean concerns and affirm his independence as a physical theorist, which I will argue is a driving factor behind the physician's tinkering with philosophical doctrine across the next two chapters.

---

[319] The best we could offer, generalising from II.963-967, is that atoms move from where they should not be to where they should be, with neither state being properly defined. In fact, as the Epicurean conception of 'should' and 'should not' is mediated by the magnetism of ἀταραξία, a more accurate answer, generalizing from II.963-967, is that atoms move from 'where pain is produced' to 'where pain is not produce', which hardly helps us.

[320] e.g. Gal. *QAM* 4 (= *SVF* 2.787). See **III.5.**

[321] Intuitively, one thinks of the atoms which comprise the mind in tumult then gradually settling into functional patterns. This is Lucretius' explanation for the epileptic's journey from seizure to recovery at III.487-509, but it is not analogised in the text to more subtle processes; it is used to illustrate the mind's vulnerability.

[322] See *supra* **II.4.3-4.**

As a coda to this section, in anticipation of my analysis of Stoicism's adaptation into medicine in **III**, I wish to reemphasise the contrast between the Epicurean physics-ethics interconnexion and that of the Stoics, to which I have already hinted. As we saw throughout **I**, the Stoic pursuit of ἀρετή is identified with their quest to embody harmony as exemplified by the cosmos. The blueprint for εὐδαιμονία is the structure and behaviour of the physical world. Moreover, the process by which the Stoic, in his capacity as physician of the soul, seeks to relieve the mind of its affections can, in fact, be translated into physical activity. As we shall see at **III**.**5**, the medical analogies peppered throughout our fragments of Chrysippus' *On Affections* depend on the philosopher's restorative interventions being communicable in terms of balancing a patient's elemental constitution. Thus, where Stoic physics provides a template for its ethics, Epicurean physics provides a justification. Both schools present themselves as curative, but only the former delves in any depth into the physical nature of the cure. When we ask in the next chapter why the transposition of Stoic philosophy into medicine was, relative to Epicureanism, a predominantly frictionless affair, our answer must acknowledge the relative seamlessness with which the branches of Stoic philosophy are bonded.[323] Athenaeus was able to transpose the physics of Stoicism's psychological therapies into a physiological context (**III.5**). Asclepiades, in his adoption of Epicurean physics, was afforded no such psychophysical template. The physics of pain are left to him to determine. In doing so, he is free to take from Epicurus what is useful, and discard what is not.

II.6 Conclusion: The ethical τέλος of Epicurean physics

My intentions for this chapter have once again been threefold: 1) to set out Epicurean physics and epistemology in their original, non-medical context; 2) to parse the nature of the physics-ethics interconnexion in Epicureanism in anticipation of a my analysis of the philosophy's medical appeal in **IV** and 3) to make the case for the Epicureanism's quasi-therapeutic τέλος having steered its practitioners away from physical questions of pain and disease, and to conduct their philosophy at the level of abstraction – within a model of consciousness with relatively loose ties to the world of atoms beneath, the ethical function of which is to justify, not to explain, Epicurean morality.

[323] At least in the incarnation to which Athenaeus of Attalia was exposed.

I have proposed that when Epicureanism presents itself as an effective panacea for the distresses of the mind, it does so in acknowledgement that the medical τέχνη had failed to do the same for the body. The emphasis on the importance of psychological health above the physiological, coupled with the reticence I detect in Epicurean sources to pronounce authoritatively on the physics of pleasure and pain, speaks to the curative component of Epicurean philosophy, its τέλος, being an ultimately abstract cure for an ultimately abstract disease – fear. Epicureanism develops its physics only so far as is necessary to accommodate its psychological purpose, leaving matters external to the ambit defined by its τέλος unexamined or underdeveloped. I have proposed that, in the case of Epicureanism, the partial disjunction of physics and ethics accounts for some of the more radical transformations the doctrine undertakes as it is transposed from philosophy into medicine *per se*, affording the physician no ethical template upon which to base his medical theory. The branches of physics and epistemology are far more closely interwoven; adopting Epicurus' theory of knowledge necessitates the partial adoption of his physics. We return to the physics-epistemology interconnexion in **IV**, where I will propose that this entanglement is key to understanding the logic undergirding Asclepiades' modifications to Epicurean doctrine.

There is, moreover, a suggestion in Lucretius that Epicureanism might have perceived itself as incompatible with – if not opposed to – contemporary medical inquiry. This tension, I submit, between Epicureanism-as-medicine and medicine *per se* is a neglected frontier in Asclepiadean scholarship. As we shall explore over the next two chapters, enforcing disciplinary boundaries and demonstrating the capacity of the medical art to generate ideas independently was a driving force behind the modifications we observe. We must consider the possibility that not all modifications made by doctors to philosophy are practically motivated; some, I will argue, are driven by the impetus to signal intellectual autonomy.

*****

III

Athenaeus of Attalia

On the medical reception of doctrinaire Hellenistic philosophy, part I

*

III.0 In this chapter – the first of a two-part inquiry into the medical reception of doctrinaire Hellenistic philosophy in antiquity – we explore the intersection of Stoicism and the medical τέχνη via the theory of Athenaeus of Attalia. Athenaeus founded the Pneumatist school in the latter half of the first century BC,[1] named, not for their founder, but for the substance at the centre of his theory of disease. He is identified as a student of Posidonius of Apamea by Galen in *De causis continentibus*.[2] My aim is to diagnose the character of Athenaeus' engagement with Stoicism and, in so doing, illuminate a crucial mechanism by which philosophical doctrine is transposed into medicine. There are two sets of questions for which we must find answers. Of the foundational set: what doctrines does he adopt? What does he discard? What does he modify? What principles underly his selective appropriation of Stoic doctrine? Of the emergent set: what do the answers to the above questions tell us about Athenaeus' self-conception as a doctor *as distinct* from a philosopher, particularly in light of the adopted doctrine's physiological peculiarity and therapeutic τέλος? I will also highlight, where appropriate, the elements of Athenaeus' engagement with Stoicism that were enabled or facilitated by some intrinsic feature of the mother-doctrine. This will help us account for the differences between the mode of Athenaeus' philosophical interaction and that of Asclepiades of Bithynia (**IV**), that we might better understand the similarities.

The structure of this chapter is as follows. We begin at **III.1** with an evaluation of the evidence for Athenaeus and his school and establish from the outset the various interpretive obstacles that determine our course through the material. I will also summarise the current (though hardly abundant) state of Athenaean scholarship. At **III.2** our subject is Athenaeus' element theory. We examine each of our sources in turn and determine the extent to which Athenaeus' conception of the 'elements of man' is compatible with Stoic element theory. I argue that what

[1] See **I.1** n.2 for the controversy surrounding the date of the school's origin.
[2] Gal. *CC* 2. For the associated controversy, see **I.1**, n.4.

certain witnesses diagnose (or else, 'portray') as deviations from the mother-doctrine are better explained by Athenaeus' scrupulous enforcement of disciplinary boundaries, his delineation of a technical epistemology. In **III.3** I contextualize this interpretation by bringing the Aristotelian framework into the light. I argue that the Pneumatist's bid for disciplinary autonomy is intelligible when understood within – or, perhaps, as in dialogue with – Aristotle's hierarchy of sciences. At **III.4** we investigate Athenaeus' taxonomy of causes and cross reference it with our sources for the Stoic analysis of causation. I will argue that it is in the domain of causal theory that we see genuine innovation from Athenaeus of Attalia, but the scope of his creativity is nonetheless constrained by the intransigent doctrines of Stoic cosmology. At **III.5** we examine the role of medical analogy in the extant fragments of the fourth book of Chrysippus' *On Affections.* I will emphasise the 'correlative affinity'[3] between Chrysippus' therapeutic project, oriented towards the realisation of psychological equilibrium, and Athenaeus' conception of physiological health and disease. I emphasize that the discontinuity between Stoic philosophy and Stoicising medicine (established in **III.2-3**) is yet more striking when considered in light of this affinity, but I will argue that Athenaeus nonetheless finds justification for distancing himself from his intellectual heritage in his predecessor's therapeutic work.

III.1 Evidence and contemporary scholarship

Here I introduce the sources and summarise the treatment of Athenaeus and the Pneumatists in contemporary scholarship. A more general introduction to Athenaeus and this theory has been given at **I.1**.

III.1.1 Evidence

The surviving medical literature of the early Roman Principate preserves no record of the teachings of Athenaeus and his school.[4] His writings, the centrepiece of which was a comprehensive treatise titled *On Remedies* (Περὶ βοηθημάτων), setting out his medical theory systematically across a span of thirty books, have not survived save for a few scant fragments preserved in Oribasius' *Medical Collections*. We are left to reconstruct his medical theory from testimonia

[3] A phrase employed in the fourth book of Chrysippus' *On Affections* quoted in Gal. *PHP* V.2.22-24 trans. De Lacy (1978).
[4] It was on this basis that Athenaeus was originally dated to the first century AD. See **I.1**, n.2.

which postdates his life by centuries, but whose existence is itself a telling indication of the extent to which his teachings would endure after his death. Our most fertile source for Pneumatism is Galen, in particular the sixth section of his treatise *On the Elements according to Hippocrates* (*Hipp. Elem.*) which, in the course of its endeavour to reconcile the Hippocratic treatise *On the Nature of Man* with what was, in its essence, the Aristotelian elemental theory which Galen espoused, contains a lengthy critique of Athenaeus' insistence that 'the elements of man and medicine' be restricted to the elemental qualities: the hot, the cold, the wet, the dry.[5] *De causis continentibus* (*CC*) is a further indispensable text; it deals with Athenaeus' causal theory and attributes its quiddity to Stoic influence. However, references to Athenaeus and Pneumatism in Galen are infrequent when considered against the ink Galen devotes to critiquing the doctrines of Athenaeus' Hellenistic predecessors, particularly those of the third century anatomists and Asclepiades of Bithynia.[6] This paucity might be attributed to the fact that Galen found comparatively little to contest in Athenaeus' work;[7] he celebrates *On Remedies* as the best general medical treatise compiled in recent centuries and references to Athenaeus elsewhere in the corpus portray him as an authority to whom Galen was occasionally willing to defer.[8] Where Galen is hostile to Athenaeus, as he is throughout much of *Hipp. Elem.* 6, his antipathy stems from a broader philosophical disagreement upon which little rests that can be applied in practice.[9]

The second group of texts which shine some light on Athenaeus' practices are the pseudo-Galenic documents the *Introductio sive medicus* (*Int.*) and the *Definitiones Medicae* (*Def. Med.*). The compiling of each text is separated by approximately a century; *Int.* is probably a rough contemporary of the Galenic corpus,[10] where *Def. Med.* is an earlier text, understood to predate Galen by approximately one hundred years.[11] Besides Galen and the pseudo-Galenic

[5] For Galen's motivations in *Hipp. Elem.* see Hankinson (2017).
[6] For Asclepiades in Galen see **IV.1.1.**
[7] Nutton (2013) p.207 refers to Galen's 'suffocating friendship' as an impediment to the historian's task of reproducing with precision the medical theories of Galen's Rationalist predecessors and contemporaries. Galen's tendency to subsume his precursors – who, in reality, were only united by their shared opposition to the Empiricist and Methodist sects – under the label 'Hippocratics' has distorted our conception of Rationalist medicine and the variety therein.
[8] e.g. Gal. *Caus. Symp.* (= VII.165 K.). Athenaeus is commended at Gal. *Hipp. Elem.* 6.2-4 (= I.457 K.).
[9] See **III.2.1.2.** below.
[10] Petit (2014) p.275.
[11] Kollesch (1973) p.33.

testimonia, our sources for Athenaeus and the Pneumatists are limited to brief fragments and references scattered sparsely through the surviving medical literature.

III.1.2 Scholarship

The paucity of testimonia has had a correspondingly limiting effect on the treatment of Athenaeus and the Pneumatists in modern scholarship. The most thorough study to date remains Wellman, *Die Pneumatische Schule bis auf Archigenes* (1895),[12] which was published more than a century ago and suffers from outdated perspectives. An updated, systematic analysis of Athenaeus and his school has for some time been overdue.[13] On the subject of Athenaeus' relationship to Stoicism, the complexities and implications of the physician's engagement with the philosophy have, at the time of the completion of this thesis, gone largely unaddressed.

With the notable exceptions of Sean Coughlin's (2018) article 'Athenaeus of Attalia on the Psychological Causes of Bodily Health' (see **III.5.3.2**) and David Leith's as-yet-unpublished NAAP paper on Athenaeus' element theory (see **II.2**),[14] much of the recent scholarship addressing Athenaeus and the Stoics has been centred on Athenaeus' causal analysis, specifically, on the question of how far Athenaeus' tripartite taxonomy of causes (see **III.4**), presented in the context of the aetiology of disease, can be mapped onto Stoicism's existing analysis of causation, of which our knowledge is far from complete; in reconstructing Stoic causal theory, the model ascribed to Athenaeus in *CC* 2 – the source in which the physician's Stoic heritage is attested – is often consulted in the absence of authentic Stoic data.[15] Moreover, Athenaeus' taxonomy of causes constitutes his most lasting contribution to medical theory; we should not be surprised that this aspect of his theory has attracted most scholarly attention. Jim Hankinson has long been the authority on this subject;[16] his work is invaluable to any serious inquiry into the causal analysis of both the Stoics and the Pneumatists. Their

[12] I pass over cursory though nonetheless helpful introductions to Athenaeus and the Pneumatists such as that of Nutton (2013) p.207-208.
[13] Fortunately, such an update is pending. Sean Coughlin has been completing a full study on Stoic physics and medicine in the writings of Athenaeus of Attalia, unpublished at the time this thesis was completed.
[14] Inna Kupreeva's 2014 article 'Galen's Theory of Elements' also contains a lengthy discussion (p.172-195) of the disparity between Galenic/Aristotelian and Pneumatist element theory. See **I.2.1.2** below.
[15] e.g. Hankinson (1999) p.490-491.
[16] A further notable contribution to this subject is Frede (1980).

symmetries and asymmetries await us in **III.4** where I hope to build on Hankinson's work,[17] and clarify the genuinely innovative components of Athenaean causal analysis.

Despite the interest in Athenaeus' causal theory, the questions of what motivated Athenaeus to distance his medical theory from its predecessor in philosophy – be this tendency expressed through genuine innovation or through enforcement, via selective appropriation, of a technical epistemology – and what these instances of innovation/boundary enforcement tell us about the relationship between medicine and philosophy in our period have gone untreated. As expressed at **0.4**, the contemporary study of ancient medicine has a tendency to emphasise the permeability of the boundary between medicine and philosophy in antiquity; specialisation in the medical art is a neglected area of study.

III.2 The elements of man

The analysis of disease as a nocuous state resulting from impairments to the body's πνεῦμα consequent on an imbalance of elements can, I would suggest, be incorporated into Stoic psychophysiology without friction. Everything in Stoic cosmology arises from the activity of the active principle – standardly identified with πνεῦμα (fire and air, the hot and the cold) by the first century BC – upon its passive counterpart.[18] The all-penetrating nature of Stoic πνεῦμα, alongside its functions as the qualifying principle and mediator of psychic faculties,[19] allow for subtle variations in its quality to have simultaneous appreciable effects on both physiological and cognitive process. Identifying πνεῦμα as the sustaining cause (αἴτιον συνεκτικόν) of disease appears broadly consistent with Stoic psychophysiology,[20] though we are left to speculate as to what the causal chain that culminates in disease might look like.[21] Athenaeus' theory – intentionally or otherwise[22] – provides potential answers to questions one might raise about the

[17] Particularly 'Evidence, externality and antecedence: inquiries into later Greek causal concepts', 1987.
[18] See **I.3.5, 7-8.**
[19] See **I.5** for the psychic functions of πνεῦμα.
[20] I qualify 'broadly' because of Galen's claim in *CC* 2 that for the early Stoics, αἴτια συνεκτικά properly so-called refer only to the preservation of homogeneous substances. See **III.4.2** for a detailed analysis of αἴτια συνεκτικά in *CC* 2.
[21] I will argue at **III.5** that our fragments from the fourth book of Chrysippus' *On Affections* hint at an elemental template for the causes of bodily disease in Stoicism based on Chrysippus' analysis of psychological pathology, though the role of πνεῦμα in Chrysippus' conception of affections/therapeutics is unclear.
[22] What we read as a lacuna in Stoic psychophysiology may be explained by limitations in our evidence. I am not suggesting that Athenaeus was motivated by the need to address problems he identified in

mechanics of external-to-internal elemental interaction in a hypothetical Stoic theory of disease and fits neatly into the greater topography of Stoic physics.[23]

However, although the centrality of πνεῦμα to Athenaeus' theory of disease is evocative of Stoic physics, his element theory – insofar as it is appropriate to refer to it as such – appears, on first analysis, to discard the Stoic precedent. As I outlined at **I.1**, where the Stoics analysed the cosmos into elemental substances – fire, air, water and earth –, Athenaeus concerned himself only with their associated qualities – respectively, the hot, the cold, the wet and the dry.[24] In the absence of sources/testimonia that attest to Athenaeus' rationale, our first task is to illuminate the reasoning behind this apparent deviation. In the following subsection (**III.2.1**) I will evaluate each piece of evidence for Athenaeus' element theory in turn and correct for instances of authorial bias where appropriate. I will argue here and in **III.2.2** that Athenaeus' self-restrictive template of the 'elements of man' (στοιχεῖα ἀνθρώπου)[25] is consistent with Stoic element theory and speaks not of the physician's desire to rewrite his theoretical foundation but to delineate the apposite domain of medical inquiry within a preexisting theoretical terrain. This expression of specialization – with a view, I will propose, towards securing creative independence – finds precedent in our testimonia for the quasi-element theories of the third century anatomists (see **III.2.2**) and is, I will argue at **III.3**, prefigured in Aristotle's taxonomy of sciences.

III.2.1 Testimonia

We deal separately with the testimonia of pseudo-Galen (**III.2.1.1**) and Galen (**III.2.1.2**).

Stoicism, merely that his theory gives us some recourse in reconstructing how a Stoic theory of bodily disease *might* have worked.

[23] Moreover, as we cover at **III.5** below, the mechanism of bodily health/disease proposed by Athenaeus is isomorphic with that of psychological health in Chrysippus' psychology insofar as it can be recovered from our fragments of *On Affections.* The identification of health with 'good proportionality' is consistent with Stoicism's ethical thesis, for all that Athenaeus' theorising is not ethically motivated.

[24] See e.g. ps.-Gal. *Int.* 9.5 (= XIV.698 K.). Our sources for this question are the subject of **III.2.1.**

[25] As phrased in ps.-Gal *Int.* 9.5 (= XIV.698 K).

III.2.1.1 Ps.-Galen

The pseudo-Galenic *Introductio sive medicus* contains the following summary of Athenaeus' theory of 'the elements of man':

> According to Athenaeus the elements of man (στοιχεῖα ἀνθρώπου) are not the four primary bodies (fire, air, water and earth); but their qualities (the hot, the cold, the dry and the wet) of which he posits two productive causes, the hot and the cold, and two material, the dry and the wet. He interpolates a fifth (element of man) in accord with the Stoics, namely πνεῦμα which permeates everything and by which everything is sustained and regulated.[26]

The phrasing of the first sentence would seem to indicate that Athenaeus denied that his στοιχεῖα ἀνθρώπου were compatible with those of the cosmos; the elemental qualities proposed instead are presented as straightforward alternatives: 'the στοιχεῖα ἀνθρώπου are *not* the four primary bodies…*but* their qualities.'[27] Athenaeus' intellectual affiliation with Stoicism is affirmed immediately after his alternative element theory is introduced which, in the context of this passage, seems only to afford further emphasis to the extent to which Pneumatist element theory departed from an inherited intellectual orthodoxy.[28] The designation of hot and cold qualities as 'productive causes' (τὰ ποιητικὰ αἴτια) contrasted with the 'material' (τὰ ὑλικά) qualities, dry and wet, reflects the mechanism of Stoic element theory but with the substances supplanted by their associated qualities. This association is upheld in *Int.*9.5 by the clause 'ἀλλ' αἱ ποιότητες αὐτῶν' (…but *their* qualities), with the possessive pronoun 'αὐτῶν' referring back to 'τὰ τέσσαρα πρῶτα σώματα'. The qualities in *Int.* 9.5 maintain a relationship with the elemental substances but are nonetheless depicted as components in an alternative element theory which explicitly denies the elemental substances their status as στοιχεῖα ἀνθρώπου. What, therefore, *is* the relationship between the qualities and their associated substances in Athenaeus' element theory? Beyond this confusion in the text, the reliability of *Int.*

---

[26] Ps.-Gal. *Int.* 9.5 (= XIV.698 K). In Greek: κατὰ δὲ τὸν Ἀθήναιον στοιχεῖα ἀνθρώπου οὐ τὰ τέσσαρα πρῶτα σώματα, πῦρ καὶ ἀὴρ καὶ ὕδωρ καὶ γῆ, ἀλλ' αἱ ποιότητες αὐτῶν, τὸ θερμὸν καὶ τὸ ψυχρὸν καὶ τὸ ξηρὸν καὶ τὸ ὑγρόν, ὧν δύο μὲν τὰ ποιητικὰ αἴτια ὑποτίθεται, τὸ θερμὸν καὶ τὸ ψυχρόν, δύο δὲ τὰ ὑλικά, τὸ ξηρὸν καὶ τὸ ὑγρόν, καὶ πέμπτον δὲ παρεισάγει κατὰ τοὺς Στωικοὺς τὸ διῆκον διὰ πάντων πνεῦμα, ὑφ' οὗ τὰ πάντα καὶ συνέχεσθαι καὶ διοικεῖσθαι.

[27] *Ibid.*

[28] Note also that the verb παρεισάγειν (to interpolate/introduce) affirms the externality(/ontological disparity) of Stoic πνεῦμα to the other four components of Athenaeus' element theory.

9.5 as a source for Athenaeus' theory – and, indeed, that of Stoics – is corroded by the author's presentation of πνεῦμα as an element of ontological equivalence with the other four in Stoic physics; πνεῦμα is not a fifth element, but a mixture of the elements fire and air (**I.3.8**). The depth of the author's engagement with the Pneumatist school must be called into question.[29]

Our second pseudo-Galenic text, the *Definitiones Medicae*, would seem to resolve some of the confusions enkindled by the later text:

> What is an element? An element is the first and simplest thing from which everything has come to be, and the simplest thing into which everything will be resolved. Athenaeus of Attalia says this in the third book. What are the elements of medicine (τῆς ἰατρικῆς στοιχεῖα)? The elements of medicine are, as some of the ancients maintained, the hot, the cold, the wet, and the dry, which are the first, apparent (φαινομένων), simplest and least things from which the human has been put together, and the last, apparent, simplest and least (things) into which (the human) attains its resolution.[30]

It is not obvious from the structure of this passage which of the two definitions is being attributed to Athenaeus of Attalia.[31] Certainly, the second definition is consistent with *Int.* 9.5 (and the Galenic testimonia set out below). There is no confusion as to whether Athenaeus *did* consider the elements of medicine (τῆς ἰατρικῆς στοιχεῖα) to be the four qualities.[32] The question is whether both definitions can be attributed to Athenaeus, or merely the latter. If both, then the notion that Athenaeus' element theory was wholly distinct and oppositional to that

---

[29] Wellmann (1895) p.15 argued that the author of the *Introductio sive medicus* was, in fact, a Pneumatist. But the treatment of Pneumatism in the text does little to support this. An explicit reference to Pneumatism does not appear until *Int.* 9.6 = (XIV.699 K.). Pneumatism is not given independent treatment in the list of medical schools at *Int.* 4 (= XIV.638-684 K.); it is subsumed, instead, under 'Rationalism'. The name of Athenaeus of Attalia is absent from the Kühn edition of *Int.* 4. See Petit (2014) p.276, 286-288.

[30] ps.-Gal. *Def. Med.* 31 (= XIX.356 K). In Greek: τί ἐστι στοιχεῖον; στοιχεῖόν ἐστιν ἐξ οὗ πρώτου καὶ ἁπλουστάτου τὰ πάντα γέγονε καὶ εἰς <ὃ> ἁπλούστατον τὰ πάντα ἀναλυθήσεται. Ἀθηναῖος δὲ ὁ Ἀτταλεὺς ἐν τῷ τρίτῳ βιβλίῳ φησὶν οὕτως. τίνα ἐστὶ τῆς ἰατρικῆς στοιχεῖα; στοιχεῖά ἐστι τῆς ἰατρικῆς, ὡς τινὲς τῶν ἀρχαίων ὑπέλαβον, τὸ θερμὸν καὶ τὸ ψυχρὸν καὶ τὸ ὑγρὸν καὶ τὸ ξηρόν, ἐξ ὧν πρώτων φαινομένων καὶ ἁπλουστάτων καὶ ἐλαχίστων ὁ ἄνθρωπος συνέστηκε καὶ εἰς <ἃ> ἔσχατα φαινόμενα καὶ ἁπλούστατα καὶ ἐλάχιστα τὴν ἀνάλυσιν λαμβάνει.

[31] Which definition the 'οὕτως' in 'Ἀθηναῖος δὲ ὁ Ἀτταλεὺς…φησὶν οὕτως' refers to is ambiguous, sandwiched as it is between the two.

[32] That the latter definition is associated with the 'the ancients' (τῶν ἀρχαίων) in *Def. Med.* 31 may have been part of Athenaeus' (of one of his followers') original written definition, the author's source. David Leith, in an as-yet-unpublished paper on Athenaeus' element theory (hereafter Leith, NAAP paper (2017)) has argued that the reference to 'the ancients' in *Def. Med.* 31 might have been an appeal to the authority of the Hippocratic treatise *Nat. Hom.* See **I.2.1.2** below.

of his Stoic predecessors would seem less likely; instead, we would be presented with a two-part mechanism for how one arrives at the elements of things. An element is both 1) the simplest constituent of everything and 2) the simplest constituent with which the medical τέχνη contends.[33] The latter definition reflects the philosophical pursuit of nature's essence(s) but constrains its inquiry on two fronts: a) the boundary of the human and b) the limits of what is φαινόμενα (apparent). The doctor concerned with τῆς ἰατρικῆς στοιχεῖα is not antagonistic to inquiry into more primitive epistemological strata; he merely considers it independent to his τέλος. The two definitions must be mutually consistent; (2) must in reality be parasitical on (1) but (1) need not concern the doctor beyond, perhaps, a perfunctory acknowledgement of its *de facto* priority. The mechanics, even, of the relationship between (1) and (2) will likely fall beyond the doctor's purview. But it is clear from the outset that the two definitions in *Def. Med.* 31 can be reconciled.[34]

What, then, is the argument for Athenaeus of Attalia being a proponent of both definitions in *Def. Med.* 31? The structural parity points to a common source; both convey a cyclical process of 'generation from' and 'resolution into', cycles of combination and simplification where beginning and end are identical states.[35] The cyclicality of the process has a Stoic complexion (see **I.3.10**). Compare both definitions in *Def. Med.* 31 with the Stoic definition of an element in D. L. VII.136: 'An element is defined as that from which particular things first come to be at their birth and to which they are finally resolved.'[36] The Stoic conception of the element is presented in the language of ἐκπύρωσις and cyclical recurrence. Definition (1) evokes this process, where definition (2) applies the same language (albeit with one additional criterion, addressed below) to a different epistemological territory. The Stoicising language of (2) would seem to contextualize it within the framework of Stoic cosmogony, suggesting that Athenaeus was the author of *Def. Med.*'s source. If Athenaeus accepted both (1) and (2), then he defined τῆς ἰατρικῆς στοιχεῖα *against* – that is, in contrast with, not *in opposition to* – the cosmological element theory of his intellectual predecessors.

[33] By extension, the simplest components proximate to a specific τέχνη.
[34] See e.g. D. L. VII.137.
[35] This parity is indicated in Leith, NAAP paper (2017).
[36] Trans. Hicks (1925).

The most primitive constituents of the human being and those of the wider cosmos should, of course, be identical. Hence there is another significant point of departure between definitions (1) and (2).[37] The adjectives 'first' (πρῶτα), 'last' (ἔσχατα) and 'simplest' (ἁπλούστατα) are common to both definitions; 'apparent' (φαινόμενα) is peculiar to (2). This criterion distinguishes τῆς ἰατρικῆς στοιχεῖα from mere στοιχεῖα. Naturally, cosmic elements *can* manifest perceptibly,[38] but constraining one's inquiry to the human form diverts one's gaze from celestial fire or the rise and fall of the ocean. Accepting that (2) was written with a Stoic framework in mind,[39] a boundary between philosophical and medical inquiry is established at the limit of the senses. In practical terms, this demarcation seems intuitive; the physician's subject is the human body and the processes which affect its functionality; medicine concerns itself with the interactivity of mixtures. The human aggregate is manifestly complex, second in complexity only to the cosmos.[40] But where the objective of natural philosophy – of theory (see **III.3**) – is to analyse the cosmos into the behaviour of its constituents, the physician's τέλος is to effect change within the phenomenal strata. The physician, who is himself a complex agent, interacts with the body at the level of mixture. He seeks to apply his influence to the 'least' and 'simplest' substances in order to affect change at a posterior grade, but he is limited by how 'deeply' into the body's constituents his influence can penetrate.[41]

The evidence from *Def. Med.* 31 addresses the question of the relationship between the elemental substances and qualities in Athenaeus' theory of health. The apparent compatibility of Athenaeus' element theory with Stoic cosmology is of interest here. That Athenaeus was a likely proponent of both definitions in *Def. Med.* 31 speaks to his engagement with the question of constrained, technical epistemologies and his support of their enforcement. That he, a physician, might

[37] Strictly speaking, there are two. The adjective 'least' (ἐλάχιστα) is only found in the second definition. Given that 'simplest' (ἁπλούστατα) is already attested, the inclusion of 'least' is puzzlingly tautological. We might infer that the simplicity of τῆς ἰατρικῆς στοιχεῖα is the dimension with which Athenaeus is most concerned. Cyclicality, though a marker of Stoic heritage, is ultimately of secondary importance to ontological priority – albeit constrained by perceptibility (see below) – to the physician. This extra stress is perhaps made explicable by the inclusion of the second peculiar criterion: that they are 'apparent'.

[38] Stoic cosmology held that the sun was an entity of purest fire, for example. See e.g. Alex. Lyc. 19, 2-4 (LS 46 I), Plut. *St. Rep.* 1052C-D (LS 46 L).

[39] Or, if they do not, that (2) was written with an essentially Stoic cosmological framework in mind.

[40] Provided we confine our definition of 'entity' to unified bodies.

[41] The counter argument to this is that *knowledge* of the elements beneath perception, of that which the doctor cannot influence, is nonetheless relevant to the question of what the doctor *can* influence. This was Galen's position. See **I.2.1.2** below.

have documented a cosmic definition of elements in order to contextualise his model of τῆς ἰατρικῆς στοιχεῖα suggests that he considered the demarcation of the medicine's epistemological perimeter to fall within his purview; to define the elements of a discipline is (quite literally) a foundational act – it is a claim to be originating or formalizing something functionally self-sufficient; to do so within the context of Stoic element theory seems, at once, to be an acknowledgement of established Stoic wisdom, and also that of Stoicism's limited capacity. Recall from chapter **I** the mother-doctrine's holism, its ethical τέλος; Stoicism's dictates to human behaviour are issued from perfection, from nature as a unified totality. It is for the physician to decide what doctrines can be applied usefully in fulfilment of his aims. It is for the physician to divert attention from 'the whole'.

III.2.1.2 Galen

The Galenic testimonia are sourced from the sixth section of *On the Elements According to Hippocrates* (*Hipp. Elem.*), comprising a lengthy exposition of the deficiencies of Athenaeus' element theory from Galen's essentially Aristotelian perspective.[42] Galen's stated aim in *Hipp. Elem.* is to demonstrate that Hippocrates – specifically, the author of the seminal text *On the Nature of man* (*Nat. Hom.*) – 'when inquiring into the elements of man's nature, disdains those parts that are simplest and first relative to the senses and seeks those that are so in truth and by nature.'[43] Over the course of *Hipp. Elem.*, Galen seeks to reconcile the element theory expounded in *Nat. Hom.* with his own(/Aristotle's), resolving (to his satisfaction) the disparities between the two systems and overruling rival 'Hippocratics' who read the opening declaration of *Nat. Hom.* (see **0.2**) as a rejection of philosophising element theories with respect to what is proximate to the physician's art.[44] David Leith has noted a parallel between the opening lines of *Nat. Hom.* and Athenaeus' definition of τῆς ἰατρικῆς στοιχεῖα in *Def. Med.* 31; both set the boundary of medical inquiry at the limits of perceptibility.[45] The appeal to 'the ancients' in *Def. Med.* 31 may be read as an

[42] For Galen's 'Aristotelian' element theory, see Kupreeva (2014).
[43] Gal. *Hipp. Elem.* 1.4-5 trans. De Lacy (1996).
[44] *Ibid.* 3.49-50. See Kupreeva (2014) p.154-162; Hankinson (2017) par.2.
[45] Leith, NAAP paper (2017). The opening lines of Hipp. *Nat. Hom.* 1: 'He who is accustomed to hear speakers discuss the nature of man beyond its relations to medicine will not find the present account of any interest. For I do not say at all that a man is air, or fire, or water, or earth, or anything else that is not an obvious (φανερὸν) constituent of a man; such accounts I leave to those who care to give them.' Trans. Jones (1931).

appeal to the authority of this well-circulated text.[46] Athenaeus would therefore have proposed a rival interpretation of *Nat. Hom.* which would go some way towards explaining the peculiar – and, in large part, uncharacteristic[47] – hostility Galen exhibits towards Pneumatism at *Hipp. Elem.* 6, a factor that necessarily cautions our approach to this text. The following analysis must therefore account for Galen's uncharitability (or, less charitably, his tendency towards wilful misinterpretation).

The opening lines of *Hipp. Elem.* 6 summarise Galen's objection to Athenaeus' element theory. He attributes to Athenaeus two noteworthy claims: the first is that the elements – hot, cold, dry and wet – 'are clearly visible and do not require proof'; the second is that Athenaeus – though he sometimes called them 'qualities and powers' – granted that his elements were 'bodies' (σώματα*, i.e.* 'substances') despite his reluctance to concede that the bodies were equivalent to fire, air, earth and water.[48] Galen objects on both counts, bolstering his methodological critique with an appeal to the absurdity of Athenaeus' conclusion. How should we interpret Athenaeus' claim that the qualities 'are clearly visible and do not require proof'?[49] Galen sees two options: 1) The existence of hot, cold, dry and wet qualities is self-evident; 2) the status of said qualities as elements is self-evident.[50] He attributes to Athenaeus the latter, less coherent claim, but the evidence from *Def. Med.* 31 inclines us toward the former. We can be confident that the criterion of perceptibility was integral to Athenaeus' element theory. Clearly, sense-accessibility cannot be confirmation of a quality's elemental status independently of the additional, Stoicising criteria listed in *Def. Med.* 31 and absent from Galen's opening critique.[51] With the evidence from *Def. Med.* 31 in mind – notably the earlier and more impartial text – the ambiguity Galen imposes on Athenaeus' methodology reads as artificial, as a calculated effort to discredit.

If the methodology attributed to Athenaeus in *Hipp. Elem.* 6.1-9 is artificially imposed then we are right to suspect that the conclusion he is purported to have

---

[46] Leith, NAAP paper (2017).
[47] On the question of rival element theories, Galen's hostility is typically reserved for the atomists.
[48] Gal. *Hipp. Elem.* 6.1 trans. De Lacy (1996). Kupreeva (2014) p.178.
[49] *Ibid.*
[50] *Ibid.* 6.5.
[51] At *Ibid.* 6.9 Galen reminds us that 'there is no one who does not clearly perceive with all his senses earth, air, water and fire' and continues: 'even some philosophers do not perceive whether they are elements.' trans. De Lacy (1996). The confusion he exhibits would be remedied by attendance to the rest of the criteria for τῆς ἰατρικῆς στοιχεῖα in *Def. Med.* 31.

reached – that the qualities are σώματα independently of their traditional roots – is similarly misleading. At *Hipp. Elem.* 10-11 Galen acknowledges that the followers of Athenaeus might defend the eccentricity of their element theory by invoking disciplinary boundaries – that is, by claiming that the details of the wider world's construction reside beyond the apposite epistemological domain of their τέχνη. But Galen's interpretation of this defence of technical epistemologies is bizarre. He asks: 'Why should I now dwell on the utter absurdity of making hot, cold, dry, and wet the elements of the medical art, as if it were an animal?'[52] suggesting that Athenaeus considered *medicine itself* – an abstraction referring to a body of specific aims and practices – to be composed of the aforementioned qualities. Fascinating though speculation into the physical constitution of metaphysical abstractions might have been, we can be confident that 'Athenaeus the ideasthete' is a strawman of Galen's construction. Galen is choosing to read a claim about *epistemological* constraints as a ludicrous *physical* doctrine. He misses – or rather chooses to ignore – the argument for medicine's epistemic independence from broader physical inquiry.

A similar (and only marginally less absurd) claim is made of Athenaeus' element theory at *Hipp. Elem.* 6.27. Galen quotes Athenaeus' assertion that he is taking the 'proximate (προσεχῆ) elements of animals, not the elements common to all bodies' as the basis for his elemental theory and then suggests that by 'proximate to' Athenaeus in fact means 'peculiar to' and 'of nothing else at all'.[53] The suggestion, then, is that Athenaeus argued that animals were composed of fundamentally different 'stuffs' to the rest of the cosmos, that they were alien to the world into which they were born. While such a claim would certainly be anti-Stoic[54] – and, indeed, a unique challenge to the assumption of

[52] Gal. *Hipp. Elem.* 6.11 trans. De Lacy (1996).

[53] Gal. *Hipp. Elem.* 6.27 trans. De Lacy. Galen proceeds from this quotation (6.28-30) to argue that Athenaeus should have named the body's homoiomerous components (bone, cartilage, ligament *etc.*) the 'elements of man' if he was truly only interested in what was perceptible irreducibles. The thrust of Galen's argument in *Hipp. Elem.* 6.27-30 is that if one is going to permit that the body's smallest, perceptible homoiomerous parts are composed of more fundamental materials, then one might as well concede that those materials are the same materials that form the basis of the cosmos. At 6.27, he takes Athenaeus' argument that analysing bones, cartilage *etc.* into hot, cold, wet and dry qualities is useful to the practice of medicine, where analysing those qualities into their associated substances is not, to mean that the body could be analysed into an *entirely* different set of materials to the rest of the cosmos. He is being obtuse. Galen reserves his refutation of what might better approximate Athenaeus' true position on the elements of man for later in the chapter, as we shall see shortly below.

[54] I argued in **I** that the physiological peculiarity of the Stoic cosmos is fundamental to the philosophy as a whole. To deny the human his/her psychophysiological parity with the whole/God would be to deny him/her access to ἀρετή.

generality in Greek philosophy – we need not take it at face value. It is Galen himself who, in a less polemical mode, locates Athenaeus within the Stoic intellectual lineage.[55] The Stoicising taxonomy of causes ascribed to Athenaeus in *CC* 2 depends upon the unity of internal and external processes; interaction is enabled by shared principles, within and without. Moreover (and most decisively), the Greek προσεχῆ (translated by De Lacy as 'proximate') is not a synonym for 'peculiar to'. It translates more precisely as 'closest in relationship to'[56] which neither precludes such qualities existing outside the animal (for they obviously do) nor that yet more fundamental constituents can exist within; primitive σώματα may be present in the animal but not 'προσεχῆ' to the exposition of medicine.

For all his rhetorical posturing in *Hipp. Elem.,* Galen does provide some valuable insights into how Athenaeus understood the relationship between the elements of man/medicine and those of the wider cosmos. With his appetite for wilful misconstrual sufficiently indulged, Galen begins to tackle Athenaeus' element theory on something closer to its own terms. We note that for Galen qualities are incorporeals that produce the four elements through their interaction with prime matter (ὕλη).[57] When he accuses Athenaeus at *Hipp. Elem.* 6.38 of being ignorant of the distinction between a first principle (ἀρχή, referring to matter and the invading incorporeal quality) and an element, there is an underlying philosophical disparity at play pertaining to the incompatible physical frameworks which Galen and Athenaeus adopt.[58] Qualities are indeed σώματα in Stoic physics (**I.3.9**). There is nothing implicit in Athenaeus' treatment of the qualities as bodies (as in *Hipp. Elem.* 6.1) that suggests he sought to sever their relationship with the traditional cosmic elements. Athenaeus' withdrawal from Stoicism – as far as we are able to discern so far – is expressed only through the erection of epistemic barriers against the practice of philosophical – *i.e.* non-medical – inquiry.

---

[55] Gal. *CC.*2.

[56] Cf. Galen's less distortive use of προσεχεῖς in a similar context in Gal. *MM.* 2.5 (= X.107 K.). See **III.2.2** below.

[57] Gal. *Hipp. Elem.* 6.37-38.

[58] Noted in Leith, NAAP paper (2017). See Kupreeva (2014) p.172-195. This disjunction is perhaps most evident in the argument Galen recounts between his nineteen-year-old self and his Pneumatist instructor at *Hipp. Elem.* 6.16-25 (see Kupreeva (2014) esp. p.181-192). The dispute rests on their conflicting premises; the Pneumatist's corporealism allows him to regard quality and predicate as equally somatic (e.g. 6.18); Galen conceives qualities as manifesting as isolatable corporeal entities only (and only theoretically) in the extreme, thus as fire, air, water and earth. See further Hankinson (2017) esp. pars.11-16, 26-29.

The following passage from near the end of *Hipp. Elem.* suggests that Galen did, in fact, understand the nature of Athenaeus' withdrawal from the primal epistemological strata of cosmological speculation:

> To be afraid to grant that [fire, air, water and earth] are elements for the reason that we neither take of them out of the body nor put any of them into it is utterly stupid; for when we eat and drink the things that have been generated from the elements we most certainly put the elements too into our bodies. But not in a pure form, [the Pneumatists] say, and not alone. Then it was incorrect to say that we neither take out nor put in an element; this statement should not have been made without qualification in that way, but with the qualification 'not alone or unmixed or itself by itself'. And yet even with this qualification what does it aim to achieve for them? It is not reasonable that speculation about the elements be considered useless because we do not take into our bodies any one of them unmixed with another; and it was wrong to deny that fire and air and water and earth are elements for the reason that we use things that have been generated from them, but each of them alone, separate by itself, is completely useless.'[59]

This passage preserves an argument for Athenaeus' element theory that presupposes the existence of more primitive physical constituents. It is not an argument designed to refute the presence of fire, air, water and earth inside the body, but to delimit the appropriate epistemological dominion of the medical art with the boundary set at the ontological perimeter of 'unmixed with another' – *i.e.* the limit of independently identifiable σώματα. That speculation about cosmic elements was considered 'useless' by Athenaeus tells us that he narrowed the breadth of his inquiry to the substances his τέχνη rendered pliable, a process which we learn from *Def. Med.* 31 involved the analysis of the body into apparent entities. Mixtures interact with mixtures. Galen's counterargument from *Hipp. Elem.* 6.43 that the human body does, for example, inhale unmixed air, might be neutralized by the response that an increased or stifled intake of breath would manifest through changes in body temperature: a detectable (and rectifiable) increase/reduction in the quality of 'cold'. Moreover, attendance to the Stoic theory of mixture (**I.3.7**) makes further sense of Athenaeus' distinction.[60] The

[59] Gal. *Hipp. Elem.* 6.41-42 trans. De Lacy (1996).
[60] Noted in Leith NAAP paper (2017).

elements are mutually coextensive; though elemental proportions are necessarily unequal, no portion of a mixture does not contain, in some quantity, fire, air, water and earth. Sensible water is not wholly water, sensible air not wholly air *etc*. We might suggest that it is Athenaeus' Stoic heritage that defines the boundaries of his element theory and thus the epistemological ambit of Pneumatism; the doctor cannot, within a Stoic cosmos, interact directly with reality's most basic constituents, so naturally he confines his agency to the epistemological strata in which he can cause change.

III.2.2 The proximate domain of medical inquiry

Was there a problem, then, with my reading of *Def. Med.* 31 as an exercise in disciplinary autonomy, as the annexation of an epistemological territory for medicine to nurture independently? Is Athenaeus' definition of τῆς ἰατρικῆς στοιχεῖα already implicit within Stoicism? There is a trace of precedent for this self-restriction within Stoicism itself. At *PHP* V.2.31-34, Galen quotes from Chrysippus' *On Affections* a Zenonian conception of bodily health and disease:

> …Zeno's argument proceeds as it should. And disease of the soul is most similar to an unsettled state of the body. Disease of the body is said to be a lack of proportion in its components, hot, cold, dry and wet…Health in the body is a kind of blend and proportion of the (things) expressly stated.[61]

Zeno's analysis of disease into an imbalance of *qualities* would appear to anticipate Athenaeus' element theory, but we glean nothing substantial from this passage. We are not in a position to explain why Zeno evoked the qualities over the substances in whatever text Chrysippus is drawing from; my suggestion, based on the lack of corroborating evidence for a *bone fide* Stoic theory of medicine, is that Zeno was influenced by the language of Aristotle's analysis of physiological elements when he made the above claim.[62] That Zeno accepted that it was appropriate to discuss bodily disease in terms of qualities does not imply that he believed this to be the *only* framework in which disease could be explained – indeed, the analogy that Zeno wants to draw between physiological and psychic disequilibrium speaks to the absence of well-fortified technical

[61] Gal. *PHP* V.2.31-32 trans. De Lacy (1978) with omissions. We first encountered this passage at **I.3.1** in the context of harmony in Stoic physics.
[62] See e.g. Arist. *PA* 2.1, 646a12-24.

epistemologies in his exposition. Conspicuously, Zeno's reference to the elements of bodily health/disease and those of Athenaeus are divided by purpose; the *analogy* between the mechanism underpinning good health and Good disposition is where the emphasis is placed in *PHP* V.2.31-34.[63] We would be unwise to read the quote at *PHP* V.2.31-34 as a claim made by a Stoic about the apposite territory of medical inquiry – neither Zeno, Chrysippus nor Galen are interested in that question in *PHP* V (see further **III.5**); the emphasis, for Zeno and Chrysippus, is on the correlative affinity of attractive physical states – *i.e*. it is an assertion of cosmic generalities, a philosophical claim. But it certainly does not dispel the argument that the epistemological restrictions Athenaeus imposes on himself were in some sense implied by Stoic physics.

My thesis is that although Athenaeus seems to be following the logic of Stoic physics in his claim that there are restrictions to what is 'proximate' to medicine, it is his freedom from Stoicism's τέλος – and therefore his freedom from Stoicism *per se*, if not from Stoic physics – that permits him to focus on and claim as his own an underexplored territory within Stoic cosmology, namely the body as exclusively a mixture of mixtures, neither a microcosm of the Stoic God/cosmos with an ethical imperative nor a mixture of fire, air, water and earth on all fours with every other discrete compound but something in-between, compatible (by implication) with both alternative conceptions but bounded by a constrained epistemology. Within these constraints, and oriented towards a distinct τέλος, new ideas may materialise that a physician could claim as his own – for himself and for his profession.[64] Moreover, though Athenaeus' Stoic heritage – specifically his corporealism and Stoicising theory of mixture – will have informed the perimeter of his field of inquiry, the impetus to consistently enforce this perimeter was, it seems, derived from elsewhere. While there is a suggestion (in the most gossamery sense of the term) that his elemental theory of disease was anticipated in Stoicism, we see clearer anticipation for his approach to the elements of man in the work of his medical precursors in the Hellenistic world.[65]

Galen reports in the *Method of Healing* (*MM*) that Erasistratus of Ceos made a comparable case for the necessity of a medicine-specific (quasi-)element

[63] It is unclear whether the quote beginning from Gal. *PHP* V.2.25-34 is Chrysippus reporting Zenonian doctrine or Chrysippus building on Zenonian doctrine. In either case, the analogy is the point.
[64] For an example, see **III.4.4.** We discuss this professional territorialism in more depth at **III.3.**
[65] An argument first made in Leith, NAAP paper (2017).

theory,[66] and moreover that supporters of this argument cited a yet earlier, Herophilean precedent:

> You [Galen's Erasistratean opponent] tell us to abandon the highest peak of natural science and not to seek to understand the nature of man as philosophers understand it – advancing by reason as far as the first elements – and [that it is sufficient] for you to say this alone, that one should designate artery, vein and nerve as the proximate (προσεχεῖς) principles and elements of the natural science which pertains to man, and someone praised Herophilus in this regard for saying these words: 'Let these be primary, even if they are not primary.[67]

Here, as in *Hipp. Elem.* 6.27, Galen takes issue with the idea of 'proximate elements', the suggestion – here attributed to an Erasistratean opponent – that a physician, in service to his purpose, must terminate his inquiry before it reaches the human body's most primitive constituents. In *MM* 2.5 (= X.107 K.) Galen lists the Erasistratean elements as 'artery, vein and nerve' but we understand this to be non-exhaustive; Leith makes the case in his 2015 article that, based on Galen's practices elsewhere in the corpus, 'artery, vein and nerve' are intended as examples of the uniform/homoiomerous parts of the body (τὰ ὁμοιομερῆ), and therefore as *perceptible* irreducibles in Galen's formulation of what this pertains to.[68] Erasistratus' restricted element theory may derive from the same methodological considerations as his similarly restrictive causal doctrine which holds proximate causes – *i.e.* the most immediate species of cause – as the only stage in the causal chain to which the doctor should attend;[69] to attempt to cause

---

[66] See Leith (2015a) for an in-depth analysis of the following passage from Gal. *MM.*

[67] Gal. *MM.* 2.5 (= X.107 K.). Trans. adapted from Leith (2015a) p.465. In Greek: ἀποχωρεῖν τῆς ἄκρας φυσιολογίας κελεύοντες καὶ μὴ ζητεῖν οὕτω φύσιν ἀνθρώπου καταμαθεῖν ὡς οἱ φιλόσοφοι καταμανθάνουσιν, ἄχρι τῶν πρώτων στοιχείων ἀνιόντες τῷ λόγῳ, καὶ τοῦτο ὑμῖν ἀπόχρη μόνον εἰπεῖν, ὡς ἀρτηρίαν καὶ φλέβα καὶ νεῦρον ἀρχὰς προσεχεῖς καὶ οἷον στοιχεῖα χρὴ τίθεσθαι τῆς περὶ τὸν ἄνθρωπον φυσιολογίας. καί τις ἐπῄνεσεν ἐν τούτῳ τὸν Ἡρόφιλον εἰπόντα κατὰ λέξιν οὕτως· "ἔστω ταῦτα εἶναι πρῶτα, εἰ καὶ μή ἐστι πρῶτα".

[68] Leith (2015a) p.464-468. At Gal. *Nat. Fac.* I.6 (= II.12 K.), Galen is explicit in identifying all uniform parts of the body as perceptible elements. We learn from Gal. *Hipp. Elem.* 6.29 that Galen is more sympathetic to restricting the ambit of medical inquiry to the body's uniform components than he is to Athenaeus' eccentric model. He maintains that 'a person might agree that these perceptible (least) parts (*i.e*. the uniform parts) appear to be elements but not agree that they are elements. For it is not what appears to be the simplest and first part, but what is so in nature, that is truly an element.' (*Hipp. Elem.* I.4-7 trans. De Lacy (1996)). Galen's peculiar grievance with Athenaeus in *Hipp. Elem.* 6 seems to arise from the fact that Athenaeus' element theory gestures towards a conception of 'true elements' in a way that restricting one's inquiry to the uniform parts of the body does not.

[69] Leith (2015a) p.473-478 after Allen (2001a).

change at an earlier stage is to ignore the most obvious problem in favour of conditions that are not themselves necessarily productive of disease.[70] Analogously, to delve beneath the activity of perceptible elements is to circumvent the nocuous epistemological stratum and arrive in a territory where disease does not exist. The quote attributed to Herophilus in *MM* 2.5 above is also found in the Anonymus Londinensis papyrus where it is appended to an argument that the categories of 'simple' and 'composite' be understood only in relation to sense perception.[71] Thus he says: 'Let *apparent things* (τὰ φαινόμενα) be called primary, even if they are not primary.'[72] That the boundary of the proximate domain of medical inquiry is set by Athenaeus at the limit of the senses in *Def. Med.* 31 (and by implication in *Hipp. Elem.* 6.41-42) suggests that Pneumatist drew principally from his medical predecessors. He shares their methodological framework and accepts that his therapeutic τέλος imposes limitations on the scope of his inquiry.

Athenaeus therefore locates himself in a distinctly medical lineage when he designates as τῆς ἰατρικῆς στοιχεῖα the hot, the cold, the wet and the dry. Though the corporealism of the mother-doctrine permits him to look deeper into the body than its uniform components, the impetus for demarcating a technical epistemology originates outside Stoicism. We should note, of course, that neither Herophilus nor Erasistratus developed their theory from within a pre-existing cosmology. Athenaeus is placing their (as we shall see, broadly Aristotelian) methodological template over an independently developed physical model which, as I set out in chapter **I**, was ethically oriented in its design. Athenaeus' commitment to these epistemological constraints is therefore more pointed; he disregards the broader physical framework on which his theory is dependent and, in doing so, discards the philosophical mantle. Athenaeus interacts with Stoic physics *as a physician* – a *technician* without an ethical τέλος – and, it would seem, a novel interaction with an existent theoretical landscape demanded a novel appellation: Pneumatist. To better understand the necessity for distancing Pneumatism from Stoicism, we must introduce Aristotle's hierarchy of sciences. This demands a section of its own.

---

[70] Leith (2015a).

[71] Anon. Lond. xxi 18-23, 32-35.

[72] *Ibid.* For more on this quote, including the problem of its translation in von Staden (1989) and the difference between its preservation in Galen and Anonymus Londinensis, see Frede (2011) p.122-132.

III.3 An Aristotelian frame

This section is divided into three subsections. **III.3.1** is an overview of the ethical framework in which I propose we locate Athenaeus' medical theory. At **III.3.2** we explore how the taxonomy of sciences set out in **III.3.1** may have constrained Aristotle's own medical writings and at **III.3.3** we ask how obediently Athenaeus conforms to the role of 'productive scientist' as stipulated in Aristotle's hierarchy of intellectual pursuits.

III.3.1 Aristotle's taxonomy/hierarchy of sciences

In the opening lines of the *Nicomachean Ethics* (*NE*), Aristotle identifies the good of every art (τέχνη) with the end (τέλος) to which all efforts are directed, thus 'the end of the science of medicine is health, that of the art of shipbuilding a vessel, that of strategy victory, that of domestic economy wealth.'[73] Just as the ends of subdisciplines are instrumental to that of their 'master art', τέλη (insofar as they are plural) are uniformly instrumental to a singular intrinsic τέλος, that which is pursued as an end in itself.[74] The supreme τέλος must be the object of the most authoritative art, namely Politics, the science of organising subordinate sciences,[75] and that τέλος is identified with εὐδαιμονία.[76] As we saw in **I** and **II**, both the Stoics and the Epicureans adopted this teleological framework as the basis of their ethics,[77] thus orienting their philosophies towards the realisation of a singular pattern of behaviour.[78] In the case of the Stoics, εὐδαιμονία is identified with virtue (ἀρετή) which is a state of psychological (and thus behavioural) agreement with nature/God; Stobaeus elucidates Stoicism's teleological method of defining happiness: it is the end 'for the sake of which everything is done, but

[73] Arist. *NE* I.1 trans. Rackham (1926).
[74] *Ibid.* I.2.
[75] *Ibid.* See Irwin (2012) p.509-511 for Aristotle's conception of politics as the most 'architectonic' science.
[76] Arist. *NE* I..4. The rest of book I is dedicated to Aristotle's analysis of εὐδαιμονία. We find the most succinct definition in I.7: 'the Good of man proves to be the active exercise of his soul's faculties in conformity with excellence or virtue.' Trans. Rackham (1926). Lear (1988) p.160-174 for an introduction to εὐδαιμονία in *NE* and its relationship to Aristotle's conception of virtue (ἀρετή). Irwin (2012) for a more comprehensive introduction to the concept and surrounding controversies.
[77] Though naturally in the case of the Epicureans 'purpose' is not innate within the cosmos; the value of ἀταραξία is discerned *a posteriori* and understood as parasitic upon purposeless atomic interactions.
[78] This is not, we should note, Aristotle's own purpose in writing *NE.* Providing self-insight to those who already manifest εὐδαιμονία was Aristotle's primary aim. Though he recognises the practical value of *NE* (e.g. *NE* I.2), his argument rests on the assumption that he is merely throwing light upon intrinsic processes. See Lear (1988) p.157. As I set out in **0.1**, the idea of philosophy as *curative* develops in the Hellenistic era. See again **II.5** and **III.5** below.

which is not itself done for the sake of anything.'[79] The parallels with *NE* I are clear. Philosophy is purpose driven; all ends are instrumental to the realisation of εὐδαιμονία; physics and logic are less *branches* of philosophy, more tributaries of a self-justifying ethical project.

In *NE* this asymmetry is expressed through the division of science into its theoretical and practical components.[80] Theoretical science concerns itself with invariable truths such as the nature of God, the laws of mathematics and change insofar as it is governed by natural law.[81] It is (to reuse my language at **0.2**) knowledge cultivated for its own sake, the incorporation of reality into mind.[82] Practical science concerns itself with what an individual can change.[83] It is oriented towards εὐδαιμονία and must naturally conform to the rule-systems unveiled by theoretical science.[84] The two subdivisions of practical science are φρόνησις, the true practical science, which is concerned with behaviour, and τέχνη, the productive science, which is concerned with bringing about particular products or states.[85] Stoic ethics, seen through this frame, is a φρόνησις emerging from the soil of physical and logical theory; it orients itself towards the realisation of εὐδαιμονία/ἀρετή as prefigured in nature.[86] Medicine, by contrast, is a τέχνη. As Aristotle puts it in *NE*, 'medical science does not seek to control health, but studies how to procure it; hence it issues orders *in the interests of* health, but not to health.'[87] As physical theory elucidates the nature of εὐδαιμονία in Stoicism, a theoretical conception of health is foundational to the development of medicine as a productive science. There is an affinity, then, between φρόνησις and τέχνη; both sciences pursue an end and chart their course through the territory illuminated by theory.[88] But there is, for our purposes, a significant

[79] Stob. 2.77, 16-27 (LS 63 A). Note also that 'happiness' and 'the happy life' are synonymised in this passage, further reflecting Aristotelian εὐδαιμονία.
[80] *NE* VI is the source of Aristotle's classification of different forms of knowledge. Taylor (1990) remains the most thorough treatment of the issues raised by *NE* VI.
[81] *NE.* VI.3.
[82] It is further divided into scientific knowledge (ἐπιστήμη) and intuitive reason (νοῦς, the quality that enables one to grasp first principles), which together constitute wisdom (σοφία). See *NE.* VI.3, 6-7.
[83] *Ibid.* VI.5.
[84] e.g. *Ibid.* VI.2. Aristotle indulges no moral scepticism or evaluative subjectivism; a correct decision is correct because it maps onto an eternal truth, grasped by theoretical science. Taylor (1990) p.130.
[85] *NE* VI.4-6. Taylor (1990) p.129.
[86] See e.g. Plut. *St. Rep.* 1041E (LS 60 A); Stob. 2.77, 16-27 (LS 63 A).
[87] *NE* VI.13 trans. Rackham (1926). cf. Athenaeus' conception of the starting point of medical exposition in ps.-Gal. *Int.* 2.5 (= XIV 676-677 K.).
[88] At *NE* I.13 Aristotle himself analogises the requirement of the statesman to possess theoretical knowledge with the physician who must comprehend the anatomy of the part of the body he is treating.

differentiating factor to consider: medicine is explicitly conceived as the *lesser* science in *NE.*[89] Health, in Aristotle's hierarchy of sciences, is instrumental to εὐδαιμονία, where political science/ethics orients itself directly towards the intrinsic good. I submit this as a possible incentivizing factor in Athenaeus' enforcement of rigid disciplinary boundaries; if medicine were to prove itself a *generative* science by contributing *to* theory, not merely building on immutable foundations established by philosophy, then its position in the hierarchy of sciences might warrant reconsideration. We will return to this at **III.3.3** and **III.4** below**.** For now, note that securing medicine's status as a generative science requires that innovation begin *with the first principles of medicine* – that is, from within the epistemological territory pertinent to medical inquiry.[90] We have already seen from the testimonia examined at **III.2.1** how Athenaeus enforced such an epistemic boundary, but it is important to further contextualise his activity within Aristotle's taxonomy of sciences, particularly with respect to the demands each discipline makes of its practitioner.

III.3.2 Theoretical vs. practical science in Aristotle

In arguing that ethics, being a practical discipline, is necessarily an inexact science in *NE,* Aristotle contrasts a carpenter with a geometrician, an artisan with a theoretician: 'a carpenter and a geometrician both try to find a right angle but in different ways; the former is content with that approximation to it which satisfies the purpose of his work; the latter, being a student of truth, seeks to find its essence or essential attributes.'[91] The τέλος of one's discipline determines one's obligation to exactitude. The theoretician, dealing with essential processes, explores the world *as it is*; the artisan delves into theory only in as far as his purpose demands. Aristotle counsels that, in matters of practical science, one should 'not allow side issues to outbalance the main task in hand';[92] intellectual exploration beyond the epistemic boundaries determined by one's τέλος is potentially deleterious to one's acknowledged aim. The carpenter who behaves as a geometer is of limited productive value; he cannot resolve his materials into

---

Taylor (1990) p.129. Note also *Ibid.* I.7 in which ethics, the practical science, is analogised to the productive science of carpentry (see **III.3.2**). Aristotle is himself aware of this structural parallelism.

[89] Arist. *NE* I.13. The status of medicine's hierarchical relationship to natural philosophy in Aristotle is most recently explored in Lefebvre (2019).

[90] cf. Arist. *Resp.* 480b22-31. See **III.3.2** below**.**

[91] Arist. *NE* I.7 trans. Rackham (1926).

[92] *Ibid.* trans. Rackham (1926).

mathematical abstractions – entities in thought – and still build a functioning table.[93]

The comparison between Aristotle's geometrician-carpenter analogy at *NE* I.7 and the relationship between Stoic physics (specifically) and Pneumatism is a natural one. Physics concerns itself with essences and essential attributes; Athenaeus' interpretation of Rationalist medicine, as we saw in **III.2**, concerns itself with theory only insofar as the entities considered are proximate to medicine's τέλος. I suggest that Athenaeus' conception of the τῆς ἰατρικῆς στοιχεῖα becomes more intelligible when understood within the framework of theoretical vs. practical science in *NE*. It does not answer the question of why Athenaeus' element theory could not have been expressed *from within* Stoicism (for which see **III.3.3**). But it does contextualise Athenaeus' contributions to theoretical science – more precisely, Athenaeus' contributions to medical science that may have a broader theoretical implication (**III.4**) – within this pre-existing framework; it clarifies the criteria for distinguishing medical from physical inquiry.

There are several passages in the *Parva Naturalia* in which Aristotle differentiates medicine from philosophy in terms of both subject matter and methodology. At *Sens.* 436a17-b2 Aristotle writes that it is a 'duty of the physical philosopher to reflect on the first principles of disease and health' because health and disease are characteristics of living beings.[94] For this reason 'most inquirers into nature' and doctors are alike but there is a methodological disparity; 'the former at the end of their inquiries reach a discussion of medicine, while the latter begin their investigation into medicine with an inquiry into nature.'[95] Theoreticians reach a discussion of the first principles of disease 'at the end of their inquiries', where the intellectual territory explored is most abundant. Doctors, by contrast, reach backwards into questions of first principles from their τέλος. That this is a distinction between general and specialised inquiry is implied by a passage from *Div. somn.* where Aristotle differentiates 'the distinguished among doctors' (τῶν ἰατρῶν οἱ χαρίεντες) from those who inquire more broadly into the subject of sign-

[93] Note how this analogy preserves the structural affinity between φρόνησις and τέχνη in *NE.* For the purpose of this section, our interests are in the contrary demands of practical vs. theoretical science.
[94] Trans. Hett (1935).
[95] Arist. *Sens.* 436a17-b2 trans. Hett (1935).

inference from dreams.[96] The former are specialists who inquire into dreams to a practical end; the latter are interested in the prophetic quality of dreams from a purely theoretic vantage – *i.e.* as an end in itself. It is once more in the territory of 'medically proximate' that general inquiry approaches its pinnacle, where the specialist has further moves to make. Aristotle summarises this relationship at *Resp.* 480b22-31:

> As for health and disease it is not merely the business of the physician but also the physical philosopher to discuss their causes *up to a point.* But the way in which these two classes of inquirers differ and consider different problems must not escape us, since the facts prove that up to a point the methods go hand in hand; for those physicians who have subtle and inquiring minds have something to say about natural science, and claim to derive their principles therefrom, and the most polished of those who deal with natural sciences really conclude with medical principles.[97]

The conclusions of natural science form the beginning of the medical τέχνη. With the pieces in place, the physician selects what is appropriate and builds from there. But what is most remarkable about *Resp.* 480b22-31 is the suggestion that 'physicians who have subtle and inquiring minds' might have something to contribute *to* natural science. The implication is that specialised inquiry can, from a self-constrained starting position, discover something hitherto unknown with implications that stretch beyond the confines of its τέχνη.[98]

When considering this remarkable tip of the hat to medical inquiry, it is important to note that Aristotle conceived the differentiated sciences as being intrinsically harmonious.[99] Medicine, insofar as it is practised appropriately, is a practical outgrowth of Aristotle's own theoretical system. This claim is not so eccentric if we accept that Aristotle himself engaged in a form of medical inquiry under the criteria he himself sought to establish. It is for the most distinguished of natural scientists, after all, to have an impact beyond the boundaries of their

[96] Arist. *Div. Somn.* 463a-7. The verb φιλοσοφεῖν denotes an expression of interest rather than 'to practice philosophy' in its full, technical sense. See van der Eijk (2005) p.192-193.
[97] Arist. *Resp.* 480b22-31 trans. Hett (1935), my italics.
[98] van der Eijk (2005) p.195.
[99] In this respect, his taxonomy of sciences has its own cosmological peculiarity. *NE* VI is the clearest single example of this.

discipline.[100] As indicated in my introduction (**0.2**), the evidence that Aristotle wrote medical works is compelling.[101] Diogenes Laertius lists among Aristotle's bibliography two books concerning medicine (the Ἰατρικά);[102] Caelius Aurelianus quotes from an Aristotelian medical work entitled *De adiutoriis* ('On Remedies', probably Περὶ Βοηθημάτων in Greek, the title of Athenaeus' own *magnum opus*)[103] and there is evidence that the Anonymus Londinensis is based on a doxographical work on the causes of diseases written by Aristotle who was – for it seems necessary to mention it – the son of Nicomachus, physician to king Amyntas of Macedon.[104] A recent article by Robert Mayhew argues convincingly that the last three chapters of pseudo-Aristotelian *Problemata* (*Pr.* I.55-57) were excerpted from Aristotle's lost medical writings.[105]

That different subdisciplines of inquiry make different demands of their participants, that one's τέλος determines the proximate domain of one's inquiry, that specialised disciplines begin their theoretical exposition where general inquiry typically concludes and that descending by reason into the 'essences of things' is counterproductive to the realisation of practical goals are all stipulations of Aristotle's taxonomy of sciences. The behaviour he advocates in *NE* and elsewhere is echoed in the methodologies of Athenaeus and his Hellenistic predecessors alike, as exhibited in the epistemological constraints they apply to their respective element (or quasi-element) theories (**III.2**). Moreover, that doctors – if sufficiently accomplished – can contribute to theory from the rigidly delineated confines of medically-proximate epistemology is anticipated at *Resp.* 480b22-31.

---

[100] Arist. *Resp.* 480b22-31

[101] See Mayhew (2015) p.2-6.

[102] D. L. V.25.

[103] Cael. Aur. *Cel. Pass.* 2.13.18. See Van der Eijk (2005) p.264.

[104] See Manetti (1994) p.47-58 for the relationship between Aristotle and the Anonymus Londinensis. The Aristotelian connection is a matter of consensus; the debate revolves around the number of degrees of separation between Aristotle and the Anonymus Londinensis papyri. For Aristotle's father, see D.L. V.1.

[105] Mayhew (2015). Philip van der Eijk argued in an article entitled '*On Sterility (Hist. An.* 10), a medical work by Aristotle?', reprinted in van der Eijk (2005) p.259-275, that many of the controversies surrounding the little-studied Aristotelian text *On Sterility* (*HA* 10) – specifically those pertaining to its authorship, the validity of its status as a part of the *History of Animals* (*HA*) and its divergences from the other treatise that deals with the question of reproduction, the *Generation of Animals* (*Gen. An.*) – resolve themselves if we understand *HA.* 10 as a diagnostic work by Aristotle, distinct from Aristotle's project in *HA* and, crucially, not intended to give a systematic, theoretically satisfactory account of reproduction, but a diagnostic guide with instructive intent and practical value. Extraneous details are shorn by the ambit of a framework that is self-consciously unsystematic. The aims of *HA* 10, on Van der Eijk's interpretation, are practical; its theoretical exposition is constrained by its purpose

With the contextual scaffolding now in place, let us return to Athenaeus and his relationship to Stoicism.

III.3.3 Stoicism vs. Pneumatism

Stoicism's theoretical component is necessarily all-encompassing; a philosophy that elevates nature to the status of moral paradigm, that analyses physics 'for no other purpose than for the differentiation of good and bad things'[106] and identifies the distinctly non-localised phenomenon of 'harmony' with that which is intrinsically Good must consider nature as a whole;[107] harmony – the morally illustrative proportion – is evident in every ontological stratum; its omnipresence is essential to its value.[108] The breadth of Stoicism's physical component is dictated by an ethical τέλος which demands an extensive theoretical foundation; if anything is obscured, it is those areas explored by specialists for non-ethical ends (see **III.4.4**). By contrast, Pneumatism's theoretical component is necessarily tightly constrained; the Pneumatist, though working from within the same cosmology, limits his inquiry to that which is proximate to medicine – *i.e.* that which pertains directly to bodily health within the epistemological territory in which the medical art can bring about change. Stoicism furnishes the Pneumatist with the theoretical basis for a medical τέχνη but the Pneumatist 'picks up' Stoic physics at a point where philosophical exposition concludes.[109] The restrictions Athenaeus places on his element theory (**III.2**) are intelligible within the Aristotelian framework of theoretical vs. practical science where Stoic physics (specifically) is a theoretical pursuit and Pneumatism practically oriented, but this is only a partial explanation.

As we established at **III.3.2** above, Aristotle clearly envisages the taxonomy of sciences he sets out in *NE* as being mutually compatible. In Aristotle's model, disciplines which orient themselves towards the realisation of instrumental goods – principal among which are the productive sciences, the category to which the medical τέχνη belongs – do so in service to the attainment of εὐδαιμονία. Aristotle's own medical interests, discussed at **III.3.2** above, are indicative of this compatibility; he can assume the methodology of the medical writer and write

---

[106] Plut. *St. rep.* 1025C-D (LS 60 A).
[107] See **I.3.1** and esp. Cic. *Fin.* 3.21.
[108] Recall e.g. Gal. *PHP* V.2.31-34, *supra* **III.2.2** and below **III.5.3.1**.
[109] cf. Arist. *Sens.* 436a17-b2.

within the appropriate epistemological constraints while remaining comfortably within the topography of a greater philosophical system. Athenaeus' element theory can be expressed in the same terms. But Athenaeus was not a Stoic philosopher directing his attention to a partially neglected area of inquiry with a view to further illuminating the path to εὐδαιμονία; he was a physician, the founder of a distinct school under a distinct name with a distinct τέλος whose insistence on enforcing the perimeter of a distinctly medical epistemology (**III.2**) suggests that he took this distinction seriously.[110] Where Aristotle might adopt differently delineated intellectual personae depending on the task at hand, Athenaeus, as far as we can discern, equips himself with a singular methodological toolkit, gesturing towards the wider theoretical landscape only to justify the restrictions he imposes on the ambit of his inquiry. His early exposure to Stoicism informed his understanding of the world, but at no point does he permit this influence to erode the boundaries which define his craft.

Two details of the framework we have noted in this section seem particularly pertinent to the question of the discontinuity between Stoicism and Pneumatism. The first, alluded to at **III.3.1** above, is that Aristotle's hierarchy of sciences explicitly denigrates medicine as inferior to the kind of ethical inquiry which corresponds to Stoicism's practical realisation.[111] A 'Stoic physician', which is to say, a hypothetical Stoic philosopher who practised medicine and produced predominantly medical(/technical) works, must be less valuable than a Stoic ethicist (or Stoic philosopher proper) on account of the latter's more intrinsically valuable τέλος according to Aristotle's framework in *NE.*[112] Specialisation, from this vantage, looks like an abdication of responsibility; health, for Aristotle, may be instrumental to εὐδαιμονία, but its pursuers walk a lesser path to those who devote the greater portion of their energy to promoting virtue in their peers.[113] For the Stoics, the relationship between bodily health and εὐδαιμονία is contentious. Diogenes Laertius, expounding Stoic ethics, lists 'health' among the states which produce neither benefit nor harm;[114] εὐδαιμονία is not dependent on one's optimal

[110] See in particular the two definitions we ascribed to Athenaeus in *Def. Med.* 31 (**III.2.1.1**).
[111] Arist. *NE.* I.13.
[112] See **III.3.1** and Stob. 2.77, 16-27 (LS 63 A) for Stoicism's essentially Aristotelian ethical framework.
[113] Arist. *NE* I.13.
[114] D. L. VII.101-103 alongside pleasure, beauty, strength, wealth, reputation and noble birth (LS 58 A). Though those states listed are counted among 'preferred indifferents' they are not necessarily beneficial. Therefore, they are not necessarily instrumental to attaining what is good.

physical condition.[115] Stobaeus includes health among 'indifferent things' that are nonetheless 'in accordance with nature' – *i.e.* preferred – in early (orthodox) Stoicism;[116] health is preferable to disease but it is not a necessary steppingstone on one's journey to ἀρετή. The picture becomes more complicated (and moderately more supportive of health's instrumental value) when we consider sources – downstream from Chrysippus' influence – that expound the Stoic ethical project in terms of selecting and deselecting goals based on their agreement with nature.[117] Posidonius, interestingly, argued that this was to conflate ''living in agreement with nature' with 'doing everything possible for the sake of primary things in accordance with nature', making it similar to actually positing pleasure or freedom from pain…as the target.'[118] Evidently, the relationship between 'preferred indifferents' such as health and the pursuit of ἀρετή created problems for the Stoics.[119] Aristo of Chios, an early Stoic and associate of Zeno, objected to the very concept of 'preferred indifferents'.[120] Health, on his interpretation, is not *unconditionally* preferable; he argues that one would deselect health if it were conditional on one's service to a tyrant.[121] Preferred – *i.e.* harmonious[122] – indifferents threaten to distract from the Good as exemplified by the whole; Posidonius, though he concedes that the pursuit of micro-harmonies – *i.e.* localised, delineable examples of something occurring 'in agreement with nature' – such as freedom from pain 'denotes an activity which is a necessary accompaniment of the end', counsels against confusing this for an end in itself.[123] Would our Stoic doctor not be guilty of precisely this error or orientation? The doctor's τέλος is unlikely to put him in conflict with Stoicism' final aim, but the best our Stoic physician can hope for is the realisation of a preferred but non-essential physical state – a peculiar misdirection of his efforts, in Stoic terms. By distancing himself from the mother-doctrine Athenaeus discards the

[115] *Ibid.* VII.104.
[116] Stob. 2.79,18-80, 13; 82,20-1 (LS 58 C).
[117] Cic. *Fin.* III.31; Stob. 2.76.9-15 (LS 58 K) expounding the views of Diogenes of Babylon and Antipater; *Ibid.* 2.75-11-76 (LS 63 B) for a similar view expressed by Chrysippus.
[118] Gal. *PHP* V.6.10-14 (LS 64 I). Diogenes Laertius writes at VII.128 that Posidonius denied that virtue was self-sufficing, and that health, wealth and strength were necessary for its attainment. According to Diogenes (VII.103), Posidonius included wealth and health among the 'goods'. But neither claim is corroborated by evidence elsewhere. We should be hesitant to attribute too much significance to Diogenes' assertions here, particularly in light of *PHP* V.6.10-14.
[119] See LS 64 (p.401-410).
[120] S. E. *M.* XI.64-67
[121] *Ibid.*
[122] Stob. 2.79,18-80, 13; 82,20-1 (LS 58 C).
[123] Gal. *PHP* V.6.10-14 (LS 64 I).

ethical obligation built into Stoicism's holistic architecture and focusses on medicine independently of its relationship to the philosophy's aims. In doing so, Athenaeus accepts the constraints of practical inquiry prefigured in Aristotle's work and applies them not only to Stoic physics, but back to the context in which they originate, borrowing from Aristotle's taxonomy of sciences only what is useful to the inquiry into medicine itself – specifically, the template for specialisation – and discarding the *hierarchy* of disciplines in which the practical vs. theoretical distinction is embedded.

The second detail is the suggestion at *Resp.* 480b22-31 that physicians who have sufficiently 'subtle and inquiring minds' can contribute to theory from the vantage point of their specialist epistemological domains. I will argue in the next section that some of Athenaeus' aetiological stipulations embody precisely this conception of theory being nourished *from within* the domain of medical inquiry, thus functioning not merely as an immutable foundation upon which to construct a technical methodology but as a shared body of physical knowledge whose evolution could be variously engineered. When Athenaeus contributes to theory as a Pneumatist, the effect is to deny the mother-doctrine a claim to the discoveries of medicine and to expand medicine's value beyond the production of health, though crucially, without ever averting his focus from the physician's τέλος; it is through the physician's unwavering pursuit of health and its underlying causes that he discovers new facts about the world which may have a broader application. Enforcing a discontinuity between Stoicism and Stoicism's medical application is not to extoll the value of Pneumatism at the expense of Stoicism, but to defend the value of medicine against its implicit denigration in the ethical structure of Hellenistic philosophy.

III.4 Aetiology

Over the course of **III.2** we saw how ideas can be trimmed by disciplinary boundaries without undergoing changes to their content. This is not, however, the only mechanism by which ideas evolve in transit from one discipline to another, nor is it the only mechanism evident in Athenaeus' medicalised Stoicism. Our focus in this section is Athenaeus' taxonomy of causes as reported in Galen's *CC* 2. Taking each category of cause in turn, I will assess how neatly Athenaeus' analysis of causation can be mapped onto its Stoic precedent (insofar as it can be reconstructed) and ask the question of whether the process of applying

(putatively) universal causal theories to medicine required that the content of those ideas be adjusted. My thesis is that it is through this process that Athenaeus contributes *to* physical theory. However, his contributions were such that they posed no threat to the integrity of the mother-doctrine.

III.4.1 *De causis continentibus 2*

Athenaeus' tripartite taxonomy of causes is recorded in Galen's *De causis continentibus* 2.1-4 (*CC*), his treatise on sustaining/synectic causes. It is in this context that Athenaeus' intellectual debt to Stoicism and association with Posidonius is preserved. Note that Galen references Athenaeus' Stoic connections with a view to explaining Athenaeus' aetiology of disease; it should be understood, as far as Galen is concerned, as an elaboration of Stoic principles. *CC* 2 must form the starting point of any inquiry into Athenaeus' Stoicising causal theory and is worth quoting at length:

> As for Athenaeus…he founded the medical school known as the Pneumatists. It suits his doctrine to speak of a containing cause [sustaining/synectic/cohesive cause = αἴτιον συνεκτικόν] in illness since he bases himself upon the Stoics and was a pupil of Posidonius…Athenaeus' three types [of cause] are as follows: the first consists of containing causes [αἴτια συνεκτικά], the second of preceding causes [αἴτια προηγούμενα], and the third of the matter of antecedent causes [αἴτια προκαταρκτικά]: for they call everything external to the body which produces disease in it thus. If what is produced in the body belongs to the class of what causes disease, then while it has not actually brought the disease about, it is called the preceding cause. Alterations are produced in the natural πνεῦμα by these causes [i.e. the αἴτια προηγούμενα] together with those which are external [i.e. the αἴτια προκαταρκτικά], and with the body moistened or desiccated, chilled or heated, these are said to be the containing causes [αἴτια συνεκτικά] of diseases.[124]

There are three species of cause in Athenaeus' aetiology of disease, differentiated by their temporal relationship to disease and their origin relative to

[124] Gal. *CC* 2.1-4 (with omissions) trans. taken from Hankinson (1999) p.490 with minor changes for clarity of terminology. Lyons (1969), whom I use for more detailed analysis of *CC* 2.4-5 below (**III.4.4.2**), unhelpfully translates Athenaeus' school as the 'Animists' and preceding causes as 'immediate causes', neither of which seem adequate to what is expressed.

the body.[125] The αἴτιον συνεκτικόν (see **III.4.2**) is variously translated as the 'containing', 'sustaining' or 'cohesive' cause and is the focus of *CC.* This category is cotemporal and coextensive with its effect. The αἴτιον προκαταρκτικόν (**III.4.3**), the 'antecedent' cause, is prior and external to its effect. The αἴτιον προηγούμενον (**III.4.4**), the 'preceding' cause, is prior and internal. All three causes have a role to play in the realisation of disease;[126] it is in their interactions that the pattern of deleterious alterations constituting disease resides. In the following analysis, insofar as it is possible, I will begin by contextualising each species of cause within the framework of Stoic causal theory, then examine how each cause is transposed into Athenaeus' aetiology of disease and what changes they undergo in the process.

III.4.2 αἴτιον συνεκτικόν (or, causes of being vs. causes of becoming in Stoic/Pneumatist causal analysis)

The αἴτιον συνεκτικόν is cotemporal with its consequence; its cessation would be that of the event it brings about. The distinction between cotemporal and antecedent causes is typically attributed to the Stoics; Galen names them in the opening lines of *CC* as the first philosophers 'of his acquaintance' to speak to cohesive causes.[127] For the Stoics, formalising the αἴτιον συνεκτικόν was a necessity born of their conception of the cosmos as something that was actively held together (*i.e.* sustained) from within.[128] The activity of the active principle in matters of both qualitative transformation and cohesion necessitates a distinction between causes of 'becoming' and causes of 'being'.[129] The original – *i.e.* non-medical – Stoic doctrine is set out in *CC* 1 (immediately prior to Athenaeus' introduction into the discussion) and this too merits lengthy quotation:

> [The Stoics'] view is that from the four elements are produced those bodies that Aristotle calls homogeneous and are described by Plato as 'the first to

[125] In the following summary I deviate from the order in which they are presented in *CC* 2.1-4 for ease of explanation. The αἴτιον προηγούμενον must understood in relation to the αἴτιον προκαταρκτικόν.
[126] Though the occurrence of disease is not *necessarily* dependent on all three causes (**III.4.4**.**2**).
[127] Gal. *CC* 2.1. It is surprising that variance in the temporal relationship between cause and effect was not discussed prior to the Stoics. Note the striking absence of an Aristotelian treatment of the temporal features of causal relations in his aetiological analysis (Arist. *Phys.* 2.3, 1924b16-195b30, see Hankinson (1987b) p.80-81). What seems like a peculiar delay in the commencement of an intuitively obvious mode of inquiry is illustrative on the dependency of causal analysis on physical precedents; the Stoic doctrines of through-and-through coextension and divine omnipresence realised through activity seemed to have been uniquely apt for the development of complex causal systems. Questions of causing arise *a priori*.
[128] See **I.5.1.** Note in particular the conception of ἕξις as a product of pneumatic motion.
[129] Hankinson (1999) p.482.

> be generated', while all other bodies are simply compounds of these. Of the elements themselves, some they call material and some active and dynamic. They maintain that the material elements are held together by those that are dynamic, fire and air being dynamic and active in their view, while earth and water are material. They say that in compounds the dynamic elements pervade the material through and through, that is to say, air and fire penetrate water and earth. Air is cold, and fire is hot. The natural effect of air is to consolidate and thicken a substance, whereas fire naturally causes expansion, loosening and widening. The two active elements have fine parts and the other two thick parts. All the substance with fine parts the Stoics call breath, and they think that the function of this breath is to sustain natural and animal bodies.[130]

The activity of πνεῦμα is the αἴτιον συνεκτικόν of all natural bodies; it is the cause of their 'being'. As πνεῦμα is all-penetrative, so too is the αἴτιον συνεκτικόν coextensive with its effect. As Galen continues his exposition, he introduces a restriction to the Stoic definition of the αἴτιον συνεκτικόν that would seem to threaten its consistency with Athenaeus' interpretation set out in *CC* 2.

> By natural bodies I mean those that are produced by nature and not by human skill, like copper, stones, gold, wood *and those parts of the animal that are called primary and homogeneous parts*, that is, nerves, arteries, veins, cartilages, bones and everything else of the same sort. Men join bits of wood together with glue, nails, pegs, clay, gypsum and lime. Similarly, nature is found connecting all the parts of the body so as to form a united whole by means of cartilages, ligaments and tendons. If you like, you can call the parts of the body that produce this union in the simple members sustaining causes of compounds, and the same term can be applied to clay, gypsum, lime and the other things that serve the same purpose in externals which are connected by the skill of man and not by nature*. It is not these, however, but rather the material substance with fine parts, that the Stoics call the containing cause of existing things.*[131]

[130] Gal. *CC* 1 (LS 55 F).
[131] *Ibid.* cont. (LS 55 F).

On Galen's account, for the early (though evidently post-Chrysippean) Stoics, αἴτια συνεκτικά are only properly so called when applied to homogeneous substances, the first bodies generated from the elements whose fusions and juxtapositions account for the rest of the observable world.[132] This restriction, if correctly ascribed, seems to have two consequences for Stoic causal theory. 1) Post Chrysippus,[133] the designation αἴτιον συνεκτικόν can be applied only to the activity of πνεῦμα; a contiguous body such as a ship or a house is sustained by a substructure whose posteriority to πνεῦμα disqualified it as an αἴτιον συνεκτικόν, except by analogy.[134] This restriction seems to emphasise the importance of mutual coextension to the original Stoic doctrine; evidence of a building's support structure will not be located in each brick. 2) The αἴτιον συνεκτικόν is exclusively a cause of 'being', not a cause of 'becoming'.[135]

J. Hankinson, in his 1987 article 'Evidence, Externality and Antecedence: Inquiries into later Greek causal concepts', taking *CC* 1-2 as his primary source, argued that although the original Stoic doctrine of the αἴτιον συνεκτικόν was restricted to causes of being, its ambit was expanded when it transitioned into a medical context.[136] Hankinson attributes the introduction of the αἴτιον συνεκτικόν into medicine to Athenaeus of Attalia and – though there are elements of Hankinson's analysis which I will shortly call into question – we have no cause to doubt this particular claim.[137] What remains controversial is the extent to which Athenaeus' conception of the αἴτιον συνεκτικόν was an elaboration of the Stoic precedent. This question is central to our purposes and requires more rigorous analysis than it receives in Hankinson's article. My principal concern is that Hankinson privileges Galen's analysis in *CC* 1 – the reliability of which I will

---

[132] Hankinson (1987b) p.82.

[133] The analysis of causation attributed to Zeno in Stob I.138,14-139,4 (LS 55 A) is evidently an analysis of αἴτια συνεκτικά. While the evidence from Stobaeus is consistent with point (2) above, Zeno's synectic causes are unlikely to be dispositions of πνεῦμα. The identification of πνεῦμα as the active principle is not introduced into Stoicism until Chrysippus' premiership (see **I.3.8**)**.** The examples in Stob. I.138,14-139,4 are, however, conditions of the human soul.

[134] 'Contiguous', that is, as opposed to 'unified'. See Plut. *Con. Praec. SVF* 2.366. The ship/house is, of course, suffused through-and-through with πνεῦμα, but πνεῦμα, on Galen's account, is only the αἴτιον συνεκτικόν (properly so-called) of its homogeneous components; πνεῦμα sustains the parts; the parts combine to form a whole.

[135] Hankinson (1987b) p.82-83.

[136] *Ibid.* p.83-85.

[137] Gal. *CC* 1-2 certainly implies that Athenaeus was responsible for shepherding the concept into the analysis of disease aetiology. Hankinson (1987b) p.84 further cites the centrality of πνεῦμα to Athenaeus' medical theory and his affiliation with Posidonius as the basis for this claim. The connection between physician and philosopher is direct, with no intermediary medical authority.

challenge at **III.4.2.3** below – over evidence that points towards a broader application of the αἴτιον συνεκτικόν in early (*i.e.* pre-Athenaean) Stoicism. In his treatment of the αἴτιον συνεκτικόν, Hankinson makes two claims – 'Firstly, while there seems to be no good reason to doubt that the Stoics originated the terminology of containing causes, the meaning of that terminology underwent a crucial shift; and secondly, the impetus for that shift came from the medical schools' with Athenaeus at the vanguard.[138] How far can this be accepted?

III.4.2.1 Gal. *CC* 1: Causes of being

Galen writes in *CC* 1 that the αἴτιον συνεκτικόν, in its original conception, was only properly so-called when applied to the pneumatic disposition responsible preserving homogenous substances – '…copper, stones, gold, wood and those parts of the animal body that are called the primary and homogeneous parts'[139] – *i.e*. unified bodies whose structural integrity cannot be maintained by other means. We can, 'if we like', refer to the πνεῦμα which sustains each of the parts as the αἴτιον συνεκτικόν of the whole but, in doing so, we deviate from the strict sense of the term. This is not the only place in which Galen distinguished between a 'strict' and a 'loose' application of the term 'αἴτιον συνεκτικόν'. In his *Synopsis of the books on pulses* (*Syn. Puls.*) 9.458, 8-14 Galen writes that 'it is above all necessary to remember how we said we were speaking of the 'sustaining cause' – not in the strict sense, but using the appellative loosely. For no one before the Stoics either spoke of or admitted the existence of the 'sustaining cause' in the strict sense. And what have even before our time been spoken of as 'sustaining' have been causes of something's coming about, not existence.'[140] The 'strict sense' in *Syn. Puls.* which Galen avoids is a Stoic peculiarity and refers exclusively to 'causes of being'. Such causes, according to *CC* 1, were – at least, for the purists – only appropriately applied to basic stuffs. Stobaeus I.138.14-139.4 appears to preserve the earliest Stoic analysis of the αἴτιον συνεκτικόν, attributed to Zeno (though the term itself is not employed). According to Zeno 'it is because of prudence that being prudent occurs, because of the soul that being alive occurs, because of temperance that being temperate occurs.'[141] These examples refer to persistent states of being; their causes are stable conditions of

[138] Hankinson (1977) p.84-85.
[139] Gal. *CC* 1.
[140] Gal. *Syn. Puls.* 9.458, 8-15 (LS 55 H).
[141] Stob. I.13,14-139,4 (LS 55 A).

the (pre-Chrysippean/pneumatic) Stoic soul. The task of reconciling this passage from Stobaeus with *CC* 1 is not insurmountable; although the status of πνεῦμα as the active principle was not established under Zeno, 'temperance', in Stoicism, refers to a corporeal, unified body, 'basic' insofar as it refers to singular psychic condition, and stable for the duration of its existence.[142] That there existed a strain within Stoicism that rigidly enforced the idea that the αἴτιον συνεκτικόν could only be applied to causes of being is not implausible, but we should, for reasons I lay out below (**III.4.2.3**) be hesitant to attribute it to all of Athenaeus' Stoic predecessors.

III.4.2.2 Gal. *CC* 2: Causes of becoming

Were the Stoics dogmatic adherents to Galen's strict interpretation of the αἴτιον συνεκτικόν, it is easy to see how this would be incompatible with the medical τέχνη. Medicine is concerned with the human body, a complex network of inter-reliant substances and substructures – a juxtaposition of mixtures –, and the physical condition which the physician seeks to negate, disease in all its manifestations, is one which does not respect the boundaries between homogeneous substances. The physician, moreover, is seldom occupied with the analysis of fixed states of being; disease is dynamic, ever evolving, and rarely manifests as a single symptom. At *CC* 2 we note that the term 'sustaining cause' (*coniunctam causam*) is being applied to the internal condition that is cotemporal with the manifestation of disease – that is, neither a homogeneous body nor a persistent state but a specific pattern of deleterious transformations, observed by a doctor and endured by a patient.[143] Disease is a process, a phenomenon defined by alteration.[144]

In *CC* 2.1-4, disease describes an event in the body which results from an internal disposition that differs from a salutary norm. It lasts as long as the body's qualities remain in disarray, but the state of qualitative disequilibrium is all that is necessarily persistent. By the Stoic definition reported at *CC* 1, it is difficult to identify πνεῦμα in the body as the αἴτιον συνεκτικόν of this state of disarray, yet in *CC* 2 Galen attributes to Athenaeus this precise claim. If we wanted – against

[142] Contrast with disease, a disequilibrial state. See Gal. *PHP* V.2.31-32 (quoted at **III.2.2** above) for the Zenonian analysis of disease.
[143] esp. *CC* 2.4.
[144] Hankinson (1987b) p.84.

the grain of the text – to align Athenaeus' definition more closely with the definition at *CC* 1, we would have to posit that πνεῦμα is the αἴτιον συνεκτικόν of the human body as a whole and that its alteration, stimulated by αἴτια προκαταρκτικά/προηγούμενα,[145] is identified as being cotemporal with disease – πνεῦμα is the αἴτιον συνεκτικόν of the healthy body; altered πνεῦμα is the αἴτιον συνεκτικόν of the unhealthy (*i.e.* differently sustained) body. But Galen's definition at *CC* 1 seems resistant to this interpretation. He writes that it is the function of πνεῦμα (*spiritum*) to sustain animal bodies but specifies 'those parts of the animal body that are called the primary and homogeneous parts…nerves, arteries, veins' *etc.* The body itself is held together by cartilages, ligaments and tendons (themselves caused by πνεῦμα, but by πνεῦμα causing *them*) which adopt the designation of αἴτια συνεκτικά only by analogy with the πνεῦμα which sustains the homogeneous parts – *i.e.* the αἴτιον συνεκτικόν proper.[146] πνεῦμα penetrates the body through-and-through but it is not, according to the definition at *CC* 1, the αἴτιον συνεκτικόν of the compound. One could argue instead that πνεῦμα is the αἴτιον συνεκτικόν (by the Stoic definition in *CC* 1) of disease in *each individual homogeneous part of the body* in which it is present – *i.e.* πνεῦμα as the αἴτιον συνεκτικόν of homogeneous parts *in particular states* – but this would be to anatomise disease in the way that one anatomises an animal; when we speak of disease we speak of the whole, of a dynamic pattern of alteration traversing the body independently of the boundaries delineated by the homogeneous parts. For all the similarities between the Stoic and the Pneumatist conceptions of αἴτια συνεκτικά in *CC* 1-2 – both are conditions of πνεῦμα, both are coextensive and cotemporal with their effects – the distinction between the medical and philosophical uses of the term would seem, if taken at face value, to have significant implications. As Hankinson writes, broadening the role of the αἴτιον συνεκτικόν beyond the preservation of homogeneous substances transforms it from a cause of merely 'being' to one of 'becoming'.[147]

[145] For the distinction, see **III.3-4** below.

[146] What *CC* 1 lacks, however, is an account of the role of the αἴτιον συνεκτικόν in sustaining certain 'states of being' – i.e. homogeneous conditions of πνεῦμα that transcend the boundaries of homogeneous body parts. What, for example, is the causal relationship between being ensouled and being alive? The Stoic designation of the soul as the αἴτιον συνεκτικόν of life can be inferred from Stob. I.138,14-139,4 (LS 55 A) but this does not, as I suggested at **III.4.2.1** above, seem to challenge Hankinson's argument (1987, p.84-85) that, for the early Stoics, αἴτια συνεκτικά denoted causes of *being*.

[147] Hankinson (1987b) p.84-85.

That αἴτια συνεκτικά did refer to causes of becoming in medical literature is not controversial. The definition is favoured by Galen, who supplies the bulk of our testimonia for the medical application of synectic causes. He argues in *De plentitudine* that it is absurd to posit causes for irreducible substances,[148] and makes it clear at *CC* 7-8 that he uses the term αἴτιον συνεκτικόν to refer to causes of generation.[149] The phenomena for which αἴτια συνεκτικά have causal efficacy in Galen's analysis include processes – sequences of events – as well as the generation of entities.[150] Though Galen necessarily uproots the term from its foundation in Stoic cosmology, expanding the definition beyond dispositions of πνεῦμα/a corporeal active principle, the Galenic application of 'αἴτιον συνεκτικόν' is consistent with the Athenaean use of the term at *CC* 2 in its function as a 'cause of becoming'.

Defining what a 'cause of becoming' entails in the context of a cause that is cotemporal with its effect requires us to broaden our inquiry. Unfortunately, the definition of αἴτια συνεκτικά given in *Def. Med.* – one of the earliest texts to reference the αἴτιον συνεκτικόν in a medical context – is unhelpful. Hankinson quotes *Def. Med.* 157 (= XIX 393 K) as defining the αἴτιον συνεκτικόν as a cause which 'when present the effect is present, when absent the effect is absent and when increased the effect is increased',[151] citing this as evidence that the αἴτιον συνεκτικόν, in its medical application, is covariant with its effect – 'they must be strongly functionally corelated with them, such that cause and effect exhibit concomitant variations in intensity.'[152] But this is part of the definition of the αἴτιον προηγούμενον at *Def. Med.* 156; the definition of the αἴτιον συνεκτικόν at *Def. Med.* 157 does not include the quality of covariance.[153] However, given the questionable suitability of this definition in its application to the αἴτιον προηγούμενον (**III.4.4**) and its proximity to that of the αἴτιον συνεκτικόν in the text,

[148] Gal. *Plen.* VII.524-8 K. Galen argues that the persistence of such substances is explained by their irreducibility; additional explanations are superfluous. He also argues that the apparent volatility of fire and air precludes their proposed function as instruments of cohesion and that the argument posed by the Stoics either results in an infinite regress of bodies whereby a cause must be caused by a cause which must be caused by a cause *ad infinitum*, or arrives at a position where a non-existent is responsible for the conservation of an existent. See Hankinson (1987b) p.82

[149] See also *Adv Jul.* XVIIIA.280 K. (= *CMG* V 10 3, 58.1-4); *Syn. Puls.* 9.458, 8-14 (LS 55 H) quoted at **III.4.2.1** above.

[150] *CC* 8. Hankinson (1980) p.83.

[151] Hankinson (1987b) p.85.

[152] *Ibid.*

[153] Hankinson (1999) cites this passage again at p.486, n.17 without qualification.

it is likely that it is misattributed;[154] the definition is better suited as an alternative definition for the αἴτιον συνεκτικόν and thus the content of Hankinson's argument – insofar as he is arguing that the medical application of 'αἴτιον συνεκτικόν' included the quality of covariance – remains unscathed. That we might have two distinct definitions for the αἴτιον συνεκτικόν in *Def. Med.*, one including the quality of covariance and the other without, is itself intriguing. [155] It is tempting to identify a parallel between the two definitions of the αἴτιον συνεκτικόν arising from the confusion in *Def. Med.* and the 'strict' and 'loose' interpretations of sustaining causes in *Syn. Puls.* 9.458, 8-14, with the quality of covariance applicable only to the latter. If a genuine bifurcation is reflected here, it might free us of the over-reliance on Galen's account that has frustrated this analysis thus far.[156] But the information in *Def. Med.* XIX 392-393 K. is too confused to engender anything more than speculation. The problem with *CC* and *Syn. Puls.* as sources for early Stoic aetiology are addressed in the next section (**III.4.2.3**).

For all the confusion in *Def. Med.* XIX 392-393 K., examples of the medical application of the term that include the quality of covariance – the defining characteristic of a cotemporal cause of 'becoming' – are scattered throughout the Galenic corpus; heat is the αἴτιον συνεκτικόν of appetite-loss in *Caus. Symp.* VII.132; αἴτια συνεκτικά are assigned to different types of pulse variation in *Caus. Puls.* I.IX.1-54. This, on Hankinson's reading, is a quality that the αἴτιον συνεκτικόν acquires through its medical application. Certainly, the uncoupling of this term from its Stoic heritage permits its more liberal application; Galen's αἴτια συνεκτικά are not conditions of πνεῦμα. But Hankinson's argument is that the αἴτιον συνεκτικόν evolved, through Athenaeus, on contact with medicine's purposes; Athenaeus' Stoic education equipped him with the terminology, his

[154] cf. S. E. *PH* III.15. I examine this source at **III.4.2.3.**

[155] It is interesting to note that, despite Athenaeus' theories lurking in the background in the taxonomy of causes at *Def. Med.* XIX 392-393 K. – his name appears at *Def. Med.* 155 (= XIX 392-3 K.) in the context of antecedent causes; the three-fold taxonomy of causes introduced at 154 mirrors that of Athenaeus at Gal. *CC* 2 – the examples of αἴτια συνεκτικά given at *Def. Med.* 157 would not qualify as such in Athenaeus' taxonomy of causes in *CC* 2 in which the αἴτια συνεκτικά are specified as alterations in the body's πνεῦμα. In fact, a case could be made for the examples given at *Def. Med.* 157 being more accurately aligned with the αἴτιον προηγούμενον in Athenaeus' causal analysis; they are deleterious internal conditions that surely trigger the αἴτιον συνεκτικόν/pneumatic imbalance. Perhaps a contributing factor to the confusion at *Def. Med.* XIX 392-393 K. is the attempted inclusion of both a Pneumatist definition of the αἴτιον συνεκτικόν (misplaced in *Def. Med.* 156?) and an application of the term that had lost its Stoicising connotations, examples for which were preserved at *Def. Med.* 157. Galen's examples, as we shall see, retain the quality of covariance without referring to conditions of πνεῦμα.

[156] *Def. Med.,* recall, predates Galen by roughly a century. See Kollesch (1973) p.33.

Stoicising element theory (**III.2**) ensured that his application of αἴτιον συνεκτικόν retained most of its original associations. But, we may infer from *CC* 1-2, the peculiar requirements of his discipline necessitated the evolution of the αἴτιον συνεκτικόν from exclusively a cause of being to one of becoming. This modification permitted later doctors to depart more radically from the original Stoic usage.

III.4.2.3 Athenaeus, Stoicism, and the αἴτιον συνεκτικόν

If Hankinson's reading of *CC* 1-2 is correct, then this would represent a different kind of interaction between medical and philosophical spheres to that to which we became accustomed in **III.2**. However, his interpretation relies entirely on a face-value reading of Galen's testimonia. Among Galen's disagreements with Stoic physics is his contention that it is 'absurd' to posit causes for irreducible substances – *i.e*. causes of being.[157] The αἴτιον συνεκτικόν is the product of a physical system in which activity is all-present; irreducible substances owe their existence to a persistent, primitive agency.[158] Galen, following Athenaeus, recognises the medical utility of positing a cotemporal cause. But is *he* not incentivised to uncouple the term from its original Stoic application? The Stoics originate the concept, Athenaeus transposes it into medicine – quite plausibly with a (perhaps even exclusionary) focus on its application as a cause of becoming, given the peculiar demands of his discipline –, Galen adopts the concept from Athenaeus and his successors but must find a means of rescuing the concept from a physical system to which he is opposed.[159] Thus, he reminds his readers that his use of the concept differs from the original Stoic application by (over)emphasising the Stoic definition of αἴτιον συνεκτικόν as a cause of being.

As we have seen, Galen's account of the Stoic application of the αἴτιον συνεκτικόν in *CC* 1 allows for the metaphorical application of the term to complex structures. The examples hinted at in this passage are not 'processes' in the traditional sense – they are organic bodies bound together by 'cartilages, ligaments and tendons' or man-made 'externals' held together by binding agents such as gypsum and lime – but this inclusion indicates an early Stoic awareness

[157] Gal. *Plen.* VII.524-8 K.
[158] See **I.3.4, 7-8**. From Seneca *Ep.* 65.2 (LS 55 E) '…a thing must be made *from* something, and *by* something. The latter is cause, the former is matter.'
[159] As is abundantly evident in his treatment of Athenaeus' element theory in *Hipp. Elem.* 6. See **III.2.1.2**.

that the concept had utility beyond explaining the cohesion of homogeneous bodies. It may also indicate some rhetorical manoeuvring on Galen's part; is he obscuring the Stoic use of αἴτιον συνεκτικόν as a cause of becoming by consigning it to the realm of analogy? I think this is the case. If πνεῦμα is the αἴτιον συνεκτικόν of the human *per se*, then it follows that the αἴτιον συνεκτικόν is covariant with the various processes that occur within the aggregate, disease being only one of them. It occurs to me that, although individual psychic dispositions (such as those listed in Stob.1.138,14-139,4) are sustained by their synectic causes and that their aggregate, the individual human personality, is at any moment caused *to be*; the Stoic doctrine of peculiar qualification (**I.5.5**) poses a particular problem to Hankinson's reading of *CC* 1-2. Whatever individuates the human is both suffused throughout the aggregate and covariant with transformations to his/her body (**I.5.5**).[160] How does Stoic causal theory account for peculiar qualification if not through reference to the αἴτιον συνεκτικόν as a cause of becoming? And what of Stoic cosmogony? How does Stoic causal theory account for the transformation of fire into water at the birth of a new cosmic cycle without proposing that divine agency, the active principal, is the αἴτιον συνεκτικόν of change?[161] It is for Zeno's designing fire to cause growth and preservation.[162] It is difficult to accept that the early Stoics were blind to this application of the concept before its transposition into medicine, or to determine what they gain by excluding it.

We must also consider the testimonium of Sextus Empiricus as *PH* III.15. Sextus writes of containing causes that they qualify as such to 'the majority' of Stoics if 'when they are present the effect is present, when they are removed the effect is removed, and when they are decreased the effect is decreased (thus [the Stoics] say that the application of the noose is the [containing] cause of the strangling).'[163] On Hankinson's reading, this time presented in his chapter 'Explanation and Causation' in *The Cambridge History of Hellenistic Philosophy*,[164] this is evidence for the Stoic application of the αἴτιον συνεκτικόν

[160] See esp. Simp. *In Ar. De. an.* 217,36-201,2 (LS 28 I).
[161] D. L. VII.135-6, 142.
[162] Stob. I.213, 15-21 (LS 46 D).
[163] Translation taken from Hankinson (1999) p.484-485. Note that this definition is more or less identical to that of the αἴτιον προηγούμενον in *Def. Med.* XIX 392-393 K., further suggesting that the definition at *Def. Med.* 156 should correctly be applied to the αἴτιον συνεκτικόν.
[164] S. E. *PH* III.15 is also cited in Hankinson (1987b) p.85, n.19 as evidence for the original Stoic doctrine of synectic causes having undergone a 'crucial shift'.

having assumed the quality of covariance by the time Sextus Empiricus wrote the *Outlines of Pyrrhonism.*[165] The example given at *PH* III.15 is consistent with the application of the αἴτιον συνεκτικόν in Galen, which is a de-Pneumatised variation of the term attributed to Athenaeus at *CC* 2.[166] That Sextus refers to the 'majority' of Stoics leaves open the possibility that some Stoic purists (to take Gal. *CC* 1/ *Syn. Puls.* 9.458, 8-14 seriously) remained, but that most concurred, following the medicalisation of the αἴτιον συνεκτικόν, that the concept was more fertile than originally proposed. If *PH* III.15 is evidence of an expansion of the term in later Stoicism – with Gal. *CC* 1 a reference to Athenaeus' Stoic predecessors –, then this would be an example of Athenaeus contributing to theory from a vantage point of a specialised, practical science, thus behaving in the manner of the Aristotle's boundary-challenging physicians, those 'who have subtle and inquiring minds' (**III.3.2**).[167] But this interpretation requires us to take Gal. *CC* 1 at face value where, as I argued above, we have ample reason not to do so. S. E. *PH* III.15, though it allows for some disagreement within the Stoic school, gives no independent indication that the theory of αἴτια συνεκτικά had developed to include the quality of covariance. It is, moreover, easier to reconcile with Stoic cosmogony and the doctrine of peculiar qualification than Galen's account in *CC*.

Athenaeus' application of the αἴτιον συνεκτικόν seems to have been consistent with the Stoic (*i.e.* Chrysippean) usage of the term, albeit narrowly applied within the aetiology of health and disease. If the αἴτιον συνεκτικόν referred principally (or even exclusively) to causes of becoming in Athenaeus' taxonomy of causes (as it did for Galen) then this, like Athenaeus' *prima facie* eccentric element theory, can be accounted for by the strictures of his τέλος. It is not in the αἴτιον συνεκτικόν, then, that we see evidence of Athenaeus developing Stoic aetiology further through his medical exposition. But this is merely the first component of his causal taxonomy.

[165] Hankinson (1999) p.484-486.

[166] An analogy can easily be drawn between the noose as αἴτιον συνεκτικόν of strangling and πνεῦμα as the αἴτιον συνεκτικόν of disease. That this example is attributed to the Stoics suggest that this is partly (though, not exclusively) the function is served – albeit applied more broadly to all pneumatic processes, not merely to those covariant with disease.

[167] Arist. *Resp.* 480b22-31.

III.4.3 αἴτιον προκαταρκτικόν

Curiously, the non-medical application of the αἴτιον προκαταρκτικόν is harder to pin down than the αἴτιον συνεκτικόν. The Stoic analysis of causation recorded in Stobaeus attributes to Zeno the position that 'it is impossible that the cause be present yet that of which it is the cause not belong.'[168] This would appear to overlook possibility of an independently existent, antecedent cause. But Stoic aetiology cannot have been limited to αἴτια συνεκτικά. That cause may precede effect is not only self-evident, but essential to the behaviour of the Stoic cosmos/God.[169] Certainly by Chrysippus' premiership a causal theory had been developed which centred on the interplay between (in the broadest terms) binary conceptions of causality: those which precede and those which are cotemporal with their effects.[170]

This is best illustrated by the comparison Chrysippus draws between the mechanism of human activity and that of a rolling drum. This analogy is recorded in Cicero's *De Fato* (*Fat.*), where the Chrysippean model is invoked as an example of an aetiology that escapes the strictures of necessity yet retains the notion of fate.[171] The external push which stimulates the motion is analogised to the sense impressions which stimulate a response in the human; the shape of the drum, and therefore its capacity to roll, is analogized to the innate human capacity to act upon those impressions. Chrysippus, quoted in *Fat.*:

> …as a person who has pushed a roller forward has given it a beginning of motion, but has not given it the capacity to roll, so a sense-presentation when it impinges will, it is true, impress and as it were seal its appearance on the mind, but the act of assent will be in our power, and as we said in the case of the roller, though given a push from without, as to the rest will move by its own force of nature.[172]

The 'push' is an external event; the 'capacity to roll' is a persisting condition. Though the terminology is absent from *Fat.* 41-43, the push (if we extrapolate

---

[168] Stob. I.138, 14-139, 4 (LS 55 A).

[169] From Alex. *Fat.* 191,30-192,30 (LS 55 N): [The Stoics] say that since the world is a unity which includes all existing things in itself and is governed by a living, rational, intelligent nature, the government of existing things which it possesses *is an everlasting one proceeding in a sequence and ordering. The things which happen first become causes to those which happen after them*.' My italics.

[170] Hankinson (1999) p.487.

[171] Cic. *Fat.* 41-43.

[172] *Ibid.* 43 trans. Rackham (1942).

from *CC* 2) qualifies as the αἴτιον προκαταρκτικόν on account of its antecedence and externality to its cause. The shape of the drum is the αἴτιον συνεκτικόν *while the drum is rolling* and is therefore an effect of the αἴτιον προκαταρκτικόν.[173] This relationship is most succinctly captured in Clement's *Stromata* VIII.8.33:[174]

> When preliminary causes [αἴτια προκαταρκτικά] are removed, the effect remains, whereas a containing cause [αἴτιον συνεκτικόν] is one during whose presence the effect remain and on whose removal the effect is removed. The containing cause is called synonymously the complete cause since it is self-sufficiently productive of the effect.[175]

Galen writes at *CC* 2 that the Pneumatists call 'everything external to the body which harms it and produces disease in it' the antecedent cause. It is the initial, external event that sets in motion a sequence of events that concludes in the αἴτιον συνεκτικόν of disease. Athenaeus' analysis of causes upholds the basic Stoic model of cause-as-preceding and cause-as-sustaining interacting to produce an effect. But Athenaeus' theory includes a further component which should, in turn, assist us in determining precisely what the αἴτιον προκαταρκτικόν entails.[176] Onwards, then, to the αἴτιον προηγούμενον.

III.4.4 αἴτιον προηγούμενον

The αἴτιον προηγούμενον, I propose, introduces a new mode of 'concept acquisition' in the context of specialisation within a pre-existing cosmology, that of *invention within* an externally originating rule-system. This subsection is divided into two parts. The first deals with the possible philosophical application of the αἴτιον προηγούμενον derived, in large part, from scholarship concerning a

---

[173] Note that this model of the αἴτιον συνεκτικόν seems consistent with that attributed to the Stoics by Galen at *CC* 1, it being an analogy employed to illustrate a stable condition of πνεῦμα cotemporal with a mode of behaviour. Analogizing the αἴτιον συνεκτικόν of disease to the rolling of a drum – though it may have some explanatory utility – is precluded by the fact that disease is, by definition, an unstable, heterogeneous condition. See **III.4.2.1**.

[174] Havrda (2011) for Galen as the probable source of Clem. *Strom.* VIII. Havrda lists the correspondences between *Strom.* VIII and the extant writings of Galen – particularly passages in Galen which refer to his lost treatise *On Demonstrations* – and proposes that Clem. *Strom.* VIII.3.1-15.1 (including the following passage) drew from a lost writing of Galen about the doctrine of demonstration, possibly *On Demonstration* itself.

[175] Clem. *Strom.* VIII.9.33 (LS 55 I).

[176] As we shall see at **III.4.4.2**, the suggestion that the αἴτιον προηγούμενον in Athenaeus' taxonomy of causes is something *caused* by an event external to the body yet ostensibly manifesting independently of the αἴτιον προκαταρκτικόν (in some cases) should cause us to seek a narrower definition of the αἴτιον προκαταρκτικόν than merely a preceding, external cause.

particular passage from Cicero's *De Fato*; the second with Athenaeus' application of the term in *CC* 2.

III.4.4.1 The speculative orbit of Cic. *Fat.* 41-44

Where the distinction between the αἴτιον συνεκτικόν and the αἴτιον προκαταρκτικόν can be attributed to the Stoics, the Stoic application of the αἴτιον προηγούμενον has proven near-impossible to illuminate. Indeed, a non-medical provenance of term remains elusive. Questions arise as to how a prior and internal cause might be more generically conceived; is there a place for this concept outside the aetiology of disease? Before we proceed we should note that it is only in recent decades that preceding causes started to receive scholarly attention on a par with their less intractable cousins.[177] Attempts to identify a Stoic origin for the αἴτιον προηγούμενον are motivated, in part, by the centrality of external-internal causal interplay to Stoic causal theory, but more decisively by the association Galen reports between Athenaeus and Stoics in *CC* 2 (**III.4.4.2**)). A third link to the mother-doctrine is assumed on account of Stoicism's influence on the former categories of Athenaeus' causal taxonomy. Much of what follows is speculative, but a necessary prerequisite to understanding Athenaeus' aetiology of disease in its appropriate historical and contemporary scholarly context.

The distinction between αἴτια προκαταρκτικά and αἴτια προηγούμενα – that between an external and internal prior cause – is well attested elsewhere in ancient literature but none of our sources are authentically Stoic.[178] The term αἴτιον προηγούμενον is not found in any Stoic sources nor does it appear in any contemporary or near-contemporary critique of Stoic causal theory (at least not as a technical term whose function is clearly defined).[179] Is this distinction born of medical theorising? What is the evidence to the contrary?

The closest any Stoic source comes to illuminating a distinction between αἴτια προκαταρκτικά and αἴτια προηγούμενα is the following quotation from Chrysippus, preserved in Cicero's *De Fato*:

---

[177] Frede (1980) and Hankinson (1987b) marking the shift.
[178] Hankinson (1999) p.489. The 'ancient literature' in question is primarily the corpus of Galen, as will soon become clear.
[179] Hankinson (1987b) p.88.

> ‘Some causes’ [Chrysippus] says, are perfect (*perfectae*) and principal (*principalis*), others are auxiliary (*adiuvantes*) and proximate (*proximae*). Hence when we say that everything takes place by fate from antecedent causes, we should not be taken to mean by perfect and principal causes, but by auxiliary and proximate causes.’ Accordingly, he counters the argument which I have just set out as follows: ‘if all things come about by fate it does follow that all things come about from prior (*anteposita*e) causes, but not from principal and perfect but from auxiliary and proximate causes.[180]

The purpose of Chrysippus’ argument as recorded in Cic. *Fat.* 41 is to distinguish what are here referred to as ‘prior’ (*anteposita*e) causes from ‘perfect and principal’ causes – which we must assume at least include the αἴτιον συνεκτικόν – in a broader discussion about the nature of fate in Stoic causal theory.[181] Reconciling Cicero’s terms in *Fat.* 41 with the taxonomy of causes at *CC* 2 is troubled by the inconsistency Cicero demonstrates in applying these terms elsewhere in his reproduction of Chrysippus’ thought.[182] But it is the pairing of ‘perfect’ and ‘principal’ in *Fat.* 41 which is most intriguing for our purposes. Both are distinguished from antecedent causes – conceived in *Fat.* 43 (**III.4.3**) as the initial external ‘push’[183] – and, as Frede suggests in his 1980 article, ‘The original notion of cause’, the importance of the internal-external distinction to Chrysippus’ causal scheme does incline one to regard the distinction between perfect/principal and auxiliary/proximate causes in *Fat.* 41 as that between internal and externa stimuli, for all that the distinction is never explicitly made.[184] If we proceed from the assumption that perfect and principal causes are not synonymous in Chrysippus’ causal analysis, then Chrysippus posited two types of cause that are internal to their effects: the αἴτιον συνεκτικόν must be one – the ‘perfect’ cause as it is synonymized elsewhere[185] – with the αἴτιον προηγούμενον being a plausible candidate for the other: the ‘principal’ cause.[186]

---

[180] Cic. *Fat.* 41 trans. Rackham (1942).
[181] Hankinson (1999) p.488.
[182] ‘Proximate’ (*proximis,* the final word in the quotation) demonstrably applies to a ‘prior’ (*anteposita*e) cause in Cic. *Fat.* 41 but is identified with containing causes at *ibid.* 44. See Hankinson (1999) p.488.
[183] Which most plausibly corresponds to proximate causes in Cic. *Fat.* 41. See Frede (1980) p.241.
[184] Frede (1980) p.242.
[185] e.g. Clem. *Strom*. VIII.8.33
[186] Hankinson (1999) p.489.

If we take *perfecta* and *principalis* to denote different species of cause in Cic. *Fat.* 41 and the latter as the αἴτιον προηγούμενον – as yet unfettered by medical connotations – the question remains as to what function the αἴτιον προηγούμενον is supposed to serve in Chrysippus' causal theory. Frede refers to the 'trichotomy' of perception, disposition and human action in his assessment of Cic. *Fat.* 41-44, though he is careful to point out that the distinction between internal and external antecedents does not arise in the passages in question; for Frede, this is a matter of speculation born of the importance of the internal-external dichotomy to Chrysippus' causal scheme, a model which emphasises how necessity is not, as it were, 'the entire story' in matters of human activity.[187] Despite its lack of confirmation in the text, Frede's analysis does direct attention to what seems to be a missing piece in Chrysippus' rolling drum analogy in *Fat.* 43. Perception is the αἴτιον προκαταρκτικόν, likened to the initial push of the drum. Action is cotemporal with the αἴτιον συνεκτικόν, the human's natural capacity to act as rolling is cotemporal with 'rollability'. Yet the drum was endowed with the potential to roll before it received the initial push as the human is disposed to act in certain ways before he/she is induce to do so by the impinging sense-impression.[188] Thus, there is a distinction between disposition and actualisation. Acknowledging that disposition is both *internal* and a *prior* cause of action, Hankinson notes that 'it is tempting to conclude that…Chrysippus used αἴτιον προηγούμενον to refer to the persistent dispositional conditions of an agent in virtue of which a particular external occasion would have a particular result.'[189] αἴτια προηγούμενα, on this interpretation, are dispositional properties in the Stoic analysis of causation. But how far can this interpretation be accepted?

Analysing Cic. *Fat.* 41-44 in conjunction with later evidence complicates the picture further and exposes the flaw in analogising the mechanism of human activity to the effects of external forces on inert objects. Returning to Clem. *Strom.* VIII,[190] we find a demonstrably Stoic account of causality:

> Of causes some are antecedent, some containing, some auxiliary, some prerequisite. Antecedents are those causes which primarily provide the impulse towards the coming to be something, as beauty to for those

[187] Frede (1980) p.242.
[188] Hankinson (1999) p.491-492.
[189] *Ibid.* p.491.
[190] Trans. taken from Hankinson (1999) p.492.

> intemperate in love; for when it is seen by them it conditions the erotic disposition, but not however in such a way as to necessitate it.[191]

Impression plus predisposition does not necessitate action; the agent must assent to the impulse resulting from their combination. On this account, the αἴτιον προηγούμενον could be read as the pre-existing 'erotic disposition' in a state of actualisation following the sensory stimulation, the αἴτιον προκαταρκτικόν. It precedes its effect and is internal to that of which it is a cause. It does not trigger the αἴτιον συνεκτικόν until there is some additional input ('assent' in this case) but it is distinguished from a mere dispositional state by its having become active in the wake of the αἴτιον προκαταρκτικόν.[192] This intermediary stage between αἴτιον προκαταρκτικόν and αἴτιον συνεκτικόν, in which something is caused which is (potentially) the cause of something else, is absent from Cic. *Fat.* 41-44. Rolling drums, it transpires, are less complex than people; the human's receptivity to external causes is apparently not sufficient to stimulate predictable action. It is worth considering, given our governing interest in the effects of specialisation on existent ideas, how this (we should stress, merely hypothesised) conception of the αἴτιον προηγούμενον moves us away from a generically applicable classification of cause to one which is ostensibly only applicable in discussions of human psychology and will. It is difficult to conceive of an appropriate analogy for 'assent' outside the domain of rational behaviour. We should not be surprised that Chrysippus' drum analogy is found wanting. It is perhaps a truism of causal analysis that the vocabulary of necessary concepts multiplies in conjunction with the behavioural complexity of the entities considered, and that specialisation exposes the deficiencies of universals. The question remains as to whether the asymmetry in Cic. *Fat.* 43 (exposed by comparison with Clem. *Strom* VIII.9.25) is the result of a poorly chosen analogy on Chrysippus' part, whether recourse to analogy was itself an inadequate explanatory tactic or whether the report in Clement is of a later, more developed Stoic position.[193]

We must also recall that the basis for our speculation in this subchapter so far is an ambiguously worded passage in Cicero compounded by a small and

---

[191] Clem *Strom.* VIII.9.25 trans. taken from Hankinson (1999) p.292.
[192] Hankinson (1999) p.492.
[193] Hankinson (1999) p.492. A further open question is that of factors that might have precipitated such a development.

somewhat hesitant scholarly tradition.[194] The Stoic αἴτιον προηγούμενον, if such a thing existed, is haltingly assembled and, as I established at the beginning of this subsection, our impulse to identify an analogue for this species of cause in Stoic theory is rooted entirely in *CC* 2 and the unambiguous Stoic heritage of the synectic and procatarctic causes illuminated therein. Pondering the potential Stoic provenance of the αἴτιον προηγούμενον without recourse to medical material is a frustrating by not entirely fruitless affair; it is worth establishing what this more obscure category of cause might constitute in a philosophical context in order to determine if there is any way in which the category as it appears in *CC* 2 can be read as a development or an appropriation of an existent article of causal analysis.

III.4.4.2 The αἴτιον προηγούμενον in Gal. *CC* 2

Beyond Cic. *Fat.* 41-44, our best piece of evidence for a pre-existing Stoic application of the αἴτιον προηγούμενον is *CC* 2 itself,[195] but the explicitly medical nature of the term as applied in *CC* 2 should surely caution us against the assumption of a Stoic provenance. Note that it is only Athenaeus' application of the αἴτιον συνεκτικόν that Galen explicitly associates with the physician's Stoic education.[196]

Where the philosophical application of the αἴτιον προηγούμενον remains indeterminate, the role it played in Athenaeus' taxonomy of causes is (at least, broadly) easier to define. Galen writes in *CC* 2 that the Pneumatists call 'everything external to the body which harms it and produces disease in it' the αἴτιον προκαταρκτικόν, and that 'if what is produced in the body belongs to the class of what causes disease, then, while it has not actually brought the disease about, it is called the αἴτιον προηγούμενον.'[197] Simply put, the αἴτιον προηγούμενον is an event that takes place *inside* the body which stimulates the αἴτιον συνεκτικόν of disease. It precedes and is proximate to the deleterious internal condition of πνεῦμα. But its relationship with the αἴτιον προκαταρκτικόν is more difficult to define. Frede proposes that 'the αἴτιον προηγούμενον is the internal disposition brought about by the αἴτιον προκαταρκτικόν which in turn

[194] I.e. Frede (1980) p.242 and Hankinson (1999) p.488-492.
[195] Hankinson (1999) p.490 quotes *CC* 2.1-4 in a chapter on explanation and causation in Stoic philosophy and begins his exposition of the αἴτιον προηγούμενον from this medical foundation.
[196] Gal. *CC* 2.1.
[197] Trans. Hankinson (1999) p.490.

activates the αἴτιον συνεκτικόν'.[198] Galen's description of the αἴτιον προηγούμενον as something that is 'produced in the body' immediately after the function of the αἴτιον προκαταρκτικόν is explained lends some credence to this interpretation. Hankinson, in support of Frede's thesis, cites Galen's *Caus. Puls.* IX.2-3 as a clear example of the αἴτιον προηγούμενον functioning as an effect of the αἴτιον προκαταρκτικόν in medical literature; Galen sets out the causal sequence linking an initial chill to the onset of fever and describes as 'preceding causes' each transformation taking place within the body that was caused by the external chill, terminating in the αἴτιον συνεκτικόν of the resultant fever.[199] But we run the risk of reproducing a 'Galenised' account of Athenaeus' aetiology in our recourse to Galenic texts that do not discuss Athenaeus directly. The examples given in *CC* 2 itself – the αἴτιον προηγούμενον as the activity of drugs or poisons within the body – can be reconciled with Frede's interpretation if we allow for the administration of drugs/poisons to be categorized as αἴτια προκαταρκτικά. To take the snakebite example, the initial bite is antecedent to its effect – *i.e*. envenomation, the αἴτιον προηγούμενον – external to the body, and causes harm.[200] However, the examples of antecedent causes at *CC* 2.4 suggests that Athenaeus had a more restrictive definition of what constituted an αἴτιον προκαταρκτικόν, properly so called: 'For example, when a man is affected by the heat of the sun, this produces a change in his natural spirit (πνεῦμα) which becomes hotter than it was before, and when he is affected by cold this spirit turns to cold.'[201] Galen writes at *CC* 2.5 that what the Pneumatists 'call prior (*i.e*. antecedent) causes are the humours produced in our bodies when these are too hot, cold, moist or dry', suggesting that αἴτια προκαταρκτικά are initial *environmental* conditions, defined by an excess/deficiency in a particular elemental quality, that stimulate the αἴτιον συνεκτικόν. Envenomation, on this reading, is not an effect of an αἴτιον προκαταρκτικόν *per se*, but an αἴτιον προηγούμενον that is distinguished from the αἴτιον προκαταρκτικόν by its origin within the human body; αἴτια προηγούμενα are *internal* conditions 'whose nature is opposed to that of the body.' The Frede/Hankinson reading would seem to neglect the latter part of *CC* 2, but it is not clear that the Galenic use of αἴτια

[198] Frede (1980) p.242.
[199] Gal. *Caus. Puls.* IX.2-3 K. cf. *Praes. Puls.* IX.386 K. See Hankinson (1999) p.490-491.
[200] cf. Gal. *CC* 2.2-3.
[201] Gal. *CC* 2.4. trans. Lyons (1969).

προηγούμενα as bridges between the αἴτιον προκαταρκτικόν and the αἴτιον συνεκτικόν was absent from Athenaeus' causal analysis. Galen's claim at *CC* 2.3 that 'if what is produced in the body [by the αἴτιον προκαταρκτικόν] belongs to the class of what causes diseases' without directly giving rise to the disease itself (*i.e.* the αἴτιον συνεκτικόν) then it belongs to the category of preceding cause suggests that the term was occasionally employed in the manner that Frede suggests, but not that the αἴτιον προηγούμενον is *necessarily* an effect of the αἴτιον προκαταρκτικόν. Moreover, this conditional at *CC* 2.3 (along with the examples at *CC* 2.4) indicates that the αἴτια προκαταρκτικά do not require a 'bridging cause' to trigger the αἴτιον συνεκτικόν.

What should be uncontroversial, however, is that the αἴτιον προηγούμενον in *CC* 2 is designed to account for *physiological* realities.[202] It is a species of cause which might conceivably be overlooked in one's construction of a causal taxonomy intended for general application but which would, of necessity, be accounted for in an analysis which began from the events taking place within the human form. Recalling the argument that αἴτια προηγούμενα in a philosophical context are αἴτια συνεκτικά in potentiality, note that the account of αἴτια προηγούμενα in *CC* 2 consigns the cause to something 'produced in the body.' This precludes the designation of αἴτια προηγούμενα to causes which 'lie in wait' for an appropriate trigger; a body disposed to responding predictably to antecedent causes is not synonymous with that response in a state of actualisation.[203] Examples of αἴτια προηγούμενα in the medical literature all refer to actualized events. In the example of Gal. *MM* X.65-67 K., the preceding cause of inflammation is given as an excess of blood in the veins following the excessive intake of food; it is not the capacity of one's veins to contain more blood than is optimal that is identified with the αἴτιον προηγούμενον. The precedent hinted at in Clem. *Strom.* VIII.9.5 comes closer to anticipating Athenaeus' use of the term

[202] Of course, as we shall see at **III.5** below, Stoic psychology is amenable to analogy with physiology in the context of pathology. This analogy, as amply hinted, is based on the 'correlative affinity' of the physical processes underpinning both psychological and psychology pathology at the level of the body's elements (see e.g. Gal. *PHP* V.2.31-33). It seems to me that Athenaeus' taxonomy of causes *could* be employed in a psychological context; hypothetically, the αἴτιον προηγούμενον of a diseased soul could be the initial imbalance of elements that throws the soul (πνεῦμα) into disarray in exactly the same way as Athenaeus conceives of physiological disease. However, it is clear that Athenaeus only had bodily disease in mind (see esp. **III.5.3.2**). Moreover, none of our fragments from Chrysippus' *On Affections* (the subject of **III.5**) refer to αἴτια προηγούμενα. It is only in the context of *CC* 2 that one is moved to identify this parallel.
[203] Hankinson (1999) p.492.

inasmuch as it presents us with a causal scheme that includes an internal disposition in a state of actualisation (in this case functioning as an intermediary between αἴτιον προκαταρκτικόν and αἴτιον συνεκτικόν), but this similarity is insufficient to postulate a Stoic origin for the term as applied in *CC* 2. Clement never refers directly to the αἴτιον προηγούμενον in his wide-ranging account of causal theory in *Strom.* VIII, and the passage in which the intermediary category of 'disposition-in-state-of-actualisation' is referred to is specifically included to illuminate the role of assent in human action; the context, as noted above, is exclusively psychological. No further input is required to transform the αἴτιον προηγούμενον into the αἴτιον συνεκτικόν in Athenaeus' causal analysis. The αἴτιον προηγούμενον is itself the trigger of pneumatic disarray.

The αἴτιον προηγούμενον, therefore, as a distinct article of causal analysis with an independent technical application, appears to have originated in the medical sphere, a specialised context which, in the case of the Pneumatists, was in turn rooted in a pre-existing Stoic cosmology. That the distinction between αἴτιον προκαταρκτικόν and αἴτιον προηγούμενον was formalized by Athenaeus of Attalia is not a claim that can be substantively contested. We find no earlier medical authority to whom the αἴτιον προηγούμενον is attributed.[204] I have already noted that an internal prior cause, stimulated by some manner of external event, is a species of cause with a distinctly biological application, but note also how its utility as an article of causal analysis depends on its relationship with the other two categories in Athenaeus' taxonomy. The αἴτιον προηγούμενον is born of the conjunction of the pre-established interplay between αἴτια προκαταρκτικά and αἴτια συνεκτικά in Stoic causal analysis – a relationship that reconciled the conception of manifest entities being actively caused from within with the observable realities of prior cause and subsequent effect – and the manifest complexity of physiological processes. The invention of the αἴτιον προηγούμενον should not be read as a challenge to Stoic orthodoxy; it should be read as an attempt to reconcile a causal scheme which was designed with universal application in mind with the nuances of specialised analysis. It is significant that, despite the life that the αἴτιον προηγούμενον would continue to have within the

[204] I maintain that our earliest source for its application, ps.-Gal. *Def. Med.* 156 (= XIX 392-393 K), for all the problems with text (see *supra* **III.4.2** esp. n.155), gestures, through the confusion, towards an Athenaean origin. His trichotomy of causes introduces the causal taxonomy in *Def. Med.* XIX 392-393 K. and he is mentioned by name at *Def. Med.* 155.

medical sphere,[205] there is no evidence to suggest that the doctrine found its way out of the medical τέχνη and into the wider field of causal analysis. It seems plausible that the αἴτιον προηγούμενον was too esoteric to have explanatory value beyond the discipline for which it was designed. Nevertheless, the αἴτιον προηγούμενον fits so unobtrusively into Stoic causal analysis that the effect of its presence on the wider causal framework was apparently negligible, presenting no challenge to be accommodated or negated by the existing Stoic analysis of causality. It is a concept peculiar to medical analysis, albeit embedded in (and thus dependent upon) a more generically applicable causal framework.

III.5 Patterns of pathology: medicine in Chrysippus' *On Affections*

We have mapped Pneumatist element (**III.2**) and causal (**III.4**) theory onto their equivalents in Stoicism and identified two mechanisms by which ideas are trimmed and adapted as they transcend disciplinary boundaries: 1) the enforcement of discipline-specific epistemological restrictions; 2) invention within a pre-existing cosmology, necessitated by discipline-specific demands. We have also considered the Aristotelian framework in which, I propose, these constraints/adjustments are most intelligible (**III.3**). Through its consequent alterations the transposition of Stoicism into medicine illuminates several features of the philosopher-doctor relationship in the Hellenistic period. But we should be careful not to lose sight of how much Stoic doctrine remains intact, particularly in contrast with Epicureanism's more radical mutations (**IV**). The reason, I want to argue, lies in the unified structure of Athenaeus' mother-doctrine, the physicality of its ethics, the moral structure of its physics. In this section, my goal is to elucidate the Stoic precedent for Pneumatist medical theory *per se*. I evaluate the extent to which Pneumatism was intellectual indebted to Stoicism and return to the question of whether Stoic philosophy was particularly suited to medical adaptation. As I argued in **I** – and here we collect a thread introduced in our opening chapter – it is in light of Stoicism's physiological peculiarity and curative τέλος that the Pneumatist inclination towards self-identification in contrast to the philosophical precedent is most clearly defined.

To recapitulate, Stoic psychology, with its physicalist model of the body-soul interconnexion and focus on the interplay of body-soul analogues at every scale

[205] See e.g. Gal. *Caus. Puls.* IX.2-3 K. etc.

within its unified continuum, presents itself for adaptation into the medical sphere; the act of remedying deviations from salubrious equilibria is seamlessly analogous to a medical act. If one's ethical ideal has a clear physical signature, then a template for what it is to be physically healthy can be extracted, with little alteration, from the structure of the mother-doctrine. Recall the influence of Hellenistic medical writers on the promotion of πνεῦμα to the status of active principle in Chrysippean cosmology (**I.3.9**). It should come as no surprise that Chrysippus himself, the school's most influential theorist, had an interest in matters pertinent to medical inquiry, developing an analogy between philosopher and physician which had already been exploited by Zeno.[206] Here we examine how and why Chrysippus makes use of this analogy and compare his analysis of pathology in his ethical treatise *On Affections* to that of Athenaeus of Attalia, seeking to establish the extent to which their models can be reconciled (insofar as they can reconstructed). Exploring the question of medical analogy from a philosophical perspective illuminates the philosopher's conception of the medical profession which, in turn, provides a further dimension to the physician's relationship with the discipline he defines himself against. I will argue here (and in **IV**) that the Stoic position on the medical profession is without the critical connotations I diagnosed in Epicurean philosophy (see esp. **II.5.3**).

III.5.1 Introduction to *On Affections*

Our sources for the role of medicine and medical imagery in Stoicism come primarily in the form of selected fragments from the fourth book of Chrysippus' lost work *On Affections* (Περὶ παθῶν), a treatise on the emotions, transformations, affections or pathologies of the soul. It documents Stoicism's 'monistic' psychology wherein emotions are conceptualised as pathological disturbances of a wholly rational intellect.[207] The popularity of the text in antiquity is evidenced by the relatively abundant selection of fragments which remain accessible to source criticism.[208] Much of what has been preserved of the text is

[206] Tieleman (2003) p.146. See Gal. *PHP* V.2.31-33.

[207] Contrasted with the Platonic and Aristotelian models in which the soul possesses both rational and non-rational faculties. The debate revolves around the question of whether the affections in question involve one or more non-rational occurrences along the causal chain, or whether they are distorted, pathological states of a rational mind. The Stoics, who locate rationality in every portion of the cosmos, champion the latter case. See Tieleman (2003) p.20.

[208] Tieleman (2003) p.1-3. In terms of preservation, the privileged position of *On Affections* in the Chrysippean Corpus prompted Hans Von Armin to devote an entire section to the text at *SVF* 3.456-490

embedded in the fourth and fifth books of Galen's *On the Doctrines of Hippocrates an Plato* (*PHP*) – notably a medical text – with supplementations from books three and four of Cicero's *Tusculan Disputations* and Origen's *Against Celsus.* The fragments in *PHP* appear in the context of Galen's polemic against the aforementioned 'monistic' psychology attributed to the Stoics.[209]

The majority of our fragments from *On Affections* are derived from the fourth and final book of the treatise, which is referred to most frequently in our sources by the separate title: the *Therapeutics.*[210] According to Galen, the fourth book was written with a degree of separation from the preceding three which concerned themselves with laying the theoretical foundations upon which the *Therapeutics* was based.[211] The alternative title, *Therapeutics and Ethics*, given at *PHP* V.7.52, establishes the field of therapeutic application.[212] The *Therapeutics* is a treatise about human behaviour and the internal dispositions that precipitate human action. In this text, Chrysippus proposes a course of treatment for the *physical* disposition that corresponds to pathological modes of behaviour. In its title, an analogy is made between the affections that disturb the soul and diseases which torment the body; both are nocuous disruptions of a salutary norm.[213] In proposing to cleanse the soul of its pathologies Chrysippus

---

as an exception to his otherwise principally thematic arrangement of the fragments. However, the 'relative' nature of this abundance must be born in mind. Galen tells us at *PHP* V.6.75 that the original text of *On Affections* consisted of four books, each of which was apparently twice the length of a book of Galen's *PHP.* Nothing of the third book has survived. Moreover, the manner in which Galen presents the fragments from *On Affections* in *PHP* largely precludes any attempt to faithfully reconstruct substantial sections of Chrysippus' text.

[209] I devote this footnote to clearing up the confusion related to this 'monistic' appellation. The Stoic soul, as discussed in **I.4**, is in fact conceptually divisible into eight distinct parts, differentiated by function (Gal. *PHP* III.10-11). In physical terms, each function is an expression of a singular ἡγεμονικόν located in the heart; they are distinguishable neither by substance nor source but by ἕξις, a measurement of rational activity. The Stoic soul is deemed monistic because it, like the rest of the Stoic cosmos, is rational through-and-through. Plato (*Rep.* IV), by contrast, distinguished between the rational, spirited and desiderative components of that soul and it is his psychology that Galen seeks to adapt into correspondence with his own psychophysiology in *PHP* (Tieleman (2003) p.21). Despite Stoicism's opposition to Platonic psychology, Sedley (1993) p.313-314 notes that Stoicism's monistic – *i.e*. wholly rational – psychology is anticipated in the early Platonic dialogues (e.g. the *Protagoras, Phaedo*, and to some extent even in the later *Theaetetus*) and could perhaps be fruitfully regarded as a development of *Socratic* psychology, 'according to which the soul is in itself a purely intellectual faculty' (p.313). Recall also the influence of Platonism on the Stoic conception of the world-soul (**I.4.2**).

[210] Tieleman (2003) p.140; Gal. *PHP* V.7.52. The *Therapeutics* does, however, repeat a number of theoretical points established in the first two books (nothing of book three survives; neither Galen nor Cicero comment on its contents). The title *Therapeutics* is given in e.g. Gal. *PHP* IV.5.10, 13; 5.2.21, 30; Gal. *loc. aff.* 3.1, VIII (= SVF 3.457). The alternative title, *Therapeutics and Ethics* is given in Gal. *PHP* V.7.52.

[211] Gal. *PHP* V.7.52. Tieleman (2003) p.92, 140.

[212] Tieleman (2003) p.140.

[213] Inwood (1999) p.712.

analogises himself to a physician, his students to his patients and Stoic doctrine to a psychological panacea.[214]

III.5.2 Medical Analogy

As I set out in the introduction to this thesis (and as we saw in **II.5**) the idea of the philosopher as doctor of the soul flourished in the interscholastic ἀγών that characterised Hellenistic philosophy – the contest to perfect the art of living.[215] In the case of Stoicism, from the coextensivity of God and matter and a physicalist psychology is born a model of the soul that cannot be treated in isolation from the body. The soul is corporeal and resolvable into the same constituent materials as any other body in the Stoic cosmos. Medical analogy is more than merely explanatory;[216] the philosopher, like the physician, is concerned with matters of the body. His purpose, like that of the physician, is to guide his subject to a salutary state through the studied manipulation of its constituents. The medical vocabulary of *On Affections* was first given appropriate consideration by Teun Tieleman in his 2003 analysis and reconstruction of Chrysippus' text.[217] Tieleman argues that, rather than serving a formalistic, metaphorical purpose, medical analogy in *On Affections* 'is based on physical realities to which the corporeal soul is no less subject than the body.'[218] Stoicism's corporeal psychology confuses the distinction between therapies of the body and therapies of the soul (see esp. **III.5.3.2**); the soul's affections – its pathologies, its *emotions*[219] – are corporeal events, so too its return to equilibrium, to health. Chrysippus justifies the analogy in a passage preserved at *PHP* V.2.22-24, which is worth considering in full:

> It is not true that whereas there is an art, called medicine, concerned with the diseased body, there is no art concerned with the disease of the soul, or that the latter [art] should be inferior to the former in the theory and

[214] cf. **II.5.**
[215] Nussbaum (1994) p.14-15.
[216] A point that is overlooked in Cic. *Tusc.* IV.23. Cicero reads Chrysippus' frequent recourse to medical analogy as an overused stylistic device He does not object to the medical analogy *per se* – he employs it (as a stylistic device) himself at *Ibid.* III.6 – but denounces Chrysippus' over-elaborate application as superfluous, thus neglecting to account for its physical basis and centrality to Stoicism's ethical project. This is not a stylistic eccentricity.
[217] The broader question of medical analogy in Hellenistic philosophy was brought to light by Nussbaum (1994).
[218] Tieleman (2003) p.157.
[219] The Greek term πάθος means both 'emotion' and 'disease', a fact that Chrysippus apparently exploited throughout the *Therapeutics.* See below.

> treatment of individual cases. Therefore, just as the physician of the body must be 'inside', as they say, the affections that befall the body and the proper cure for each, so it is incumbent on the physician of the soul to be 'inside' both of these in the best possible way. And a person might understand that this is so, since analogy with them was set up at the start. For the correlative affinity with them will also make evident to us, as I think, the similarity of the cures and in addition, the analogy that the two kinds of healing have with each other.[220]

The claim that physicians of body and soul must be 'inside' (ἐντός) their subjects is a claim that they must both possess extensive knowledge of precisely *what it is* upon which they administer their therapies.[221] Of the body and the soul, though their shared constituents are not referenced in this passage, their pattern of potential transformations is isomorphic – *i.e.* structurally similar or 'correlatively affinitive' in De Lacy's translation.[222] Both are vulnerable to pathologies and responsive to correlative, restorative therapies. Moreover, the soul, its affections and restorative processes are equally accessible to human understanding as their physiological parallel. The patterns of deterioration and restoration are analogous. Both are vulnerable to pathology; both can be cured.

The analogy is defended at *PHP* V.2.22-24 on the grounds that it has existed 'from the start' (ἀπ' ἀρχῆς). In context, this reads as an appeal to how naturally the medical analogy emerges in speech and thus in thought.[223] The promise of restoration to a preferable condition cannot be uncoupled from its healing connotation, particularly when the subject of the process *is* the human being, his/her interior tumult. The arts practised by physician and philosopher respectively are 'two different kinds of healing' but their 'correlative affinity' (ἀντιπαρατείνουσα οἰκειότης) elucidates their practical similarity. A further fragment, quoted in *PHP*, a mere two lines later and likely derived from the same

---

[220] Gal. *PHP* V.2.22-24 trans. De Lacy (1978).
[221] Tieleman (2003) p.144.
[222] *Ibid.* p.144 favours 'parallel appropriateness' as a translation for ἀντιπαρατείνουσα οἰκειότης.
[223] Tieleman (2003) p.145. An alternative reading is that 'ἀπ' ἀρχῆς' refers to the beginning of Chrysippus' text but note that Chrysippus elsewhere uses the phrase in the manner that Tieleman suggests. See Gal. *PHP* III.1.23 quoting from Chrysippus' *On the Soul*: 'And in these matters it is sufficiently clear that people have been brought from the outset (ἀπ' ἀρχῆς) to the view that our governing part is in our heart'. trans. De Lacy (1978).

context,[224] has Chrysippus address the human tendency to speak of physiological and psychological matters in the same terms:

> 'Just as strength and weakness, firmness and softness are observed in the body, and also health and disease, robustness and sickness' and all the other affections, infirmities, and diseases that he goes on to list, 'in the same way', he says 'there are certain things in the rational world that exist and are named analogously to all of these.' He then continues: 'I fancy that this sort of analogy and similarity has led to the sameness of their names. For we do in fact say that some persons are strong or weak also in the soul, and firm or soft, diseased or healthy; and we speak as if this was of affection, infirmity, and the like in the soul.'[225]

The fusion of physiological and psychological vocabulary arises from a deeper similarity, prior to language; the terminology is interchangeable because it does, in fact, describe to the same basic process.[226] The analogy emerges from an underlying, objective, physical parallelism between the affections of the soul and the diseases of the body.[227] The 'correlative affinity' is legitimised on the basis of the body and the soul's shared corporeality, their mutual coextension, and their shared constituents.[228]

III.5.3 Medicine in *On Affections*

The abundance of medical analogy in *On Affections* is clearly significant for our purposes. Athenaeus' efforts to distinguish his profession from philosophy (**III.2**) are all the more striking when one considers how he adopts as the foundation of his theory the physical premises of a philosophy whose practitioners took measures to emphasise the indeterminacy of the boundary between medicine and philosophy on the basis of those same premises. The orientation of Stoic philosophy towards therapeutic aims further confuses the picture; the goal-

---

[224] Tieleman (2003) p.145.

[225] Gal. *PHP* V.2.36-27 trans. De Lacy (1978). cf. Gal. *PHP* V.2.31-33 quoted most fully at **III.5.3** below.

[226] D. L. VII.193 lists several Chrysippean treatises devoted to speech and linguistic ambiguity. It is an area to which Chrysippus devoted much time exploring. When Chrysippus writes of 'correlative affinity' (ἀντιπαρατείνουσα οἰκειότης), we can be sure that he selected his words with care. Tieleman (2003) p.146.

[227] See Sedley (1993) p.325-331 for an analysis of Chrysippean 'psychophysics'. All psychological changes are pneumatic changes. It is through language, λεκτά, that psychophysical states translate into thoughts. λεκτά, being causally inert, map onto causal processes and make them intelligible. Isomorphic causal processes accommodate the same λεκτά.

[228] Tieleman (2003) p.146-147.

disparity of philosophy and medicine is challenged by the congruent nature of their goals at the level of physical processes, which in turn engenders a degree of terminological overlap. We will circle back to this problem at the end of this section. For now, note that the use of medical analogy in *On Affections* presupposes an (at least, a cursory) existent Stoic conception of the physical mechanics of health and disease. Three questions arise: 1) How exactly are physiological and psychological pathologies 'correlatively affinitive' in Chrysippus' psychophysiology; 2) to what extent does Chrysippus' conception of bodily disease anticipate that of Athenaeus and 3) how does the philosopher distinguish the practice of philosophy from that of medicine? I deal with each question in turn.

III.5.3.1 The congruence of pathology at *PHP* V.2.31-33

At **III.2.2** we encountered a Stoic account of bodily health and disease that I reintroduce to the discussion here, quoted at greater length:

> '…Zeno's argument proceeds as it should. And disease of the soul is most similar to an unsettled state of the body. Disease of the body is said to be a lack of proportion in its components, hot and cold, dry and wet.' A little later he says. 'Health in the body is a kind of blend and proportion of the (things) expressly stated'; and then, 'for in my opinion robustness of the body is the best blend of the (things) mentioned'; and after that, 'It is not out of place to say this of the body, because proportion or lack of proportion in its components hot, cold, wet, dry, is health or disease; proportion or lack of it in the sinews is strength or weakness, firmness or softness; and the proportion or the lack of it in the limbs is beauty or ugliness.'[229]

Health in the body is identified with the proper proportion of its constituents. In *PHP* V.2.31-33,[230] health is at once one aspect of how harmonious proportionality manifests inside the cosmos and the exemplar by which psychophysical harmony is understood.[231] The moral-aesthetic value of harmony is consistent throughout the cosmos, but it is through the spectrum of bodily health and disease that this concept is expounded. As Seneca would later frame it, our innate preference for

[229] Gal. *PHP* V.2.31-33 quoting Chrysippus trans. De Lacy (1978).
[230] See **II.2.2** for the question of why Zeno apparently elected to analyse the body into its elemental qualities in this passage.
[231] So too beauty, which is the same harmonious proportion at a posterior (and therefore more stable) ontological stratum.

health over disease is among 'the seeds of knowledge' from which Stoic ethical doctrine would develop.[232] How, precisely, is this isomorphism reflected in Chrysippus' model of psychophysical pathology?

In context, the quotation at *PHP* V.2.31-33 is introduced by Galen to demonstrate the weakness of Stoicism's monistic psychology. Galen does not contest the analogy on the grounds of its explanatory utility. He argues instead that Chrysippus failed to pursue the analogy to its conclusion, pointing out that while an account is given of the aetiology of physiological pathology, an analogous account of psychological pathology is neglected.[233] But this is an inaccurate reading. Galen's anti-monistic purpose lead him to overlook (or plausibly, wilfully disregard) the deeper physical affinity between body and soul which Chrysippus (channelling Zeno) foregrounds in this passage. In *PHP* V.2.29-38*,* Galen's argument is that Chrysippus cannot apply the template of bodily health/disease – of which he approves – to that of psychological harmony/pathology because his monistic psychology prohibits him from resolving the soul into parts.[234] The parts that Galen is alluding to are the spirited, rational, and desiderative components of a three-fold Platonic soul.[235] Psychological health, according to Galen, is attained 'when the three parts (of the soul) are in harmony with each other and not in conflict at all…when in disharmony and conflict, (they produce) diseases.'[236] Galen's capacity for distorting the positions of his opponents to score dialectical points is familiar to us from **II.2.1.2**. At *PHP* V.2.35-38, he seizes on the Chrysippean/Zenonian analogy between physiological and psychological health as an opportunity to build and disassemble a straw man. His argument is that if the aetiology of disease requires pluralism, and disease in the body is the exemplar by which we understand disease in the soul, then the soul must be pluralistic.

But what Galen neglects to account for in *PHP* V.2.35-38 is that the Stoic soul, though indivisible into parts which are not to some degree imbued with rationality, consist of the same elements as the body.[237] It too is a mixture. It too has an

[232] Sen. *Ep.* 120.3-5, 8-11 (LS 60 E).
[233] Gal. *PHP* V.2.29-38.
[234] *Ibid.* V.2.35-38.
[235] Gal. *PHP* V.2.37.
[236] *Ibid.* V.2.38 trans. De Lacy (1978).
[237] Of course, it is their proportion relative to each other that distinguishes the body from the soul; the soul consists *primarily* of fire and air, the body of water and earth.

optimal, equilibrial condition contingent on the harmony of its constituents and Galen is perfectly aware of this. In *PHP* V.3.18 he includes Chrysippus and the Stoics among those who correctly identified the correct proportion of elements as productive of health.[238] Elsewhere, in a passage from *The Capacities of the Soul Follow the Mixtures the of the Body* (hereafter *QAM*), which Tieleman argues was based on the same section of the *Therapeutics,*[239] Galen recounts with fidelity the Stoic conception of the soul as a mixture of fire and air.[240] Moreover, he reveals his understanding that, for the Stoics, intelligence resides in a 'well-tempered blend' of the elemental constituents of the soul, whereas foolishness derives from boundless heat.[241] The Chrysippus of *QAM* identifies desirable – *i.e.* healthy – psychic conditions with 'well-tempered' (εὔκρατον) proportions of the soul's constituents. Even in *PHP* V itself, Galen betrays his understanding that the Stoic soul has 'two parts, elements, or states, that are intermingled throughout, the cold and the hot' or 'air and fire' which he mentions as alternative appellations derived from their substances.[242]

For Chrysippus, the soul, as the body, is a blend of different elements. Health in the body is the proper proportion of its parts; it follows that 'health' in the soul – and note how naturally we reach for medical vocabulary – is isomorphically derived; body and soul are different blends of the same physical constituents, coextensive, mutually inextricable, and beholden to the same physical laws inside a cosmos whose natural tendency is towards concinnity, a perfect harmony of parts identified with the moral paradigm. The harmonious proportion is determined by the constitution of the whole; the body and the soul are distinct mixtures and so too must be their respective equilibrial proportions. But the mechanism of pathology is identical; it is disproportion caused by the deficit/surfeit of a particular constituent which throws the system into disarray.

---

[238] Alongside Hippocrates, Plato, Aristotle and Theophrastus.

[239] Tieleman (2003) p.149, n.44. Tieleman bases this argument on the fact that there are almost no quotes from Chrysippus in Galen other than those which are taken from *On the Soul* or *On Affections*. *QAM* is believed to have been written some forty years after *PHP*. Galen, Tieleman speculates, having studied *On Affections* in the writing of *PHP*, continued to draw upon the text throughout his career without further relying on direct quotation. The subject-matter of *QAM* is such that recourse to the issues raised in *PHP* would have been appropriate and indeed, sections of *QAM* read like reworkings of *PHP* (cf. *QAM* 11 and *PHP* V.5, VII.1).

[240] Gal. *QAM* 4 (*SVF* 2.787).

[241] *Ibid.*

[242] Gal. *PHP.* V.3.8. It is unclear, from context, whether the inclusion of 'air and fire' as alternative names is derived from Chrysippus or if this is Galen's insertion.

The psychophysiological analogy that Chrysippus draws in *On Affections* is more exact than Galen gives it credit for – at least, on his initial rendering of Chrysippus' account. At *PHP* V.3.9-10, Galen moves to dismiss the possibility that Chrysippus (at *PHP* V.2.31-33) refers to elemental proportion as the basis for his analogy, and in doing so effectively summarises Chrysippus' position:

> …I would be surprised if you [Chrysippus] wish to call the proportion of these [elements] the health or beauty of the governing part. For the health of its body is properly assigned to them, but as the governing part of the soul. Its health does not reside in them, even on your view. Thus, the whole pattern is destroyed and the claim to the same name is completely gone if we cannot show that disease, beauty and ugliness, are constituted in the soul's governing part in the same way as in the whole body.[243]

The 'pattern' is preserved, despite Galen's surprise. That psychological and physical health are identified with the harmonious proportion of their respective constituents is the basis for their correlative affinity. A further fragment from *PHP* demonstrates, with some acuity, both the explanatory utility of medical analogy and its physical foundation. At *PHP* V.2.14 Chrysippus argues that 'disease of the soul is most similar to a feverish physical state in which fevers and chills do not occur at regular intervals but irregularly and at random from the constitution (of the afflicted) and at the incidence of small causes.'[244] Here, the apparently random occurrence of 'chills' is likened to the similarly immediate onset of emotion which does not signify a proximate cause. Galen presents this fragment as an argument against analogising disease in the soul to various forms of recurrent fevers,[245] but, as Tieleman argues, disease (νόσος) at *PHP* V.2.14 refers to the condition of the soul in disarray;[246] each affection (πάθος) is analogised to a fever/chill.[247] Galen (predictably) makes no reference to the

[243] Trans. De Lacy (1978).
[244] Trans. De Lacy (1978).
[245] Gal. *PHP* V.2.13.
[246] cf. **III.4.1-2** and Gal. *CC* 2 on pneumatic disarray as the αἴτιον συνεκτικόν of disease in Athenaeus' aetiology of disease. Disease is a broad descriptor for a state of disarray.
[247] Tieleman (2003) p.155. It is unclear from context whether Chrysippus intends the evocation of a 'physical state in which fevers and chills do not occur at regular intervals' to refer to a peculiar type of (possibly hypothetical) fever. The supposed *regularity* of chills in a fever is well attested in ancient medical literature. Is the apparent irregularity of affections a distinguishing feature? If so, is the analogy to disease at *PHP* V.2.14 intended to suggest that the irregularity of affections is *only* apparent – *i.e.* if we understood the disharmonious soul as we understood the body then the 'small causes' he references would be apparent to us?

physical basis of this comparison. But we should note the 'correlative affinity' between a fever defined by 'chills' and Chrysippus' physical model of soul in disarray. Pathologies occur within disharmonious bodies; within clashing tides of elements there are 'spikes' – *i.e.* moments when a single element is dominant. Intermittent shivering is a consequence of the alternative dominance of hot and cold qualities within a body that has lost its proper structure. Hot and cold are the dominant qualities present in the Stoic soul;[248] the analogy preserved at *PHP* V.2.14 is intended to be exact. Just as the fevered body alternates between extremes of temperature, the unbalanced soul will alternate between extremes of mood, corresponding to physical fluctuations in the proportion of its mixture. Analogies such as that at *PHP* V.2.14 are exploitable because the preceding cause – which is a term I use advisedly[249] – of physiological and psychological diseases are identical in character.

Stoicism physicalises psychological pathology with a rigor that is absent from Epicureanism. As I argued at **II.5.6**, neither the Epicurean goal of ἀταραξία – the 'health' that the philosopher-doctor seeks to engender – nor the pathologies one must neutralise to attain it are explicitly identified with movement of atoms in our sources. Stoicism, through the unity of its physics and its ethics, can articulate its ethical/therapeutic aims in physical terms – indeed, it *must*; health and pathology attain their moral adjacency through Stoicism's analysis of 'universal nature and…the administration of the world.'[250] Nature, for the Stoics, is the teacher.[251] What is Good cannot be delineated without recourse to Nature's structure and behaviour; ἀρετή cannot be elucidated without recourse to physics. But once the nature of the Good has been revealed through analysis of the whole – the appropriate intellectual domain of the Stoic ethicist, the Stoic proper (**III.3.3**) – the harmony-disharmony dichotomy can be abstracted from cosmology and applied to different epistemological domains. My thesis is that the innate self-similarity of the Stoic cosmos, where 'good' and 'bad' – or, at least, 'preferred' and 'dispreferred' (**III.3.3**) – are expressed in the same way at different scales and in different domains, facilitated Stoicism's adaptation into medicine. To the

[248] e.g. Gal. *PHP.* V.3.8.
[249] Though as I argued at **III.4.4.2,** n.202, this is a retrojection of Athenaeus' taxonomy of causes onto something for which it (probably) was not intended. I draw attention to it here only to indicate how easily one can conceive of Stoic psychophysics as a template for Athenaeus' theory of disease.
[250] Plut. *St. Rep.* 1035 C-D (LS 60 A).
[251] e.g. *Ibid.*; D. L. VII.53; Cic. *Fin.* III.33-4.

physician starting from Epicurean principles, the physics of health, insofar as there are hints of such a doctrine in Epicureanism (see **II.5.6**), is for the medical τέχνη to bring to fruition. To the Stoicising physician, the mother-doctrine provides a template for the mechanics of health and disease. To what extent is Pneumatism prefigured in the template?

III.5.3.2 Anticipating Athenaeus (and the problem of 'non-somatic' pathology)

The paucity of evidence for both Athenaeus' theory of disease and how far (and in what direction(s)) Chrysippus took the medical analogy in *On Affections* prohibits us from answering definitively the question of the extent to which Chrysippean therapeutics anticipates Pneumatism. Certainly, the Zenonian conception of disease as the disequilibrium of elemental qualities endorsed by Chrysippus at *PHP* V.2.31 is consistent with Athenaeus' theory (**III.2.2**). I addressed Zeno's choice to resolve the body into qualities rather than substances in *PHP* V.2.31 at **III.2.2** above; though this detail clearly aligns his model of disease more closely with that of Athenaeus, we should be hesitant to accept that these were the *only* terms in which disease could be discussed in early Stoicism. Galen's exposition of the Stoic soul at *PHP* V.3.7-8, derived from Chrysippus, implies that 'hot and cold' and 'fire and air' could be used interchangeably in the context of Stoic psychophysiology, but how much of this is coming from Chrysippus himself is unclear.

It is in the domain of psychophysiology that the boundary between doctor and philosopher is surely its most porous, and yet this seems to be the area where Athenaeus' theory of disease is most difficult to reconcile with Chrysippus' writings on the subject; it is difficult to identify an *explicit* precedent for the causal role of πνεῦμα in Athenaeus' aetiology of disease in the extant fragments of *On Affections* with respect to Chrysippus' model of psychological pathology,[252] for all that its presence might be confidently assumed. It is possible that Chrysippus conceived πνεῦμα as only indirectly implicated in psychophysiological pathology; the affections, after all, are events that take place *within* πνεῦμα; perhaps the all-penetrative quality of πνεῦμα is of less explanatory utility in the context of more

[252] This is a further reason for why I am reluctant to retroject Athenaeus' αἴτιον προηγούμενον onto the aetiology of psychological pathology in Chrysippean Stoicism.

or less localised psychological pathologies.[253] The spread of disease through the body is more readily explained by the unity of the active and passive principles and the holistic nature of the aggregate. Perhaps we should not be surprised, given the centrality of πνεῦμα to the theory, that it is the Athenaean conception of pathology where the distinction between physiological and psychological disequilibrium is most difficult to identify, despite the doctor's focus on the former.

But the all-penetrative quality of πνεῦμα coupled with its function as the substance of the soul raises a further question vis-à-vis the Chrysippean model of pathology. How closely related are body and soul in *On Affections?* How do changes in the constitution of one impact the constitution of other? Though Chrysippus maintains that the physical basis of psychological and physiological pathologies is correlative, he nonetheless accepts that their treatments constitute two 'different kinds of healing', and this distinction seems to be predicated on the particular mixture in the body-soul duality, conceptually delineated, which the philosopher or doctor seeks to induce back to equilibrium.[254] The argument at *PHP* V 2.22-24 suggests that while the pattern of potential transformations is analogous (generating a shared terminology),[255] the conceptual distinction of the substances considered has some kind of material basis; the physician of the body must have knowledge of the body; the physician of the soul must have knowledge of the soul. But while the soul can be deconstructed into fire and air, the body into water and earth, their mutual coextension – and the role of the former in the qualification of the latter – would seem, on first analysis, to preclude independent pathologies. Recall the fragment from Chrysippus' *On the Soul* (also preserved in *PHP*) in which the philosopher conceives his subject as 'breath innate within us, continuous, and penetrating the entire body, as long as the breath of life is within it.'[256] The identification of soul with πνεῦμα, its nourishment with breathing, calls attention to the physiological processes essential to maintaining the soul's disposition – the human soul is shaped by the body.[257] Accordingly, the philosopher must have knowledge of the soul *and* the body if he is to advise effectively on the harmonious proportion of the former.

---

[253] Note Galen's explicit reference to the 'governing part' (ἡγεμονικόν) at *PHP* V.3.8, 9.
[254] Gal. *PHP* V.2.22-24.
[255] Sedley (1993) p.325-331.
[256] Gal. *PHP* III.1.10 trans. De Lacy (1978) with a minor change for brevity.
[257] Tieleman (2003) p.147.

The following question arises: if it is necessary for the Stoic philosopher to have knowledge of the body in order to treat the pathologies of the soul, can the reverse be said of the Stoicising physician? A fragment from Plutarch's *De libidine et aegritudine* attributes a more sophisticated Stoic psychophysiology to Posidonius, Athenaeus' teacher, the structure of which may have facilitated Athenaeus' freedom from psychological concerns *per se*:

> [Of affections] Certainly Posidonius at least says in his classification that 1) some are of the soul, 2) some are of the body, 3) some do not belong to the soul but are physical with mental effects, and 4) others do not belong to the body but are mental with physical effects.
>
> 1) Instances of what belongs to the soul without qualification are those having something to do with rational decisions and suppositions, like desires, fears, fits of anger.
>
> 2) Those which belong to the body without qualification are fevers, chills, contractions, opening up of the pores.
>
> 3) Those which are physical with mental effects are lethargies, madness arising from black bile, mental pangs from physical gnawing pains, sense perceptions, feelings of relaxation
>
> 4) And the other way round, those which are mental with physical effects are tremors and pallors, that is, changes of appearance in fear and grief.[258]

Taxonomizing pathologies formalizes the territory for specialization. Athenaeus may concern himself with psychological pathology only insofar as it is an effect/proximate cause of physiological disturbances – *i.e*. he selects as his subject matter types (2), (3) and (with certain qualifications) (4). (2) should require no justification. As for (3), there is some evidence to suggest that Athenaeus had an interest in the physiological aetiology of psychological conditions; Galen writes at *Temp.* 1.3 that some followers of Athenaeus of Attalia identified melancholia with a surfeit of cold and dry qualities, explaining it in precisely the same terms as dropsy and fever.[259] Melancholia, 'the madness arising from black bile'[260] is listed in the above taxonomy as a physical affection with mental effects (3).

[258] Plut. *Lib. et Aeg.* 6 trans. Kidd (1999).
[259] Coughlin (2018) p.118.
[260] *Ibid.*

Moreover, a fragment from Oribasius has Athenaeus prescribe psychological exercise as a means of correcting, via regimen, the excessively cold and wet constitution of women, indicating that, in accordance with his theory, physiological disequilibrium can be amended in part by psychological means.[261] There is therefore a physiological component to psychological activity – a warming and drying quality, in this case – but we should note that Athenaeus' τέλος is the realisation of *physiological* equilibrium; though he exploits the interconnectivity of body and soul granted him by his Stoic foundations, 'psychological medicine' is not prescribed for an explicitly psychological malady.[262] Concerning (4), while superficial physical responses to externally stimulated mental distress – e.g. anxious tremors, momentary pallors, and physical displays of emotion – may fall outside the purview of the doctor, we have evidence from Oribasius that Athenaeus believed the emotional state of 'those entering into the production of children' could endanger their offspring if their souls were not 'tranquil' (εὐσταθοῦσα).[263] As Coughlin highlights in his analysis of this fragment, Athenaeus' concern is once again with the *physiological* consequences for the offspring;[264] the suggestion is not that distressed parents will produce distressed children, but *sick* children; one should regulate one's moods as one regulates one's diet in protection against the same unfavourable outcome.[265]

My suggestion, then, is that the taxonomy of pathologies enumerated by Posidonius provided Athenaeus with a map with which to navigate the confusing territory of Stoic psychophysiology. By isolating (1) and (2) above, Posidonius occludes territory from the doctor and the philosopher respectively and permits both access to (3) and (4) to address as their purposes demand. It is the physical parallelism at the root of the analogy upheld by Chrysippus at *PHP* V.2.22-24 that sees the Stoic and the Stoicising doctor crossing into the same intellectual territory with respect to their engagements with (3) and (4). In terms of activity, it is the partial independence of body and soul realised through (1) and (2) that

[261] Orib. *Lib. Inc.* 21.1-8.
[262] At Orib. *Lib. Inc.* 21.1-8, Athenaeus quotes part of Hipp. *Epid.* 6.5.5: 'concern, for people, is the soul's taking a walk.' See Coughlin (2018) p.126-128 for an analysis of this obscure aphorism. For our purposes, it is important to note that Athenaeus appeals to a *medical* authority in justifying his psychological therapies.
[263] Orib. *Lib. Inc.* 23-1. See Coughlin (2018) p.130-133 for a thorough analysis of this passage.
[264] Coughlin (2018) p.132.
[265] Orib. *Lib. Inc.* 23-1.

permits the distinction in disciplines. The philosopher heals the soul, the physician the body, and both engage with the alternative component insofar as it is beneficial to their τέλη.

III.5.3.3 The philosopher's physician

The distinction between philosopher and physician in *PHP* V.2.22-24 is one of proximate domain of inquiry but the domain is not *strictly* delineated in epistemological terms. Chrysippus does not specify different levels of inquiry pertinent to each discipline;[266] he simply distinguishes body and soul at the level of the discipline which seeks to redress their imbalances. The implication at *PHP* V.3.8 is that the elemental qualities and substances could be used interchangeably. If this was the case, then the philosopher was more liberal with his terminology than the physician, whose narrow epistemic domain was a condition of his status as a specialist. If the inclusion of 'air and fire' at *PHP* V.3.8 was a Galenic insertion, and Chrysippus preferred to analyse the soul into qualities in contexts pertaining to pathology, then he would be conforming to the template established by Aristotle and, in the manner of his predecessor, constraining the ambit of inquiry in a practical – in this case therapeutic – context.[267] His behaviour would be that of a productive scientist, a true 'physician of the soul', but one whose epistemological restrictions were temporary and context defined.[268] This would still place him in contrast to Athenaeus, whose status as a physician seems to be predicated on his scrupulous adherence to this epistemological territory defined by his τέλος – his *never* transgressing into philosophical speculation, and only contributing to theory (as with the αἴτιον προηγούμενον) from a single, well-fortified vantage point.

A further function of medical analogy in *On Affections* is to announce to the reader that the discussion has moved into practical territory; medicine is introduced as a well-defined body of practices against which philosophy's therapeutic aims are to be understood. Medicine is the template for practical

[266] That is left to the specialist. See e.g. ps.-Gal. *Def. Med.* 31. See *supra* **III.2.1.1.**

[267] See *supra* **III.3,** esp. **III.3.2.**

[268] Note that, according to Galen (*PHP* V.7.52), the *Therapeutics* is the fourth book of Chrysippus' *On Affections* and the practical text that sits on a foundation of three theoretical works. The need to lay the theoretical foundations at such length is a characteristic of philosophy. We would not expect Athenaeus to write three lengthy books on Stoic/Pneumatist physics before he feels comfortable enough to introduce his therapies. We may speculate that Chrysippus' resolution of the soul into qualities might not have been prefigured in the theoretical texts.

philosophy, and its function as a template seems to be predicated on a certain unyielding rigidity vis-à-vis its singular aim. That philosophy and medicine are to be distinguished on the grounds of disparate (but correlatively affinitive) τέλη is apparent in our fragments from *On Affections.* Athenaeus' innovation – within a Stoicising context – may have been the recognition that medicine's distinct τέλος constrained its inquiry along an epistemological vector, defined by the limits of perceptibility, and that the generative capacity of his discipline could only be defended if the epistemological boundaries by which it was defined were nearly impermeable; medical innovations may be exploited by philosophy, but they must be sourced from an unambiguously *medical* territory. For Chrysippus, following Aristotle, 'doctor' is a mantle the philosopher may wear to elucidate his correlative τέλος – albeit one that demands a considerably broader theoretical foundation (**III.3**) – or indulge in a mode of specialised inquiry which, while constrained, always gestures towards a broader philosophical system. For Athenaeus, the boundaries established by the τέλος of medicine are, by design, impenetrable walls to the intellect. The broader epistemological domain of the philosopher is evoked only to illuminate the territory through which the doctor must not travel.[269]

III.6 Conclusion: the medical reception of doctrinaire Hellenistic philosophy (part I)

The boundary between Pneumatism and Stoicism is an epistemological boundary erected by the medical school within the physical territory established by the mother-doctrine. At **III.2**, I argued that Pneumatism distinguished itself from Stoicism by enforcing the boundary of its apposite epistemological domain of inquiry, defined by the limits of perceptibility; Pneumatist element theory is not to be read as a challenge to Stoicism, but as an assertion of medicine's intellectual independence. In producing a theory of the 'elements of medicine', distinct from the elements of the cosmos, Athenaeus is to be located in a tradition that includes Herophilus of Chalcedon and Erasistratus of Ceos, and appears to have its roots in the seminal Hippocratic text, *On the Nature of Man*, one that distinguished the apposite domain of medical and philosophical inquiry in epistemological terms. I argued at **III.3** that Pneumatism's anti-cosmological peculiarity becomes more intelligible when understood in the context of Aristotle's taxonomy of sciences set

[269] ps.-Gal. *Def. Med.* 31 (= XIX.356 K.).

out in his *Nicomachean Ethics* and enforced elsewhere in the Aristotelian corpus. It serves the Stoic's τέλος to emphasise the concinnity of the whole; it serves the Pneumatist's τέλος to confine his analysis to the medically pertinent domain, to begin from Stoic assumptions founded on cosmological analysis, but to ignore the theorical territory that is not practically serviceable, along with its overarching ethical incline (**III.3.3**). Stoicising physicians are Pneumatists, not Stoics, because their τέλη, though structurally similar, are ultimately distinct. Through my analysis of Pneumatist causal theory at **III.4**, I concluded that Pneumatism's intellectual independence is most clearly evidenced through the invention of the αἴτιον προηγούμενον from the elements of medicine, for which attempts to identify a genuine Stoic precedent have proven unconvincing. I noted, nonetheless, that Pneumatist contributions to theory do not threaten the integrity of the mother-doctrine – indeed, it may be possible to retroject Pneumatist causal analysis onto Chrysippus' analysis of psychological pathology, but to do so is to do just that, to retroject. At **III.5** I identified in the fourth book of Chrysippus' *On Affections* a template for Pneumatist medical theory and suggested that Stoicism's relatively frictionless incorporation into the medical sphere was a consequence of both the closeness of its physics-ethics interconnexion – *i.e.* the physical foundation of its therapeutic τέλος – and the aforementioned self-similarity. The significance of this will become clearer throughout the second part of this inquiry.

*

IV

Asclepiades of Bithynia

On the medical reception of doctrinaire Hellenistic philosophy, part II

*

IV.0 Both the Stoics and the Epicureans present themselves as physicians of the soul.[1] But where the former, through the teleological affinity of its physics and its ethics, produced a 'physics of healing', the latter, as explored at **II.5**, did not ground the realisation of εὐδαιμονία/ἀταραξία in a sufficiently rigorous physical process such that a physician, drawing from Epicurean principles, could incorporate the same mechanics into a robust theory of disease. This distinction must be born in mind as we approach part II of our inquiry into the medical reception of doctrinaire Hellenistic philosophy; though Aristotle's taxonomy of sciences remains pertinent to the medicalisation of each school, the properties of the mother-doctrine determine, in large part, the manner of its medical adaptation. The subject of this chapter is Asclepiades of Bithynia,[2] Greek medicine's first successful exponent in Rome whose theory, which identified health with the unimpeded motion of ἄναρμοι ὄγκοι (seamless masses) through πόροι (void-gaps) in the body, drew extensively upon Epicurean physical and epistemological precedents. Physics – which, for the Epicurean, is more closely entwined with epistemology than it is with the *realisation* of the philosophy's τέλος, being without its own teleological impulse – once more provides the theoretical foundation from which the specialist begins his inquiry (cf. **III.3.2**). To suggest, however, that Asclepiades of Bithynia was to Epicureanism what Athenaeus of Attalia was to Stoicism is to overlook the far more radical adjustments that Asclepiades makes to the mother-doctrine. Epicurean physics, in its transposition into the medical τέχνη, is not merely pruned by the discipline's limited purview or nurtured in a manner that maintains the integrity of the mother-doctrine; it is transformed beyond its philosophical application, converted into something distinct. In this chapter, we ask the question of what motivated Asclepiades to modify to such a degree the theory he selects as the foundation of his science and we explore the

[1] e.g. Chrysippus at Gal. *PHP* V.2.22-24 (see **III.5.2**) and Epicurus at Porphyry, *Letter to Marcella,* 31 = Epic. fr. D54 Bailey (= Usener 221) (see **II.5.1**).

[2] See **II.1** for a general introduction to Asclepiades of Bithynia. The controversy concerning his dates is addressed at **II.1**, n.3.

similarities and divergences between the Asclepiadean and Athenaean models of medical-philosophical interaction.

This chapter begins with an evaluation of the evidence for Asclepiades and his school at **IV.1.1** and an overview of the debate concerning Asclepiades' Epicurean heritage at **IV.1.2**. The following three sections are structured around the divergences of Asclepiadean physics from its Epicurean predecessor. **IV.2** concerns the transformation of atomic bodies into frangible ἄναρμοι ὄγκοι, the implications of this alteration and potential motivations. **IV.3** addresses Asclepiades' determinism. At **IV.4** we examine his novel model of the soul and at **IV.5** I make the case that Epicureanism's medical appeal resided in its epistemology. Repurposing Epicurean epistemology as a remedy for Empiricism brought the rudiments of Epicurean physics into the medical domain. Viable amendments to Epicurean physics, instituted to satisfy a medical requirement[3] – that is, a demand made by Asclepiades' τέλος – are restricted to those which will not compromise the integrity of the epistemological model he has drawn out by its roots.

IV.1 Evidence and contemporary scholarship

Epicureanism's transposition into the medical τέχνη has attracted more attention than its Stoic equivalent, both in antiquity and in recent scholarship. The complexity of Asclepiades' relationship to Epicureanism, earlier medical writers, and other ancient thinkers, has spawned a lively debate centred on the question of Asclepiades' Epicurean heritage. I divide this section into an overview of Asclepiadean testimonia at **IV.1.1**, and of the subsequent scholarly tradition at **IV.1.2.**

IV.1.1 Evidence

From Pliny, our principal source for Asclepiades' biography, comes a disorderly picture of a doctor who is by turns a pre-eminent medical innovator whose longevity is a monument to his talent,[4] and an opportunistic former rhetorician

[3] Under which rubric I include and will expound below (esp. **IV.2.5**), Asclepiades' need to manufacture distance between his theory and Epicurean physics in service to medicine's status as an independently generative art.

[4] Pliny *NH* VII.37. According to this passage, Asclepiades' staked his reputation as a physician against his immunity from illness. He died at an extreme old age after falling down some stairs, his reputation secure. He also won renown for inventing a method of successfully treating disease with wine and healing a man on his funeral pyre.

who, despite (or perhaps, because of) his ignorance of medical tradition, seduced an ingenuous populace with congenial therapies.[5] One is hesitant to take either depiction at face value. On the one hand, Asclepiades' theory demonstrates a degree of critical engagement with physical, physiological and epistemological ideas that would tax the epistemic toolkit of the charlatan, on the other, encomiastic narratives such as those preserved at *NH* VII.37 say more about the efficacy of self-mythologizing and posthumous reputation building than they do about the person at their root. However, the popularity of Asclepiades' sect is uncontroversial, and its longevity suggests that its appeal did not reside solely in the charisma of the founder. Asclepiadeans spread throughout the Roman world. Though their influence is likely to have peaked in the late Republic/early Principate,[6] doctors continue to assert their allegiance to Asclepiades' theories into the third or fourth centuries AD.[7]

Nothing of Asclepiades' writing has survived. Galen is our most prolific witness. Though his works postdate the life of Asclepiades by centuries, his familiarity with Asclepiadean element theory – if not, of course, the veracity of his polemical reconstructions – is beyond dispute; it is Galen who refers to Asclepiades' principal text, *On Elements.*[8] He also wrote an exposition of Asclepiadean element theory in a lost work *On the Opinions of Asclepiades.*[9] Galen finds Asclepiades' materialism ripe for condemnation, being largely antithetical to the Hippocratic and Aristotelian foundations of his own medical theory. If Athenaeus was obscured by Galen's 'suffocating friendship',[10] Asclepiades has been partially revealed by the dull glow of the Pergamene's hostility. Galen writes much on Asclepiades' theory of matter, always with intent to discredit, but his work is no less indispensable to the question of Asclepiades' debt to Epicureanism; it is Galen who asserts the similarity between atoms and

[5] Pliny *NH* XXVI.7. Pliny writes that Asclepiades championed the intake of wine as one of his five principles of treatment alongside diet, massage, 'exercise on foot' and the yet more passive 'exercise in a carriage or on horseback.' The gratuitous 'pleasantness' of Asclepiades' treatments as depicted in *NH* is called into question in Leith (2019) p.66-70. Having investigated Pliny's use of Celsus, whom he cites as a source for all eight of the books of *NH* in which Asclepiades is mentioned, and having revealed how he distorted Celsus' data, Leith concludes that Pliny 'had little interest in trying to understand Asclepiades' therapeutics in general, or indeed in representing it accurately as a whole.' – Leith (2019) p.73.

[6] Cael. Aur. *Cel. Pass.* 3.14.113 identifies M. Artorius, an Asclepiadean, as court physician to Octavian.

[7] Bean and Mitford (1970) no.31 for the commemoration of the late Asclepiadean doctor Aurelius Varianus Pantauchus in Cibrya, Eastern Pamphylia (Southern Turkey).

[8] Gal. *Hipp. Elem.* 9.25-26, 33-35 (= I.487-490 K.).

[9] Gal. *Lib. prop.* 8 (= XIX.55 K.).

[10] To paraphrase Nutton (2013) p.207.

ἄναρμοι ὄγκοι, as it is Galen who grants us insight into Asclepiades' theory of void. Beyond Galen, passages from Caelius Aurelianus, Sextus Empiricus and various pseudo-Galenic texts are invaluable to the question of the genealogy of the ὄγκος. Details of Asclepiades' psychology and epistemology, which occupy sections **IV.4** and **IV.5,** are sourced from a yet more eclectic selection of testimonia, though Galen, Calcidius and Sextus Empiricus provide the greater part of our material.

IV.1.2 Asclepiades and Epicureanism

Since the publication of J. T. Vallance's *The Lost Theory of Asclepiades of Bithynia* (1990), scholarship on Asclepiades of Bithynia has developed around the question of the doctor's intellectual debt to Epicurean atomism. Before 1990, Asclepiades' theory – to say nothing of its medical context – received little independent attention, being instead used primarily as a tool with which to reconstruct the physics of Heraclides Ponticus,[11] a pupil of Plato, to whom a theory of 'fragments' (θραύσματα) is attributed in Aëtius' *Placita*.[12] The identification of Heraclidean θραύσματα with Asclepiades' splintered ἄναρμοι ὄγκοι[13] was lent credence by various witnesses to Heraclides' earlier application of the term.[14] Vallance completed Asclepiades' liberation from his sole function as a source for Heraclides,[15] concluding simply that our evidence for Heraclidean ἄναρμοι ὄγκοι is too meagre to substantiate his influence on Asclepiades' *medical* school – for it is the medical context of Asclepiades' theory that Vallance is eager to foreground.[16] I will spend scarcely any time in this chapter entertaining Asclepiades' purported Heraclidean inheritance. A recent attempt by Roberto Polito to consider the evidence for Heraclides Ponticus independently of Asclepiadean testimonia has located Heraclides' language vis-à-vis 'ὄγκοι' in the Platonic tradition of elemental polyhedra, recasting Heraclides as a more

[11] Heidel (1909); Lonie (1960); Gottschalk (1980).
[12] Aët. *Plac.* 1.13.
[13] cf. Cael. Aur. *Cel. Pass.* 1.14.105-7. See **IV.2.2** below. As we shall see, the fragments into which the ἄναρμοι ὄγκοι are divided in Asclepiades' theory are themselves ἄναρμοι ὄγκοι – *i.e.* ontologically equivalent bodies.
[14] S. E. *PH* III.32-33; *M* X.318; ps.-Gal. *Hist Phil.* 18; Euseb. *Praep. Evang.* 14.23.4 though in this final case the word ἄναρμοι is omitted.
[15] With earlier steps taken by Rawson (1982) and Harig (1983). Though Asclepiades has since seen substantial independent treatment, scholars such as Roberto Polito (2013) – for all that he is willing to consider Heraclides Ponticus independently of the Asclepiadean evidence – maintain that Asclepiades owed some kind of intellectual debt to Heraclides.
[16] Vallance (1990) p.146.

traditional Platonic figure.[17] With the (putatively) mutually illuminative bond between Heraclides and Asclepiades frayed, the differences between Asclepiadean ὄγκοι and Heraclidean θραύσματα, conceived as minimal structures within a Platonic four-elemental theory, are clearer than their similarities.[18]

In seeking to foreground the medical context of Asclepiades' theory, Vallance argued against the doctor's Epicurean inheritance. He posits that the fragility of Asclepiadean ὄγκοι is too radical a departure from the atomist tradition to constitute an adaptation made from within an Epicurean framework[19] and that Galen's assimilation of Asclepiades and Epicurus is rooted in their shared anti-teleology (see **IV.3.1**)[20] – their fundamental opposition to the goal-directed structure of Aristotelian/Galenic physics. Vallance advocates instead that we locate Asclepiades of Bithynia within his own intellectual tradition;[21] though moved, as all doctors are, by developments in philosophy, Asclepiades, Vallance reminds us, is a 'doctor first and foremost.'[22] I agree with this proposition in essence but would emphasise, *contra* Vallance, that a 'doctor' is an adherent of a goal-directed methodology whose structure carries no implicit restrictions as to what theoretical models might provide the structure's roots. Vallance proposes that Asclepiades' 'paring down' of 'the multiplicity of explanations of physiological and pathological phenomena' through his corpuscular hypothesis be read as 'a stage in a reductionist process that may have begun with Erasistratus.'[23] He credits Asclepiades with a 'simplified' account of Erasistratean physiology and pathology, with vague echoes of Heraclidean terminology and Epicurean

[17] Polito (2013) p.127.

[18] For the shared properties of ἄναρμοι ὄγκοι and Epicurean atoms, by contrast, see **IV.2.3** below. Leith addresses the question of Asclepiades' relationship with the theory of Heraclides Ponticus in his forthcoming book. He concludes that Asclepiades may have found use for Heraclides' terminology in relation to his non-atomic corpuscular materialism, but that it stretches credulity to suggest that the doctor was committed to the adaptation of a Platonic – let alone Heraclidean – theory of matter into the medical domain, considering how little impact the geometric component of Plato's element theory had in antiquity.

[19] Vallance (1990) esp. p.42.

[20] *Ibid.* p.145. Vallance notes that 'much of Galen's assimilation of Epicurus and Asclepiades takes place in his two great hymns to teleology, the *De naturalibus facultatibus* and the *De usu partium.'* While this is true, it does not undermine the likelihood that the shared anti-teleology of Epicurus and Asclepiades resulted from the fact that the latter based his causal analysis on that of the former (distinctions re fatalism accounted for (see **IV.3**)).

[21] Vallance (1990) p.146.

[22] *Ibid.* p.9.

[23] *Ibid.* p.147, see also esp. p.124-130.

atomism somewhere faintly in the mix.[24] While I agree that Asclepiadean physiology – and, most relevantly for our purposes, Asclepiadean psychophysiology, as we will see at **IV.4** – indicates a significant Erasistratean influence, Vallance has to ignore several (fairly glaring) similarities between the nature of the atom and the ὄγκος (laid out at **IV.2.3** below) in the process of contorting Asclepiades into the medical tradition as he conceives it.

Vallance's tendency to gloss over the properties which Asclepiades' physical system shares with Epicureanism has been noted in subsequent scholarship. Casadei called attention to Vallance's suppression of such properties as the shared basis for their anti-teleology – their particulate materialism and the unguided nature of elemental motion in both systems.[25] To deny Epicurean atomism a prominent place in the genealogy of Asclepiades' medical theory is misguided, but so too is the interpretation that Asclepiades reproduced Epicureanism in the medical sphere. Roberto Polito's 2006 article 'Matter, Medicine and the Mind' reminds us of the distinctions between Epicurean and Asclepiadean theories of mind and matter, most significantly Asclepiades' rejection of a localised ἡγεμονικόν (**IV.4.3)** and decidedly non-Epicurean commitment to determinism (**IV.3.2-3**). Though some of the conclusions Polito draws from these disparities go further than the testimonia allows (**IV.4.3.2**), both instances of discontinuity, as we shall see below, have something to impart about the relationship between Epicureanism and medicine in this period. Yet more recently, David Leith's articles 'The Qualitative Status of the *Onkoi* in Asclepiades' Theory of Matter' (2009) and 'Pores and Void in Asclepiades' Physical Theory' (2012),[26] along with his forthcoming book, have strengthened the case for Asclepiades' Epicurean heritage. The former article made the case for the analogous role atoms and ὄγκοι play in the assemblage of phenomenal objects – they are invisible bodies, perceptible to reason, whose shifting constellations account for the reality of secondary/phenomenal qualities such as colour, sound, taste, *etc*. The latter article considers the evidence for Asclepiades' πόροι and concludes that they are perfectly analogous to Epicurean-style void-gaps

[24] See esp. Vallance (1990) p.130.
[25] Casadei (1997).
[26] The question of Asclepiadean void-theory is first addressed in Vallance (1990) p.44-91 but he reaches no firm conclusions. Casadei (1997) accepted that Asclepiades was a void theorist with minimal analysis. Gottschalk (1980), who maintained that Asclepiades' theory was a replication of the theory of Heraclides Ponticus, entirely ignores the question of void.

between atoms; they are interstices between ὄγκοι whose presence is indicative of a theory of large-scale void – that is, void as a place of activity, the intangible contrasted with the tangible, which is essential in the materialist tradition to motion and plurality.

As we shall see over the course of this chapter, Asclepiades' deep engagement with Epicureanism is well attested in ancient testimonia. As we proceed, I will argue that Asclepiades' modifications to Epicureanism are instituted in full knowledge of the consequences of those changes *within* an Epicurean framework. It is in this context that the question of motivation becomes most interesting, and it is to that question that we now turn.

IV.2 Atoms and ὄγκοι

Our inquiry starts with the material, the Epicurean and non-Epicurean properties of Asclepiades' ἄναρμοι ὄγκοι. This section is divided into five subsections. **IV.2.1**, via the question of the void/πόροι dichotomy in Epicurean/Asclepiadean exposition, addresses how the rudiments of the mother-doctrine constrain the means by which Asclepiades can express his independence. **IV.2.2** concerns the role of ἄναρμοι ὄγκοι in Asclepiades' theory of health and disease through assessment of Caelius' Aurelianus' *Celeres Passiones* (*Cel. Pass.*) 1.14.107-5, our fullest source for the doctor's conception of matter and medicine. **IV.2.3** addresses the theory's Epicurean inheritances. **IV.2.4** addresses the introduction of frangible elements into the Epicurean system and its implications. Here, I will make the case for Asclepiades' intimate familiarity with the philosophy at his theory' foundation. At **IV.2.5**, with the foundations in place, I attempt to answer the question of what might have motivated Asclepiades' radical departure from Epicurean atomism.

IV.2.1 Pores, void, and the proximate domain of medical inquiry

Asclepiades' credentials as a void theorist in the Epicurean mode are laid out convincingly in Leith's 2012 article and I shall refrain from reproducing Leith's argument in this section. I will simply draw the reader's attention to the variety of instances in which Galen gestures towards an Asclepiadean theory of Epicurean-style void[27] and references the doctor alongside Epicurus as one of the two

[27] Gal. *UP* 6.13 (= III.474 K.) has Asclepiades resolve everything into ὄγκοι and void.

principal proponents of void-theory.[28] Calcidius, moreover, includes Asclepiades among those who intersperse void with bounded elements.[29] I am less interested in reaffirming this particular continuity between Epicurean and Asclepiadean physics than I am in emphasising the resultant *discontinuity* between Asclepiades' method of adapting from philosophy while affirming the status of his discipline and that of Athenaeus of Attalia.

For the physician, to posit a theory of large-scale void – as anyone adapting from Epicurean physics must do given the role of void in defining the parameters of elemental motion (**II.3.7**) – is to extend the proximate domain of medical inquiry throughout the universe. The doctor is immediately engaged with physical processes which underpin *everything* in the cosmos. In adapting from Epicureanism, Asclepiades assimilates the two-tier epistemological model of reality – the mutually illuminative worlds of perception and reason (**IV.2.3.1**) – which will restrict his options when it comes to defining himself and his discipline against the mother-doctrine. He cannot, for example, set the boundaries of medical inquiry at the limit of the senses, claiming that deeper speculation into physical mechanics would lead him, like Aristotle's overzealous carpenter,[30] into theoretical territory that has no bearing on his τέλος, because he cannot properly comprehend phenomena in his adopted system without recourse to elemental activity.[31] Applying the (broadly Aristotelian) model used by Herophilus, Erasistratus and (later) Athenaeus to determine the elements of medicine inside an Epicurean framework would plausibly lead Asclepiades into something resembling an Erasistratean analysis of the body, with the uniform parts of the

[28] Gal. *SMT* 1.14 (= XI.405 K.) presents Asclepiades and Epicurus as proponents of the same theory of 'empty space'; Gal. *Hipp. Epid.* VI 4.11 (= XVIIB.162 K.) pairs Asclepiades and Epicurus against Aristotle and the Stoics on the question of void within the cosmos.

[29] Cal. *In Tim.* 214: 'qui dividuam fore silvae substantiam censuerunt interponentes immenso inani modo expertia modo partes quidem, sed indifferentes, sui similes, tum atomos vel solidas moles, nullum locum certum definitumque principali animae parti dederunt'. See Polito (2006) p.291-292, (2007) p.316 for the identification of 'solidas moles' with Asclepiadean ἄναρμοι ὄγκοι. This passage from Calcidius wrongly groups Anaxagoras' homoiomeries and Diodorus' Cronus' partless bodies in with those who resolve the cosmos into void and some species of discontinuous material. But he also wrongly includes all apart from Asclepiades in the category of those who reject the existence of a localised ἡγεμονικόν (see **IV.4** below). Polito (2006) p.291-92, 297-299, (2007) p.316 argues convincingly for Calcidius having based the description at *In Tim.* 214 on Asclepiades' doctrine, and therefore we would expect the theory of large-scale void to be appropriately ascribed to him if it was appropriately ascribed to anybody. See also Leith (2012) p.170-172.

[30] Arist. *NE* I.13.

[31] The Pneumatist, by contrast, as we saw at **III.2**, can explain the manifestation of disease without recourse to Stoic element theory.

body fulfilling the role of 'elements of inquiry',[32] but he would deprive himself of whatever medical utility he identified in Epicurean philosophy.[33] Stoicism, by contrast, with the coextensivity of its elements and its central proposition that the harmony exemplified by the cosmos can be realised at different scales and at different conceptually bounded localities, can surrender a portion of its physics to the medical sphere – 'uprooted' from its most primitive constituents – and have it remain recognisably 'Stoic'. If Asclepiades wants to affirm the value of his discipline against the philosophy to which he is indebted, he has no access to the purely epistemological boundaries that Athenaeus will later erect to this end. We will return to this at **IV.2.5.2**.

Asclepiades can, of course, find some independence in language. The Anonymus Londinensis preserves a crucial piece of evidence for the synonymy of Asclepiades' πόροι and Epicurus' void-gaps: an Asclepiadean argument for the existence of pores in the body which reflects an early atomist argument for void.[34] I quote Leith's translation of Anon. Lond. xxxix 10-15:

> Since, says [sc. Asclepiades], every part of our body is nourished and…body does not pass through body, both the whole and the individual parts of the body grow by means of nourishment permeating it and passing to every part of the body through the existence of pores perceptible to reason.[35]

Growth is a consequence of nourishment which depends on the existence of channels in the body whereby nutriments can be distributed since, according to materialist doctrine, 'body does not pass through body'. This argument reflects the third atomist argument for void in Aristotle's *Phys.* 4.6, 213b, 18-20, cast in sharper relief by the commentaries of Themistius and Simplicius on *Phys.* 4.6.[36] I quote the former:

> It is clear furthermore that growth cannot exist without the existence of void. For it is necessary that growth occurs by the assimilation of nutriment everywhere in the body which is being increased, and this would not happen

[32] See Gal. *MM* 2.5 (= X.107 K.), **III.2.2** and Leith (2015a).
[33] As we discussed at **III.2.2**, the corporeality of the Stoic system permitted Athenaeus a deeper look into the elements of human physiology than was afforded his third century predecessors.
[34] Leith (2012) p.174-177.
[35] Anon. Lond. xxxix 10-15 trans. Leith (2012) p.175.
[36] Leith (2012) p.175.

> if it was not dispersed everywhere. But it is impossible for it, being body, to pass through the whole body, unless we place some void in bodies.[37]

As Leith argues, Asclepiades' version at Anon. Lond. xxxix 10-5 corresponds so closely with that described at Them. *Phys.* 124.3-9 and Simp. *In Phys.* 651.2-8 that it is harder to believe that he was not familiar with some early formulation of the argument.[38] That he employed an atomist argument for void suggests that he accepted the atomists' conclusion and permits us to synonymise πόρος with 'void-gap' in our own exposition of Asclepiades' theory, but we should acknowledge Asclepiades' use of πόρος over κενόν in Anon. Lond. xxxix 10-5. He and his atomist predecessors refer to the same thing, but emphasising πόρος focusses his (and thus our) attention; emptiness shrinks to that which owes its dimensions to corpuscular activity – *i.e*. void-as-unoccupied-space over void-as-intangible-substrate. Though he adopts without adjustment an argument for atomist conclusions, his emphasis on πόρος alerts us to his independent purpose. The atomists argue from the particular to universal principles; Asclepiades constrains our focus on particularity, foregrounding a conceptual distinction between void-as-plane-of-activity and void-as-interstice. This is most clearly evident if we contrast the argument at Anon. Lond. xxxix 10-5 with the Epicurean version included among a list of arguments for porosity in *DRN* I.350-353:

> And however solid things are thought to be
>
> Here is proof that you can see they are really porous.
>
> In rocky caverns water oozes through,
>
> The whole place weeping with a stream of drops.
>
> **Food spreads to every part of an animal's body.**
>
> Trees grow and in due time put forth their fruits
>
> Because all over them through trunks and branches
>
> Right from the deepest roots food makes its way.

[37] Them. *Phys.* 124.4-9 trans. Leith (2012) p.175; cf. Simp. *In Phys.* 651.2-8.
[38] Leith (2012) p.176. Plausibly, Asclepiades was familiar with the Epicurean argument on which Lucr. I.350 is based.

Sound passes through walls, and flies into closed buildings,

And freezing cold can penetrate to the bones.

But if there were no void for bodies to pass through

You would not see things happen in this way.[39]

The argument from growth, emboldened, is a subset of arguments from porosity. For Lucretius, observation indicates porosity which indicates the presence of void in all solid bodies which confirms the presence of void inside the cosmos.[40] Asclepiades makes no move to undermine the final step in this process, but his use of 'πόρος' in Anon. Lond. xxxix 10-15 diverts attention from it – in his formulation, observation indicates porosity.

Of course, this particular application of the term is not an Asclepiadean innovation; Epicurus uses the word πόρος to signify a path of no obstruction to atomic motion on two occasions in *Ep. Hdt*.,[41] albeit never in relation to activity taking place within human physiology.[42] It is likely that Asclepiades adapted the term from Epicureanism,[43] but I am courting little controversy when I suggest that he favoured the term over those which gesture towards void in its broader, multi-functional application. When the author of *On Theriac, to Piso* 11 (= XIV.250 K.) tells us that in Asclepiades' preference for πόροι over void 'he changes only the terms',[44] we see a deliberate move on the part of Asclepiades to adjust the focus of traditional atomism away from multi-functional κενόν towards more narrowly applicable πόροι.[45] A similar passage from pseudo-Hero's *Definitions* invokes a parallel between Democritean atoms and void, and Asclepiadean ὄγκοι and πόροι,[46] signifying, as Leith argues, an ontological equivalence between the two sets of similar hypotheses but also, in its contrasting of void and πόροι, some

[39] Trans. Melville (1997). The emboldened line is clearly derived from an Epicurean version of the argument we see preserved at Them. *Phys.* 124.4-9 and Simp. *In Phys.* 651.2-8.
[40] Leith (2012) p.177.
[41] Epic. *Ep. Hdt.* 47, 61. Leith (2011) p.182 indicates these passages as evidence for Asclepiadean πόροι being equivalent to Epicurean void-gaps.
[42] The reference at *Ep. Hdt.* 47 is used to explain the speed of εἴδωλα in relation to the impingement of sense-impressions, but the πόροι in question are located between the eye and the object of sensation.
[43] There are multiple uses of πόρος in medical literature, but it is only in Epicurus that we see an application of the term that supposes an ontological equivalence between the pores and the materials traveling through them. See Lonie (1965) p.128 for alternative medical applications of πόρος.
[44] See Boudon-Millot (2016) p.lii-lxxx for the authorship of this text.
[45] Though, of course, the author of *Ther. Pis.* 11 also tells us that atoms and ὄγκοι are differentiated only in name. This, as we shall see throughout the section, is emphatically not the case.
[46] Ps.-Hero *Def.* 138.8.

kind of independence of the latter from the former, even if all that independence amounts to is Asclepiades' preference for more narrowly applicable terminology. The pseudo-Galenic *Introduction* has Asclepiades resolve the human into the elements ὄγκοι and πόροι;[47] Caelius Aurelianus, our fullest source for Asclepiades' medical theory (see **IV.2.2**), makes no explicit reference to void in his exposition, nor does Sextus Empiricus.[48] Galen is our only witness who refers explicitly to an Asclepiadean theory of void (κενόν), and on all but one occasion the reference seems intended to clarify Asclepiades' debt to Epicurus.[49] Vallance reads the paucity of references to void in Asclepiadean testimonia as a factor that should caution us against drawing parallels between his theory and Epicurean physics.[50] But I suggest that this paucity is simply reflective of Asclepiades' physiological emphasis.[51] The medical utility of Epicureanism must lie in the behaviour of the seeds, the apprehension of which inflates medical speculation to reality's most primitive components – *i.e.* it assumes the dimensions of *philosophical* inquiry. Void-as-plane-of-activity cannot be ignored by the physician – the behaviour of his elemental particles depends on it (**IV.2.3**) – but it can be relegated to an ancillary consideration in the context of specialised inquiry. Eschewing the universalising κενόν is a means of focusing our attention on the particular within a physical system that will not permit firm epistemological boundaries to take hold.[52] The emancipation earned through this method is, undoubtedly, in large part superficial; perfecting independence from the mother-doctrine requires additional, far more radical steps.

As a final note – and thorough exploration of this a line of inquiry must be delayed until the ἄναρμοι ὄγκοι have been properly introduced – the emphasis on πόροι brings the 'seamlessness' of the ἄναρμοι ὄγκοι into sharper relief, reducing Asclepiadean physiology into the relationship between simple, seamless entities and those whose complexity is contingent on their interior

[47] Ps.-Gal. *Int.* 9.5 (= XIV.698 K.).
[48] Cael. Aur. *Cel. Pass.* 1.14.106; S. E. *M* 3.5.
[49] The exception being Gal. *UP* 6.13 (= III.474 K.).
[50] Vallance (1990) p.56-57, 59.
[51] A suggestion also made in Leith (2012) p.177 in the specific context of the language of Anon. Lond. xxxix 10-15.
[52] To be clear, these 'epistemological boundaries' are those which a doctor might establish within an existent physical model, such as we see Athenaeus of Attalia erect at **III.2**. Asclepiades can, of course, close his eyes to the ethical component of Epicurean philosophy, and it is clear – as we shall see at **IV.3** below – that he does precisely that. I argued at **II.5**, and will elaborate at **IV.3** below, that the discontinuity between Epicurus' physics and his ethics facilitates its full abandonment.

channels. As we shall see, distinguishing the element from the compound is not a matter of frangibility in Asclepiades' system; dissolution does not require pores. The human body, in Asclepiades physiology, is reticulated by subsensible πόροι. Pathology is rooted in the operations of his/her materially continuous constituents within the pores of materially discontinuous bodies.

IV.2.2 Caelius Aurelianus, *Cel. Pass.* 1.14.105-7: atoms, ὄγκοι, and pathology

The most informative account of Asclepiades' corpuscular hypothesis is also our fullest source for his theory of health and disease. In seeking to understand how the ὄγκοι and pathology relate, Caelius' Aurelianus' *Celeres passions* (*Cel. Pass.*) 1.14.105-7 is a natural starting point:[53]

> Before giving our reply to Asclepiades let us first set out his doctrine, since those who have been caught up in its misconceptions are also caught up in errors of treatment. For he had first (*primo*) established atoms (*atomos*) as the principles (*primordia*) of the body, but in the second instance (*secondo*) (he established) *onkoi* perceptible by reason, without any usual quality (*sine ulla qualitate solita*), in motion from the beginning and moving perpetually. When these run into each other and are hit by mutual blows they are resolved into fragments of infinite parts (*infinatarum partium fragmenta*), differing from each other in size and shape (*magnitudine atque schemate differentia*). On the other hand, when in their course they (Sc. the *onkoi*) are thrown together or combined they generate all sensible things, having in themselves the power of change either through their size, number, shape or arrangement. And it does not seem to be unreasonable, he says, that bodies with no quality should generate (sc. all sensible things). For one thing follows the parts, another follows the whole: so silver is white, but the filing from it is black; goat's horn is black, but the shaving is white. (He says) that pores, too, are created out of the combination of the *onkoi*, and are perceptible by reason and differ in size and shape. The flow of liquids travels through these in its usual course, and if it is not held back by any

[53] Other than Caelius' source, Soranus, Asclepiades is the most frequently mentioned physician in *Cel. Pass.* We learn of no less than eleven Asclepiadean works through Caelius' writing. It is possible that the following, abbreviated exposition is sourced from multiple works form Asclepiades' corpus, written at different stages in his career. See Leith (2009) p.316, n.89.

> impediment, health is maintained, but when it is impeded by the obstruction of *onkoi* it produces diseases. The obstruction of these (sc. *onkoi*) occurs either though their size, shape, number or very swift motions, or by the bending or closing up of the pores…[54]

What we infer of Asclepiades' Epicurean inheritances from this passage will be explored in **IV.2.3.** Corpuscular fragility *per se* is the subject of **IV.2.4-5**. For the time being, let us consider how, if at all, fragility (established at *Cel. Pass.* 105) relates to the theory of disease laid out at *Cel. Pass.* 1.14.106-107. [55]

Disease is produced when the passage of ὄγκοι through πόροι becomes impeded. Obstructions, we may infer, occur because a change of some sort precipitates alterations in the behaviour of the ὄγκοι which, over time, creates impediments of various kinds. Caelius lists 'size', 'shape', 'number' and 'very swift motions' as the properties/activities of ὄγκοι which may bring about impaction (ἔνστασις). But it is not obvious how the property of frangibility fits into this picture. On first analysis, smaller ὄγκοι resulting from the fragmentation are not intuitively more likely to be obstructive than their larger counterparts.[56] Similarly, frangibility permits ὄγκοι to change their shape in a manner that could plausibly precipitate obstruction – an ὄγκος, we might speculate, newly chipped from its predecessor, could form a wedge that might cause ὄγκοι to compound – but the concomitant reduction in mass would seem to limit the risk of this outcome and, in any case, in the absence of information as to *why* the ὄγκοι sometimes fracture on impact – for the doctrine of ἔνστασις would surely make deflection the most likely outcome of elemental contact – there is an intractable element of arbitrariness in

---

[54] Trans. Leith [forthcoming] = Leith 16.

[55] Caelius proceeds in *Cel. Pass.* 1.14.107-108 to list a small number of diseases that, according to Asclepiades, were not caused by the impaction of corpuscles. These include *phrenitis, lethargia, pleuritis* and violent fevers. The role of the ὄγκοι in the aetiology of these diseases is not at all clear. *Solubiles* fevers, for which *Cel. Pass* yields some information, arise from generalised disturbances in the body's liquids and *spiritus*. With compaction ruled out of their aetiology, we are left with the 'excessive looseness' or distance between corpuscles as the primary cause. This is explicit at *Cel. Pass.* I.14.108 in which Asclepiades attributes bulimia, fainting, bodily flux and uncontrollable looseness to the openness of the pores (though whether or not these conditions always arise from the openness of the pores *independently* of some previous impaction seems ambiguous). Vallance (1990) p.117-122 sees a role for corpuscular fragility in *solubiles* diseases (which Vallance identifies as a separate category of disease, going further than *Cel. Pass.* 1.14.107-108 allows) but he speculates from very little evidence. The maladies at *Cel. Pass.* I.14.107-108 are (cursorily) discussed in terms of the body's *viae* but the corpuscles are absent form Caelius' account. See further **IV.2.5.1,** n.147. For the purpose of this section, I will focus on the species of disease for which the ὄγκοι play a specified role.

[56] There may be a role here, however, for the hypothesis of corpuscular fusion. I will return to this at **IV.2.4**.

this hypothesis that would surely expose the Rationalist's limitations. We might suppose that attributing blockages to an increase in the 'number' of ὄγκοι makes room for corpuscular fragility; the sudden resolution of an ὄγκος into fragments births chains of mechanical interactions that have knock-on effects for the size or direction of the pores. 'Very swift motion' may result from this if read as 'very swift alterations to trajectory' *i.e*. 'very swift *individual* motions' with the speed of the ὄγκοι remaining constant;[57] the smaller ὄγκοι bounce about between their larger counterparts, influencing their trajectory and causing a break in the salubrious pattern of activity that concludes in ἔνστασις. But, as before, this hypothesis attributes the cause of disease to a (presumably) unpredictable event taking place within the body. That we are reduced to such feats of speculation in our attempt to reconcile corpuscular fragility with Asclepiades' theory of health in *Cel. Pass.* 1.14.105-7 should indicate just how uninformative our most informative witness is on this question.

However, in his reference to atoms at *Cel. Pass.* 1.14.105, Caelius suggests an answer as to why the doctrines under consideration prove so difficult to reconcile. This, I believe, is key to understanding Asclepiades' relationship to Epicureanism; the confusion engendered by *Cel. Pass.* 1.14.105-7 is instructive if we allow for the possibility that Asclepiades' interpolation of frangible elements into Epicurean physics was not *principally* motivated by pathological considerations (see **IV.2.5.2**). Vallance is dismissive of Caelius' use of *atomus* at *Cel. Pass.* 1.14.105, proposing that the Latin word had lost its original meaning in the Greek.[58] But, as he himself admits, a search for *atomus* in ancient literature uncoupled from its Democritean or Epicurean application will come up fruitless.[59] Leith takes Caelius' use of *atomus* seriously.[60] He argues, convincingly, that editions of *Cel. Pass.* 1.14-105 that print 'primo' (first) as 'prima', qualifying 'primordia' are conspicuously tautologous, and that the stronger reading takes 'primo' together with the pluperfect 'constituerat' to read 'at first he had posited' or variations thereof.[61] This reading gives us two stages in the development of Asclepiades' theory: '…he *had first* established atoms as the principles of the

[57] I revisit this somewhat confusing inclusion in *Cel. Pass.* 1.14.107 at **IV.2.3.2** below.
[58] Vallance (1990) p.24-25.
[59] *Ibid.* p.25.
[60] Leith (2009) p.314-317.
[61] *Ibid.* p.315-316.

body, but *in the second instance* (he established) *onkoi* perceptible by reason.'[62] An alternative reading might pair *atomos* with *fragmenta*, on the assumption that *onkoi* and *fragmenta* refer to two different ontological tiers in *Cel. Pass.* 1.14.105-107.[63] But this would relegate the ὄγκοι to the peculiar (and surely superfluous) role of 'fragment producers', whose sole function is to lie deep beneath perception and burst into reality's constituent seeds. A fuller treatment of the argument against this hypothesis will be visited in the next section; for now, we note that Leith's rendering of *Cel. Pass.* 1.14.105, which emends 'in infinita partium fragmenta solvantur' to the decidedly less awkward 'in infinita<rum> partium fragmenta solvantur' ('…resolved into fragments of infinite parts') does not permit the pairing of *atomos* with *fragmenta.*[64] I am confident that *Cel. Pass.* 1.14-105 records an evolution in Asclepiades' thinking which would see him first develop a medical theory from within the Epicurean atomist tradition and then, at a later stage, introduce corpuscular fragility into the system for some as-yet-unclear purpose. The rudiments of Asclepiades' medical theory were in place *before* the interpolation of frangible ὄγκοι.

In support of this claim, I suggest that the theory of health preserved in *Cel. Pass.* 1.14.105-107 can easily be reconciled with Epicurean atomism. Epicurean atoms differ in size and shape; we do not need to introduce frangible ὄγκοι to facilitate corpuscular heterogeneity. I will deal with 'number' shortly below. As for the variable of speed, Epicurean physics does not permit variation in the speed of the corpuscles, but I am not at all convinced that an increase in speed is what is meant at *Cel. Pass.* 1.14.107. Certainly, an increase *in the number* of 'very swift motions' – an increase in arousal/agitation – is intelligible within an Epicurean system; it brings to mind the brief (and by itself unsatisfactory) atomic explanation for pain at *DRN* II.963-967, discussed at **II.5.6**, in which 'pain occurs when particles of matter attacked by some force in the limbs and flesh quiver and tremble in their deep abodes' if 'motion' refers to motion between collisions, elemental tumult.[65] While I argued at **II.5.6** that we can glean very little of Epicurus' physical theory of pain from this passage, it is highly likely that Asclepiades' medical theory, set out at *Cel. Pass.* 1.14.105-107, was initially an

[62] Cael. Aur. *Cel. Pass.* 1.14.105 trans. Leith = Leith 16.
[63] As maintained by Gottschalk (1980) p.45-52; Pigeaud (1980) p.198-198.
[64] Leith (2009) p.312-313. See [Forthcoming] Leith 16.
[65] Trans. Melville (1997). Comparisons can also be found at Lucr. III.487-509; IV.664-670.

elaboration of a perfunctory atomic treatment of disease that attributed its emergence to vaguely defined atomic displacements. In identifying disease with the impaction of corpuscles in the body, he offers a more complete account of what atomic displacement might entail within the parameters established by his Epicurean predecessors. Moreover, if we suggest that corpuscular fragility played a minor role in Asclepiades' theory of pathology – introduced, as it was, after the basic theory had become entrenched – we are less reliant upon seemingly random occurrences at the elemental level in our reconstruction of his theory of disease. If the passage of ὄγκοι through the πόροι can become impeded without the occurrence of a fracture, then the aetiology of obstruction spreads beyond the human body, becoming – at least potentially – intelligible, predictable and manageable to a degree.

In Sextus Empiricus' exposition of Asclepiades' theory at *M.* III.3-5,[66] the 'continuous effluences' of corpuscles from the body to the outside world is listed alongside the existence of πόροι in the body and the perpetual motion of the ὄγκοι as one of three hypotheses necessary to explain the obstruction that brings about fever. There are two relevant details to be extracted from this passage that supplement our analysis of *Cel. Pass.* 1.14.105-107. The first is that the theory necessitates the reciprocal exchange of ὄγκοι between the body and the external world, allowing for externally derived obstruction. Reciprocal replenishment is Epicurean doctrine;[67] we would expect a medical theory developed within this system to incorporate this doctrine into the aetiology of disease. The mechanics of external to internal atomic interaction certainly allow for an aetiology of pathology; we need only posit an intruding pattern that contains some property that disrupts the body's equilibrium – that, in Asclepiadean terms, precipitates ἔνστασις. The second is that effluences vary depending on circumstances inside the body. The context of *M* III.3-5, in which the foundational hypotheses for fever in Asclepiades' system are discussed, suggests that we read the reduction in effluences as a consequence of obstructed πόροι, such that the body retains more ὄγκοι and produces more localised obstructions from which pain/disease

[66] Sextus' credentials as a commentator on Asclepiades of Bithynia are enforced by his apparently extensive treatment of the doctor's theories in his *Medical Memoirs,* sadly lost (*M* VII.202). Asmis (1993) argues that Sextus' reports offer a more lucid starting point than *Cel. Pass.* 1.14.105-107. But subsequent work on *Cel. Pass.* 1.14-105-107, particularly in Leith (2009), cleared up much of the ambiguity that Asmis (1993) takes issue with.

[67] Epic. *Ep. Hdt.* 48.

proliferates. The number of ὄγκοι in the body is thus a variable independent of corpuscular fragility. The mechanics of fever hinted at in *M* III.3-5 are explicable in broadly Epicurean terms – indeed, the doctrine of corpuscular fragility seems to threaten to the intelligible aetiology of fever hinted at in *M* III.3-5; the breaking of the ὄγκοι is only reconcilable with Asclepiades' pathology if it is either a) an extremely rare occurrence or b) somehow predictable (or c) both). We will return to both these possibilities below.

I submit, therefore, at the outset of our inquiry, that the theory preserved in both *Cel. Pass.* 1.14.105-107 and S. E. *M* III.3-5 was initially developed within the constraints of a broadly Epicurean physics,[68] and that the doctrine of corpuscular fragility represents a later development in Asclepiades' thought. Evidently, in Asclepiades' view, the introduction of fragile corpuscles into the existent system did not compromise the initial theory but served some additional purpose, one that could – perhaps with some additional tinkering (see **IV.2.4.2**) – be reconciled with the theory of pathology derived from atomism. As Vallance's work has inadvertently taught us, the fragility of the ἄναρμοι ὄγκοι represents such a radical departure from atomism that the similarities – particularly with respect to the Epicurean model – can become obscured. It is important that we foreground the continuity between Epicurean and Asclepiadean corpuscularism before we narrow our focus to the question of what motivated Asclepiades' modification. The next section completes the foundations of our inquiry.

IV.2.3 Epicurean inheritances

How Epicurean are the ἄναρμοι ὄγκοι? They are imperceptible, exist in perpetual motion, possess only primary qualities – size, shape and tangibility –, and behave in accordance with mechanical principles, ungoverned by intelligence or teleology.

IV.2.3.1 λόγῳ θεωρητοί/*intellectu sensa*

The mechanism by which ἄναρμοι ὄγκοι are apprehended is integral to the question of Epicureanism's medical value, but our assessment of Asclepiades' epistemology awaits us in **IV.2.5**. For now, note that both Caelius Aurelianus and

[68] I qualify 'broadly' in anticipation of our discussion of Asclepiades' determinism at **IV.3.2**.

Sextus Empiricus describe the ὄγκοι as being 'perceptible to reason'.[69] This phrase is earliest attested in Epicurus' writings and is standard Epicurean phraseology.[70] We see it used to describe the atoms in Aët. 1.3.18.[71] The phenomenal world is divided from the world of *per se* entities by the mechanism of their apprehension in both the Epicurean and Asclepiadean system. Reason reaches further than the senses; ἄναρμοι ὄγκοι, like atoms, cannot be perceived, but can be inferred.

IV.2.3.2 Motion

Through their motion, the ἄναρμοι ὄγκοι reveal their specifically Epicurean genealogy. Caelius Aurelianus and Sextus Empiricus refer to their perpetual motion.[72] 'Obstruction', ἔνστασις, refers to clusters of vibrating ὄγκοι impeding the passage of approaching bodies but never coming to a stop.[73] That atoms are by nature restless is, as noted at **II.3.7**, an Epicurean addition to the atomist tradition, part of his more sophisticated doctrine of atomic motion developed in response to Aristotle's criticisms of void theory in *Physics* IV.[74] As covered in **IV.2.1**, the perpetual motion of the ὄγκοι contributes to our conception of Asclepiades as a void theorist in the Epicurean mode.[75]

Epicurus also argued – again, responding to Aristotle's critique of Democritean atomism in *Physics* IV[76] – that all atoms move through void at equal speed (ἰσοτάχεια).[77] We find no confirmation that Asclepiades adopted this doctrine in the extant testimonia. However, given the depth of his engagement with Epicurean physics – the argument for which I will continue to develop as we proceed through this chapter (see esp. **IV.2.4.2**) – that he was ignorant of this doctrine is near impossible. It is unclear, moreover, what medical advantage disavowing ἰσοτάχεια might avail him. The reference to 'very swift motion'

---

[69] Cael. Aur. *Cel. Pass.* 1.14.106 describes the ὄγκοι as '*intellectu sensa.'*; S. E. *M* III.3-5 uses the phrase λόγῳ θεωρητοί in relation to the ὄγκοι. See also e.g. Cass. *Probl.* 61.
[70] e.g. Epic. *Ep. Hdt.* 47 in relation to minimum units of time.
[71] Atoms are σώματα λόγῳ θεωρητά, cf. S. E. *M* III.3-5.
[72] Cael. Aur. *Cel. Pass.* 1.14.105; S. E. *M.* III.3-5.
[73] The cognate verb ἐνίσταμαι means merely 'to resist'.
[74] Arist. *Phys.* IV.8, 215a 19-22. Epic. *Ep. Hdt.* 43-47 for the perpetual motion of the atoms. For Epicurus' adaptation of Democritean void theory, see Inwood (1981).
[75] That void is seldom referenced directly with respect to Asclepiades reflects the doctor's preference for the vocabulary of 'seams' and 'seamlessness' over multifunctional terminology (**IV.2.1**), but the mechanics of corpuscular motion in his theory betrays its Epicurean frame.
[76] Arist. *Phys.* IV.8, 216a 12-21.
[77] Epic. *Ep. Hdt.* 61.

(‘celerrimi motus’) as a variable contributing to blockages in *Cel. Pass.* 1.14.107 is the only line in any of our sources that might cause us to doubt Asclepiades’ commitment to the ἰσοτάχεια of the ἄναρμοι ὄγκοι. I suggested above that we read this variable as referring to the *number of* swift motions, as opposed to variation in speed *per se.* This would be to read ‘celerrimi motus’ as ‘very swift arousal’ which could denote an adjustment in the flow of ὄγκοι through the πόροι that increases the frequency of collisions.[78] An alternative suggestion is made by David Leith in his forthcoming book. Leith speculates that ‘very swift motion’ refers to that of a group of ὄγκοι in a singular direction; no individual ὄγκος accelerates, but a period without obstruction permits great distance to be covered in minimal time.[79] He does not explain precisely how this precipitates ἔνστασις; presumably, these ὄγκοι will converge upon an obstacle and immediately precipitate the kinds of chaotic interactions that resolve themselves into impaction, or else cluster abruptly in a pore. Both suggestions are speculative, but either is preferable to the alternative proposition that Asclepiades’ discarded this consequence of Epicurean void-theory for some uncertain purpose. Aristotle’s argument in *Phys.* VI.2 that differences in speed are only possible if matter is infinitely divisible is the only relevant consideration.[80] As we shall see at **IV.2.4.2** below, Asclepiades’ (I will argue explicit) rejection of the Epicurean theory of minima engendered a cosmos that was structurally – though of course not materially – continuous. But I fail to see how Asclepiades’ rejection of Epicurean minima would override the argument that the activity of the ὄγκοι takes place within an intangible substratum which, by its very definition, offers no physical resistance. We know that Asclepiades’ accepted that particles in void were perpetually restless. The least conjectural assumption is that Asclepiades’ accepted their ἰσοτάχεια as well.

[78] cf. Lucr. II.963-967.
[79] Leith [forthcoming] II.1.1.2.
[80] Arist. *Phys.* VI.2, 232b 20-233a 12. See Furley (1967) p 111-130, Sedley (1999) p.379 for the Epicurean incorporation of Aristotle’s observation into their theory.

IV.2.3.3 Qualitative status[81]

Caelius Aurelianus tells us that the ἄναρμοι ὄγκοι are 'without any usual quality' (*sine ulla qualitate solita*).[82] Accepting that the *fragmenta* referenced at *Cel. Pass.* 1.14.105 are not ontologically distinct from the *corpuscula intellectu sensa* introduced in the same passage,[83] we also learn from Caelius Aurelianus that the ὄγκοι differ in size and shape,[84] rendering 'qualitate solita' a reference to secondary or phenomenal qualities.[85] In *On the Elements according to Hippocrates* (*Hipp. Elem.*), Galen attributes the argument that 'the first element is without qualities' to all 'those who suppose that the element is by nature one', whether they call it ἄτομον or ἄναρμον,[86] and Sextus Empiricus further confirms the qualitative disparity between the ἄναρμοι ὄγκοι and the phenomena generated through their interactions. He writes at *M* X.318 that the ὄγκοι, like the atoms of Democritus and Epicurus, are 'dissimilar' (ἀνομοίων) to the bodies which follow from them, referring to the discontinuity between phenomenal qualities and their material basis. At *PH* III.32-33 he tells us Asclepiades and his followers posit elements that are 'qualityless' (ἄποια).[87] Thus, for Asclepiades, as for Epicurus, phenomenal qualities are accidents of specific constellations of elemental bodies of specific shapes which, individually, contain no trace of their consequence in sense-reality beyond that which is predicated of a body.[88]

---

[81] Leith's 2009 article 'The qualitative status of the onkoi in Asclepiades' theory of matter' remains the most authoritative and comprehensive treatment of this question. What follows is a summary of the primary evidence for Asclepiades' ὄγκοι being without secondary/phenomenal qualities.

[82] Cael. Aur. *Cel. Pass.* I.14.105.

[83] See Leith (2009) p.289-290 and **IV.2.4.1** below.

[84] Cael. Aur. *Cel. Pass.* I.14.105 – '…magnitudine atque schemate differentia.'

[85] Leith (2009) p.290.

[86] Gal. *Hipp. Elem.* 2.9-11. Though Asclepiades is not referenced by name in this passage, we can be sure that the Asclepiadeans are included among those listed; Galen never refers to the ἄναρμον element in connection with anybody else. See Vallance (1990) p.16.

[87] Note that the Mutschmann-Mau's Teubner edition of *PH* III.32-33 (p.142) reads 'ποιά', not' ἄποια', 'qualified' not 'qualityless'/'unqualified'. Leith (2009) p.294-299 argues that 'ποιά' is a mistaken emendation of a corruption in the manuscript tradition, which originally described Asclepiades' corpuscles as 'τοῖα' (of this sort, such) which is nonsensical in context. To summarise Leith's argument, given that the purpose of *PH* III.32-33 is to illustrate the disparities between the various dogmatic element theorists listed, emending 'τοῖα' to 'ποιά' fails to illuminate a distinction between Asclepiades' ἄναρμοι ὄγκοι and the homoiomeries of Anaxagoras which possess every perceptible quality. The internal logic of the passage is thus distorted. Amending 'τοῖα' to 'ἄποια' preserves the logic of Sextus' argument and brings *PH* III.32-33 into agreement with *M* X.318.

[88] cf. Epic. *Ep. Hdt.* 54, Cael. Aur. *Cel. Pass.* I.14.105. *Cel. Pass.* 1.14.106 records an Asclepiadean argument for the dissimilarity of part and whole which uses empirical data to illustrate a relationship which extends beyond the senses: '…it does not seem to be unreasonable…that bodies with no quality should generate (sc. all sensible things). For one thing follows the parts, another follows the whole: so silver is white, but the filing from it is black; goat's horn is black, but the shaving is white.' – trans. Leith (forthcoming) = Leith

IV.2.4 Implications of corpuscular fragility

Asclepiades' particulate theory of matter shares too much with Epicurean atomism to support the hypothesis that it was independently invented. Our reading of *Cel. Pass.* 1.14.105 as evidence for an initial 'atomist' stage in Asclepiades' thinking is supported by the evidence for his theory's Epicurean inheritances. Against this background, the introduction of fragile corpuscles constitutes a radical departure from an inherited physics that demands an explanation, but one which our sources are reluctant to yield. I suggested at **IV.2.1** that a radical departure from Epicurean doctrine was necessary if Asclepiades wanted to affirm the independence of his discipline in the manner we see more conservatively undertaken by the Pneumatists in late first century BCE, given the fewer opportunities for selective adoption afforded by Epicureanism's two-tier epistemology. Replacing atoms with frangible ὄγκοι would certainly have proven an effective method of severing ties with Epicureanism. But the challenge is surely to retain whatever medical utility Asclepiades found in Epicurus' philosophy as he denudes his predecessor's elements of their defining characteristic. In this section, we explore the consequences of introducing frangible elements to Epicurean physics. I will argue that Asclepiades demonstrates a comprehensive awareness of the second-order effects of this adaptation within an Epicurean framework, and I will suggest, following Asmis,[89] that he took measures to ensure that his rejection of Epicurean

16. Note the parallel between the argument preserved at *Cel. Pass.* 1.14.106 and the Epicurean argument for the same conclusion at *DRN* II.788-94 (identified in Leith (forthcoming) II.1.1.3). cf. also Epic. *EP. Hdt.* 55. Lucretius warns his reader against attributing colours to 'first-beginnings' since 'white things are not made from white, nor what are black from black' and though he does not repeat Asclepiades' silver or goat's horn examples, Leith (forthcoming) II.1.1.3 makes a convincing case that the poet and the doctor share a source in Epicurus' *On Nature.* In his exposition of Aenesidemus' seventh Trope leading to the suspension of judgement (a subject we return to at **V.2.1**), Sextus Empiricus uses both examples at *PH* I.129 to illustrate the transformative effects of 'composition' on sense impressions. For Aenesidemus, this is an argument for sceptical conclusions where the variable of 'composition' has a distortive effect on the truth-value of sense-data, but Annas and Barnes (1985) p.120-121 have drawn attention to the argument's Epicurean background; in a passage from his *Symposium,* reported in Plut. *Adv. Col.* 1109f-1110a*,* Epicurus argues that wine is not innately warming, but can have a cooling effect in certain quantities and under certain circumstances. For Epicurus, this is not an argument for scepticism but the opposite; it is an attempt to assure his followers that disparities in sense-data do not preclude their validity (*Ibid.* 1109c-1110a). If the seventh Trope has an Epicurean origin, it is likely that the examples used to demonstrate that Trope were derived from the same source (a plausible candidate is Epic. *Nat.* 5, see Sedley (1998) p.116-119). Asclepiades' silver and goat's horn example at *Cel. Pass.* 1.14.106 shares a common origin with that repurposed at *PH* I.129. It is no coincidence that the ἄναρμοι ὄγκοι share their qualitative status with Epicurus' atoms; unlike Aenesidemus, Asclepiades adopts Epicurean arguments for Epicurean conclusions.

[89] Asmis (1993) p.154.

atomism did not preclude the facility of his system to account for phenomenal constancy.

IV.2.4.1 Multiplication of ὄγκοι (or the rejection of the two-tier hypothesis)

First, a more sophisticated reconstruction of what corpuscular fragility entails. Much of twentieth-century Asclepiadean scholarship has misguidedly ascribed to Asclepiades a two-tier element theory,[90] whereby a frangible molecule or seed-like entity is resolved into more fundamental fragments.[91] This tradition developed from the confusion generated by the inconsistent terminology we find in our sources with respect to Asclepiades' particles, and perceived contradictions in our testimonia concerning their qualitative status.[92] It reaches its peak with Pearcy's 1991 review of Vallance's *Lost Theory of Asclepiades of Bithynia* in which Pearcy's dedication to the two-tier hypothesis forces him to read the *onkoi* in *Cel. Pass.* 1.14.105 as being *entirely* without qualities – that is, not even size and shape – and the *fragmenta* into which they are resolved as somehow attaining primary qualities in the aftermath of their (one is inclined to think, impossible) collisions.[93] The resolution of purely metaphysical entities into bodies of size and shape through some unfathomable interaction is pleasing to contemplate, but we have little reason to believe that Asclepiades indulged. Vallance established that our sources for Asclepiades' corpuscular hypothesis can only be made consistent if we assume that the references to ὄγκοι, ἄναρμοι ὄγκοι, ἄναρμα στοιχεῖα, *corpuscula, fragmenta* and *moles* all refer to the same basic particle.[94] Leith's rendering of *Cel. Pass.* 1.14.105 in which the *onkoi* are resolved into 'fragments of infinite parts' removes the disparity between *onkoi* and *fragmenta* upon which Pearcy bases his conclusion.[95]

As the ὄγκοι already possess the minimal complement of properties necessary for existence in a materialist system, the only variable by which a yet more

---

[90] Not to be confused with his two-tier epistemology (see **IV.2.1**).

[91] Lonie (1964), for example, who identified Asclepiades' physical theory with that of Heraclides Ponticus, used Plato's two-tier geometric theory of elements (Plat. *Tim.* 53-57) as a model. Gottschalk (1980) p.45-52 distinguishes *onkoi/corpuscula* from *fragmenta* in Cael. Aur. *Cel. Pass.* 1.14.105, proposing that the former, a seed-like compound, possesses phenomenal qualities, where the latter are unqualified, more fundamental and essentially atomic.

[92] Contradictions which are resolved, to my satisfaction, in Leith (2009) esp. p.294-299.

[93] Pearcy (1991) – '…the quality-less *corpuscula,* the context of Caelius' statement suggests, are distinct from the qualified *fragmenta*…The *corpuscula* lack qualities; the particles called *fragmenta* have at least some.'

[94] Vallance (1990) p.7-43.

[95] Leith (2009) p.312-313. See **IV.2.2** above.

primitive particle could be distinguished from an ὄγκος is that of frangibility. It is difficult to see how Asclepiades' corpuscularism would not eventually devolve into an atomist system under these conditions. The suggestion that particles in Asclepiades' system can recombine into ἄναρμοι (seamless) ὄγκοι – a theory which might protect those clinging to the two-tier interpretation of Asclepiades' element theory from the charge that this is merely atomism with a cumbersome and pointless extra step – will be treated at **IV.2.4.3** below, but while I am sympathetic to the recombination hypothesis, the evidence does not support the supposition that Asclepiades imposed a limit on the physical divisibility of his ὄγκοι such that he could accurately be said to have proposed two distinct types of particle. Leith's rendering of *Cel. Pass.* 1.14.105 precludes the possibility that ὄγκοι will eventually be resolved into atomic particles; the *fragmenta* that spring from collisions are themselves infinitely divisible. Caelius can describe Asclepiades' *corpuscula* as *primordia* despite their fragility because *corpuscula* and *fragmenta* refer to the same particle.[96] Fracture an ὄγκος, you have multiple ὄγκοι. The quality and quantity of *material* in the cosmos remains constant. The quantity of bodies has increased.

IV.2.4.2 Rejection of Epicurean minima

ὄγκοι are as atoms in form but not in material; though they share with atoms the properties of size and shape, their motion, their ability to act on one another and their alienation from phenomenal qualities, their internal structure is of a fundamentally different order. In his rejection of atomic indivisibility, Asclepiades rids his particles of Epicurean minima; if the ὄγκοι were assembled of minimal magnitudes then a limit would be imposed upon their physical divisibility which, when reached, would yield atomism.[97] The ὄγκος is a structural continuum, infinitely divisible and without internal limits.[98]

---

[96] Vallance (1990) p.42.

[97] Albeit a novel form of atomism in which the 'minimum in thought', not typically extricable from the structure in which it belongs, is equal to the smallest bounded physical magnitude.

[98] Asclepiades' cosmos thus shares with that of Aristotle and the Stoics the property of structural continuity, where its material discontinuity is inherited from Epicurus and Democritus before him. A hybrid system such as this is not peculiar to medical theory. Strato of Lampsacus held that the cosmos was materially discontinuous on account of the existence of interstitial pockets of void but was structurally continuous (see Furley (1999) p.415-516). The dialectician Diodorus Cronus – though one is hesitant to ascribe him a *bone fide* physical theory – suggested the opposite through his arguments against motion. See Sedley (1999) p.356-362, **II.3.7** above and further below. We should note, however, that a particulate theory of matter that upheld both large-scale void and structural continuity is a novelty. It is interesting – and, I think, significant – to note that despite the popularity of Asclepiades' medical school we detect no

Two pieces of evidence indicate that Asclepiades knowingly rejected Epicurus' theory of minima and that he regarded his theory of matter as the superior alternative. At *Cel. Pass.* 1.14.105 we learn that Asclepiades' *fragmenta* (= ὄγκοι) contain infinite parts. Lucretius argues that minima are a ballast against the absurd proposition that the smallest bodies in the universe consist of infinite parts,[99] affirming the opposition between the two systems. But it is a mistake to suggest that this opposition is merely incidental. The language of 'parts' in the context of Caelius' exposition seems to have curious, anti-Epicurean implications if read in conjunction with our sources for Epicurean minima. Atoms are conceptually divisible into magnitudes, not 'parts' as commonly understood.[100] Minima cannot be conceived separately from the atoms of which they are internal limits;[101] they are 'parts' only as far as reason measures the atom in the units they embody.[102] Expounding his doctrine of minima in *Ep. Hdt.* 56-59, Epicurus begins by discarding the physical system that Asclepiades would later adopt. He uses the word 'ὄγκος' (translated as 'bit' in LS 9 A) in *Ep. Hdt.* 56 to denote precisely the kind of constituent into which atoms *cannot* be conceptually resolved, one among an infinite number of parts. The name of Asclepiades' corpuscles – by itself an unqualified descriptor of a 'mass' – thus acquires a new significance, an oppositional quality in light of the doctor's Epicurean inheritances, and so too does Caelius' wording at *Cel. Pass.* 1.14.105. The ὄγκοι are resolved into bodies 'of infinite parts' – or 'ὄγκοι of infinite ὄγκοι', with the two-tier hypothesis (**IV.2.4.1**) having been ruled out. Caelius foregrounds the infinite divisibility of the emergent ὄγκοι (though he himself does not use this particular appellation) as if the doctor's hostility to the Epicurean theory of minima were somehow in the background; Asclepiades' rejection of atomic indivisibility is already clear in the fragmentation of the *corpuscula,* emphasising that the *fragmenta* are themselves potentially infinitely divisible – when surely this is already implied – is a tantalising extra step.

---

influence of this model on subsequent philosophical discussions. Whatever the utility of this system to Asclepiades' objectives it had no life beyond his school. Is this because the distance it created between Asclepiades and his philosophical predecessors was its primary purpose? I return to this question at **IV.2.5.2.**

[99] Lucr. I.615-618.

[100] Vlastos (1965) p.135-136.

[101] Lucr. I.599-634.

[102] Vlastos (1965) p.136. From Verde (2013) p.331-332 (English summary): 'From Aristotle's definition [of πέρας, 'limit'] Epicurus borrows the idea that limits can never be separated from that which they limit, yet he does not accept the idea that limits cannot be constitutive parts. Minima, in this respect, are 'constitutive limits' but not parts of atoms. ἐλάχιστα/ πέρατα thus ensure the indivisibility of atoms.'

The Asclepiadean ὄγκος, physically indivisible and, conceptually, an abundance of infinite 'bits', each with the potential to be released from its mass, may be interpreted as a consciously anti-Epicurean invention, exhibiting the kind of hostility towards the original system that one would expect, not from a philosophical rival, but from an offshoot, a pupil straining to assert his intellectual independence from his teacher.

The depth of Asclepiades' familiarity with Epicurus' theory of minima is clarified by our second piece of evidence, a *prima facie* anomalous testimony from Aëtius' *Placita,* upon which David Leith has recently thrown light.[103] Aët. 1.23 reports that, for Asclepiades, 'all motion is sense-perceptible' (πᾶσαν κίνησιν αἰσθητήν). The status of the ὄγκοι as perceptible only to reason would appear to contradict this claim.[104] Leith suggests that we understand this statement in the context of Diodorus Cronus' argument against motion, since he is listed nearby in Aët. 1.23 in conjunction with his theory of granular progression.[105] The theory rests on Diodorus' pre-Epicurean analysis of matter and space into partless magnitudes; a partless body cannot exist between partless spaces therefore it cannot move between them, but it can be said *to have moved* from one partless space to the next.[106] Epicurus accepted Diodorus' conclusion that partless magnitudes entail granular motion[107] and drew a further epistemological conclusion that Diodorus, the dialectician, was apparently uninterested in pursuing – that is, that motion *per se* is not sense-perceptible for it can only be acknowledged retrospectively.[108] S. E. *M* X.62-65 provides perhaps the only discussion of the imperceptibility of motion in our sources.[109] Sextus writes of motion that 'those who maintain that it is grasped not by sense-perception, but by thought through sense-perception, say that every motion occurs in virtue of simultaneous recollection; for by calling to mind that this body was once in one place, but is now in this place, we grasp the conception of motion and having moved.'[110] The Epicurean identity of those who maintain that motion is grasped only by reason is revealed in *M* X.65: '…all motion is conceived in terms of the

[103] Leith (forthcoming) II.1.3.
[104] Cael. Aur. *Cel. Pass.* 1.14.105; S. E. *M* III.3-5.
[105] Or 'staccato' motion, summarised at **II.3.7**. See Leith (forthcoming) II.1.3.
[106] S. E. *M.*10.85-86. See Sedley (1999) p.356-362.
[107] Simp. *In Ar. Phys.* 934.23-30.
[108] Leith (forthcoming) II.1.3.
[109] Cited in *Ibid.*
[110] Trans. Bett (2012).

leaving and taking up of a place. But sense-perception cannot grasp either place (for no place is perceptible) or taking up and leaving; for these are observed by memory, but sense-perception, being non-rational, is without memory. Therefore, motion is not something perceptible.'[111] Epicurus describes perception as being 'non-rational and capable of no memory' in the *Κανών* (as reported in D. L. X.31) and described place as imperceptible in *Ep. Hdt.* 40. That memory is essential to grasping motion in a cosmos where material jumps from partless space to partless space is clear; if sense-perception is without memory then it is easy to see how the Epicureans might have taken the view that motion *per se* was not sense-perceptible, and how this epistemological conclusion would arise from their theory of minima. Returning to Aët. 1.23, Asclepiades' claim that 'all motion is sense-perceptible' can be reconciled with his doctrine of ὄγκοι perceptible to reason if understood as a deliberate contradiction of the Epicurean view.[112] Motion occurs fluidly as one might intuit from perception alone (hence πᾶσαν κίνησιν αἰσθητήν), but the fluid motion of individual ὄγκοι, grasped by reason, is never witnessed by the senses.

How are we to read a physician's theorising on the sense-perceptibility of motion? Two conclusions suggest themselves, one firm and one more speculative. 1) Asclepiades' familiarity with Epicurean physics was such that he understood the second and third order effects of introducing corpuscular fragility into the system; fragility precludes partless bodies which precludes partless spaces which entails fluid/theoretically perceptible motion. Our reading of Asclepiades' physics as an adaptation of Epicurean atomism receives further support. 2) Asclepiades' works contained critiques of Epicurean atomism. It is a challenge to identify the medical value of a doctrine of fluid corpuscular motion. We should perhaps be unsurprised that Asclepiades was in the habit of venturing outside medicine's disciplinary boundaries in defence of his core thesis, given its foundation (at least in its maturity) in a novel physics. That the third order effects of his rejection of atomic divisibility featured in at least one of his works permits us to speculate that some effort was dedicated to justifying his medical theory *against* Epicurean physics. We learn from Galen that a portion of *On Elements* was dedicated to defending his physics against those who blend substances

[111] Trans. Bett (2012).
[112] And novel enough to warrant recording in Aëtius' *Placita*.

together through-and-through;[113] one can easily imagine a similar attack on those who argue that the elements consist of partless bodies. Reading Aët. 1.23 in conjunction with *Cel. Pass.* 1.14.105, in which a critique of Epicurean minima is plausibly inferred, we might conclude that Asclepiades considered the Epicureans to be especially vulnerable on this question. The value of capitalising on this vulnerability, when the tenor of the debate seems too intrinsically theoretical to be of obvious practical (*i.e*. medical) utility, may simply be to generate distance between his theory and the philosophy to which it was indebted. Asclepiades' hybrid cosmology, where the cosmos is structurally continuous but materially discontinuous, was never incorporated into subsequent physics arising from outside his school. Its value, I suggest, was derived *from its novelty*, a sign of Asclepiades' independence from Epicurus and perhaps, by extension, of medicine's independence from philosophy. Its value is therefore peculiar to Asclepiades and his school, those for whom innovation was essential to their intellectual emancipation.

IV.2.4.3 Preserving phenomenal constancy

If we take the view that Asclepiades was perfectly acquainted with Epicurean physics, as the evidence above (**IV.2.4.2**) would seem to indicate, then we must accept that he was sensitive to the more destructive implications of rejecting atomic indivisibility. On the necessity of atomism, Lucretius is clear:

> For we see things can be dissolved more quickly
>
> Than reconstructed. Therefore what past years
>
> And bygone days of all eternity
>
> Had broken up before now, dissolved and shattered,
>
> In time remaining could never be made new.
>
> But as it is, a certain end is given of breaking,
>
> Since we see all things renewed
>
> And fixed times stand for things after their kind

[113] Gal. *Hipp. Elem.* 9.25-26.

In which they can attain the flower of life.[114]

Destruction outpaces generation; without limits on destruction nothing can be renewed. Fixed cycles of generation also signify an underlying constancy, as do the recurrence of other patterns in nature, such as the patterns displayed on the feathers of birds and the transmission of qualities from a parent to a child.[115] Asclepiades is protected, to an extent, from the argument at *DRN* I.584-598 against qualitative change, given that his corpuscles are without qualities beyond size, shape and resistance (the latter of which remains constant through each fracture), but not entirely.[116] Gabor Betegh has shown that Epicurus' argument for atomism in *Ep. Hdt.* 40-41 concerns itself primarily with the quality of unalterability, of which uncutability is a subset.[117] Betegh casts Epicurus as a 'bundle theorist', one who, in metaphysical contexts, reduces bodies to the sum of their properties.[118] He suggests that Epicurus emphasised the distinction between permanent and accidental properties – a consequence of the atomism on which his conception of permanence rests – in order to ensure that changes in accidental properties do not entail the destruction of the entity in question.[119] This consideration is necessary because Epicurus, for reasons I lay out at **II.4**, regards the phenomenal properties of composite bodies and the intrinsic properties of atoms to be equally real;[120] if change entails the destruction of AB*C* in the birthing of AB*D,* it would result in transformations occurring into and from non-being.[121] Being without secondary qualities, the alterability of the ὄγκοι is confined to transformations in size and shape. A distinction between permanent and accidental attributes – which is certainly implied by the division of reality into the binary world perceptible to reason and the diversified, mutating world of the senses, as well as Asclepiades' atomist beginnings (**IV.2.2**) – may be upheld with reference to the qualitative constancy of the corpuscles. After all, for Asclepiades, macroscopic qualitative change occurs not through the mutations of the ὄγκοι, but through their 'transposition, addition and subtraction,' as is typical of ancient

[114] Lucr. I.556-564 trans. Melville (1997)
[115] *Ibid.* I.584-598.
[116] The argument at Lucr. I.584-598 would appear to have a general account of qualitative alterability in mind, not change as consequence of divisibility *per se*.
[117] Betegh (2006) esp. p.277-283.
[118] *Ibid.* p.280.
[119] *Ibid.* p.280-281.
[120] Contrast with Democritus. See S. E. *M.* VII.135.
[121] Betegh (2006) p.282. Cf. Epic. *Ep. Hdt.* 54.

particulate theories of matter.[122] Nevertheless, Epicurus makes it clear in *Ep. Hdt.* 54 that fixity of shape and mass are essential to his analysis of qualitative change in the phenomenal world. It is not enough that the *properties* of body remain constant; the bodies themselves cannot admit change. Perhaps, if we were to conjecture a defence of Asclepiades' system in light of the argument for Epicurean atomism unveiled by Betegh, we might posit that the atom – an unspecific (though very likely irregular) solid shape – being in perpetual motion, struck from every angle, travelling in all directions and (we are probably safe to presume) often rotating, is perpetually transforming with respect to its disposition relative to other atoms. As Betegh notes, the Greek word for 'unalterable', ἀμετάβλητος, used in *Ep. Hdt.* 40-41 can be used with respect to relational properties.[123] We might argue that Epicurus places too high a value on permanence of shape under these circumstances, particularly if shape could be altered in such a way as to prevent material from perishing into non-being (which is to say, through cutting). Given the evidence for Asclepiades having shared Epicurus' epistemology (which we will examine in detail at **IV.5**) it is reasonable to suppose that a defence of corpuscular alterability that explained perceptible change without recourse to destruction into non-being was merited. But even if such an epistemological defence could be mounted – leaving aside how convincing we might find it – it would not address the argument at *DRN* I.556-564 that ongoing reduction to the size of the corpuscles will inevitably outpace generation. How can Asclepiadean physics preserve phenomenal constancy?

Was Asclepiades, the doctor, simply uninterested in these consequences? The evidence for his engagement in the question of granular vs. non-granular motion – a non-medical and entirely theoretical consequence of a medically motivated adaptation to the Epicurean system – makes this conclusion unlikely.[124] A rejection of Epicurean minima is a defence of corpuscular fragility against the mother-doctrine; it would stretch credulity to suggest that Asclepiades

[122] See Betegh (2006) p.282 and Leith [forthcoming] II.1.2.

[123] Betegh (2006) p.279, n.30. The etymology of μεταβάλλω implies change in position rather more strongly than change *per se*.

[124] The contributions to theory we ascribed to Athenaeus of Attalia in **III.4** are, by contrast, elaborations of existing Stoic doctrines – that is, ideas build upon foundations that survive the new weight. The αἴτιον προηγούμενον, which I suggested at **III.4.4** was an Athenaean innovation, does no harm to existing Stoic doctrine. Athenaeus found emancipation through self-imposed epistemological restrictions which his adopted physical framework permitted. Asclepiades, being without such an option, innovates more radically and must justify his adaptation *against* his adopted framework. See further **IV.2.5**.

ignored the most obvious Epicurean objection to his reformulation. Elizabeth Asmis, in her 1993 review article of Vallance's *Lost Theory of Asclepiades of Bithynia*, proposed that Asclepiades must have introduced a doctrine of corpuscular fusion alongside corpuscular fragility to preserve phenomenal constancy.[125] She points to two passages in the Anonymus Londinensis in which Asclepiades reportedly cited the outflow and inflow of substances from and into the body as evidence of nature's facility to 'preserve law' and 'preserve what is just and consequential.'[126] Nature is an aggregate of balancing mechanisms predicated, we might assume, on a singular, primitive balancing mechanism perceptible only to reason. Unfortunately, the evidence to support a doctrine of corpuscular fusion is limited. Asmis cites a passage from Galen's *Natural Faculties* in which he attributes to Asclepiades the novel theory that urine gathers in the bladder out of vapours that percolate through its walls.[127] She reads the dissolution of liquid into vapours as an account of the breaking of the ὄγκοι and the subsequent reconstitution of the liquid as an account of their coalescence into larger particles.[128] This interpretation goes beyond what the evidence tells us explicitly; the account in *Nat. Fac.* II.32 K. necessitates neither corpuscular fragility nor fusion and seems equally explicable by the separation and recombination of atomic corpuscles.[129] It also raises questions about the corpuscular operations of human physiology that are difficult to answer; though it is easier to imagine conditions in the body, at a subsensible level, that might precipitate fracture,[130] it is not obvious what the particulate constitution of the bladder must be like such that it precipitates fusion. There is nothing in the evidence upon which to ground our speculations. My suggestion, building upon Asmis' proposal, is that whatever physiological/pathological advantages a doctrine of corpuscular fusion might have afforded Asclepiades – if, indeed, there were any – they were secondary to its function as a solution to the problem of phenomenal constancy brought about by the introduction of fragile corpuscles

[125] Asmis (1993) p.154. Asmis favours the term 'coalescence' instead of 'fusion' but I am concerned that this word has connotations pertaining to mixture which are potentially misleading. See below.
[126] Anon. Lond. xxxvi.48-55, xxxix.1-12. See Asmis (1993) p.154.
[127] Asmis (1993) p.155. See Gal. *Nat. Fac.* II.32 K.
[128] Asmis (1993) p.155 also points to the similarity of Galen's terms ἀναλυόμενον and συνιόντων and the words *solvantur* and *comitata* in *Cel. Pass.* 1.14.105-107 respectively. Asmis posits that fusion may be included under Caelius' general description of *comitata*.
[129] Leith (forthcoming) II.1.2.
[130] We revisit this at **IV.2.5.1** below.

into Epicurean physics. Like the sense-perceptibility of motion, corpuscular fusion is a necessary second-order effect of introducing fragile elements into a system that developed around the assumption that atomism was a necessity of the stability we notice in the phenomenal world. Naturally, positing corpuscular fusion would increase Asclepiades' options – the variability of corpuscular size as a potential cause of obstructed πόροι in *Cel. Pass.* 1.14.107 acquires more force if we allow fusion into this system[131] – but I am reluctant to suppose that the doctrine was introduced *for* this particular reason.

The best argument for Asclepiades having posited corpuscular fusion pertains to the recurrent description of his elements as ἄναρμον.[132] Gottschalk, in his work on Heraclides Ponticus, produced a comprehensive survey of the possible definitions of ἄναρμος and argued for the translation 'without internal articulations' – *i.e.* 'seamless' – with respect to what he regarded as Asclepiades' atomic particles.[133] While his reading of Asclepiades' element theory was in many ways mistaken, his argument for the meaning of ἄναρμος remains sound. Asmis argued that Asclepiades emphasised the property of seamlessness in order to distinguish an ὄγκος which may, she proposes, result from the fusion of multiple ὄγκοι, from a compound of ὄγκοι – that is, to guarantee its status as a unified body: 'The term ἄναρμος makes clear that the primary particles have no internal divisions or articulations: each is seamless body, forged by an infinite process of breaking and coalescence. Each is a 'jointless mass', ἄναρμος ὄγκος.'[134] The term ἄναρμος distinguishes the element from the compound not on the basis of fragility – as in Epicurean atomism –, but that of seamlessness, the absence of internal articulations. Asclepiadean bodies are organised around this peculiar dichotomy. Leith has argued that this interpretation is strengthened if we understand Asclepiades to be a void-theorist in the Epicurean mode.[135] He cites Polito's observation, based on Calc. *In Tim.* 214, that the phrase *solidae moles* – Calcidius' translation of ἄναρμοι ὄγκοι – likely referred to the absence of internal

[131] Asmis (1993) p.155 suggests that the imprecision of Caelius' language masks Asclepiades' doctrine of corpuscular fragility, but the evidence is by no means conclusive on this issue.
[132] Made in Asmis (1993) p.155-156 and developed in Leith (forthcoming) II.1.2.
[133] Gottschalk (1980) p.42-47.
[134] Asmis (1993) p.155.
[135] Leith (forthcoming) II.1.2.

void.[136] If we frame Asmis' ἄναρμοι ὄγκοι in the context of Epicurean void-theory we can speculate on the mechanism of their fusion. David Konstan addressed the problem of contact in Epicurean physics.[137] At point of collision, two atoms cannot possibly be separated by void. If bodies are divisible only along the lines of their void interstices then there is a question, unanswered in our sources, of how these two atoms can be divided. Konstan finds his answer in the Epicurean theory of minima;[138] the discreteness of the minima must account for the discreteness of adjacent atoms. This cannot be said of Asclepiadean ὄγκοι. Leith suggests that 'seamlessness' in Asclepiadean physics refers not only to the absence of void within an ὄγκος, but the absence of void between two ὄγκοι at point of contact.[139] The Asclepiadean ὄγκος, being divisible, is without the independence of the Epicurean atom; its boundary is no fixed entity. The closing of a void-gap between ὄγκοι constitutes the closing of a seam. The resultant entity is voidless thus qualifying, at point of collision, as an ἄναρμος ὄγκος. This process, however, cannot always result in fusion, just as contact cannot always result in fracture. We are left to speculate as to what variable determines whether contact results in deflection, fusion, or separation. Given that the preservation of phenomenal constancy demands that fusion and fracture occur at the same rate, it strikes me that if fusion were the consequence of a single point of touch – as is far less problematic than something more akin to absorption, given Asclepiades' attacks on the Stoic theory of mixture[140] – then the unified ὄγκος may be more fragile at the point of conjunction, thus increasing the likelihood that a well-placed collision may divide its mass along the 'isthmus' of unification. Over time, balance may be ensured. An ὄγκος can be divided at any point but is it not intuitive that the areas of slender mass are more vulnerable to being severed?

In any case, let us lay out the implications of this doctrine that are most relevant for our purposes. 1) The doctrine of corpuscular fusion, if a real Asclepiadean doctrine, is a counterpoint to the doctrine of corpuscular fragility; it was implemented to preclude epistemological inconsistencies that are based in

[136] *Ibid.*; Polito (2007a). cf. e.g. Lucr. I.538 in which the lack of internal void renders the atom *solidus.* Polito's conclusion is consistent with the meaning of ἄναρμος proposed by Gottschalk (1980) p.42-47 on independent grounds.
[137] Konstan (1979) p.398-407.
[138] Konstan p.407. He cites Epicurus' lost text *On the Corner in the Atom* listen at D. L. X.28 as a candidate for text in which Epicurus addressed this problem.
[139] Leith (forthcoming) II.1.2.
[140] Gal. *Hipp. Elem.* 9.25-36, 33-35.

Epicurean premises – the constancy of phenomena entails a commensurate constancy in the world perceptible to reason. 2) The doctrine affords more force to the term ἄναρμος and makes the dichotomy of 'seamed' and 'seamless' the more important variable in Asclepiades' physics (centred, as it is, on processes in human physiology). Pathology is explained by the activity of seamless corpuscles within the internal channels of posterior bodies, reticulated by πόροι. It is this relationship that Asclepiades wants to foreground – that of the seamless and the porous –, which further explains his preference for the language of πόροι – of 'gaps' – over that of multifunctional κενόν. The relationship between compound and element is organised around a *prima facie* novel principle. 3) With the twin doctrines of corpuscular fragility and fusion, Asclepiades radically distances his physics from that of Epicurus. However, given how, for epistemological purposes, these doctrines essentially cancel one another out, we are entitled to ask whether this ostensibly radical divergence from Epicurean physics is not, in the final analysis, superficial. Asclepiades has purified his physics of its Epicurean signature but what, beyond the appearance of intellectual emancipation, has he actually achieved?

IV.2.5 Motivations

The foundations are now sufficiently secure that we may proceed to the question of motivation. Why did Asclepiades introduce the doctrine of corpuscular fragility into a medical theory drawn from Epicurean physics? I have divided this discussion into two parts. The first (**IV.2.5.1**) addresses possible practical motivations; the second (**IV.2.5.1**) explores the wider context of Asclepiades' relationship to Epicureanism.

IV.2.5.1 Practical motivations

The following passage, identified by Leith as the only 'relatively unambiguous' piece of evidence for the positive function of corpuscular fragility in Asclepiades' theory, is from Cassius the Iatrosophist's *Problemata:*

> Why does sea water, which is salty, become sweeter when it is boiled to a high degree? …One should say that sea water, which is composed of large ὄγκοι is made fine by being divide by fire. Therefore, when it has undergone

> an alteration because of its being rendered fine from being thick, by throwing off its previous quality, (sc. the seawater) becomes sweet instead of salty.[141]

Asclepiades is not named in this passage, but his presence is revealed by the distinctive terminology. We learn from *DRN* IV.622-626 that the Epicureans believed the shape of the elements to have a direct bearing on the quality of taste.[142] Notably, in *DRN* IV.633-626, the relevant variable is 'smoothness'; sweet tastes emerge from bodies made from smooth atoms; unpleasant tastes emerge from bodies made from rough atoms.[143] In Cass. *Probl.* 65, size is the variable that dictates the relationship between the shape of a substance's ὄγκοι and the quality of its taste. As Leith remarks, 'this would undoubtedly have given Asclepiades' system a more flexible and elaborate account of qualitative change.'[144] Moreover, it is worth noting that the account of corpuscular fragility in Cass. *Probl.* 65, which contextualises the event within a broader recurrent process, seems to indicate that fracture is – at least, in large part – non-random. Apply great heat to a body made of large ὄγκοι and the elements themselves will be divided. We are invited to suppose that the 'dividing fire', a constellation of ὄγκοι of a particular shape interacting with each other in a particular way, contains some property at the level of its elements which precipitates fracture in larger ὄγκοι.[145] Note the implicit division of vulnerable and invulnerable ὄγκοι in this context; the fire particles change the nature of the water particles they interact with, not the other way around. The context of their interaction is obviously a relevant factor. Though we have little else to build on, the passage does hint at a more sophisticated model of corpuscular interaction – whereby fracture,

---

[141] Cass. *Probl.* 65 trans. Leith (forthcoming) II.1.2. cf. *Cass. Probl.* 64: 'Why is rainwater sweet, even though it is evaporated from the sea? …Or (one should say) that, even if it is the sea water itself that is evaporated, the pneuma moves it with great force, and, having been moved, it becomes finer. For what is moved is always naturally disposed to rarefaction. What is fine is also sweet, since it is <not> composed of large ὄγκοι. This is why rainwater is sweet.' Trans. Leith (*ibid.*).

[142] Explored at **II.5.6**. See also Lucr. II.398-407.

[143] Note also Lucr. II.464-477, see below.

[144] Leith (forthcoming) II.1.2.

[145] We might submit 'sharpness' as the obvious candidate for this property. If we entertain the notion that the ὄγκοι are more susceptible to division at a point of previous fusion – which may contribute to the rougher texture of the larger ὄγκοι, indicating further parity between Asclepiades' system and its Epicurean precedent – then sharper particles are more likely to make contact with the larger ὄγκοι at their most vulnerable points. That fire is composed of pyramidical elemental solids does, of course, have precedence in Plato's *Timaeus* (56a-b). Plato's geometric model of elemental bodies was likely the source of the Heraclidean terminology that may have influenced that of Asclepiades. See Polito (2013) p.127. See also Lucr. II.431-433: 'And fire with heat and frost with cold have teeth that bite our senses in quite different ways.' Trans. Melville (1997).

deflection and possibly fusion[146] result from predictable causes – than the evidence has yielded. We may speculate that Asclepiades found a role for his more flexible – but decidedly rule-governed – account of qualitative change in physiological contexts – indeed, the example in Cass. *Probl.* 64 can easily be read as an explanatory analogy for a more esoteric process. But speculate is all that we may do.[147]

Before we broaden our inquiry in **IV.2.5.2**, note how the practical basis for Asclepiades' innovation is fundamentally Epicurean. The too-perfect alignment of atomic shape and associated sense-quality which, for some, has signified Epicurus' inability to uncouple to the fullest extent sense-reality from the properties at its root,[148] is the feature of Epicurean physics that Asclepiades elaborates.[149] We find an Epicurean account of the transformation of salt water into sweet in *DRN.* II.464.477. In this passage, seawater – which is a mixture of rough and smooth atoms (the former accounting for taste, the latter for liquidity) – is filtered through many layers of earth such that only the smooth (thus sweet) atoms are retained. The end result is the transformation of seawater's constituent atoms – not their relative disposition but their shape. The mechanism of transformation is filtration. Epicurean physics remains Asclepiades' foundation; his innovation makes the existing explanation for qualitative change more flexible. Yet one wonders how often Asclepiades availed himself of the opportunities he created. We will see below in our discussion of Asclepiades' psychophysiology (**IV.4**) that the refinement of bodies through filtration had a role to play in Asclepiades' system.[150] It seems unlikely that Asclepiades conceived the

[146] Although, as I noted in **IV.2.4.2** above, it is difficult to conjecture in elemental terms what circumstances might precipitate this latter consequence.

[147] As I wrote in **IV.2.2** n.55 above, the attempt at Vallance (1990) p.117-122 to identify a role for corpuscular fragility in the account of '*solubiles* diseases' (incorrectly identified as a separate category of disease) in Cael. Aur. *Cel. Pass.* I.14.107-108 is, by his own admission (p.177), 'conjectural'. Wary of this, he proposes that 'corpuscular dissolution can be seen most clearly not in a disease aetiology, but in his account of digestion.' (p.119). Asclepiades' account of digestion, preserved at *Cel. Pass.* I.14.113, involves the dissolution of food into *solutio ciborum* which then passes through the various parts of the body via 'all the fine passages' (*omnes tenuis vias*) distributing nutriment. Unfortunately, nowhere in *Cel. Pass.* I.14.113 does Caelius specify that the corpuscles themselves are broken in this process. Asmis (1993) p.154-155, as we have seen (**IV.2.4.2**) proposed something similar regarding the transmutation of liquid into vapour before it penetrates the wall of the bladder but her argument has the same basic vulnerability. Vallance (p.121-122) builds on his reading of *Cel. Pass.* I.14.133 and argues that the account of dropsy in *ibid.* I.14.107-108 describes a process whereby the ὄγκοι constituting *solutio ciborum* are individually broken down, but he does so with no firm evidential basis.

[148] e.g. Hankinson (1999) p.501.

[149] Lucr. II.398-477.

[150] See esp. Cass. *Probl.* 8 and Calc. *In Tim.* 214.

breaking of the ὄγκοι as the most salient explanation for macroscopic qualitative change. Our sources for the specifics of Asclepiadean physiology/pathology in which scholars have sought evidence of the role of corpuscular fragility remain recalcitrant; the details therein are typically explicable in atomistic terms.[151]

It is puzzling, given the conspicuous novelty of Asclepiades' system, why so few of our sources seek to emphasise its novel aspect. It is possible that this is merely a quirk of the surviving material.[152] Galen's lamentably lost treatise *On the Doctrines of Asclepiades,* in which we are told that two books (4 & 5) were dedicated to a refutation of Asclepiades' element theory,[153] evidently contained some targeted critique of Asclepiades' frangible ὄγκοι.[154] But we may surmise from the available evidence that Galen's argument against Asclepiades' element theory overlapped considerably with his critique of Epicurean atomism.[155] In *MM* 12.7 (= X.851-853 K.), the passage in which his critique of corpuscular fragility in the fifth book of *On the Doctrines of Asclepiades* is alluded to, the basis of the critique is that positing frangible ὄγκοι does little to protect Asclepiades from the argument Galen levels at the atomists –that 'those who constitute the body out of insensitive atoms or *anarma* elements' cannot account for pain *even if* the bodies in question may fracture upon impact 'since the bodies broken remain insensitive (unless we shall say that stones feel pain when they are divided)'.[156] For Galen, Asclepiadean element theory is a novel species of atomism whose novelty affords it little armour against the deficiencies of the original system. The implication is that the system adhered to the Epicurean model in many respects. Whatever flexibility corpuscular fragility afforded Asclepiades, it was never so liberally

[151] e.g. Vallance (1990) p.117-122; Asmis (1993) p.154-155.

[152] Though it remains a mystery why Caelius Aurelianus – or why his source, Soranus – who records the earlier atomistic stage in Asclepiades' thought, does not enlighten us as to what motivated the reported evolution in Asclepiades' thinking.

[153] Gal. *Cur. Rat. Ven. Sect.* 3 (= XI.256-257 K.).

[154] Alluded to at Gal. *MM* 12.7 (= X.851-853 K.).

[155] For Galen, as is revealed elsewhere (Gal. *Hipp. Elem.* 2.10-11 (= I.417 K.)), it is the position on the qualitive status of the elements shared by Asclepiades and the atomists – *i.e.* that they are without secondary, phenomenal qualities – that leaves them vulnerable to a common critique. For a detailed analysis of Galen's argument against atomism/*anarma* elements, see Leith (2014).

[156] Trans. Leith (forthcoming) = Leith 32. That material monism cannot account for pain (or, more broadly, sensation) is Galen's central argument against monistic element theories, sourced from [Hipp.] *Nat. Hom.* 2.3 (Gal. *Hipp. Elem.* 2.3 (= I.415 K.)) but repurposed as an argument against atomism, where it is clear that the author of *Nat. Hom.* is concerned, in his formulation of the argument, with the Ionian Monists (*Hipp. Elem.* 2.4 (= I.416 K.), see Leith (2014) p.217).

exploited as to free Asclepiades from the atomists' shadow in the eyes of his theory's detractors.

IV.2.5.2 Asclepiades in context

My thesis is that Asclepiades' doctrine of frangible ὄγκοι is most intelligible when framed by the conjunction of two contexts, namely 1) the increasingly formalised uncoupling of medical and philosophical inquiry in the Hellenistic period and 2) the peculiar antipathy between Epicureanism and the medical art *per se*. Let us deal with them in turn.

At **III.2.2** I addressed the evidence for the third century anatomists having deliberately constrained their epistemologies to the domain of the medically pertinent.[157] I argued, following Leith,[158] that Athenaeus of Attalia applied the same self-restricting methodology to his own Stoicising element theory, and that we can detect in the scrupulousness with which he maintains the epistemological perimeter of the medical τέχνη a need to firmly distinguish his methodology from that of his precursors in philosophy. Asclepiades' familiarity with the work of Erasistratus is not controversial (we will address at **IV.4** the influence of the anatomist on Asclepiades' psychophysiology). I locate him in a loose tradition of physicians who self-consciously practised medicine as a singular craft, a tradition which I argued at **III.3** finds its formal genesis in Aristotle's taxonomy of sciences, organised around the constraints of his teleological cosmology.[159] But with Asclepiades' Epicurean inheritance comes the challenge of signalling his intellectual independence within a system whose simplicity granted him few opportunities to do so.[160] Athenaeus of Attalia – whom I locate in the same post-Aristotelian tradition[161] – affords us an example of how disciplinary independence can be enforced *from within* an existing physical system, how limiting the capacity of one's theoretical toolkit and innovating from a position of self-imposed constraint can serve to emphasise the generative potential of the medical τέχνη

[157] See Gal. *MM* 2.5 (= X.107 K.); Anon. Lond. xxi 18-23, 32-35. See Leith (2015a).
[158] Leith (forthcoming).
[159] Which is not to discount precedent in, for example, *Nat. Hom.* 1 (see **III.2.1.2**). As I wrote in my introduction (**0.2**), the tension between medicine and philosophy is long lived. Aristotle merely formalised the distinction between the two disciplines on the basis of their independent τέλη.
[160] Recall my argument first made at **III.3.1** and developed further at **III.4** that for Athenaeus to claim ownership of his innovations for himself and for his discipline they must arise from the first principles of medicine, with all the theoretical limitations this implies.
[161] See esp. **III.3.** On Flemming's (2012) p.57-69 reading of Asclepiades' dates, Athenaeus likely founded his school roughly thirty years after Asclepiades' death.

against that of indiscriminate physical inquiry. But, as I argued at **IV.2.1**, Stoic cosmology is conceptually multi-tiered[162] and self-similar[163] in a way that Epicurean physics simply is not; the Stoic cosmos can be considered at different scales all the while retaining its essential Stoic quiddity. Athenaeus was presented with a multi-layered physics in which to carve out the dimensions of his discipline's theoretical foundation. Asclepiades can limit his use of multi-functional – *i.e.* philosophical – vocabulary to hem Epicurean physics into a physiological context. He can also, as we shall see at **IV.3.2** below, jettison Epicureanism's most eccentric physical doctrine – the atomic-swerve – by virtue of his emancipation from Epicurus' ethical τέλος. But what else can he do to indicate the proximate territory of medical inquiry so as to signify his independence from Epicurean physics – such that, crucially, any innovations he might make can be claimed by the medical art – that does not involve tinkering with the foundations themselves?

The most obvious answer is that he can adopt Epicurus' cursory analysis of physical pathology and rigorize it, concentrating his attention on perfecting his predecessor's unfinished thoughts. As I argued at **IV.2.2** above, Caelius Aurelianus' summary of Asclepiades' medical theory at *Cel. Pass.* 1.14.105-107 can be read as evidence for precisely that, a rigorization of the Epicurus' vague theory of bodily pain hinted at *DRN* II.963-967 – albeit with the spectre of corpuscular fragility hovering somewhere in the background. The reference to the early, atomistic stage in the development of Asclepiades' thinking implies strongly that this was his original intention. But if he makes no alteration to his predecessor's doctrine and cannot claim, as Athenaeus would claim, to have developed his theory from the 'elements of medicine'[164] can he not be accused of merely throwing light on an *implicit* doctrine in Epicureanism? A commendable feat for a philosopher, but no defence of the medical art's generative potential. It is here that the argument at **II.5** (context (2) above) must be reintroduced. The guiding premise of my argument in this chapter, that Asclepiades was concerned at all with defending medicine's value against philosophy, is not based solely on his intellectual debt to Erasistratus and position in a lineage of medical thinkers

[162] There are several stages in the ontological journey from principle to sensible phenomena. Contrast this with Epicureanism's two-tier model subsensible elements and sensible compounds.
[163] A feature I sought to emphasise throughout **I.3**. See also e.g. **III.3.3** and **III.5.3.1**.
[164] See ps.-Gal *Def. Med.* 31 for the contrast with Athenaeus of Attalia.

who sought to contrast their specialised mode of inquiry with the generalised alternative. As I argued at **II.5**, Epicureanism was, at best, dismissive of the value of the medical art *per se,* distilling its promises to their rhetorical value (esp. **II.5.1-2**), and at worst, hostile to a rival means of pain-negation whose neglect of the mind in favour of the body, coupled with its unconscionable – but, in practical terms unavoidable – tolerance of uncertainty, engendered more suffering than it could claim to have cured (esp. **II.5.3**). I suggest that Asclepiades was particularly motivated to defend the medical art against philosophy, given the ill-treatment of his discipline by the philosophy whose medical utility he sought to exploit. What better way to defend medicine against its Epicurean critics than to challenge Epicureanism's foundational doctrines *on medical grounds*, to propose that atomism, a central Epicurean tenet,[165] was inadequate to the task of explaining the breadth of physiological phenomena? Medicine would thus possess a generative value – a means of contributing to physical theory[166] – that Epicureanism's τέλος caused it to neglect, occupied, as it was, with matters of psychological equanimity. The evidence from Aët. 1.23 and (arguably) *Cel. Pass.* 1.14.105 suggests that Asclepiades was engaged in critique of Epicurean atomism (**IV.2.4.2**). His *magnum opus,* the suggestively titled *On Elements,* which contained critiques of rival theories of matter,[167] was no doubt the ideal place to reveal that specialised investigation into the elements of man – discerned *a posteriori* for the phenomena of human physiology – uncovered the insufficiency of Epicurus' element theory. It would perhaps exceed credulity to propose that these contextual considerations forced the discovery of a practical application for the doctrine of frangible ὄγκοι, – after all, Asclepiades was initially satisfied that atomism was a sound basis for his theory and I maintain that his theory of pathology remained (at least broadly) consistent with Epicurean principles. Rather, I propose that Asclepiades' introduction of corpuscular fragility into a broadly Epicurean physics should be interpreted against the background of this conjunction of frames. These contextual considerations – the gradual formalisation of medicine's independence from philosophy and the antipathy of

[165] Preceded only be the (mostly) mechanistic nature of activity perceptible to reason in its importance to Epicurus' ethical claims.
[166] cf. Arist. *Resp.* 480b22-31 and see esp. **III.3.2.**
[167] Gal. *Hipp. Elem.* 9.25-26 (= I.487-490 K.).

the mother-doctrine towards the τέχνη which, through Asclepiades, seeks to appropriate its physics – are catalysts for innovation.

Of course, any adaptations Asclepiades may make to Epicurean atomism cannot jeopardise whatever medical utility he initially discovered in the doctrine. We can be confident that the appeal of Epicureanism to the medical thinker did not reside in atomism *per se.* Doubtless, upholding Epicurus' basic division of the cosmos into ontologically undifferentiated bodies and void was conducive to the formation of uniform explanations for bodily affections and, correspondingly, the development of streamlined therapeutics.[168] The rejection of atomic indivisibility will have complicated this picture. But if a balancing mechanism were introduced in turn, such as that which we discussed at **IV.2.4.3**, the stability and simplicity afforded by the atomists' basic division could be preserved. Yet there must be more to Epicureanism's appeal. The missing piece of our investigation is the answer to the question of why a physician would draw so heavily upon a philosophical tradition his debt to which he would take measures to obscure. Clearly, if we want to discover what it was about Epicurean philosophy that initially attracted Asclepiades, we should attend to the components of the mother-doctrine that survive the introduction of corpuscular fragility. Our answer, I will argue at **IV.5**, resides in the utility of Epicurus' epistemology. But we are not yet equipped to explore this hypothesis. Positing frangible elements – with all the second and third-order effects of this move within the context of Epicurus' physics – was not the only point of depart between Asclepiades and Epicureanism. The next two sections complete our investigations of Asclepiades' methods of dissent.

IV.3 Medical materialism

The unity of physics and ethics in Hellenistic thought is nowhere more in evidence than in the questions of intelligent design and human volition. Is a) one's moral obligation encoded within nature's transformations, or b) does the manifest absence of primitive intent leave the rational inquirer to assemble an ethic out of the extremes of sensory experience? Is our behaviour a) explicable, in the final analysis, in terms that relegate agency into the realm of illusion, or b) do nature's laws confirm that our choices are our own? The Stoics answer (a), the Epicureans, (b). Fortified behind epistemological barriers, Athenaeus of Attalia

[168] Note Pliny *NH* XXVI.7.

need not impinge on Stoicism's answers to these questions; (a) is implied by his system if read in conjunction with the philosophy at its root but the questions reside outside the parameters dictated by the Pneumatist's τέλος. Asclepiades of Bithynia, by virtue of the Epicurean doctrines he chooses to retain and to discard, engages more directly with the questions above.[169] His treatment of Epicureanism's ethical signature as evidenced in its physics should reveal something of how he sought to enforce medicine's autonomy. In this section we deal first with Asclepiades' anti-teleology at **IV.3.1** then proceed to his determinism at **IV.3.2**. I conclude this section with a discussion of the depiction of Asclepiades and Epicurus in Galen's *Natural Faculties* at **IV.3.3**.

IV.3.1 Anti-teleology

Galen, who is more exercised by Asclepiades' denial of Nature's craftsmanship than he is by any other single aspect of his thought, is our principle source for Asclepiades' anti-teleology. His attacks on Asclepiades in this domain, most of which derive (unsurprisingly) from his treatises *On the Utility of the Parts of Body* (*UP*),[170] are by and large attacks on Epicurus also.[171] In *UP*, Epicurus and Asclepiades are foils for Galen's ruminations on purpose in physiology. Epicurus is the aggressor from philosophy, Asclepiades from medicine, but both unite in opposition to Galen's conception of Nature as 'artificer'. Though we cannot expect from Galen an objective summary of the debate, *UP* 1.21 reveals its parameters:

> Now, as to what is said [of the tendons of the hands] by some of those who embrace the arguments of Epicurus the philosopher and Asclepiades the doctor when they raise objections over such issues, it is worthwhile, not to pass over them, but go through their arguments in detail and to point out where they go wrong. So, it is the opinion of these men neither that it is because the tendons were made thick that their activities are strenuous, nor

[169] He is the cited authority on materialism in Gal. *Nat. Fac.* II.29 K. which Polito (2006) p.290-297 makes much of. Asclepiades' championing of materialism from within the medical sphere doubtless made him the most convenient foil for Galen's exposition of teleology. It is also possible that Asclepiades' determinism (see **IV.3.2-3** below) made his system the more straightforward example of materialist physics.

[170] With an additional significant critique being located at Gal. *Nat. Fac.* 2.6 (= II.97-98 K.).

[171] Vallance (1990) p.145 reads the shared anti-teleology of Asclepiades and Epicurus as the reason for Galen's assimilation of the two doctrines. I hope I have shown at **IV.2** (esp. **IV.2.3**) that Asclepiades' Epicurean inheritances are far clearer than Vallance maintains. Galen can treat Asclepiades and Epicurus as interchangeable on the question of teleology *because* Asclepiadean physics is derived from the principles of Epicurean materialism.

> that it is because they were made thin that their activities are weak, but rather that these are made to become like this or like that by their uses in day-to-day life, and that the size of the tendons depends on the magnitude of the movement, so that when the tendons are exercised, they acquire, as is reasonable, a good condition and become thick, while those that are idle atrophy and waste away. It is certainly not, they say, because it would have been *better* for tendons involved in more strenuous activities to be strong and thick, and for those involved in weaker activities to be thin and weak, that they were fashioned like this by Nature – for monkeys would not have fingers of this sort – but, as was said previously, it is by necessity that thickness follows upon those that are exercised, because they are well nourished, thinness upon those that are idle, being less well nourished.[172]

For Asclepiades, as for Epicurus, activity precedes purpose. The tendons of the hand are thick through use rather than to facilitate their use. 'Usefulness' is an accident of the aleatory movements of elements perceptible to reason. Epicurean arguments against specific examples of biological teleology can be found at *DRN* IV.823-876. Arguments against the fine-tuning of the cosmos are set out in *DRN* V,[173] where the emergence of the world from a tumult of atoms accumulates complexity. Monsters 'strange in form and aspect' fail to 'hammer out the pattern of their kind' because their bodies, senselessly forged, lack means of procreation.[174] Those creatures endowed with the means to survive and 'hammer out a chain of progeny' are preserved, and thus we have no designing principle to credit with the advantages of our physiology.[175] Asclepiades assumes responsibility for Epicurus' non-teleological cosmogony when he builds a medical theory from Epicurean mechanics. Though we need not ascribe to the physician an account of human evolution to rival *DRN* V in its detail, the frequency with which he is aligned with Epicurus on this question attests to his having argued, positively, for *de facto* Epicurean outcomes. Elsewhere in *UP,* Galen's attacks on Asclepiades and Epicurus are uniform. At *UP* 7.14 (= III.571-572 K.), marvelling

---

[172] Trans. Leith = Leith 46 (= III.74-76 K.).

[173] Lucr. V.126-145 for the argument that intelligence cannot reside outside the body; *Ibid.* V.146-155 for the argument that gods do not reside 'in any regions of this world', being so slight in nature that they cannot 'touch anything that we can touch'; *Ibid.* V.156-180 for the argument against anthropocentric creation. From *Ibid.* V.181, Lucretius expounds Epicurean cosmogony.

[174] *Ibid.* V.837-857. Trans. Melville (1997)

[175] *Ibid.* V.855-877.

at how nature equipped the muscles with nerves, Galen argues that both Asclepiades and Epicurus, by stripping Nature of her creative power, are guilty of affording human ingenuity undue precedence. At *UP* 11.8 (= III.873-874 K.), seeing the hand of the designer in the sockets of the teeth, Galen acknowledges that the anti-teleology of Epicurus and Asclepiades emerges from their aleatory element theories and presents atoms and ὄγκοι as equivalents on this question.[176] At *Nat. Fac.* 2.6 (= II.97-8 K.)[177] an apparent dispute within the Erasistratean school about the constituents of the elemental nerve is framed as a dispute between teleological and anti-teleological theories of matter, with Epicurus, Leucippus, Democritus and Asclepiades offered as champions of the latter.[178] It seems that Asclepiades found no cause to oppose Epicurus on this issue, and likely argued for the merits of the traditional materialist position within the context of human physiology. The Asclepiadeans are referenced independently at *UP* 5.5 (= III.364-5 K.) as 'those who accuse Nature of labouring in vain'[179] and Palladius, in his commentary of Hippocrates' *Epidemics* VI, offers Asclepiades as the exemplar of those who believe Nature to be without skill.[180]

The purposelessness of Asclepiades' cosmology is a further inheritance from his precursor in philosophy; it is a necessity of mechanistic physics as Galen's introduction to the teleological debate at *Nat. Fac.* (= II.27-29 K.) makes clear. But note that for Epicurus the doctrine of anti-teleology was a base-ingredient in the balm he sought to apply to human fears.[181] We have no cause to suggest that the Asclepiadean version, though the same in form, was oriented towards an ethical τέλος. No longer is it a component of an integrated philosophy, given 'purpose' not by nature but by the philosophy's founder; it is now merely a necessity of prior conditions. Though this point may appear superficial in isolation,

[176] In Gal. *Nat. Fac.* 1.14 (= II.51 K). Galen laments the continued 'respectable existence' of the Asclepiadean and Epicurean schools, who unite in their commitment to similar principles, bodies and void.
[177] A text in which, we should note, the unity between Asclepiades and Epicurus is not so consistently apparent. See **IV.3.2** below.
[178] Although Asclepiades is not, strictly speaking, listed alongside Epicurus, Leucippus and Democritus in this passage, the argument goes that were the Erasistrateans to resolve the elemental nerve into materials redolent of atoms, then they would be positing some sort of *anarmon* element leading us back to Asclepiades 'by the garden gate'. Trans. Leith = Leith 51. See Gal. *Nat Fac.*1.12 (= II.27-29 K.) for Galen's general summary of the two irreconcilable schools of thought regarding the relationship between matter and intentionality. Polito (2006) p.287-290 for more on this passage.
[179] Trans. Leith = Leith 47.
[180] Vol. 2 p.128-150 Dietz = Leith 52.
[181] See e.g. Epic. *Ep. Men.* 123-4; *Ep. Hdt.* 76-77; (esp.) Lucr. V.1218-1240, VI.68-79; Cic. *Nat. Deor.* I.43-49.

it is important to remember, as we noted at **II.3.8**, how Epicureanism's ethical τέλος reaches back into the premises of the atomist tradition and remodels them. Asclepiades' medical τέλος permits him to liberate Epicurean physics from its ethical obligations. Though this has no functional implication for his position on teleology, it is clear that Epicureanism, redirected from its τέλος in human behaviour, will jettison its most eccentric doctrines. The question of Asclepiades' determinism looms.

IV.3.2 Necessity and non-ethical physics

Caelius Aurelianus can once more be relied upon to indicate the places where Asclepiades' system deviates from its Epicurean precursor:

> Next (Asclepiades says) that everything occurs through necessity and nothing occurs without a cause, and that nature is nothing other than body and its motion. Lastly, he says that (nature) not only helps (*prodest*) but also harms (*nocet*).[182]

That nature is nothing over 'body and its motion' can be said of its Epicurean conception; that *everything* occurs through necessity and *nothing* occurs without a cause is Asclepiades freeing corpuscular materialism from its ethics-directed eccentricities. There is no room for Lucretius' *clinamen* in Asclepiades' physics, no mechanism by which *voluntas* can be preserved and why should it be otherwise?[183] The question of free will is the province of the ethicist. The *clinamen* is the invention of one who perceived fatalism and divine tyranny to be near-equivalent evils and sought to rescue our volition through his physics.[184] It stands out in Epicureanism – now as it did in antiquity[185] – as an inelegant concession to an ethical doctrine that was not otherwise emergent from the principles at root. If one wishes to claim that medical investigation, beginning from Epicurean principles but distinct in its aims, produces a more coherent fundamental physics, it is, on first analysis, the simplest move to reject the component of the mother-doctrine that aims exclusively at the psychological portion of ἀταραξία; the target lies beyond the doctor's ambit. On more considered analysis, there is a question

---

[182] Cael. Aur. *Cel. Pass.* 1.14.115 trans. Leith (forthcoming) = Leith 45.
[183] cf. Lucr. II.251-293. See **II.3.8.**
[184] Fatalism, as we have seen (**II.3.8**), is in face depicted as the worst of the two systems in Epic. *Ep. Men.* 133-134.
[185] e.g. Cic. *Fin.* I.19.

of whether Asclepiades is free to adopt Epicurus' epistemology wholesale – as I will argue he does at **IV.5** – without incorporating this doctrine, but I will defer this discussion until the penultimate section of this chapter (**IV.5.3.3**).[186]

IV.3.3 Asclepiades vs. Epicurus in Galen's *Natural Faculties*

In *Nat. Fac.* 1.12 (= II.29 K.), Asclepiades is invoked as the champion of the materialist, anti-teleological school that Galen has acknowledged as his enemy. Roberto Polito (2006) cites *Ibid.* (= II.27 K.), in which Galen sets out his criteria for awarding a rival thinker a mention in his works, as an explanation of Asclepiades' place of prominence.[187] Galen claims to contend only with those who 'realise the logical sequence of their hypotheses, and stand by them.'[188] Galen, who is elsewhere content to assimilate Asclepiades and Epicurus, regards the former in *Nat. Fac.* to have been truer to the principles of materialism. He summarises the relationship between Asclepiadeanism and Epicureanism at *Nat. Fac.* 1.14 (= II.51-52 K.):

> For if one diligently familiarizes oneself with the writings of Asclepiades, one will see clearly their logical dependence on his first principles, but also their disagreement with observed facts. Thus, Epicurus, in his desire to adhere to facts, cuts an awkward figure by aspiring to show that these agree with his principles, whereas Asclepiades safeguards the sequence of principles, but pays no attention to the obvious fact…[the tenets] of Epicurus have been confuted by Asclepiades, who adhered always to logical sequence, about which Epicurus evidently cares little.[189]

This passage follows Galen's refutation of (his account of) Epicurus' explanation of attraction whereby atoms shedding from the attractor interlock with atoms 'related in shape' and drag them after impact back towards the original source.[190] Galen notes that Asclepiades 'viewed with suspicion the incredible character of the cause mentioned' and was moved instead to deny the existence of attraction on the basis of his physics despite the evidence of his senses.[191] We should be

---

[186] Referring to the question first raised in this thesis at **II.3.8,** n.125.
[187] Polito (2006) p.295-296.
[188] Trans. Brock (1916).
[189] Trans. Brock (1916).
[190] Gal. *Nat. Fac.* 1.14. (= II.44-51 K.).
[191] Gal. *Nat. Fac.* 1.14 (= II.45-46 K.).

hesitant to accept Galen's reading of Asclepiades on attraction;[192] it would be characteristic of ancient medicine's arch-commentator to simplify the disputes between his opponents when his purpose demands it. But the point Galen builds to at *Nat. Fac.* 1.14 (= II.51-52 K.) is a general one.[193] He writes of Asclepiades that it is his 'constant aim…to follow out logical consequences and to upset obvious fact, in this respect being opposed to Epicurus; for the latter always stated the observed fact, although he gives an ineffective explanation for it.'[194] I will argue at **IV.5** that Asclepiades adhered closely to Epicurus' argument for the truth of 'observed fact'. The complexity of reconciling this adherence with the 'impression' of choice making is addressed at **IV.5.3.3**. Galen wants to play the respective strengths of Epicureanism and Asclepiadeanism against one another and though we cannot expect him to reproduce either theory in a sufficiently penetrating light, we are invited to speculate as to which additional Asclepiadean doctrines, adhering to the logical consequences of materialism but conflicting with sense-data, lie at the root of Galen's generalisation. Polito points to Asclepiades' psychology,[195] which we will review in the next section, but the question of Asclepiades' determinism in particular casts a shadow on this passage. Galen writes at *Nat. Fac.* 1.12 (= II.27-29 K.) 'All people, therefore, who can appreciate the logical sequence of an hypothesis hold that, according to the [materialistic] teaching, there does not exist any substance or faculty peculiar either to nature or to the soul, but that these result from the way in which the primary corpuscles, which are unaffected by change, come together.'[196] 'Some of these people', Galen continues, 'have even expressly declared that the soul possesses no reasoning faculty, but that we are led like cattle by the affections of our senses, and that we are unable to refuse or dissent from anything.'[197] Asclepiades is the only named representative of the materialist camp at *Nat. Fac.* II.29 K.. His determinism leaves him vulnerable to the accusation of having bovinized humankind through his element theory and though I will argue below (at **IV.4.3**

[192] Though there is perhaps a comparison to be made between Epicurus' *clinamen* and the atomic theory of attraction at *Nat. Fac.* 1.14 (= II.44-51 K.). If we entertain Galen's account of the latter, both are jarring insertions into a materialist system that, unadjusted, conflicts with the impressions Epicurus seeks to validate.
[193] Polito (2006) p.296.
[194] Gal. *Nat. Fac.* 1.14 (= II.47 K.) trans. Brock (1916).
[195] Polito (2006) p.296-307.
[196] Trans. Brock (1916).
[197] *Ibid.* trans. Brock (1916).

and **IV.5.3.3**) that we need not identify Asclepiades' determinism with his denial of human reason – any more than we would make this claim of the Stoics –, Galen was motivated neither to interrogate nor faithfully present the complexity of Asclepiades' position. But it is because of Asclepiades' adherence to the logical consequences of unalloyed materialism that he could be cast – if not always fairly – as its truest representative.[198]

The Physician, disaligned with the philosopher's ethical obligations, has, in the construction of his theory, fewer objectives to satisfy and fewer concessions to make. A more streamlined physical doctrine would be expected to emerge from a discipline with narrower objectives, and we read Asclepiades' determinism as contingent on his non-ethical τέλος. Asclepiades could thus 'confute' Epicurus' physical concessions to ethics from a position of security and, in doing so, emphasise the advantages of medical inquiry (either explicitly or implicitly). Note the particular conflict this creates between Epicurus' psychological salve and Asclepiades' theory of health and disease. Asclepiadean physics preserves the sophistication of Epicurean atomism over its Democritean predecessor but retreats from an adjustment made in order to secure the philosophy's 'medicinal' value. Though it may test credulity to attribute too much intentionality to Asclepiades on this particular point, if Asclepiades criticised Epicurus on the question of determinism – which *Nat. Fac.* 1.14 (= II.51-52 K.) indicates but does not confirm – he will have defended medicine's value on two fronts, its investigative clarity and its monopoly on 'healing'. In decontaminating Epicurean physics of explicitly 'curative' components, Asclepiades denies Epicurus medicine's rhetorical misappropriation.

IV.4 Psychophysiology

The novelty of Asclepiades' medical theory is most apparent in his discourse on the soul. In a move that sets him apart from other doctors in the Hellenistic era, he colonised psychology for the medical art, pronouncing not merely on the physiology of psychic functions – indeed, in certain areas we see physiology recede from his concern (**IV.4.4**) – but on the substance of the soul and its topography. The πνεῦμα-centric theory of Athenaeus of Attalia invites

[198] Polito (2006) p.296. Polito, as I will argue at **IV.4.3** below, is insufficiently critical in his acceptance of Galen's characterisation of Asclepiades. But I find little to contest in p.290-297.

comparisons between bodily and psychological healing, but where his theory is suggestive of Stoic psychology it is suggestive of an untouched philosophical inheritance (**III.5**).[199] The self-cordoned technical epistemology of Herophilus and Erasistratus prevented them from expounding on the soul beyond its perceptible functions.[200] If Asclepiades' tinkering with Epicurean atomism strikes us as a bid for medicine's creative independence, Asclepiades' psychological writings may be read as a claim for its reach.[201] Certainly, in antiquity, it was the psychological aspect of Asclepiades' theory – in particular, his rejection of a localised ἡγεμονικόν – that brought him the attention of commentators outside the medical sphere;[202] it is the component of his theory that is most intuitively 'philosophical', hinting at a reductionist theory of mind that denudes human psychology of any vestige of its traditional privilege. But this reading attributes proactivity to Asclepiades which is not, in this case, warranted. Rather, I read Asclepiades' discourse on the soul as an attempt to recover the essentials of Epicurean psychology in the wake of the emergence of neurophysiology, motivated by a desire to preserve the physical basis of Epicurean epistemology. Asclepiades' psychological innovations were thus begotten not of a desire to correct misconceptions in philosophy or to make bold assertions about the ontology of deliberation, as Roberto Polito claims,[203] but of necessity. I will argue in this section that Asclepiades' psychophysiology is the domain of his theory in which the tensions between his medical and philosophical influences are most salient, that the eccentricities of Asclepiadean psychology are an attempt to marry Epicurean psychology with contemporary psychophysiological orthodoxy. The rejection of the localised ἡγεμονικόν is a reactive doctrine.

To this end, **IV.4.1** is an outline of Asclepiades' psychology, its Epicurean inheritances and basic points of deviation. In **IV.4.2** we explore Asclepiadean πνεῦμα, soul-generation, respiration and the strained marriage of corpuscular

[199] For Stoic πνεῦμα see **I.5**.

[200] Anon. Lond. xxi 18-23, 32-35; Gal. *MM* 2.5 (= X.107 K.) respectively. See **III.2.2.** See Leith (2020) p.45-48 for a recent argument to this end.

[201] Gal. *Lib. Prop.* 11 refers to Galen's short work *On the Substance of the Soul according to Asclepiades.* Though no extant titles of Asclepiadean works suggest an exclusive devotion to the subject of psychology – with the possible exception of *On Respiration and Pulses* (see Leith (forthcoming) IV.2), given the important of respiration to Asclepiades' theory (see **IV.4.2**) – we can be confident, given the broad circulation of Asclepiades' psychological hypotheses (e.g. Tert. *DA* 15.1-3) that Asclepiades devoted considerable effort to the exposition of this theory, in whatever form such exposition took.

[202] e.g. his inclusion in the *Placita* tradition, as represented by Aëtius.

[203] Polito (2006) p.297-307.

physics with Hellenistic physiology. The non-localised ἡγεμονικόν is the subject of **IV.4.3**. I shall argue that it be read as an attempt to reconcile Epicurean psychology with the discovery of the nerves, the instruments of motion, in the third century BC, which were traced by Erasistratus to the meninges of the brain. This section closes, at **IV.4.4**, with a note on nerves in Asclepiades' psychology, concluding this section on the subject of sensation, a bridge to the discussion of Asclepiades' epistemology.

IV.4.1 Introduction to Asclepiadean psychology

Asclepiades' psychological pronouncements are in keeping with the Hellenistic vogue for corporeality; the soul's interactions with the body are those of matter upon matter. Calcidius, our fullest source for Asclepiades' elemental model of the soul, informs us that Asclepiades identified its substance with πνεῦμα, a compound of smooth, spherical and very fine ὄγκοι.[204] At the elemental level, this is standard atomist doctrine; Democritus identified the substance of the soul with fire whose smooth, small spherical constituents accounted for its ease of motion through the body;[205] for Epicurus, as set out at **II.3.9**, the soul 'is a fine-structured body diffused through the whole aggregate.'[206] The Epicurean soul resembles πνεῦμα in its diffuse nature (and heat in other respects) but it is distinguished from sensible πνεῦμα by the extreme fineness of its atomic composition.[207] The qualities of smoothness and roundness are attested at *DRN* III.[208] In all three cases, the soul is distinguished from the rest of the aggregate by the shape of its elements; their small size, smooth texture and round shape account for the soul's diffusion throughout the body. Diffusion, in turn, is a necessary condition of the soul's function as governing principle;[209] the body is uniformly animate so the soul must be all-present.[210]

---

[204] Cal. *In Tim.* 215.

[205] Arist. *DA* 1.2, 403b 31-404a9 for Democritus' identification of the soul with fire and its constituent spheres. See D. L. IX.44 for their smooth, round nature, Arist. *DA* 405a 813 and Aët. *Plac.* 4.3.5) for their small size.

[206] Epic. *Ep. Hdt.* 63 (LS 14 A).

[207] *Ibid.*

[208] Lucr. III.177-189, 191-195, 203-205.

[209] Diffusion throughout the aggregate does not, of course, necessitate equal concentration. See **IV.4.3**.

[210] Note that though the soul is the *complex* of ultra-fine atoms/ὄγκοι in the body, we nonetheless understand its constituent atom/ὄγκοι as 'soul-atoms'/'soul-ὄγκοι'. The soul is enmeshed with the body, soul-atoms/ὄγκοι pinging between their larger, coarser cousins. The claim that the corpuscular soul is a unified substance, distinct from the body, is not easily maintained – indeed, in Epicureanism, this works to the philosophy's advantage (see e.g. Epic. *Ep. Hdt.* 63-67). We naturally default to apprehending the

Soul-ὄγκοι mirror soul-atoms in all but the substance they comprise. Epicurus, as we have seen (**II.3.9**), posited a quadripartite model of the soul. The four parts, though thoroughly juxtaposed, are distinguished by their function.[211] The πνεῦμα-like part is responsible for motion, a further part warms the body, an air-like part produces rest and a nameless part is responsible for sensation.[212] Asclepiades promoted the pneumatic component to the singular substance of the soul. This, in effect, is to streamline Epicurean psychology, to absorb all pre-established psychic functions into πνεῦμα. This development aligns his theory of psychic *activity* (as distinct from psychology) with that of Erasistratus;[213] though we have no reason to suppose that Erasistratus identified psychic πνεῦμα with the soul, it was certainly, on his analysis, instrumental in the performance of psychic function.[214] Asclepiades also implicitly discards the various alignments of Epicurean psychology and topographies of personality which Lucretius touches on at III.288-232. The question of one's inclination towards particular emotional responses was evidently too remote from medical utility to warrant Asclepiades' consideration.[215] Beyond substance, there is the variable of concentration. The Epicurean soul was divided into mind and spirit, into rational (λογικόν) and irrational (ἄλογον) parts, with the former – a functional ἡγεμονικόν[216] – concentrated in the chest.[217] Asclepiades, strikingly, rejected the notion of a localised ἡγεμονικόν.[218] The implications of this departure are discussed at **IV.4.3**. What reads, on first analysis, as a further (and decidedly more radical) step towards the simplification of Epicurean psychology, may in fact have been a means of diversifying the function of πνεῦμα through the mechanism of variable concentration.[219] The pseudo-Galenic *Historia Philosopha* informs us that the concentration of soul-πνεῦμα in Asclepiadean psychophysiology was not

corpuscular soul as a complex of elements *rather than* a singular compound. This will have consequences for how the materialist can integrate corpuscular psychology into physiology, the process of reducing the soul-body aggregate to its *perceptible* architecture (see **IV.4.2**)

[211] Aët. *Plac.* 4.3.11 (LS 14 C).

[212] *Ibid.*; Lucr. III.62-322.

[213] The most sophisticated exponent of a lineage of medical thinkers that began with Praxagoras of Cos. See **I.3.9**.

[214] ps-Gal. *Int.* 9.3 (= XIV.697 K.).

[215] Although even within Epicureanism, Lucr. III.288-322 suggests that this question was approached with hesitation, perhaps on account of its fatalistic implications.

[216] Aët. 4.5.5.

[217] Lucr. III.231-287.

[218] Calc. *In Tim.* 216; Cael. Aur. *Cel. Pass.* 1.14.155.

[219] Leith (forthcoming) IV.2.1

homogeneous (see **IV.4.3**).[220] Without the topological fixity imposed by a ruling-part, the structure of the soul is uniformly mutable, a trait we might anticipate in a substance that exists *beneath* the organs and the vessels of the body.

IV.4.2 Soul-πνεῦμα: Hellenistic physiology vs. corpuscular physics

The centrality of πνεῦμα to Hellenistic philosophy and science is well established at this point in our discussion. Unlike Chrysippean πνεῦμα (**I.3.8-9, I.4,4** & **I.5**), Asclepiades' soul-particles are juxtaposed with the rest of the aggregate. They are also, being ὄγκοι, without phenomenal content.[221] To identify ψυχή with πνεῦμα is to encumber respiration with a role in the soul's generation and/or nourishment.[222] Asclepiades is faced with the question of how to reconcile corpuscular πνεῦμα with the mechanisms of post-third century Hellenistic physiology which was unconcerned, by design (**III.2.2**), with the subsensory roots of the mechanisms it identified.

Let us flesh out the theory as far as we are able. Galen informs us that, for Asclepiades, respiration is the process by which soul-πνεῦμα is generated.[223] Asclepiades' account of the formation of psychic-πνεῦμα is preserved in Calcidius' commentary on Plato's *Timaeus* (*In. Tim.*) 214:

> …pneuma, they [the Asclepiadeans] assert, travels though the mouth to the lungs, and having been rarefied in respiration makes its way to the location of the heart, then through the arteries which extend from the heart, and arrives at the carotid vessels, so called because when they are wounded they cause sleep-bringing death; through these the same pneuma is brought to the head through the fine and narrow passages of the nerves, and they say that there the origin of sensation is first generated and spreads throughout the rest of the body.[224]

---

[220] Ps.-Gal. *Hist. Phil.* 24 = Leith 112.

[221] *i.e.* qualities beyond size, shape and tangibility.

[222] See **I.4.4** for the role of respiration in Chrysippus' account of soul-πνεῦμα. For Chrysippus, respiration is a process whereby the microcosm is bridged to the macrocosm. Incorporating it into Stoic psychology was likely a relatively frictionless affair. For Asclepiades, by contrast, respiration presents the problem of reconciling corpuscular psychology with the posterior processes of contemporary physiology.

[223] Gal. *Ut. Resp.* 1.2. (= IV.471 K.). It is not, therefore, the process by which soul-πνεῦμα is *nourished*, as claimed by Praxagoras of Cos.

[224] Trans. Leith (forthcoming) = Leith 110. See Polito (2006) p.291-291 for confirmation that the Asclepiadeans are the subject of this passage.

Respiration is the mechanism by which πνεῦμα enters the body. It is converted into soul-πνεῦμα via a two-stage process of rarefaction, first in the lungs and then in the head, shuttled by the respiratory system through the body's perceptible channels. By the time πνεῦμα reaches the heart via the lungs it is somehow distinct from the air inhaled. In the head πνεῦμα acquires the full complement of psychic functions and thereafter it is diffuse. The reference to the 'fine and narrow passages of the nerves' in relation to this final stage of rarefaction is a clue to the mechanics of the process; 'refinement' in Asclepiades' physiology, is the process of squeezing ὄγκοι through ever finer pores. Given the soul's permeation of the body following its generation in the head, it is clear that we should herein understand the soul in elemental terms.[225] The 'fine and narrow passages of the nerves' likely refer to the πόροι within the nerves – the interstices between their constituent ὄγκοι; they are only passages sufficiently narrow to release the ultra-fine soul-ὄγκοι into the primitive network of void-gaps whereby, impervious to posterior boundaries, they may pervade the aggregate. Questions arise as to where the soul-ὄγκοι were *before* this final stage of rarefaction. But let us first locate the theory in its appropriate context.

Where Asclepiades' corpuscular model of the soul is adapted from Epicurean psychology, his physiological account of the soul's generation is derived from Erasistratus.[226] For Erasistratus, as for Asclepiades, πνεῦμα is replenished through respiration.[227] It enters the body through the mouth and travels to the arteries of the lungs, then to the heart, and from the aorta to the rest of the arteries in the body including, of course, those which lead to the brain.[228] πνεῦμα thus travels to the brain via the heart as mirrored in Calc. *In Tim.* 214.[229] The two-stage process of pneumatic rarefaction in *In Tim.* 214 further aligns his account of soul-generation with Erasistratean respiration. Erasistratus distinguished vital (ζωτικόν) πνεῦμα from psychic (ψυχικόν) πνεῦμα, where the former stimulates underlying organic processes and the latter mediates motion and sensation. Inhaled air acquires its vital functions in the heart; its psychic functions are

[225] Calcidius, having set out the process by which soul-πνεῦμα is generated through respiration, proceeds to elucidate the soul's elemental constituents at *In Tim.* 215.
[226] See Leith (forthcoming) IV.2.2.
[227] Gal. *Ut. Resp.* 1.2. (= IV.471 K.) = Garofalo fr. 99.
[228] Gal. *Art. Sang.* 2.2 (= IV.706 K.) = Garofalo fr. 101; Gal. *Ut. Resp.* 5.1 (= IV.502 K.) = Garofalo fr. 112.
[229] This contrasts with the account at Hipp. *Sacr.* 7 in which πνεῦμα travels directly from the nostrils to the brain which Galen would continue to adhere to. See Gal. *Et. Resp.* 5.1 (= IV.502 K.) = Garofalo fr. 112.

acquired in (or around) the brain.[230] The nature of each transformation in Erasistratus' account is unknown.[231] But what is significant, with respect to Asclepiades, are the locations at which these transformations take place – first in the heart and then in the brain, after which πνεῦμα is functionally 'psychic'. The parallels in Calc. *In Tim.* 214 are clear. That rarefaction needed to occur twice in Asclepiades' system – an eccentricity in isolation – indicates his Erasistratean inheritance. He did not, however, inherit Erasistratus' formal bifurcation of internalized πνεῦμα. His paring down of Epicurean psychology suggests a general tendency to subsume all psychic processes into the agency of a singular, undifferentiated substance – a process which was itself most likely motivated by third century πνεῦμα-centricism (of which Erasistratus was a leading proponent). Differentiating between types of πνεῦμα within Asclepiadean physics – where the soul's functions are explained by the individual properties of its constituent *elements* – would force him to distinguish types of soul-corpuscle. This was evidently an Epicurean device that Asclepiades was eager to avoid (**IV.4.2**). It is not, after all, a necessity of Epicurean epistemology (see **IV.5.3**).[232] Extremely fine ὄγκοι are not given freedom of the body until the final stage of the soul's refinement. There is scant room in Asclepiades' corpuscular physiology for the release of (presumably) larger/coarser soul-ὄγκοι from the confines of the body's perceptible channels before the ultimate stage of rarefaction. Corpuscular physics limits Asclepiades' options in psychophysiology. The outline of his theory of soul-generation is Erasistratean,[233] but a question remains as to how far Asclepiades' two primary influences are, in fact, reconcilable.

---

[230] Gal. *Ut. Resp.* 5. (= IV.502 K.) = fr.112 Garofalo; Gal. *PHP.* II.8.38 = fr.112B Garofalo.

[231] Leith (forthcoming) IV.2.2 points to Gal. *Art. Sang.* 2 (= IV.706 K.) = fr. 101 Garofalo (= fr. 18 Lewis) in which Praxagoras of Cos, Erasistratus' predecessor, maintains that the πνεῦμα within the body is more *coarse*-structured than external air to caution us against the assumption the Erasistratus explained the bifurcation of πνεῦμα in terms of degrees of rarefaction. According to Galen, Erasistratus failed to specify the degree of pneumatic 'thickness' to his satisfaction.

[232] Moreover, the distinction between vital and physic πνεῦμα is fundamental to the Erasistratean theory of disease (see e.g. Gal. *Adv. Er.* (= XI.153f. K.) = Garofalo fr. 198; Gal. *At. Bil.* 5.18 (= V.124 K.) = Garofalo fr. 240) which, being the product of Erasistratus' deliberately constrained epistemology (Gal. *MM* 2.5 = X.107 K.), and focused on the cross contamination of substances within the *triplokia,* the 'threefold web' (see Leith (2015b)) of perceptible vessels in the body, could not be incorporates into Asclepiades' elemental theory of disease while retaining the essentials of Epicurean epistemology. See **IV.4.4.**

[233] There are, however, a couple of outlying fragments that cannot be ignored in this discussion. An anomalous testimony from ps.-Gal *Hist. Phil.* 24 states that 'Epicurus thought that the soul is the air drawn in form outside through respiration' (trans. Leith = Leith 112). This is not corroborated elsewhere. It is, moreover, difficult to reconcile the account of the soul *as being* the air inhaled through respiration with Epicurus' quadripartite model of the soul of which a part merely *resembles* the air (Epic. *Ep. Hdt.* 63-67). Polito (2006) p.299 suggests that ps.-Gal. *Hist. Phil.* 24 contains a misattribution of Asclepiadean doctrine

The question is as follows: why do soul-ὄγκοι, being extremely fine, round, and smooth in texture, keep to the body's perceptible channels before the final stage of rarefaction? Where (distinctly meagre) precedent for soul-replenishment through respiration in the atomist tradition – limited to Aristotle's account of respiration in Democritean psychology in *De Anima* 404a 9-16[234] – merely recognises that breathing is the mechanism whereby soul-atoms-in-potentiality enter the body, the physiological specificity of Asclepiades' account, born of his engagement with contemporary neurophysiology, raises questions of the capacity of physiological structures to shepherd ontologically primitive entities. The first point of focus is that πνεῦμα is inhaled through the mouth; despite the porosity of the body, and the ongoing reciprocal exchange of ὄγκοι between the body and its environment,[235] the mouth is apparently the only gateway to πνεῦμα in Asclepiadean physiology.[236] Is it therefore the case that appropriately shaped soul-ὄγκοι *only* emerge from the respiratory system? Or is it perhaps that identical ὄγκοι, elsewhere derived, having entered the body through the πόροι in the skin, never acquire a role in psychic function? Competing influences clash before we move beyond the lips. Either option is dubious. The former finds some support in the testimonia. Aëtius records that, for Asclepiades, outside air is composed of coarse particles,[237] whereas soul-ὄγκοι are smooth and spherical.[238] Coarse πνεῦμα is converted into smooth soul-πνεῦμα through the two-stage process of rarefaction. But we require a fuller explanation as to what this process entails in elemental terms. As in other areas of Asclepiades' physiology – such as, for example, in digestion[239] – rarefaction in Calc. *In Tim.* 214 entails the release of

---

to Epicurus. This is plausible, in my view, but we should note that there is some evidence for Democritean precedence on this issue (Arist. *DA* 404a 9-16, see Leith (forthcoming) IV.2.2). Aristotle writes that respiration had a role in both replacing and containing soul-atoms in Democritus' theory. But this account of respiration, as abbreviated in *DA* 404a 9-16, is notable for being a purely elemental account of the mechanics of soul preservation. A distinction is made only between soul-atoms functioning inside the body and similarly shaped atoms outside the body, pending psychological functions. The Asclepiadean model is considerably more physiologically complex.

[234] Assuming that ps.-Gal. *Hist. Phil.* 24 does, in fact, include a misattribution of Asclepiadean doctrine to Epicurus. See *supra* n.233.

[235] This is certainly implied in S. E. *M.* III.3-5; Marcellinus *De Pulsibus* 2 may preserve an Asclepiadean account of πνεῦμα tending, on account of its fine structure, towards the outside of the body where it escapes through the skin. Asclepiades is not mentioned by name, however.

[236] Further evidence for Asclepiades' Erasistratean influence on this question. But Erasistratus was not working with a corpuscular theory of matter (or any theory of matter beneath what was perceptible in the body (see Gal. *MM.* 2.5 5 (= X.107 K.))). If Marcellinus *De Pulsibus.* 2 is indeed an Asclepiadean testimony, then evidently refined πνεῦμα could *exit* the body via any of its pores.

[237] Aët. 4.22.2 = Leith 63.

[238] Calc. *In Tim.* 215.

[239] Cael. *Cel. Pass.* I.14.113

ever finer particles through ever finer pores. If we understand this as a filtration process and assume that Aët. 4.22.2 refers to external πνεῦμα that is composed *mostly* of coarse particles, the question of why soul-ὄγκοι-in-potentially, which are fine enough to permeate the body, do not escape the respiratory system through *larger* pores before they reach the brain seems unavoidable.

Can corpuscular fragility come to Asclepiades' aid? Vallance saw Asclepiades' account of digestion in *Cel. Pass.* 1.14.113 as an indication of the controversial doctrine's physiological role, but his argument is speculative.[240] It is not obvious why the breaking of ὄγκοι would entail smoothness. I suggested at **IV.2.4.3** that if we allow corpuscular fusion into Asclepiades' system and assume that division is most likely to occur at a point of prior unification, from there we may speculate that coarse ὄγκοι are irregular clusters of previously independent ὄγκοι. Division, precipitated by the narrowing of passageways, would produce smaller and likely smooth*er* ὄγκοι. Leaving this hypothesis in play for a sentence longer, the suggestion that Asclepiades found in corpuscular fragility a means of reconciling corpuscular (quasi-Epicurean) psychology with Erasistratean physiology begins to emerge. But it is difficult to hammer even this assumption-littered hypothesis into something that would yield soul-ὄγκοι as described in *In Tim.* 215.[241] Rather, we may be better served allowing that inconsistencies are inevitable when one tries to force two distinct systems from two independently motivated fields into reconciliation.

Erasistratus' project of uncovering as much as he could about human physiology is – as hardly merits noting – far removed from Epicurus' τέλος of neutralising fear by reducing the soul-body aggregate into seeds. We should not expect two distinct models of psychic functionality, oriented towards different τέλη and, correspondingly, hemmed within distinct discipline-derived epistemological parameters, to be amenable to seamless, retrospective reconciliation. Asclepiades' attempt to recover the particulate nature of Epicurean psychology from Erasistratean physiology exposes the friction between his guiding influences, between the epistemology that he seeks to medicalise and cutting-

[240] Vallance (1990) p.119-120. Asclepiades' account of digestion is less vulnerable to the accusation of incoherence levelled at his account of soul-generation because there is, on my reading, little ambiguity as to whether we should understand the process in terms of the interactions of compounds.

[241] Although, quite how perfectly spherical ὄγκοι could *ever* emerge in Asclepiades' system is its own mystery.

edge neurophysiology. We may suppose that, from Asclepiades' perspective, resolving this tension was a question of updating Epicurean psychology into alignment with more recent anatomical discoveries; he may have seen in Erasistratus' refusal to opine on subsensible elements an opportunity to insert corpuscular physics beneath the physician's epistemological threshold.[242] As I noted at **II.3.9** – and as I shall discuss further below – both Epicurean and Stoic psychology were imperilled by third-century advancements in anatomy;[243] Asclepiades, writing in the late second/early first century BC, wrote with the benefit of more sophisticated anatomical knowledge than his predecessor. In this context, that he sought to recover as much of Epicurus' psychology as he did – sometimes at the expense of anatomical sophistication – is significant, and I will argue at **IV.5** that his epistemology depended on it.

IV.4.3 The non-localised ἡγεμονικόν

The physician's rejection of the localised ἡγεμονικόν was – at least, in philosophical circles – his most notorious doctrine. Sextus Empiricus, expounding not psychology but epistemology, introduces Asclepiades in *M* VII.202 as 'the physician who abolished the ἡγεμονικόν'.[244] Calcidius frames the rejection of a 'certain or defined place to the ruling part of the soul' as an inextricable component of Asclepiades' materialism.[245] Tertullian, the early Christian author, reads Asclepiades' rejection of a localised ἡγεμονικόν as the assertion that the 'soul itself is nothing' and that the mind should be discarded in favour of the senses.[246] Evidently, the abolition of the ἡγεμονικόν was regarded as a proactive doctrine in antiquity, and often with radical implications for the human's psychic status.

---

[242] See Gal. *MM* 2.5 (= X.107 K.).

[243] See Sedley (1998) p.68-70 and **IV.4.3** below.

[244] The context (S. E. *M.* VII.202-203) is Asclepiades' yielding to sense-data. I examine this passage in depth at **IV.5.1.1.** Asclepiades is again mentioned in S. E. *M* VII.380 as the champion of those who claim that the soul is without a ruling part.

[245] Indeed, so essential was this association that he seems to believe it was a key component of *all* materialist theories. I propose that so radical-seeming was Asclepiades' rejection of a localised ἡγεμονικόν that, for some, it came to tar all previous particulate theories of matter by association. Polito (2006) p.291-292 is perhaps right to suspect that Calc. *In Tim.* 214 preserves no mere error but a deliberate retrojection of Asclepiades' view onto his atomist predecessors.

[246] Tert. *DA* 15.1-3 trans. Leith (forthcoming) = Leith 119. A comparison with Gal. *Nat. Fac.* II.27-29 K. suggests itself, but nowhere in his extant corpus does Galen directly refer to the structure of Asclepiades' psychology.

Originated by the Stoics (**I.4.1**, **I.4.4**), the ἡγεμονικόν quickly came to dominate the discussion of the soul's topology in antiquity, such that Asclepiades' theory was eccentric. Epicurus, as we have seen (**II.3.9**), located the soul's deliberative component in the chest.[247] This was later reported as a claim about the location of the ἡγεμονικόν, given the functional equivalence of the Stoic ἡγεμονικόν and the Epicurean mind.[248] Asclepiades' rejection of a localised ἡγεμονικόν represents a further departure from Epicureanism, but one whose significance, I propose, lies not in its intimations of a radically new psychology – the irruption of non-ethical, medically oriented materialism into the philosophical domain – but, to the contrary, in what it reveals of Asclepiades' commitment to the essentials of the Epicurean soul. I suggest, following Leith,[249] that we read Asclepiades' psychophysiology as a creative solution to the problem of preserving the fundamentals of Epicurean psychology in the wake of subsequent developments in anatomy. In this subsection, I first address the context of Asclepiades' innovation at **IV.4.3.1,** then argue against the proposition that Asclepiades' rejection of the localised ἡγεμονικόν constituted a rejection of the mind in **IV.4.3.2.**

IV.4.3.1 Post-Alexandrian corpuscular psychology

With the conquest of Egypt in 321-320 BC came the convergence of Greek science and Egyptian post-mortem practices which introduced, however briefly, human dissection into the physician's investigative toolkit.[250] With dissection came the discovery of the nervous system; with the discovery of the nervous system came a physiological justification for locating the seat of psychic function in the brain.[251] Epicureanism, like Stoicism, founded a generation prior to discoveries of Herophilus and Erasistratus, located the mind/ἡγεμονικόν in the chest and heart respectively, conforming, broadly – though distinguished by physiological specificity – to contemporary medical orthodoxy. As discussed in **II.3.9**, evidence from the Herculaneum papyri points to a debate within second century Epicureanism concerning the location of the mind that was stimulated by 'arguments used by many doctors to prove that reason is located in the head'.[252]

[247] Lucr. III.136-140.
[248] Aët. 4.5.5.
[249] Leith (forthcoming) IV.2.4.
[250] Cels. *Med.* pref. 23-26 reports that vivisection was also practiced. See Nutton (2013) p.133-134 for an overview of the controversy surrounding this particular claim.
[251] See Herophilus fr. 63-66 von Staden (1989),
[252] P. Herc.1012 xlcii 7-11. See Sedley (1998) p.69-70.

Evidently, Epicurus' phenomenologically derived psychological topography was confronted with physiological reality and had its insufficiency laid bare.

Drawing his physics from Epicurus and his physiology from Erasistratus, Asclepiades has an obvious problem. Erasistratus never had to marry his discoveries to a cosmology designed in ignorance of the concealed architecture of the human body (**III.2.2**).[253] Epicurus never had to elucidate soul-generation in terms of the body's sensible vessels to make the point that suffering ends at death.[254] How, then, does the doctor proceed? We might expect, given the mechanism of soul-generation in *In Tim.* 214 and its clear Erasistratean influence,[255] that the brain might fulfil the function of the ἡγεμονικόν in Asclepiades' psychology, being the location whence 'sensation spreads to the rest of the body'.[256] Although the ἡγεμονικόν would be localised in a different part of the body – and why should we expect Asclepiades to be especially concerned with superficial deviations from Epicureanism, given our argument at **IV.2**? – the relationship between soul-in-brain and soul-in-body in Asclepiades' psychophysiology invites parallels with the mind-spirit dichotomy in Epicureanism, where the latter spills from the former.[257] But nowhere does Asclepiades make this move. It seems significant that Epicurus does not name the *heart* as the seat of the mind, merely the thorax.[258] Lucretius makes a phenomenological argument for the confinement of the 'deliberative element' to the chest in contrast with the Stoics' anatomical/embryological explanation for cardiocentric psychophysiology.[259] The claim that emotions emanate from the chest is an appeal to first-person experience; it presumes no knowledge of, nor demonstrates an interest in, the sensible topography of the human body beneath one's awareness of oneself. This is consistent with Epicurean psychophysics. Given the ontological primacy of atoms and ὄγκοι over the organs of the body, the challenge posed by third-century physiology to particulate physics is not that it locates the ruling-part-of-the-soul in the wrong organ, but that it locates the ruling-part-of-the-soul in any organ at all; the body's sensible, internal

[253] Recall esp. Gal. *MM* 2.5 (= X.107 K.).
[254] The exposition of Epicurean psychophysiology at Lucr. III (esp. 136-176, 323-358, 445-546, 576-614) is motivated by Lucretius' desire to establish the mortality of the mind.
[255] See *supra* **IV.4.2**
[256] Cal. *In Tim.* 214.
[257] Lucr. III.136-176.
[258] *Ibid.* III.136-140; Aët. 4.5.5.
[259] Lucr. III.136-139; Gal. *Foet.* 4.698, 2-8 (LS 53 D).

architecture cannot define the boundaries of a mind composed of ultra-fine ὄγκοι any more than one of equivalent atoms. For Asclepiades, the conflict between Epicurus and Erasistratus is not between cardiocentricism and encephalocentrism but particulate psychology and sophisticated human anatomy; a tightly – and more to the point, sensibly – bounded ἡγεμονικόν, suggested by the discovery of the nerves,[260] was incompatible corpuscular psychology. Epicurean/Asclepiadean epistemology (see **IV.5.1**) holds sense-impressions to be apprehensions in reality and truth.[261] Once physicians extended their awareness inside the architecture of the body, once the phenomenological argument for Epicurean psychology was shown to conflict with sense-data and once the thorax was divested of its prominence, Asclepiades elected to dispense with the localised ἡγεμονικόν entirely. What this amounts to, in terms of the distribution of psychic function and the status of the human as a thinking individual, is the subject of the next section.

IV.4.3.2 The rejection of the mind?

What is it, therefore, to deny the existence of a localised ruling-part-of-the-soul? Asclepiades advanced a series of empirical examples to demonstrate that the enactment of the soul's functions was not dependent on a singular organ. The following passage is from Tertullian's *De Anima*, which ascribes to Asclepiades a kind of anti-psychology, equating the rejection of the ἡγεμονικόν with the rejection of the mind:

> …those who deny that there is a ruling part believed first that the soul itself is nothing. One Dicaearchus of Messene, and among doctors Andreas and Asclepiades, did away with the ruling part in this way, while they want the senses, for which they claim the role of ruling part, to take the place of the mind itself. Asclepiades is also moved by the following argument, that many animals, when the parts of the body in which the ruling part is most often thought to reside is removed, nevertheless continue to live to a certain extent and sense no less, such as flies, wasps and locusts, if you cut off their heads, or like she-goats, tortoises and eels, if you remove their heart. Therefore (he thinks) that the ruling part does not exist, since if it did, when

[260] How Asclepiades incorporates the nerves into his explanation of sensation is addressed at **IV.4.4.**
[261] S. E. *M* VII.201.

> removed along with its seat, the soul's power would not persist. But against Dicaearchus many philosophers – Plato, Strato, Epicurus, Democritus, Empedocles, Socrates, Aristotle –, and against Andreas and Asclepiades many doctors – Herophilus, Erasistratus, Diocles, Hippocrates, Soranus himself -, and now, greater than all these, we Christians, who are lead away from each side according to God, (all these believe) both that there is a ruling part of the soul and that is had been consecrated in a particular recess of the body.[262]

Asclepiades championed a theory of the soul which, on Tertullian's account, was as far removed from the Christian ideal as it was possible to be. That Asclepiades' rejection of the ἡγεμονικόν is equated to the Peripatetic Dicaearchus' rejection of the soul as an independent entity should give us pause.[263] Though the argument Tertullian preserves indicates a more nuanced psychology, Tertullian himself conflates ἡγεμονικόν with soul, the rejection of the former with the *de facto* rejection of the latter. The same argument-from-animal-mutilation is recorded by Calcidius. I quote his version also, for it includes an additional detail which is essential to grasping Asclepiades' understanding of what it is to act as if one were ensouled:

> The same people [the Asclepiadeans] deny that the ruling faculty of the soul is located in the head, because of the fact that many animals after their head has been cut off continue to live for some time and carry on their usual behaviour, as though the loss of the body's integrity were no loss at all – such as bees and drones, which after being beheaded may for a short time live, fly around and defend themselves with their stings in conformity with their nature. They would not so do if the part which ruled in their soul was located in the head. They also deny that it is in the heart, for crocodiles (as they say), when their hearts are torn out, live for some time and fight back

[262] Tert. *DA* 15.1-3 trans. Leith (forthcoming) = Leith 119. The grouping of Asclepiades with the Peripatetic philosopher Dicaearchus of Messene is misleading; there is nothing to suggest that Dicaearchus had any interest in refuting the localised ἡγεμονικόν in his own idiosyncratic conception of the soul. See Caston (2001). S. E. *M* VII.349 informs us that Dicaearchus claimed the soul was nothing 'but the body in a certain state'; at *PH* II.31, Sextus informs us that, for Dicaearchus, the soul did not exist. Whatever Asclepiades' thoughts on the mind, that he affirmed the soul as an independent corporeal entity is not controversial. As for the Andreas, if Tertullian is referring to the pupil of Herophilus (the only prominent physician of that name), we know nothing of his theory of the soul; if this is not a reference to this particular Andreas, then we are even less the wiser.

[263] *Supra* n.262.

> against the injury, and the same is observed in the case of sea-turtles and, among land animals, goats.[264]

Both passages recall Aristotle's argument against Plato's tripartite psychophysiology wherein the rational component of the soul is located in the head, the spirited in the chest and the appetitive in the abdomen.[265] Aristotle had made similar observations about wasps, bees and tortoises when he argued that the functions of the soul cannot be separated from one another.[266] Asclepiades used the same observation to demonstrate that the full complement of physic function was active throughout the body, receiving no orders from a localised command centre. His methodology is consistent with Epicurean sign-inference – phenomena direct reason towards subsensible processes (**II.4**) – though on this question external observations have – at least on the first analysis – come to displace the phenomenological data of first-person experience. The precedent for these observations in Aristotle suggests that Asclepiades incorporated them into his argumentation after his conclusion was already in his sights; he required an *a posteriori* justification for a doctrine birthed by reason to solve the problem of aligning the essentials of Epicurean psychology with contemporary physiology.

However, our sources are conflicted as to precisely what conclusion Asclepiades sought to defend. Calcidius tells us that Asclepiades 'assigned no certain or defined place to the ruling part of the soul';[267] Caelius Aurelianus writes that Asclepiades 'denies that the ruling part of the soul is fixed in any part of the body; for he says that the soul is nothing more than the combination of all the senses.'[268] Both testimonies allow for the existence of a non-local ἡγεμονικόν, but other witnesses encumber Asclepiades with a more radical claim. Tertullian, as we have seen, understands the Asclepiadean soul to be *without* a ruling component; the senses, on his reading, *replace* the mind.[269] Sextus Empiricus distinguishes Asclepiades and his followers from those who uphold the existence of the ἡγεμονικόν but dispute its location; he states plainly that for Asclepiades

---

[264] Calc. *In Tim.* 216 trans. Leith (forthcoming) = Leith 110. The attribution to Asclepiades is less explicit in this passage but it is clear from context that Asclepiades is the source of the arguments listed; he is the only figure mentioned in *In Tim.* 214-217 to whom the rejection of a localised ἡγεμονικόν can accurately be attributed.

[265] This parallel is drawn in Leith (forthcoming) IV.2.4.

[266] Arist. *Iuv.* 2, 468a 21b 12.

[267] Calc. *In Tim.* 216. trans. Leith (forthcoming) = Leith 110.

[268] Cael. Aur. *Cel. Pass.* 114.115. trans. Leith (forthcoming) = Leith 111.

[269] Tert. *DA* 15.1-3.

'there is no ruling part at all.'[270] The arguments preserved by Tertullian and Calcidius quoted above, despite Tertullian's own reading of Asclepiades, only suffice as arguments against the existence of the ἡγεμονικόν *per se* if we accept that the head and the heart are the only places where ruling-part-of-the-soul can possibly reside.[271] Notably, the philosophical tradition to which Asclepiades was indebted did not make this claim; the argument against locating the ἡγεμονικόν in the chest never materialises, nor does the argument against a non-localised or 'wandering' ἡγεμονικόν.[272] His targets are those who propose the ἡγεμονικόν to be coextensive with (or otherwise hemmed by) a specific organ, the heart in the case of the Stoics, and the brain in the case (at least, by implication) of the Herophileans and Erasistrateans. Tertullian's testimony, for all that it neglects to treat reason as a separate entity (to which I return at **IV.5.1.1**), nevertheless preserves the functions of the ἡγεμονικόν; to bestow the functions of mind upon the senses is not to abolish the mind but to broaden it. Sextus Empiricus does not elaborate what consequences abolishing the ἡγεμονικόν might have had for psychic activity in Asclepiades' view, but the arguments in Tertullian and Calcidius preserve the full complement of psychic functions despite the absence of a localised control-centre.[273] That the ἡγεμονικόν persists without a fixed locality seems like the more plausible reading.

Polito (2006) has an alternative interpretation.[274] Calc. *In Tim.* 214-217 draws a clear (if confused/deliberately misleading) association between materialist physics and the rejection of the localised ἡγεμονικόν. The association he wants to make is between those who permit the soul 'no special substance of its own' – *i.e.* those who do not distinguish it from body/corpuscles – and those who deny its rigid structure.[275] We may be tempted to speculate whether Asclepiades' psychology, like his determinism, can be read as an extension of his materialism – unburdened, as it is, by the moral demands of a philosophy garbed as a

[270] S. E. *M* VII.380.
[271] Leith (forthcoming) IV.2.4.
[272] Hinted in ps.-Gal. *Hist. Phil.* 24 = Lieth 122. See below.
[273] Note esp. Cal. *In Tm.* 216 who specifies that bees 'defend themselves with their stings in conformity with their nature.' The point is not simply that bees continue to display *some* psychic function after they have been decapitated, but that they maintain *all* of their previous psychic faculties, responding to stimuli as 'rationally' as the intelligence of bees would typically permit. See Leith (forthcoming) IV.2.4.
[274] Polito's account is bound up in his face-value reading of a fragment of Antiochus of Ascalon at S. E. *M* VII.202-203 (see Polito (2006) p.324.). I return to this fragment at **IV.5.1.**
[275] Cal. *In Tim.* 217.

medicine for the mind. Polito reads the accounts of animal activity post-mutilation in Tert. *DA* 15.1-3 and Cal. *In Tim.* 216 as referring only to involuntary movements and concludes that Asclepiades, who considers all activity to be the product of necessity and regards animals to be sufficient analogues for intelligent life,[276] made no meaningful distinction between voluntary and involuntary action; all behaviours, considered without pretension, are mindless spasms.[277] The ἡγεμονικόν, on this reading, is superfluous.[278] He further cites a passage from Galen's *Commentary on Hippocrates' In the Surgery* in which Asclepiades is reported to have done away with such concepts as intelligence, memory and deliberation.[279] I will argue at **IV.5.1** why I think the claims made in this passage are misleading. For the time being, it is sufficient to point out that the association between the abolition of the ἡγεμονικόν and corpuscularism in Calc. *In Tim.* 214 belongs entirely to Calcidius;[280] the non-localised ἡγεμονικόν is not a logical conclusion of materialism *minus* ethics in the manner of Asclepiades' determinism; it is, I will argue, a resolution to the conflict of Epicurean epistemology *plus* sophisticated physiology. Moreover, Calc. *In Tim.* 216 does not permit the interpretation that Asclepiades deliberately conflates voluntary with involuntary action; Calcidius writes that mutilated beasts continue to 'act in conformity with their nature' – *i.e.* as normal; were they merely twitching, then it is not clear how the argument recorded would succeed in proving that absence of a localised ἡγεμονικόν.[281] Asclepiades' determinism does not necessitate the abolition of the ἡγεμονικόν;[282] the ἡγεμονικόν is, after all, a Stoic invention, alongside prototypical compatibilism.[283]

---

[276] Cael. Aur. *Cel. Pass.* 1.14.115 and **IV.3.2** above for Asclepiades and necessity. Polito (2006) p.306 cites Tertullian's reference to sensation in *DA* 15.2 (*vivere et sapere*) as the basis for his claim that these 'involuntary actions' are to be equated with intelligence.

[277] Polito (2006) p.306.

[278] *Ibid.*

[279] Gal. *Hipp. Off. Med.* 18b, 660. Cf. *Nat. Fac.* II.27-29 K.

[280] Calcidius may have viewed Asclepiadeanism as the conclusion of the materialist tradition, but to assert that Democritus and Epicurus were on a logical course towards the abolition of the ἡγεμονικόν is forced. It is, in fact, in Democritean atomism that we may first locate the alignment of physical premises with ethical conclusions in Greek philosophy, with the 'undisturbedness' (ἀθαμβίαν) of the human mind among his philosophy's aims. See e.g. Cic. *Fin.* V.87.

[281] Leith (forthcoming) IV.2.4, n.94.

[282] As suggested in Polito (2006) p.306-307.

[283] Cic. *Fat.* 39-43 is the key text for (proto-)compatibilism in Stoicism. See Sales (2001) for the relationship between ancient and modern conceptions of compatibilism.

How does Asclepiades preserve the mind? The blueprint, Leith suggests,[284] may be found in Epicureanism, in the blurring of the boundary between mind (*animus*) and spirit (*anima*); the two components 'constitute a single nature' as evidenced by the speed at which the spirit bestows motion at the mind's behest.[285] The spirit is a tool by which the mind's functions are enacted. As the spirit is wedded to the body, so the operations of the mind are wedded to the spirit. The mind's partial independence from the spirit is advanced in *DRN* III as an explanation for first-person experiences that lack an obvious physiological complement – an activity of the spirit in conjunction with the body; we may think independently of our movements,[286] but this fact does not in itself necessitate a *fixed* locality for the deliberative element – nor, indeed, is there a suggestion in the Epicurean testimonia that the composition of the mind is distinct from the spirit in terms of the proportion of its constituents; air, wind, fire and the sensory component have roles to play in mind and spirit alike.[287] The variable by which they are distinguished is concentration. The pseudo-Galenic *Historia Philosopha* ascribes to the followers of Asclepiades the claim that 'the soul is πνεῦμα distributed through the whole body, in some places more, in others less.'[288] If concentration is the only variable whereby one may distinguish the mind/ἡγεμονικόν from the spirit/wider soul in Epicurean psychology, if Asclepiades' arguments against the localised ἡγεμονικόν were restricted to its confinement in particular organs and if, as we shall see at **IV.5.1** below, Asclepiades made no move to underplay the functions of the Epicurean mind, then ps.-Gal. *Hist. Phil.* 24 may preserve Asclepiades' solution to the problem of the seat of the intellect that vexed Epicureans of his era.[289] Higher-psychic functions may emanate from the chest as they may emanate from the head as they may emanate throughout the soul-body aggregate. Asclepiades, were he inclined, need not even completely part ways with the phenomenological arguments for the mind's placement in the chest; there is nothing in his system that necessarily precludes emotions from arising in the thorax – indeed, the system seems apt to incorporate Epicurean argumentation into a more

[284] Leith (forthcoming) IV.2.4.
[285] Lucr. III.136-176.
[286] *Ibid.*
[287] *Ibid*. III.417-462.
[288] ps.-Gal. *Hist. Phil.* 24 trans. Leith (forthcoming) = Leith 112.
[289] See Sedley (1998) p.69-70.

sophisticated corpuscular phenomenology, but we have no evidence for Asclepiades having exploited this opportunity.

As I argued at **IV.4.3.1**, Asclepiades' rejection of the localised ἡγεμονικόν is a reactive doctrine; it was instituted to preserve the essentials of Epicurean psychology, not to assert the supremacy of medically oriented/non-ethical psychophysical speculation over its forerunner in philosophy. Why, then, is Asclepiades so concerned to salvage what he can of Epicurus' psychological model, when he has elsewhere revealed an inclination to emphasise the distinctions between his theory and the mother-doctrine (**II.2**)? Why was it necessary to engage with psychology at all? The answer lies in Epicureanism's medical appeal in the late Hellenistic period, located at the intersection of physics, epistemology and psychology. The final part of this section is a bridge into this closing discussion.

IV.4.4 Soul, πνεῦμα and nerves (a prelude to IV.5)

Psychic πνεῦμα mediates both sensation and voluntary motion in Erasistratus' physiology.[290] Its activity is confined to the nerves, as vital πνεῦμα is confined to the arteries and blood to the veins. Cross contamination between the three constituents of Erasistratus' 'threefold web' was the primary cause of disease in his system,[291] a system that extended no further than the body's homoiomerous parts (**III.2.2**). Asclepiades, who yielded to Erasistratean neurophysiology wherever the essentials of Epicureanism permitted, could not permit the nerves a specific role in the distribution of the senses. He granted only that the nerves mediate motor function;[292] sensation is imparted by πνεῦμα diffused throughout the body, beneath the ontological tier where sensible vessels are impediments to motion.[293] As Calcidius tells us, sensation is spread throughout the body after its refinement in the brain.[294] That soul-ὄγκοι are released into body through the 'fine

[290] Gal. *UP* 7.8 = Garofalo fr. 88; Gal. *AA* 2.11 = Garofalo fr. 90.
[291] e.g. Gal. *Adv. Er.* (= XI.153f. K.) = Garofalo fr. 198; Gal. *At. Bil.* 5.18 (= V.124 K.) = Garofalo fr. 240. See Leith (2015b) for an in-depth analysis of Erasistratus' *triplokia.*
[292] fr. 81 Von Staden (1989) p.201.
[293] In several testimonia, the exercise of the senses in identified by Asclepiades as the soul itself. Cael. Aur. *Cel. Pass.* 1.14.115; Aët *Plac.* 4.2; ps.-Gal. *Def. Med.* 116 (= XIX.379 K.); Macrobius, *Commentarium in Somnium Scipionis* 1.14.19-20. The temptation to read these sources as an argument for Asclepiades' novel psychology to be without the faculty of reason may be forestalled by the fact that similar attacks were made on Epicureanism (e.g. Plut. *Adv. Col.* 112B-C). See Leith (forthcoming) IV.2.5, *supra* **IV.4.3.2** and **IV.5.1** below.
[294] Calc. *In Tim.* 214.

and narrow passages of the nerves' may be read as a concession to contemporary neurophysiology,[295] but from this point Asclepiades' account of sensation has, in its essentials, retreated into Epicureanism. The question of Asclepiades' epistemology can no longer be kept in the shadows.

IV.5 Epistemology

This section is divided into three parts. At **IV.5.1** I will establish that Asclepiades did, in fact, adhere to Epicurean epistemology, for all that he sought to distance his theory from the mother-doctrine in other crucial respects. **IV.5.2** examines the medical context of Asclepiades' epistemological pronouncements, locating them in the ongoing debate between Rationalists and Empiricist physicians in the Hellenistic period and further emphasising their Epicurean affiliation. Here, I argue that Epicureanism's medical value was located in its scientific method. At **IV.5.3** we return to physics. I will argue that, tellingly, Asclepiades' innovations in this domain preserve the essentials of Epicurean epistemology.

IV.5.1 The Scientific Method

We return to the guiding premises of Epicurean epistemology: 1) experiential data is non-illusory; 2) subsensible reality is accessible to *a posteriori* reasoning via experiential data (**II.3.1**).[296] For Asclepiadean epistemology to be Epicurean in its essentials it must conform to both stated premises. I approach each premise in reverse order, beginning with the most controversial evidence and concluding with a summary of sense-perception in Asclepiadean epistemology/physics.

IV.5.1.1 Antiochus of Ascalon (S. E. *M* VII.201-202)

The fullest source for Asclepiadean epistemology is a quote from the physician's near contemporary, the first century Platonist Antiochus of Ascalon,[297] preserved in the following passage from Sextus Empiricus:

> Not far off [the Cyrenaics'] view appear to be those who assert that perceptions/the senses are the criterion of truth. The Academic Antiochus has made it clear that there were some who thought this when we he wrote the following explicitly in the second book of his *Canonica*: 'But someone

[295] Calc. *In Tim.* 214.
[296] and e.g. S. E. *M* VII.211-216.
[297] On the vexed question of what is was to be a Platonist in the first century BC, Bonazzi (2012) is comprehensive. For Antiochus' biography, see Hatzimichali (2012).

> else, in medicine second to none, but who tried his hand also at philosophy, believed that perceptions are apprehensions in reality and truth, while we apprehend (καταλαμβάνειν) nothing by reason.' With these words Antiochus seems to be putting forward the position mentioned, and also to be hinting at Asclepiades the doctor, who abolished the ἡγεμονικόν, and lived at the same time as him.[298]

The Antiochus quotation preserves premise (1) but appears, on first reading, to do away with premise (2). Roberto Polito champions this face value reading;[299] where Epicurus recognises reason as a necessary tool for sifting valid inferences from sense-reports, 'Asclepiades…bans reason totally'.[300] His reading runs into trouble almost instantly. As noted at **IV.2.3.1**, multiple sources identify Asclepiadean ὄγκοι as being 'perceptible to reason'.[301] Polito later clarifies that, according to his reading, 'Asclepiades did not do away with reasoning altogether' but instead 'abolishes reason as a separate faculty, and yet allows reasoning as an activity of the senses.'[302] He writes: 'His point is not that we do not think. It is, rather, that both thinking and sensing are a product of physical processes that the soul's breath (πνεῦμα) undergoes,'[303] and earlier, building from Cael. Aur. *Cel. Pass.* I.14.115,[304] 'the idea appears to be that the breath that fuels the senses processes incoming data by associating them with those previously stored, and that in this way it accomplishes a certain degree of conceptualization.[305] But I fail to see how this is meaningfully distinct from Epicurus' doctrine of preconception (πρόληψις),[306] a component of his threefold criteria for truth which, alongside perception (αἴσθησις) and feeling (πάθη) (see **II.3.2**), form the matrix from which reason reaches into the non-evident; there is nothing on sign-inference in Cael. Aur. *Cel. Pass.* I.14.115 that is especially anti-

---

[298] S. E. *M* VII.201-202 trans. Leith (forthcoming) = Leith 103.
[299] As noted at **IV.4.3.2** above, Polito also cites Gal. *Hipp. Off. Med.* 18b, 660 in support of this claim. Galen's polemic, in the face of the evidence considered in this section, reveals less of Asclepiades' psychological/epistemological doctrine and more about his own preconceptions.
[300] Polito (2006) p.323.
[301] Cael. Aur. *Cel. Pass.* 1.14.106; S. E. *M* III.3-5. See also e.g. Cass. *Probl.* 61.
[302] Polito (2006) p.328-329.
[303] *Ibid.* p.329.
[304] Cael. Aur. *Cel. Pass.* I.114.115: '…for he [Asclepiades] says that the soul is nothing more than the combination of all the senses. But he says that the discerning of hidden or concealed things occurs by means of the easy motion of the senses, and it is brought about by impinging sensibles and previous perception, while memory by the alternate operation of these.' Trans. Leith (forthcoming) = Leith 111.
[305] Polito (2006). p.328-329.
[306] D. L. X.33, Epic. *Ep. Hdt.* 37-38.

Epicurean.[307] Asclepiades, like Epicurus,[308] evidently *did* conceive of reason as distinct from sense-impressions; had he not, then his hostility towards Empiricism, the subject of **IV.5.2** below, would be without basis.[309]

So what, therefore, of Antiochus' testimony? Antiochus was a Stoicising Platonist.[310] As such, as Leith points out,[311] particular attention must be paid to his use of specialist Stoic vocabulary.[312] Antiochus refers to 'apprehension as ἀντιλαμβάνειν, a neutral term, elsewhere in his testimonia,[313] but at S. E. *M* VII.201-202 he chooses the word καταλαμβάνειν, cognate with κατάληψις, the Stoic doctrine of cognition. In Stoic epistemology the 'cognitive impression' (φαντασία καταληπτική) is that 'which arises from what is and is stamped and impressed exactly in accordance with what is, of such a kind as could not arise from what is not'[314] – it is an apprehension of what is *true.* The claim is therefore not that we apprehend nothing at all by reason, but that we apprehend nothing with certainty *from reason alone*.[315] Asclepiades' epistemology is thus aligned with that of Epicurus whereby opinions – falsifiable sorties into the domain of the non-evident – can only be true if uncontested by self-evidence.[316] Sextus reads Antiochus' words as confirmation that Asclepiades belongs with Epicurus in the broad category of thinkers who uphold the senses as the criterion of truth (**II.4.2**). His immediate juxtaposition with Epicurus is itself revealing; the similarities

[307] Cael. Aur. *Cel. Pass.* 1.14.115 does make the familiar claim that Asclepiades thought the soul to be nothing more than the combination of all the senses. But, as discussed above, similar claims were made of Epicurus (e.g. Plut. *Adv. Col.* 112B-C) and I have been unable to find evidence for how the Asclepiadean soul was functionally distinct from its Epicurean precursor.

[308] e.g. Epic. *Ep. Hdt.* 51.

[309] Not to mention the variety of sources that include Asclepiades among the Rationalists/Dogmatists in the medical sphere. See Anon Paris. Gr. 2286 fol. 104 (p.395.15-27 Cramer = Leith 100); Anon. Bamb. (p.412 sudhoff = Leith 101); Agnellus of Ravenna *in De arctic* ch.4 (= Leith 102).

[310] Brittain (2012) defends the Stoicising reading of Antiochus' epistemology.

[311] Leith (forthcoming) IV.1.1.

[312] A detail of Antiochus' testimony which, in context, Sextus has no cause to alert his readers to, being superfluous to his present task of organising his predecessor's views on the criterion of truth into those who deny its existence, those who attribute it to λόγος, those who point to ἄλογος ἐνάργεια, or those who find a role for both.

[313] S. E. *M* VII.162.

[314] *Ibid.* VII.248 (LS 40 E), VII.402-410 (LS 40 H)); D. L. VII.46; Cic. *Acad.* 2.77-78 (LS 40 D).

[315] Leith (forthcoming) IV.1.1. At Cic. *Luc.* 18 we are informed of Antiochus' approval of the Zenonian 'cognitive impression'. Stoic epistemology was apparently the tool with which Antiochus sought to redogmatize the Academy. See also *Ibid.* 14, 18, 29 and 31. Cicero's Antiochus attributes to his sceptical opponents the view that 'nothing can be apprehended' (*nihil posse percipi/comprehendi*); he is not claiming that the sceptics believed that nothing can be grasped by the mind, merely that we apprehend nothing with certainty.

[316] cf. S. E. *M* VII.211-216.

between their physical models correspond – as we would expect, given the mutuality of the two branches in Epicureanism – to a shared epistemology.

IV.5.1.2 Sense perception vs. mental perception[317]

Calcidius writes of Asclepiadean sense-mechanics that 'the common sense is touch, but it becomes particular because of differences in the parts by which we sense' – *i.e.* the sense organs.[318] Sensation is mediated by πνεῦμα,[319] and thus we read Calc. *In Tim.* 214 as referring to physical contact between external bodies and those from which soul-πνεῦμα is comprised. The Anonymus Londinensis indicates an Epicurean-style account of sensation whereby ὄγκοι emitted from the surfaces of sense objects penetrate the sense-organs via πόροι and interact with πνεῦμα which, in concert with the particulate makeup of the organ in question, produces an appropriate sense-impression.[320] At *In Tim.* 216 Calcidius confuses Epicurean and Asclepiadean psychology in his tantalizing account of one's synaesthetic response to sense-impressions; he writes that 'because of the similarity of the atoms, when one of them is moved the πνεῦμα as a whole, *i.e.* the soul, is moved at the same time. For this reason (he thinks) it often happens that people sense brightness and cold as soon as they hear the word 'snow'.'[321] Because of the unity of soul-particles, singular impressions stimulate responses throughout the body, including via πνεῦμα localised in the sense-organs; the soul, being all penetrating, reacts as one in response to the slightest stimuli (such that a word produces light in the mind). The conflation of Epicurus, Democritus and Asclepiades in this passage is illuminating; Calcidius evidently felt that the distinction between the Epicurean and Asclepiadean models of the soul were immaterial on the question of sensation; Asclepiades preserves everything of Epicurean psychology that permits his adoption of Epicurean sense-mechanics. The quality of individual sensations is contingent on the size of the impinging ὄγκοι[322] which corresponds to the role played by

[317] For comparisons with the mechanics of sense/mental perceptions in Epicureanism, cf. **II.4.1.**
[318] Calc. *In Tim.* 214 trans. Leith (forthcoming) = Leith 110.
[319] *Ibid.*
[320] Anon. Lond. xxxiii 52-xxxiv 53. cf. Epic. *Ep. Hdt.* 46 on εἴδωλα.
[321] Trans. Leith (forthcoming) = Leith 110. He continues '…or, when someone eats something bitter, those who see it spit repeatedly from the increase in saliva, and people yawn when they see others yawn, and we move rhythmically in time with music.' cf. Cass. *Probl.* 74 which is likely based on Asclepiadean doctrine.
[322] Cass. *Probl.* 61, 64, 65. As above (**IV.2.5**) Asclepiades is not mentioned by name in these passages but there is little doubt that his is the doctrine in question.

variations of atomic shape in Epicurean sense-mechanics.[323] As with Epicureanism, variants of size/shape must correspond to phenomenal qualities only with respect to the constituents of compounds;[324] digestion, for Asclepiades, is the process by which foodstuffs are shorn of their qualities through their resolution into finer compounds, ensuring that food is not re-tasted/smelt/seen as it diffuses through the body.[325]

If Asclepiades uprooted Epicurean epistemology for his own ends – and 'uprooted' in the truest sense, with its roots in physical theory dangling in its wake – we would expect that, had he a theory of mental perceptions, it would share the same basic mechanics. However, our evidence is inconclusive. I am unconvinced that Caelius Aurelianus' (vexingly gnomic) reference to the mechanics of discerning 'hidden or concealed things' (*occultarum vel latentium rerum*) at *Cel. Pass.* 1.14.115,[326] which he juxtaposes with that of memory, refers to the mechanics of mental/imaginary perception as Leith suggests.[327] In what respect are mental perceptions 'hidden or concealed' to those who experience them? 'Hidden things' seems to refer more naturally to objects perceptible to reason – ὄγκοι and void – which are signified by the combination of 'impinging sensibles' (*accidentibus sensibilibus*) and 'previous perception' (*antecendenti perspectione*) which form the basis of πρόληψις. I am hesitant to accept Leith's reading of *sensibilia* as referring to *eidola*, for εἴδωλα are not *themselves* sensible;[328] and the more natural reading seems to be 'impinging sense-impressions' – *i.e*. εἴδωλα emitted *from* sensibles, not the ultra-fine progenitors of mental images, unrooted

[323] Cf. Lucr. II.464-477. It is curious that size is the variable that Asclepiades is most concerned with. See **IV.2.5.1** for the possible role of corpuscular fragility in this preference. Fission guarantees only a reduction in size, where additional changes of shape cannot obviously be predicted within this system.

[324] How far Epicurean sense-mechanics successfully maintain the separation between atomic geometry and phenomenal qualities is another question.

[325] Cael. Aur. *Cel. Pass.* I.14.113.

[326] The Latin, for reference: 'somnum enim etiam fieri spiritus sensibilis crassificatione asseverat. deinde regnum animae aliqua in parte corporis constitutum negat; etenim nihil aliud esse dicit animam quam sensuum omnium coetum. intellectum autem occultarum vel latentium rerum per solubilem fieri motum sensuum, qui ab accidentibus sensi<bi>libus atque antecedenti perspectione perficitur, memoriam vero alterno eorum exercitio dicit.' = Leith 111: 'For (Asclepiades) maintains that sleep is also caused by a condensing of the perceptive pneuma. Then he denies that the ruling part of the soul is fixed in any part of the body; for he says that the soul is nothing more than the combination of all the senses. But he says that the discerning of hidden or concealed things occurs by means of the easy motion of the senses, and it (sc. the discerning) is brought about by impinging sensibles and previous perception, while memory (is brought about) by the alternate operation of these.' Trans. Leith (forthcoming).

[327] For the argument *contra*, see Leith (forthcoming) IV.2.6.

[328] Lucr. IV.256-268.

in discrete phenomena.[329] The juxtaposition with memory may be explained by the fact that memory is the process by which preconceptions accumulate. 'Discerning' occurs when impinging sensibles align with a deep-seated preconception, confirming the reality of something 'hidden'; memories are created when impinging sensibles imprint themselves upon us, thus allowing preconceptions to be formed.[330]

Better – though imperfect – evidence may be found in Asclepiades' account of hallucination, [331] a phenomenon that sits neatly within the doctor's purview. Caelius Aurelianus records that Asclepiades advised against keeping sufferers of phrenitis in the dark 'for in the light…the impressions of the mind or intellect are made feeble and meagre since they are confuted by the sense impressions.'[332] Hallucinations – *i.e*. involuntary mental impressions – are brought about by the same basic mechanism as sensation and can thus be crowded out by more immediate impressions.[333] A further hint as to the mechanism of hallucination is found in Cael. Aur. *Cel. Pass.* I.pref.15 in which mental aberrations are explained by the incompatibility of externally derived impressions with the appropriate pores in the sense-receptors. Though the particulars of this are not seamlessly reconciled with Epicureanism – which hold mental-perceptions as emerging from distinct species of εἴδωλα[334] – it does at least seem clear that mental aberrations – which must, in context, involve a hallucinatory component – are derived from external impressions. Despite the state of the evidence, I find little reason to doubt that Asclepiades adhered to an Epicurean-style account of mental impressions; that we find no conclusive answer to this question in our testimonia may be explained by Asclepiades' τέλος; the physician is concerned with aberrations, with hallucinations as distinct from

[329] According to Epicurean epistemology (Lucr. IV.808-817) we actively render impinging mental-εἴδωλα perceptible to the mind through application.

[330] Hence, it is the 'alternate operation of these'. cf. Diog. Oen. 5.3.3.-14 (LS 15 E) for the physical basis for memory creation in Epicureanism.

[331] As is also highlighted in Leith (forthcoming) IV.2.6.

[332] Cael. Aur. *Cel. Pass.* I.15.118.

[333] Leith (forthcoming) IV.2.6 identifies an Epicurean parallel in Lucr. IV.757-765 in which dream-impressions are sharpened by the absence of conflicting sense-data. Asclepiades' account of phrenitis in Cael. Aur. *Cel. Pass.* I.15.118 continues with an analogy with dream-impressions, hinting at the possibility that Asclepiades and Lucretius shared a source in Epicurus' *On Nature.*

[334] Lucr. IV.722.822 informs us that the εἴδωλα that act directly on the mind are much more 'delicate-textured' than the ones which stimulate vision, bypassing entirely the organs of sensation. The account at Cael. Aur. *Cel. Pass.* I.pref.15 casts mental aberrations as distorted *sense*-impressions, which is a different thing.

imaginary constructs which presuppose voluntary application (**II.4.1**). We only encounter mental perceptions in Asclepiadean testimony in the context of pathology. This is not true, as we have seen above (and will revisit below), for sense perceptions; the mechanics of sensation concern the physician for reasons of *epistemology*.

IV.5.2 Asclepiades vs. Empiricism

Around 260 BC, Philinus of Cos founded the Empiricist school (named for ἐμπειρία, 'experience') in response to what he considered to be the undue emphasis afforded hidden causes by the new anatomists whose chief luminary, Herophilus of Chalcedon, was his teacher.[335] Though a detailed analysis of medical Empiricism awaits us at **V.2.2**, we may summarise their project as the wholesale rejection of reason (λόγος) as a viable tool for discerning hidden causes, maintaining instead that ἐμπειρία, the data of perception, cross-referenced with an ever-growing corpus of documented observations, was the basis of all useful medical knowledge. The Empiricists, in their attacks against those whom they disparage as 'Rationalists',[336] focus attention in the medical sphere on matters of epistemology. In so doing, they – perhaps counterproductively – expand the apposite territory of medical inquiry to include a further layer of abstraction; it was in response to the emergence of the Empiricist sect that their Rationalist opponents sought to develop – or, indeed, to appropriate – sophisticated epistemologies of their own. Asclepiades is the first Rationalist doctor for whom we have evidence of anti-Empiricist argumentation. I will argue in this subsection that Asclepiades discovered in Epicureanism the necessary tools to defend λόγος against Empiricism. He takes ownership of those tools – as I argued in **IV.2** – for himself and for his discipline by refashioning the nature of the elements. But when he does so – as I argue at **IV.5.3** below – he preserves the physical essentials of Epicurean epistemology.

IV.5.2.1 A physician's defence of reason

In *On Sects for beginners,* (*SI*) Galen informs us that Asclepiades maintained that unsupplemented experience was 'entirely incoherent and unable to make the smallest discovery' because 'nothing is of a nature to be able to be seen often in

[335] ps-Gal. *Int.* 4.2 (= XIV.683-684 K.).
[336] Used interchangeably with 'Dogmatists' below.

the same way.'[337] Similarly, in his *Outline of Empiricism* (*Subf. Emp.*) Galen attributes to Asclepiades the view that 'experience is incoherent.'[338] Late antique commentaries on *SI* attribute to Asclepiades the analogy between materiality and a river, whereby he rejects the perception of constancy implicit in the Empiricist's devotion to ἐμπειρία.[339] This is not, as Sextus Empiricus seems to suggest, [340] an argument against the truth-value of perceptions, but an argument against the Empiricists' *indiscriminate* devotion to ἐμπειρία – that is, to perceptions without the organising principle of λόγος. Asclepiades' critique of Empiricism receives its fullest treatment in Galen's *On Medical Experience* (*Med. Exp.*) 1-4. Here, Galen records a Dogmatist's argument against Empiricism which is said to be 'similar to Asclepiades' view'.[341] The Dogmatist chastises his Empiricist opponent for failing to recognise that reason alone identifies subtle homogeneities in phenomena, generates categories from similarities and translates the cacophony of experiences into intelligible patterns and formal, functional systems (τέχναι).[342] Disease involves too many variables for ἐμπειρία alone to guide the physician towards the correct diagnosis/course of treatment;[343] every new occurrence is a novelty, teaching nothing *per se*. The Dogmatist proceeds to demonstrate the taxonomizing power of λόγος by analogising medical analysis to similar disciplinary practices which were sculpted by λόγος from phenomena's *prima materia;* '…the sounds of speech, though endless in number, could not be retained and comprehended by mere memory, but…a wise man grasped and limited them, because, having reflected upon them and examined them, he discovered that the principles and the elements of which these sounds are composed…the letters…are 24 in number according to Greek reckoning.'[344] The Dogmatist's project, in matters of practical science, is to 'grasp' and to 'limit', to intimate the structure of a something and refine it to its elements.[345] It is, in

[337] Gal. *SI* V (= I.75 K.) trans. Leith (forthcoming) = Leith 106.
[338] Gal. *Subf. Emp.* 12, 88.19-88.1 Deichgr. = Leith 706
[339] John of Alexandria, *In Librum De Sectis Galeni* 4rb70-4va64 = Leith 108a; Agnellus of Ravenna, *In De Sectis* ch. 20,21 = Leith 108b.
[340] S. E *M* VIII.6-7 states erroneously that Asclepiades employed the river analogy as Plato did, to discredit the epistemic value of perceptions *per se.* But this is clearly not what Asclepiades intended.
[341] Gal. *Med. Exp.* 2.3 trans. Leith (forthcoming) = Leith 109. That Galen has Asclepiades in mind in *Med. Exp.* 4-1 is self-evident. Though Galen tells us that the Dogmatist he witnessed employed Asclepiades' arguments in 'different terms' their structure is certainly Asclepiadean.
[342] Gal. *Med. Exp.* 3 = Leith 109.
[343] *Ibid.* 3.4.
[344] *Ibid.* 3.5.
[345] The analogy between physical elements and elements in language is one that Lucretius would famously exploit at Lucr. I.912-914 – '*quo pacto verba quoque ipsa inter se paulo mutatis sunt elementis'***.** It is

structure, the physicist's project, applied within a limited epistemological framework. Galen's Dogmatist finds further examples of this mechanism in geometry – where ἐμπειρία yields infinite unique triangles 'it was discovered by means of reason that the sides of the triangle are three kinds in all' – and music – 'reason alone, which musicians make use of, encloses and confines' the numerous musical sounds and organises them 'into finite categories'.[346] All four examples – medicine, grammar, geometry and music – are species of τέχναι.[347] Each is drawn from ἐμπειρία by λόγος and organised around the realisation of a particular τέλος. The Asclepiadean Dogmatist, advancing an epistemological argument, emphasises the methodological unity of the practical sciences while reaching back into philosophy to acquire the appropriate tools. A parallel with Plato's *Philebus,* in which Socrates describes the invention of τέχναι as the paring down of infinite occurrences into a finite number has been noted by Leith.[348] But it is in Epicureanism that this argument finds its most significant precursor, where the relationship between reason and sensation as (nonetheless distinct) tools of sense-making is mutually dependent.[349] Sextus Empiricus writes of Epicurean epistemology that 'the peculiar function of sensation is to apprehend only that which is present to it and moves it, such as colour, not to make the distinction that the object here is a different one from the object there.'[350] A similar claim is attributed to Asclepiades at *M* VII.91, taken from his work *On Wine-giving,* in which the physician would appear to deny sense-perception the ability to distinguish mixed from simple colours.[351] The point, in both cases, is not that perceptions yield false data but that reason is the instrument with which

Asclepiades' reduction of the medical art to 'an estimation solely of primary causes' that earns him Pliny's scorn at *NH* XXVI.

[346] Gal. *Med. Exp.* 3.5 = Leith 109.

[347] As noted in Leith (forthcoming) IV.1.2.

[348] Plato. *Phlb* 16a-18d. See Leith (forthcoming) IV.1.2. The parallel was first suggested to David Leith by David Sedley.

[349] The symbiosis of sense and reason in Epicureanism is perhaps best summarised in D. L. X.31-32 (LS 16 B): 'All sensation, he [Epicurus] says, is irrational and does not accommodate memory. For neither is it moved by itself, nor when moved by something else is it able to add or subtract anything. Nor does there exist that which can refute sensations: neither can like sense refute like, because of their equal validity; nor unlike unlike, since they are not discriminatory of the same things; nor can reason, since all reason depends on the senses; nor can one individual sensation refute another, since all command our attention. And also the fact of sensory recognitions confirms the truth of sensations. And our seeing and hearing are facts, just as having pain is. Hence sign-inferences about the non-evident should be made from things evident.'

[350] S. E. *M.* VII.210 (LS 16 E).

[351] The connection between these passages is identified in Leith (forthcoming) IV.1.2.

perceptions reveal structural truths about the world;[352] without reason, we have merely εἴδωλα, real but inert impressions, illuminating nothing beyond themselves. Asclepiades does not need to defend the truth-value of perceptions from the Empiricists; his task is to communicate the limits of perceptions in the accumulation of useful – *i.e.* teleologically productive – data while preserving their value as the *foundations* of inquiry.[353] Epicurean epistemology furnished him with the tools with which to make such an argument. The earliest documented defence of reason in the medical sphere is, I suggest, an Epicurean one, repurposed to confront a threat that confined its critique to the medical τέχνη.

IV.5.2.2 Verification by non-contestation

To defend the claim that Asclepiadean epistemology is singularly Epicurean, we need only recall the argument at Cael. Aur. *Cel. Pass.* 1.14.106 concerning the unqualified nature of the ὄγκοι.

> '…it does not seem to be unreasonable, he says, that bodies with no quality should generate (sc. all sensible things). For one thing follows the parts, another follows the whole: so silver is white, but the filing from it is black; goat's horn is black, but the shaving is white.'[354]

The Epicurean heritage of this passage is explored at **IV.2.3.3** (n.88) above. Here, I add only that the methodology on display aligns perfectly – as we would of course expect – with that of Epicurus as laid out in S. E. *M* VII.211-216. The hypothesis that unqualified particles can combine to generate phenomenal qualities – a 'non-evident thing' – is demonstrated to be uncontested 'by that which is evident'. At *Cel. Pass.* I.15.151-152 Asclepiades is reported to have supported his claim that wine both suppresses and causes sweating by highlighting that rennet has opposing effects on milk, thickening and rarefying it at once;[355] he has not proven anything by making this comparison, but he has demonstrated that the hypothesis that an agent may have opposing effects on a

[352] The mechanism of discernment in each case seems to be more or less identical. Discerning that a colour has been mixed from base ingredients involves comparing it to similar and distinct colours encountered in the past when the nature of the colour was known – via witnessing its mixing, for example – and reasoning whether the colour presently observed belongs to the category of mixed or unmixed.
[353] Lucr. IV.483-465, 507-510 and D. L. X.31-32 for the dependency of reason on sensation in Epicureanism.
[354] Trans. Leith (forthcoming) = Leith 16.
[355] The mechanism by which wine both causes and suppresses sweating is the simultaneous production of coagulation and rarefaction.

substance is uncontested by phenomena.[356] An example of the reverse, already encountered, is Asclepiades' argument against the localised ἡγεμονικόν at Tert. *DA* 15.1-3 and Calc. *In Tim.* 216; the hypothesis that the ἡγεμονικόν is situated either in the head or in the heart is contested by self-evidence. Perceptions are, in Epicurean terms, the κανών against which the viability of hypotheses are measured.

IV.5.2.3 The medical utility of Epicurean epistemology

But why might Epicurean epistemology be *uniquely* suited to combating Empiricism? Comparisons with Stoic epistemology, the equivalent branch of Epicureanism's principle dogmatic rival in the Hellenistic period, may prove illuminating. Epicurean epistemology shares with Empiricism two premises: 1) All sense-impressions are non-illusory; 2) the application of reason and the receipt of sense-impressions are meaningfully distinct things. Stoic epistemology, by contrast, permits no such common ground. Stoicism does not grant that all sense-impressions are true.[357] Moreover, the doctrine of the 'cognitive impression' disintegrates the membrane between inert ἐμπειρία and λόγος as, in Stoic usage, the principle of rationality that precedes everything in the cosmos; the cognitive impression is one that reveals its own truth; it is nature's method of speaking directly to the human soul.[358] The binary of λόγος vs. ἐμπειρία cannot long be entertained within a cosmos that explains everything as an expression of nature's intent. Asclepiades, adopting Epicurean epistemology, can engage with Empiricism on something closer to its own terms, accepting the universal truth of sense-impressions and granting that λόγος is a separate entity – posterior, in Epicureanism, to ἐμπειρία[359] – but challenging the Empiricist conclusion that the intrusion of λόγος into medicine inevitably leads doctors astray.[360]

The Epicurean argument for the epistemological value of λόγος is unburdened by theological and teleological assumptions – those premises which an Empiricist can wave off on first contact. The Asclepiadean-inflected argument at *Med. Exp.*

---

[356] Leith (forthcoming) IV.1.3.
[357] Cic. *Acad.* 2.83-5 (LS 40 J).
[358] The cognitive impression is conceived as a 'gift' from nature at *S. E.* VII.253-60 and Cic. *Acad.* I.41-2 (LS 41 B).
[359] D. L. X.31-2. Reason depends on the senses, but the senses do not depend on reason; 'all sensation is irrational and does not accommodate memory.'
[360] e.g. Cel. *Med.* Pr. 27-29.

1-4 posits that reason is *empirically* justified. The spokesperson for Dogmatism appeals to the Empiricist's own recognition that the variety of diseases, symptoms and contingent factors is, self-evidently, 'almost endless'.[361] The need to pare the medical art down to its essentials follows from cumulative observations; the variables that the Dogmatist introduces in *Med. Exp.* 4 to illustrate the medical necessity of λόγος reveal themselves in this manner. Even if symptoms are identical, severity will vary.[362] A disease that manifests exactly the same way – a vanishing rarity in itself – cannot be expected to do so a third time.[363] The observer is himself a variable; he cannot cross-reference his observations with those of another and conclude with certainty that he has witnessed the exact same thing.[364] All such confounding observations emerge through prolonged attention to sense-data. The mechanism of their revelation is mnemonic signification, the mode of sign-inference which Sextus Empiricus would deem essential to the 'normal course of life'.[365] The grounding of one's argument for the epistemological value of λόγος in ἐμπειρία is doubly evident at *Med. Exp.* 3. Here, as we saw above (**IV.5.2.1**), the Dogmatist seeks to emphasise the unity of medicine and other examples of τέχναι whose value, he asserts, can be readily observed. His argument recalls the Empiricist's justification for 'transitioning from the similar' when confronted with a patient whose affliction has no documented history.[366] In such cases, the Empiricist administers a treatment that has proven effective under similar circumstances in the past and justifies this 'lapse' into (quasi-)reasoned judgement on the grounds that this method is itself empirically justified – it has a documented history of positive results.[367] The Dogmatist makes a similar move at *Med. Exp.* 3 when he analogises medicine to self-evidently viable τέχναι whose invention depended on the identification of imperfect similarities – the parents of categories – around which to organise the data of experience. The methodology is viable on two counts: 1) it can be *seen* to work

[361] Gal. *Med. Exp.* 3.4 = Leith 119. Methodism is mentioned by the Dogmatist at *Ibid.* 3.2 as an example of a school which both he and his Empiricist opponent recognise as insufficiently sophisticated. The Dogmatist assumes a shared assumption that medicine is bewildering complex, that there is nothing about singular manifestations of disease that induces the physician to intuit the correct method of treatment. For the conflict between Methodism and Empiricism, see **V.3.2**.
[362] Gal. *Med. Exp.* 4.1 = Leith 119.
[363] *Ibid.* 4.3.
[364] *Ibid.*
[365] S. E. *PH* 2.102. For Sextus' Empiricism, see **V.3**.
[366] Gal. *Subf. Emp.* 9, 70.10-20, 74.9-23 Diechgr.; Cel. *Med.* Pr. 38. See also **V.2.2**.
[367] A point explicitly made in Gal. *Subf. Emp.* 9, 70.10-20.

in other contexts and thus has ἐμπειρία at its root; 2) in its identification of imperfect similarities as the scaffolding around which one formulates a τέχνη, it is already reflective of an Empiricist concession to inexact mnemonic signification.[368] Epicurean epistemology, which holds that reason is posterior to sense-date, preserves enough Empiricist premises that it can be utilised to undermine Empiricist conclusions in empirical terms.

Epicureanism was also uniquely situated to accommodate a universalising Empiricist argument against the Rationalist project, namely, that the λόγος beloved of all Rationalists and dogmatic philosophers alike, which they uphold as their infallible guide, has led them all to radically different conclusions, and has thus undermined its illuminative property.[369] Epicureanism affords no divine quality to λόγος; nature does not *reveal* its secrets to the Epicurean philosopher (as it does the Stoic); he/she merely infers details of the world perceptible to reason from cumulative impressions and tests his/her opinions against self-evidence.[370] That other dogmatists, failing to attend to Epicurus' scientific method, might theorise from an incorrect – *i.e.* sense-contested – premise and arrive at conclusions wholly alien to Epicurean philosophy is a feature of Epicurean epistemology; it is a system that clarifies and accommodates human error – and thus the existence of myriad alternative dogmatic cosmologies – in a way that Stoicism, which claims that nature's plan exists to be discovered and taxonomizes sense-impressions, the foundations of inquiry,[371] according to which impressions are purposefully revealed by nature to be true, fails to do so.

A final point, the medical utility of Epicurean epistemology cannot be entirely abstracted from that of Epicurean physics. This is to say both that adopting Epicurus' epistemology necessitates the adoption of the greater portion of his physics (to which we return for a final time at **IV.5.3** below), and that the physics itself may have presented additional opportunities. That Epicureanism might have lacked a sophisticated aetiology of disease may have increased its appeal to the young intellectual, looking to establish his own medical sect. The partial

[368] *i.e.* 'transition from the similar'. For commemorative vs. indicative signification, see **V.3.1**.
[369] Cel. *Med.* Pr. 27-29 records this argument for why the Empiricists dogmatically assert that nature cannot be comprehended. See **V.2.1** for the tension between the Empirical and sceptical versions of this argument.
[370] S. E. *M* VII.211-116. Recall Sextus' quotation of Antiochus of Ascalon at *M* VII.201-202 (*supra* **IV.5.1.1**)
[371] Cic. *Acad.* 2.145 (LS 41 A).

discontinuity between Epicurean physics and ethics, addressed at **II.5.5-6**, facilitated the abstraction of Epicurus' physical/epistemological model from the objectives of philosophy. Concomitantly, the subordination of physiological health to psychological wellbeing in Epicureanism (**II.5**) – permissible because of the aforenoted discontinuity – afforded the Epicurean-influenced physician more freedom to innovate (cf. **III.5**). Vallance's argument that Asclepiades' medical project can be summarised as an attempt to simplify Erasistratean physiology and pathology is unconvincing,[372] but the evidence that some Erasistrateans might have toyed with some manner of corpuscular hypothesis indicates that the bridge between contemporary physiology/pathology and atomism might have been suggested in the literature of Asclepiades' day;[373] expanding on these speculations to incorporate Epicurean epistemology may suggest itself as a countermeasure to Empiricism. All such factors may have contributed to Epicureanism's medical appeal; I suggest only that Epicurus' epistemological model was the *most* attractive component.

IV.5.3 Negotiable and non-negotiable Epicurean doctrines

If I am correct in my hypothesis that the greater part of Epicureanism's medical utility was to be found in its epistemology, then we would expect Asclepiades' modifications to Epicurean physics to preserve its essential components. Dividing Epicurean physics into doctrines which are 'negotiable' and 'non-negotiable', where the former indicates doctrines that can be disposed of without jeopardising the integrity of Epicurus' epistemology and the latter those which cannot, I shall argue in this final section that Asclepiades modifications to Epicurean physics either a) leave the Epicurean epistemology untouched or b) where a case can be made for Epicurean epistemology being threatened by a particular adaptation, the threat is either neutralised by countermeasures or to be dismissed as an encroachment of ethics-oriented semantics into a non-ethical materialist system.

---

[372] Vallance (1990) p.130.

[373] Gal. *Nat. Fac.* 2.6 (= II.07-98 K.) discusses a debate between Erasistrateans on whether the elemental nerve is continuous 'or composed of many small bodies as Epicurus, Leucippus and Democritus posited.' Trans. Leith (forthcoming) = Leith 51. Ps.-Gal *Int.* XIV.699 K. records that Asclepiades and Erasistratus advanced comparable elemental theories. While the attribution of a corpuscular hypothesis to Erasistratus himself seems erroneous (see **III.2.2** and Leith (2015a)), the possibility that later Erasistrateans flirted with the idea remains open.

IV.5.3.1 The ineradicable physics of Epicurean epistemology

Epicurean epistemology is built on a foundation of perceptions (**II.4.1-2**). We would expect the mechanics of sensation to be sacrosanct. On this basis, I determine the following Epicurean physical doctrines to be non-negotiable: 1) Phenomena must be analysed into body and void; three-dimensional elements, distinguished from void by their tangibility, establish contiguity between subject (perceiver) and object (perceived). Interaction, thus perception, is made possible by the shared tangibility of the eye (for example) and εἴδωλα. 2) Phenomenal qualities must be posterior to elemental bodies; phenomena are parasitical on the *pattern* of elements transmitted from the surface of an object to the sense-receptor. 3) Sense objects shed and accrue elemental bodies in equal measure, ensuring contiguity from a distance via εἴδωλα while retaining structural integrity. 4) The mechanical components of elemental movement must be retained; they must travel at immense speeds from object to receptor and behave as atoms on occurrence of collision *in the vast majority of cases,* in order to account for the parity of εἴδωλα and the surface of the object proper once the eidolic corpuscles have been ejected by ongoing, internal collisions. 5) An ontological addendum: the status of perceptions as reliable transmissions of external reality must be retained so as not to invalidate the boundaries of rational inquiry.

IV.5.3.2 The threat of corpuscular fragility

Treating first points 1-4, points 1-3 are comfortably accommodated by Asclepiadean physics. The threat of corpuscular fragility hovers over 4. Clearly, however, in matters of epistemology, the atomic nature of the elements is subsidiary to their tangibility and the mechanics of their movement. I suggest that the frangibility of the ἄναρμοι ὄγκοι does not perturb the underlying mechanics of the system if we suppose that instances of fracture are either a) extremely rare or b) brought about under particular conditions that are not present in the emission and reception of εἴδωλα;[374] the transmission of εἴδωλα depends on the elements surviving ejection from the sense-object intact. Scattered instances of fracture may not perturb the transmission appreciably, but it stands to reason that the overwhelming majority of the elements ejected must retain the shape they

[374] Recall the evidence from Cass. *Probl.* 65 in which the breaking of the ὄγκοι is stimulated by an increase in heat.

held immediately prior to ejection. The attribution of Epicurean-style εἴδωλα to Asclepiades in the Anonymus Londinensis papyrus implies that physician envisaged his ὄγκοι as behaving like atoms in the matter of remote contiguity.[375] The model he adopts depends on a continuity between object and εἴδωλα that myriad fractures would inevitably dissolve.

Where the frangibility of the ὄγκοι might be expected to derange Epicurean epistemology is not in the process by which perceptions are received, but in the nature of perceptions themselves. However, the hypothesised doctrine of elemental fusion, posited first by Elizabeth Asmis and for which the case is made at **IV.2.4.3** above,[376] would appear to go some way towards resolving this problem (at least to Asclepiades' satisfaction). Though I find Asmis' proposed solution to the problem of phenomenal constancy in Asclepiadean physics convincing, we need not be persuaded by the countermeasure she attributes to Asclepiades in order to accept that Asclepiades sought to preserve an Epicurean epistemological framework; we need only be satisfied that efforts were made to reconcile the frangibility of the ὄγκοι with phenomenal constancy.

IV.5.3.3 The threat of determinism

Though our sources explicitly indicate that 5) can be reconciled with Asclepiadean physics – Asclepiades held, to return to the testimony of Antiochus of Ascalon,[377] that 'perceptions are apprehensions in reality and truth' and thus, as I argued at **IV.5.1.1**, the foundations of rational inquiry – we should acknowledge that Epicurus might have contested this point on the grounds of Asclepiades' fatalism.[378] O'Keefe (2005) makes a convincing case for the atomic swerve, absent from Asclepiades' physics (**IV.3.2**), being necessary to preserve the causal efficacy of reason,[379] the instrumentality of which is essential for inferring non-evident 'truths' from evident signs. The argument rests on the disparity between Epicurean and Democritean ontology: Democritus was an eliminativist who held that only atoms and void exist in truth; Epicurus, though a

[375] As Calc. *In Tim.* 214 confirms, 'the common sense is touch'.
[376] Asmis (1993) p.154.
[377] S. E. *M* VII.201. See *supra* **IV.5.1.1**.
[378] More precisely: the fatalist conclusions that one might reach by perusing Asclepiadean determinism to its logical conclusion with regard to the human mind and human reason.
[379] O'Keefe (2005) esp. p.65-109, 123-152.

reductionist in O'Keefe's view,[380] maintained that such eliminativism fosters a debilitating scepticism,[381] and that rejecting Democritus' view was essential to building an effective epistemology.[382] Once a mechanism for establishing the verity of phenomena had been established – *i.e.* the argument that perceptions invariably corresponded to external reality, that εἴδωλα are unique prospects on a shared objective world – Epicurus' task was to account for the causal efficacy of reason in terms of the activity of atoms in void without yielding to fatalism.[383] In the absence of the swerve, to take the Epicurean view, the act of deliberation is denuded of its ontological verity, being an ultimately illusory activity draped over the mechanics of necessity.[384] The swerve, overriding necessity, leaves the future open, and permits one to identify by reason the 'correct' mode of behaviour – *i.e.* that which is most conducive to attaining ἀταραξία – given the data of our senses.[385] The Epicurean scientific method necessitates the freedom to think between the limits set by perceptions, not to be led by necessity from sign to sign-inference. The swerve, on this argument, might be considered non-negotiable.

To make this claim, however, is to suggest that Asclepiades shared the Epicurean contention that the causal efficacy of deliberation was invalidated by fatalism. Epicurus' antipathy towards fatalism, born of the situation of his τέλος in the domain of human behaviour, is external to the physician's objectives. *Contra* the argument by Roberto Polito, addressed at **IV.4.3.2** above, which frames Asclepiades' rejection of a localised ἡγεμονικόν as equivalent to the rejection of the mind,[386] we have little reason to believe that Asclepiades considered deliberation to be invalidated by universal necessity. A quasi-compatibilist view, such as that of the Stoics, would account for Asclepiades' faith in the epistemological value of reason given the τέλος of his craft and the restrictions

[380] *Ibid.* p.67-81. I argued at **II.5** that there are certain deficiencies in attributing to Epicurus a fully formed reductionist view of the mind, namely that pain, the mediator of human behaviour in Epicurean philosophy, is never adequately expressed in terms of atoms in our sources.
[381] Plut. *Col.* 1108f.
[382] O'Keefe (2005) p.76. cf. Poly. *De cont.* 23.26-26.23 (LS 7 D). See **II.3.3**.
[383] See Epic. *Ep. Men.* 133-134.
[384] O'Keefe (2005) esp. the summary at p.46-47 of what can actually be gleaned of Epicurean *voluntas* from Lucr. II.251ff and p.149-152.
[385] O'Keefe (2005) p.149.
[386] The rejection of the localised ἡγεμονικόν, the third of Asclepiades' modifications to Epicureanism alongside corpuscular fragility and the rejection of the swerve, once seen for the reconciliation of Epicurean psychology and Erasistratean physiology that it is (*supra* **IV.4.3**), poses no threat to Epicurean epistemology.

this imposes on his thinking.[387] He is free to uproot Epicurus' conception of the truth-value of perceptions without signing on to the extra-medical doctrine of the swerve – particularly as the doctrine has deleterious implications for his own goals; the swerve denudes the elements of a predictability that is essential in the construction of an aetiology of disease that claims the activity of *prima materia* as the root cause. It is, moreover, indefensible without recourse to ethical or cosmogonical arguments, both of which must surely fall beyond the physician's purview.

IV.6 Conclusion: the medical reception of doctrinaire Hellenistic philosophy (part II)

The transposition of Epicureanism into the medical τέχνη is marked by three salient modifications: 1) the replacement of atomic particles with frangible ἄναρμοι ὄγκοι (**IV.2**); 2) the reinstatement of determinism into particulate materialism (**IV.3**); 3) the rejection of the localised ἡγεμονικόν (**IV.4**). All three modifications tell us different things about Asclepiades' relationship to the mother-doctrine.

I argued at **IV.2** that the introduction of corpuscular fragility into an essentially Epicurean physical system is most intelligibly read as a bid to uncouple Asclepiadean physics from its Epicurean forebear. It has no clear explanatory utility in the domain of pathology (**IV.2.2**) and the question of how much explanatory versatility the doctrine brought Asclepiades remains largely unanswered (**IV.2.5.1**). I have suggested that the two-tier nature of Epicurean epistemology leaves little room for technical epistemologies to be erected within its structure (**IV.2.1**, **IV.2.5.2**). In stark contrast to Athenaeus' annexation of the apposite territory of medical inquiry within a Stoic framework – a move that was facilitated by the structure of the Stoic cosmos –, for Asclepiades, intellectual emancipation from the mother-doctrine could only be ensured through

[387] Of course, compatibilism is an ideology concerned with the reconciliation of morality and determinism, and we should not suppose that questions of morality were ever Asclepiades' concern. The term 'quasi-compatibilism' is here being used as a shorthand for the belief that reason is not deprived of causal efficacy in a deterministic system. Unconcerned with matters of psychological distress, the 'threat' of tyrannical necessity to one's psychological wellbeing is remote from Asclepiades' concern. It is easier to separate, conceptually, the phenomenon of deliberation from its root-mechanics when one's goals are unimpeded by an ethicist's anxiety about the bottom-up aetiology of thought-processes. Owing to the disparity between the medical and philosophical arts, the 'reason' which Asclepiades deems essential to medical inquiry (e.g. Gal. *Med. Exp.* 1-4 = Leith 199) should be judged independently of its capacity to illuminate moral truth. It is a physician's tool, for a physician's ends.

adaptation. Though both doctors were motivated by a desire to secure medicine's reputation as a generative science, their methods were constrained by the nature of the philosophies they drew upon. I have further suggested the tension between Epicureanism and the medical τέχνη in antiquity (**II.5**, **IV.2.5.2**) may have further influenced Asclepiades' conclusion that it served his interest to modify Epicurean physics within certain parameters.

The reinstatement of determinism into particulate materialism is explicable by Asclepiades and Epicurus' disparate τέλη (**IV.3.2**-**3**). Where the latter was motivated to shape his physics to accommodate his anti-fatalism, the former, unmoved by ethical considerations and eager to signify his intellectual emancipation, could cast off Epicureanism's most controversial doctrine – the swerve – without imperilling his purpose. To the suggestion that the swerve was somehow essential to the scientific method which Asclepiades inherited, we need only respond that, given his non-ethical τέλος, Asclepiades did not consider the causal efficacy of deliberation to be invalidated by fatalism (**IV.5.3.3**).

Finally, Asclepiades' rejection of the localised ἡγεμονικόν, for all its inferred philosophical implications, is in fact a reactive doctrine implemented in a bid to unify a refined Epicurean psychology with contemporary Erasistratean neurophysiology (**IV.4.3**) with no clear implications for the existence of the mind. It is interesting not as a sign of medicine's incursion into philosophical territory, but as an indicator of Asclepiades' devotion to the psycho-physical foundations of Epicurean epistemology *despite* their ostensible incompatibility with contemporary neurophysiology (**IV.4.2**)

Asclepiades' adherence to Epicurean scientific methodology answers the question of Epicureanism's medical appeal. Moreover, it provides us with a framework within which to reconcile his three distinct modifications to Epicurean doctrine. Asclepiades' freedom to modify Epicurean physics is constrained by his devotion to Epicurean epistemology (**IV.5.3**). The appeal of Epicurean epistemology to Rationalist medicine lay in its capacity to challenge medical Empiricism on something proximate to its own terms.

*****

V

Pyrrhonian Empiricism

The curious alliance of the anti-doctrinaire

*

V.0 In the legacy of Pyrrhonian scepticism we find an alternative model for the transposition of Hellenistic philosophy into medicine. Where the Stoics and Epicureans found their ideas trimmed by the epistemological constraints of the more attenuated discipline, or else transformed on contact with the physician's demands, Pyrrhonism finds its way into the medical sphere through its incorporation into Empiricism in the first and second centuries AD.[1] Though both the Pyrrhonian and Empiricist sects flourished in the Hellenistic period, they originated independently; their roots, as we will examine shortly, are in crucial respects oppositional. Nevertheless, by the second century AD Empiricist physicians are included among the noted successors to the Pyrrhonist tradition, foremost among whom being Sextus Empiricus, our most informative representative of Pyrrhonian scepticism, whose extant works, the *Outline of Pyrrhonism* (*PH*) and *Against the Physicists*/*Mathematicians* (*M*),[2] summarise five centuries of sceptical arguments.

The purpose of this chapter is to examine the nature and integrity of the Pyrrhonist-Empiricist alliance. My objective is to uncover how the conflicting aspects of these two schools were reconciled with one another (to the extent that we can claim that they were). What concessions does Pyrrhonism make to ensure the viability of its merger with Empiricism? What issues remain unsolved? In the broader context of my thesis, the existence of the Pyrrhonian Empiricists raises a further question. In our analysis of Pneumatism and Asclepiadeanism, we saw evidence for the role of modification – or, at least, scrupulous enforcement of disciplinary boundaries within a preestablished cosmology – in protecting the physician's independent identity, and thus the generative capacity

[1] D. L. IX.116. for a list of successors to the Pyrrhonian tradition, a number of whom can be identified as Empiricist physicians.

[2] See Bett (2012) p.viii-ix and **V.3** (intro.) below for a brief explanation of how *Against the Logicians/Physicists/Ethicists* and *Against the Mathematicians* came erroneously to be abbreviated as one unified work, '*M*', with the first six books now universally acknowledged as a distinct text. I have used the conventional referencing throughout this thesis and will continue to do so in this chapter, but I acknowledge the confusion here.

of their τέχνη. Why do the Pyrrhonian Empiricists indicate no similar aversion to association with the Pyrrhonist school? We may accept that their union was facilitated by their shared aversion to dogma, but what was the impetus for unification?

This chapter is structured as follows. **V.1** is an overview of the evidence and contemporary scholarship. At **V.2** we examine independent origins of Pyrrhonism and Empiricism and elucidate their disalignment. At **V.3** we examine how this epistemological disparity surfaces as internal contradictions in the works of Sextus Empiricus, as well as the framework within which such contradictions might be tolerated. At **V.4** I ask the question of why Pyrrhonism and Empiricism became so intertangled in the second century AD, and why the relationship between the schools appears so novel in comparison to other alignments of Hellenistic philosophy with medicine's τέλος.

V.1 Evidence and contemporary scholarship

Here I introduce the sources (**V.1.1**) and summarise the treatment of the Pyrrhonian Empiricists in contemporary scholarship (**V.1.2**).

V.1.1 Evidence

Our most informative source for Pyrrhonism properly so-called – the movement founded by Aenesidemus of Cnossus in the first century BC (**V.2.1**) – is Sextus Empiricus. He is also, on account of his dual identity (explored throughout **V.3**), our clearest window on the nature of the Pyrrhonian-Empiricist alliance. As Sextus is treated in some detail at **V.3**, I will withhold my overview of the Roman philosopher-physician until later in the chapter. Beyond Sextus, Diogenes Laertius offers scattered glimpses into the writings of Aenesidemus. However, among the Pyrrhonists, it is Pyrrhonism's 'spiritual founder', the eponymous Pyrrho of Ellis, and his pupil Timon of Phlius, who receive the bulk of Diogenes' attention. The eight books of Aenesidemus' chief-work, the *Pyrrhonist Discourses,* are given cursory summary in Photius' *Bibliotheca*.

Of the Rationalists, the Methodists and the Empiricists, the Empiricists were most sparsely treated by the manuscript tradition.[3] For the most part, we

[3] Accounting, of course, for the wealth of medical theories which came to be subsumed under the 'Rationalist' rubric. The Methodists are survived by Soranus of Ephesus' *Gynaecology* and the translations of Caelius Aurelianus.

reconstruct the school from fragments and testimonia. We are fortunate, however, to have three Galenic treatises which tackle Empiricism systematically, namely, *On Sects for Beginners* (*SI*), *Outlines of Empiricism* (*Subf. Emp.*) and *On Medical Experience* (*Med. Exp.*). *On Sects for Beginners* is an invaluable introduction to the methodological issues separating the three schools of Greek medicine, broadly defined.[4] The *Outlines of Empiricism* is a more advanced analysis of Empiricist methodology. In *On Medical Experience* – likely a very early work – Galen defends aspects of Empiricist methodology against Rationalist critique (for which see **IV.5.2.1**). Despite his own theoretic inclination, Galen treats the Empiricists with peculiar respect, believing the marriage of theory and rigorous observation to be central to the physician's craft.[5]

V.1.2 Scholarship

In recent decades, the nature of the Pyrrhonist-Empiricist alliance has been freshly interrogated.[6] A few works stand out. The first, Roberto's Polito's 'Was Skepticism a Philosophy? Reception, Self-Definition, Internal Conflicts' (2007b), is an address to the question of why the Pyrrhonist-Empiricist alliance was advantageous to the Pyrrhonian school. I consider Polito's argument at **V.4.3**. The second, James' Allen's 'Pyrrhonism & Medicine' (2010), examines the relationship between Pyrrhonism and both the Empiric and Methodic sects, inspired by Sextus Empiricus' anomalous endorsement of Methodism at *PH* I.236-241 (**V.3.2**). Though Allen's article is largely devoted to weighing the sceptical credentials of the Empiricists and the Methodists, the contest has broader significance. I will argue at **V.3.2** that Sextus' qualified endorsement of Methodism illuminates the bifurcation of his intellectual identifies, an angle that is largely unexplored in Allen (2010), but one which is present, at least implicitly, throughout Allen's chapter on Sextus Empiricus in his landmark *Inference from Signs: Ancient Debates about the Nature of Evidence* (2001). This text is indispensable to my analysis of Sextus' work (**V.3.1**), casting the internal contradictions in *PH* and *M* – arising, I will argue, from the disunity of Sextus' professional (Empirical) and philosophical (Pyrrhonian) personae – in sharp relief. A further text of particular significance to this chapter is Morison, 'The

[4] 'Genera' is perhaps a more appropriate taxonomic rank.
[5] e.g. Gal. *HNH* XV.159-161 K.
[6] The first text to give the nature of the Pyrrhonist-Empiricist bond due consideration is Philippson (1881).

Sceptic's Modes of Argumentation' (2018). Though Morison's article is unconcerned with the Pyrrhonist-Empiricist alliance, his convincing assessment of the purpose and application of Aenesidemus' Tropes/Modes (**V.2.1**) reframes Aenesidemus' method of argumentation in such a way as to reveal its potential susceptibility to Empiricist influence.

V.2 Pyrrhonism vs. Empiricism

Let us approach the two schools separately. We treat first Pyrrhonian scepticism (**V.2.1**) then proceed to medical Empiricism (**V.2.2**).

V.2.1 The origin of Pyrrhonism

Through her perceptions, the human interfaces with the world. The possibility that the mechanisms of inquiry might yield inaccurate results, such that our senses do not provide the aperture onto reality that our intuition guides us to suspect, lies at the root of all epistemological inquiry. That we cannot state with certainty that perceptions are non-illusory is the premise that unites the Pyrrhonian sceptics across the school's long and complex history. Pyrrhonian scepticism properly so-called[7] was founded by Aenesidemus of Cnossus, a disaffected Academic, in the first century BC in response to blooming doctrinaire tendencies within the contemporary Academy.[8] Sextus Empiricus, our fullest source for the motives of the Pyrrhonist school, encapsulates the 'Sceptic Way' as follows:

> The Sceptic Way is a disposition to oppose phenomena and noumena to one another in any way whatever, with the result that, owing to the equipollence among the things and statements thus opposed, we are brought first to ἐποχή [complete suspension of belief] and then to ἀταραξία [the state of being unperturbed].[9]

Where the scepticism of the Academy was first and foremost an epistemological position, Aenesidemus subordinated epistemology to ethics; by upholding the lifestyle of the historic Pyrrho of Ellis as the ideal, he imbues his philosophy with a moral τέλος – 'he who philosophizes after the fashion of Pyrrho is happy not

[7] The extent to which Pyrrhonism can rightly be treated as a 'sect' is the subject of Polito (2007b). See **V.4.3** below.
[8] Phot. *Bibl.* 169b18-170b3 (LS 71 C). The Academy at the time was led by Philo of Larissa, the philosopher whom history holds responsible for completing the Academy's slide back into dogmatism. The definitive full-length study of Philo of Larissa is Brittain (2001).
[9] S. E. *PH* I.8 trans. Mates (1996).

only in general but also, and especially, in the wisdom of knowing that he has a firm cognition of nothing.'[10] Suspension of assent is the means of attaining equanimity; 'as end the sceptics name suspension of judgement, upon which freedom from disturbance follows like a shadow.'[11] To this end, the Pyrrhonists compiled the most persuasive arguments against the possibility of knowledge, gathered under the heading of the Ten Tropes (or Modes) of Aenesidemus.[12]

The confusion concerning the precise number of systemised Tropes may result, in part, from the fact that the arguments listed can be resolved into one or two distinct types.[13] I favour Striker's (1983) interpretation that there are two types of argument in the Tropes[14] – A) the argument from conflicting impressions and B) the argument from relativity – and adopt her model for the purpose of this exposition. The majority of the Tropes fall into category A. Adhering to the order supplied by Sextus Empiricus in *PH* – the most complete account of the Tropes – Tropes 1-7 and 9 are examples of the variables which (may)[15] account for conflicting sense impressions. These include such variables as the species of the observer, the person observing, the sense-organ receiving the information, the disposition of the observer (is she/he drunk, ill etc.), the position of the observer relative to the object perceived, the distortive effects of other objects of perception, modes of configuration and the relative quality of strangeness or novelty, rooted in the culturally inherited assumptions of the observer.[16] The final Trope in Sextus' list is a further variation of argument A, only this time the concern is conflicting value judgements made in response to the object of perception;

[10] Phot. *Bibl.* 169b26-27 (= LS 71 C), reporting the words of Aenesidemus.
[11] D. L. IX.107 (LS 71 C).
[12] We find the list summarised in S. E. *PH* 1.31-9 and expanded on throughout *PH* I. Sextus Empiricus attributes the modes to Aenesidemus in *M* 7.345. Controversies as to the precise number of tropes abound. Sextus Empiricus and Diogenes Laertius (IX. 79-88) number them at ten; Philo of Alexandria (*De. Ebr.* 169-202) provides us with eight. Aristoc. (ap. Euseb. *Praeb. Ev.* 14.18.9-10) gives us nine.
[13] Striker (1983) resolves the Ten Tropes into two distinct types of argument. Annas & Barnes (1985) p.25 find all ten Tropes to be expressible under a single schema. Hankinson (1995) p.156 attributes to each Trope a single basic form. The most recent treatment of the Ten Tropes of Aenesidemus, Morison (2018) p.286-293 treats the Tropes as versions of a singular argument.
[14] Though both types serve a singular purpose, for which see Morison (2018) p.286-293 and n.15 immediately below.
[15] Morison (2018) p.291 argues that the purpose of the Ten Modes 'is to furnish the sceptic with a supply of premises from which to construct counter-arguments to a certain group of arguments put forward by dogmatists, namely, those arguments which proffer, as consideration in favour of the proposition that *x* is *F*, propositions which appeal to the fact that *x* appears *F* in situations *S.*' They are, in short, 'devices for constructing equal and opposing arguments to the arguments of the dogmatists' (p.293). The Tropes are not, as Morison lays out convincingly (p.286-293), *endorsements* of the premise that conflicting sense impressions (*etc*.) prove that perceptions are unreliable.
[16] S. E. *PH* I.40-61, 79-91, 91-8, 100-112, 118-120, 124-8, 129-32, 141-4 respectively.

disparate laws and customs are offered as further variables accounting for why objects seem to manifest differently to different kinds of observers. As such, we cannot trust our impressions – be they sensory or evaluative – to provide us with a definitive picture of the nature of what we perceive.[17] This does not amount to dogmatic rejection of appearances, as Sextus makes clear:

> Those who claim that the Sceptics deny appearances seem to me not to have heard what we say. For…we do not reject the things that lead us involuntarily to assent in accord with the passively received φαντασία, and these are appearances. And when we question whether the external object is such as it appears, we grant that it does appear, we are not raising question about the appearance, but rather what is said about the appearance; this is different from raising a question about the appearance itself. For example, honey appears to us to be sweet. This we grant, for we sense the sweetness. But whether it *is* sweet we question insofar as that is to do with the [philosophical] theory, for that theory is not the appearance, but something said about the appearance.[18]

The objection enforced by the Tropes is to the grounding of theory in φαντασία; perceptions tell us nothing conclusive about the 'real nature' of the world we inhabit, as the sundry variables affecting how a single object manifests are intended to demonstrate. This goes part way to explaining the 'equipollence'[19] of beliefs opposed; all spring from the same unverifiable assumption that what is observed has a positive relationship with what *is.* 'What *is*', we should note, is a presumed existent. The potential disalignment of 'what is' and 'what seems to be' is the bedrock of Pyrrhonian epistemology.

Argument B is introduced at *PH* I.135 as the eighth Trope in Sextus' list: 'since everything is in relation to something, we will suspend judgement as to what things are in themselves and in their nature.'[20] The conclusion that nothing is anything absolutely – that is, nothing is not defined by its relationship to something else – is softened by the following qualification: '…here, as elsewhere, we use "are" for "appears to be", saying in effect "everything appears in

[17] Striker (1983) p.99.
[18] S. E. *PH* I.19-20 trans. Mates (1996).
[19] See S. E. *PH* I.8 quoted above.
[20] Trans. Mates (1996).

relationship to something.”’[21] With sense-data uncoupled from reality *per se*, the domain about which sceptics speak is always that of observation. Sextus uses ‘relative’ in two ways. The first application refers to the relationship between object and observer and therefore falls under argument A. The second refers to the relationship between sense objects. Though this definition recalls the sixth Trope in *PH* concerning the supposedly distortive property of admixtures whereby nothing can be observed ‘by itself’,[22] the account of Diogenes Laertius clarifies the distinction.[23] Diogenes refers to this Trope (the tenth in his list) as the Trope ‘by the comparison with other things.’[24] He lists pairs of relative qualities – ‘light and heavy’, ‘strong and weak’, ‘greater and less’, ‘up and down’ – and frames the argument as one that denies relational features a foothold in explaining the nature of that which is observed; ‘thus that which is on the right is not so by nature, but is so understood in virtue of its position with respect to something else.’[25] The Pyrrhonist, though not *committed* to the thesis that an object’s relational features cannot be features of what an object *is* ‘in its nature and absolutely’,[26] exploits this potential disalignment to neutralise dogmatic claims. To revisit my comparison with the sixth Trope in *PH,* the capacity of constituents of an admixture to distort one’s perception is expanded in the eighth Trope to include constituents of memory. We base our assessment of the weight of objects on our memory of heavier/lighter things. Our faculties of observation remain the cause of our permanent estrangement from the truth.[27] For this reason, the Pyrrhonist withholds his assent to the non-evident; his observations proffer no firm foundations upon which to develop a methodology for inferring hidden truths about the world.[28]

---

[21] S. E. *PH* I.135. trans. Mates (1996).
[22] S. E. *PH* I.124-128.
[23] D. L. IX.87.
[24] *Ibid.*
[25] *Ibid.*
[26] Morison (2018) p.286-293.
[27] We should note, however, that the broadening of this conception of distortive admixtures to include constituents from memory would seem to presuppose a certain continuity in one’s perceptions over time. While object B (directly perceived) being smaller than object A (held in memory) does not make ‘smallness’ an inextricable characteristic of object B, there is no suggestion that its quality of ‘smallness’ relative to A is invalid. This detail is worth noting before Empiricist epistemology is expounded.
[28] I have focussed on the ‘Ten Tropes’ in this section because of their association with Aenesidemus himself. They are the list of arguments at the root of Pyrrhonism properly so-called. Sextus records a further Five Modes at *PH* I.164-177, attributed to ‘the most recent sceptics’ (*PH* I.164). They are the Tropes of Dispute, Infinite Regress, Relativity, Hypothesis and Reciprocity. The third of which, the Trope from Relativity, arguably encompasses Aenesidemus’ original Tropes against assenting to the truth-value of

The character of Pyrrho of Elis (c.365-c.270) from whom the Pyrrhonian sect takes its name, played a largely propagandistic role in Aenesidemus' school; the sequence of teachers and pupils reaching back to Pyrrho himself in D. L. IX.115-116 cannot be independently verified, and reads like a retrospective attempt (probably on the part of Aenesidemus) to fortify first century Pyrrhonism with a historical pedigree.[29] Pyrrho functions as a pseudo-historical ideal to which the Pyrrhonian sceptic must aspire – an exemplar of ἀταραξία as attained through suspension of assent.[30] But the man himself evidently had a role to play in the reorientation of Greek thought towards the problem of knowledge.[31] The historical Pyrrho is a mysterious figure.[32] He committed nothing to writing but his pupil, Timon of Phlius, preserves what may amount to his only dogmatic assertion (itself preserved in Aristocles' *On Philosophy,* quoted by Eusebius): things by their own nature 'are equally indifferent, unmeasurable, and inarbitrable. For this reason neither our sensations nor our opinions tell us truths or falsehoods.'[33] Pyrrho's claim, if accurately reported, is a metaphysical one; reality *is* equally indifferent, unmeasurable and inarbitrable and our descriptions of reality *should* reflect its indefiniteness.[34] On Bett's reading, the claim recorded in Eusebius that one should, on discovery of reality's true nature, be 'unopinionated, uncommitted and unwavering'[35] does not equate to the later Pyrrhonist's attitude of ἐποχή, being instead a commitment to the thesis that nature is without definite characteristics.[36]

---

perceptions (see Annas & Barnes (1985) p.142-143). Later Pyrrhonism retains Aenesidemus' scepticism of perception and incorporates additional arguments against dogmatic claims. For a recent discussion of the five Tropes, see Morison (2018) p.293-213 (the bulk of Morison's article).

[29] Sedley (1983b) p.19.

[30] Phot. *Bibl.* 169b26-27 (LS 71 C). This is true of the philosophy as Aenesidemus conceived it but it was not universally accepted. Interestingly, the late sceptic and Empiricist physician Theodosius found conflict between the outlook of Pyrrhonism and its purported origin in the architecture of another's mind. From D. L. IX.70: '…for if the movement of the mind in either direction is unattainable by us, we shall never know for certain what Pyrrho really intended, and without knowing that, we cannot be called Pyrrhonians.' – trans. Hicks (1925). With that said, Diogenes nonetheless informs us that Theodosius continued to uphold the lifestyle of Pyrrho as the ideal.

[31] Which is not to claim that Hellenistic scepticism appeared *ex nihilo* (see shortly below). The claim is only that the philosophy of Pyrrho lies somewhere near the root of both branches of Hellenistic scepticism. For his likely (though unacknowledged in the ancient sources) influence on Arcesilaus, the founder of Academic scepticism, see Sedley (1983b) p.15-16.

[32] Bett (2003) remains the most comprehensive analysis of Pyrrho's thought, antecedents and descendants. Studies of Pyrrhonism generally (and understandably) tread lightly on the question of Pyrrho's own philosophy. Attempting my own comprehensive reconstruction of Pyrrho's thought falls well outside the scope of this thesis. As this is a discussion of Pyrrhonism's *origins*, however, it is important to include something of the tradition's more distant roots.

[33] Aristoc. ap. Euseb. *Praeb ev.* 14.16.1-5 (LS 1 F) reporting the words of Timon of Phlius.

[34] This the reading of Bett (2003), summarised at p.39-40.

[35] Aristoc. ap. Euseb. *Praeb ev.* 14.16.1-5 (LS 1 F).

[36] Bett (2003) p.40.

The figure whom Aenesidemus adopted as his intellectual ancestor maintained that nature was unknowable. Though the Pyrrhonists (properly so-called) would denude Pyrrho's philosophy of its negative dogmatism, it is important, for the purposes of this section, to emphasise the tradition from which Pyrrhonian scepticism emerges.

As to Pyrrho's own influences, Diogenes Laertius connects Pyrrho with the Indian ascetics (named by the Greeks the γυμνοσοφισταί, 'Naked Philosophers') and the Persian Magi, whom he encountered during the expedition of Alexander the Great into India and western Asia, a detail which lends his thought a certain exoticism which may account for its ostensible novelty.[37] But his precedent in the Greek epistemological tradition is worthy of note.[38] On the evidence of his pupil, Philo of Athens, Pyrrho referred above all to Democritus, the atomist thinker of the century prior.[39] Though the nature of Pyrrho's recourse to Democritus is not expounded,[40] his philosophy intersects with Democriteanism on the question of the truth-value of perceptions. Sextus Empiricus (*M* VII 136-140) preserves a series of Democritean fragments in which he denies the senses access to the truth. Democritus maintained that his atomistic model made of sense-reality an illusion whose properties were the products of conventional assumptions.[41] For this reason our senses separate us from the truth.[42] His famous proclamation that

[37] D.L IX.61-2. Sedley (1983b) p.15. The extent of these Eastern influences on Pyrrho's thought remains controversial. Linguistic impediments seem likely to have limited the depth of Pyrrho's intellectual engagement with either the gymnosophists or the Magi (see Brunschwig (1999) p.243-246 and Bett (2003) p.176-177). The tendency to associate Pyrrhonism with Eastern thought is common but difficult to substantiate. Bett (2003) p.169-178 identifies a number of parallels with what we are able to reconstruct of *Pyrrho's own thought* – that is, distinguished from Pyrrhonism properly so-called – but ultimately concludes that the absence of linguistic communication likely prohibited anything more than superficial inspiration.

[38] See Bett (2003) p.152-160 for a more thorough treatment of Pyrrho's Democritean influence. Bett ultimately concludes that Democritus' ethical outlook was key to his influence on Pyrrho, but he accepts that Democritus' epistemology cannot have been irrelevant.

[39] D. L. IX.67.

[40] Brunschwig (1999) p.236 warns against the assumption that the influence of Democritus on Pyrrho was firmly epistemological. He suggests instead, on the basis of the lines from Homer which Pyrrho was reportedly fond of quoting, that Democritus' rejection of *meaning* in the universe was the source of his appeal. I do not believe there is sufficient evidence to outright dismiss Democritus' epistemological influence. The similarities between Pyrrho's conception of Nature as *by nature* – *i.e*. metaphysically – inarbitrable (Aristoc. ap. Euseb. *praeb. ev.* 14.18.1-5 (LS 1 F)) and Democritus' conception of nature as an entity whose firm discernment is distorted by its all-transforming nature should not be neglected.

[41] D. L. IX.72.

[42] As Bett (2003) p.257-258 points out, Democritus' position on sensation is, in fact, ambiguous. Arist. *Gen. et corr.* 315b9-10, *De an.* 404a27-9 and S. E. *M* VII.140 imply that Democritus cast the senses as a *guide* to the truth, despite never providing direct access to the world *per se* – that is, of atoms and void. This, on Bett's reading, brings Democritean epistemology further into line with that of Pyrrho (if not his first

'in reality we know nothing – for truth is in the depths'[43] reads like a proto-sceptical claim and,[44] indeed, the later Pyrrhonists – whose scepticism concerning sense-data is less ambiguous than that of the movement's 'spiritual founder'[45] – sought to claim Democritus as an ancestor alongside Xenophanes of Colophon and Zeno of Elea, both of whom are associated with denying the cognitive content of appearances.[46] That Timon's polemical text, the *Silloi*, paints all three philosophers in a favourable light (where he disparages, among others, Aristotle, the Megarians, Arcesilaus, Zeno of Citium, Epicurus…) seems to confirm that a mistrust of perceptions lay somewhere near the root of early sceptical (or proto-sceptical) thought.[47] Though Philo names only Democritus among the early atomists to whom Pyrrho was warmly disposed,[48] Democritus' fourth century successors, Metrodorus of Chios and Anaxarchus of Abdera, might be considered the bridge between the two philosophers.[49] Metrodorus' much-quoted declaration: 'none of us knows anything, not even whether we do not know this very thing' is variously cited as Pyrrho's inspiration.[50] To Pyrrho's mentor Anaxarchus, who accompanied Pyrrho on Alexander's expedition, is attributed the claim that existing things are comparable to 'scene-painting' and akin to the

century successors), whose claims against nature's arbitrability are metaphysical claims revealed, in some way, by sense-perceptions. See further n.45 below.

[43] B117 in D. L. IX.72.

[44] The distinction, of course, is that Democritus believed he had some insight into what was happening 'in the depths' to which no Pyrrhonist would assent.

[45] Bett (2003) esp. p.114-123 in the context of Pyrrho's influences, argues that Pyrrho's mistrust of perceptions stem from what he calls 'the indeterminacy thesis' – that is, the metaphysical thesis that nature *is* 'indifferent, unmeasurable and inarbitrable' (Aristoc. ap. Euseb. *praeb. ev.* 14.18.1-5 (LS 1 F)). Perceptions yield indeterminate data because nature is itself indeterminate. However, in order to arrive at this conclusion, perceptions must, in some way, indicate this fact (see n.42 above for the role of perceptions as *guide* in Democriteanism). Later sceptics, as noted above, do not share Pyrrho's negative dogmatism; they withhold judgement on the question of nature's indeterminacy, as they withhold judgement on the question of the truth content of perceptions. They remain, more truly than their predecessors, 'sceptical'. But at the root of ancient scepticism is the *suggestion*, courtesy of Pyrrho and his ancestors, that nature might, *by nature,* be incomprehensible.

[46] See S. E. *M* VII.49 for Xenophanes' proto scepticism. Zeno's paradoxes are challenges to common assumptions about reality born of the data of our senses.

[47] D. L. IX.111 (Timon fr. 775) for Xenophanes in the *Silloi,* IX.25 (Timon fr.819) for Zeno of Elea, IX.40 (Timon fr. 820) for Democritus.

[48] The text tells us more about Pyrrho's fondness of Homer despite the poet being cited as secondary to Democritus.

[49] Though not, of course, without controversy. Although Metrodorus' influence might be overstated – Brunschwig (1999) p.237-240 makes an intriguing case for Metrodorus having more faith in sense-reality than is implied by the much-cited opening to his work *On Nature* – the well-attested personal connection between Anaxarchus of Abdera and Pyrrho of Elis is undoubtedly significant.

[50] Euseb. *Praeb. Ev.* 14.19.18; Cic. *Acad.* II.73; S. E. *M* VII.88. Although the line more closely anticipates Arcesilaus, the founder of Academic scepticism, in its inclusion of human ignorance among the things about which humans are ignorant. See Cic. *Acad.* 1.43-6.

visions of a dreamer or a madman.[51] These comparisons encapsulate the Democritean incline towards scepticism that the Pyrrhonists would pursue to fruition. Whether the fault lies in our senses or the sum of all apparent things, the world with which we interface, revealed through experience, does not allow us access to the truth. It is the dissociation of the human from reality, mitigated by untrustworthy perceptions, that lies at the root of Pyrrhonian epistemology.

V.2.2 The origin of Empiricism

The Empiricist sect (named for ἐμπειρία, 'experience') was formed c.260 BC by Philinus of Cos, a disaffected pupil of Herophilus of Chalcedon, in rejection of the emphasis afforded hidden causes by the new anatomists.[52] It was therefore, by extension, a rejection of the logical basis of Rationalist medicine.[53] Where the Rationalists sought by reason to unveil the hidden causes of disease, regarding medicine as a discipline which was developed from theory, the Empiricists denied reason access to the world beneath perceptions and restricted their epistemology to phenomena. Across the experiential plethora, signs are correlated and incorporated into an ever-growing body of medical lore – a record of all previous experiences.[54] Thus, though the early Empiricists align with later Pyrrhonists in their dismissal of the truth-value of theoretical knowledge, their relationship to sense-data is, at least on first analysis, vastly divergent.

Though the birth of the Empiricist sect is contemporary with that of Academic scepticism, we find no compelling evidence for 'cross-pollination' between either school's rejection of dogmatic orthodoxy in their respective intellectual domains. Empiricism springs not from the debate over the accessibility of truth but from the that over the relative merits of art vs. experience, τέχνη vs. ἐμπειρία, where the former is a prescribed body of knowledge grounded in one's systematic understanding of the *nature* of one's subject matter, derived from both ἐμπειρία and λόγος, and the latter in a body of knowledge born from observation and

---

[51] S. E. *M* VII.88.

[52] ps.-Gal. *Int.* 4.2 (= XIV.683-684 K). Attempts by later Empiricists to claim as ancestors earlier authorities such as Acron of Agrigentum (a contemporary of Empedocles) or, indeed, Timon of Phlius, as described in Gal. *Subf. Emp.* 1, 42.22-43.6 Deichgr., are as unconvincing as extravagant genealogical claims made by innovators in the ancient world tend to be. See Hankinson (1987a) p.330.

[53] A term intended to disparage. It was used by the Empiricists to distinguish themselves from their opponents.

[54] Gal. *Subf. Emp.* 2-4, 44.4-51.9 Deichgr.

memory, with no recourse to λόγος.[55] The distinction is first analysed in Plato, whose Socrates lauds the former as the superior species of knowledge.[56] In the *Phaedrus,* Socrates, analogising rhetoric to medicine,[57] gives the example of a person who has learned by ἐμπειρία to bring about certain effects in the body through the application of certain drugs, but who lacks the knowledge one associates with τέχνη to apply with optimal efficacy the knowledge he absorbed by rote.[58] The example Plato conjures in the *Laws* is the distinction between true doctors and their assistants, where the former learn through inquiry into nature and the latter learn by mimicking them.[59] The τέχνη vs. ἐμπειρία debate is taken up by Aristotle, who makes a distinction at the beginning of the *Metaphysics* between those who rely only on ἐμπειρία and those who operate within the structures of theory.[60] Aristotle accepts τέχνη as the higher form of knowledge – 'the experienced know the fact, but not the wherefore; but the artists know the wherefore and the cause'[61] – but he includes the caveat that theory, uncoupled from the wealth of experience from which it emerged,[62] is inferior, in practical terms, to simple experience.[63] He explains, using the example of medicine, that the experienced, though ignorant of causes, operate at the level of particulars, where the theoretician, learned in natural law but innocent of all case-specific requirements, can only think in universals.[64]

The τέχνη-ἐμπειρία distinction analysed in Plato and elaborated in Aristotle lies at the root of the Empiricist-Rationalist debate in Hellenistic medicine. Where Aristotle claimed that theory minus experience is of limited practical value, the

[55] Set out in Schiefsky (2005) p.343-359.
[56] Schiefsky (2005) p.347. Plat. *Gorg.* 462b introduces the distinction. Medicine is introduced as a prominent example from 464a.
[57] At Plat. *Phaed.* 270b we find an early version of the following, familiar formulation: as medicine must be based on knowledge of the φύσις of the body, rhetoric must be based on knowledge of the φύσις of the soul.
[58] *Ibid.* 268a-c. At *Ibid.* 271d-272b, Plato makes it clear that the knowledge upon which τέχνη is based includes an experiential component; τέχνη is not a rejection of ἐμπειρία as ἐμπειρία, in Plato's formulation, is a rejection of τέχνη.
[59] Plat. *Leg.* 720a-e. A τέχνη of sorts, Plato acknowledges, may emerge from ἐμπειρία (if the doctor observed was a true practitioner of the art), but the Empiricist will always lack the knowledge necessary to individualise his treatment. cf. *Leg.* 857e. Schiefsky (2005) p.249.
[60] Arist. *Met.* I.981a. See further Frede (2011) p.118.
[61] *Ibid.* trans. Tredennick (1933); Schiefsky (2005) p.451: 'τέχνη is explanatory while ἐμπειρία is not.'
[62] Unlike Plato, Aristotle does not conceive technical and rational knowledge to be simply opposed to one another. τέχνη emerges from ἐμπειρία, while remaining distinct from it. For a detailed analysis of the relationship between τέχνη and ἐμπειρία in Aristotle, see Chiaradonna (2013).
[63] Arist. *Met.* I.1981a. See Chiaradonna (2013) p.383-386.
[64] Arist. *Met.* I.1981a. See Chiaradonna (2013) p.383-386.

Empiricist speaking in Galen's *Med. Exp.* uses the same argument to discredit theory *per se*; experience is the only essential epistemological component in Aristotle's formulation.[65] Theory, as well as being superfluous to medical inquiry, was judged, in general, to be a fruitless extravagance, incapable of throwing light on non-evident things. As put by Celsus:

> That nature cannot be comprehended is in fact patent, they [the Empiricists] say, from the disagreement among those who discuss such matters; for on this question there is no agreement, either among professors or philosophers or among medical practitioners. Why then, should anyone believe rather in Hippocrates than in Herophilus, why in him rather than in Asclepiades?[66]

That contradictions among theoreticians are upheld as evidence for nature's inscrutability recalls the methodology of Arcesilaus, the founder of Academic scepticism, who first emphasised the equipollence of arguments as an argument for withholding assent.[67] But the Empiricists employ this technique in defence of the validity of ἐμπειρία in the context of the τέχνη-ἐμπειρία opposition. This is not an argument for ἐποχή but a *positive* argument, derived from ἐμπειρία, against the value of τέχνη. Note also the disparity between the positive statement 'nature cannot be comprehended' – which does not, we should note, reflect Academic scepticism – and the Pyrrhonist's universal suspension of judgement;[68] the arguments from conflicting impressions prohibit the Pyrrhonist from assenting even to this (**V.2.1**).

The Empiricists had unquestioning faith in the data of experience;[69] ἐμπειρία formed the basis upon which their body of medical lore was based.[70] But we must note that their conception of ἐμπειρία was richer than that which Plato has subordinated to τέχνη, and which Aristotle conceived as the appropriate grounds for theory. Galen tells us in *On Sects for Beginners* (*SI*) that the Empiricists based their art on two modes of apprehension: the data of one's senses (including one's

[65] Gal. *Med. Exp.* 10. See also Cel. *Med.* Pr. 36-37.
[66] Cel. *Med.* Pr. 36-37 trans. Spencer (1935). We encountered this passage in **IV.5.2.3**.
[67] e.g. Cic. *Acad.* I.45. Burnyeat (1983) p.10-11.
[68] I refer here to the Pyrrhonists properly so-called (see *supra* **V.2.1**).
[69] Indeed, there is no sign that the question ever arose for the early Empiricists.
[70] Gal. *SI* II (= I.66-68 K.); Cel. *Med.* Pr. 33-35.

own memory), and history, one's knowledge of the experience of others.[71] The Empiricist's history of medicine is one of documented trial and error, with time being the measure of the breadth and depth of accumulated medical knowledge.[72] Doctors distinguish between 'the pernicious and the salutary' treatments by observing and recording what has worked and what has failed in the past and then administering their treatments accordingly.[73] On the occasion that the Empiricist encounters a patient with an unfamiliar affliction – *i.e.* one for which there is no documented history – his recourse is to 'transition from the similar': he administers a treatment that has previously proven effective under similar circumstances, records the results, and thus the art continues to develop.[74]

Empiricist medicine is defined by the twin processes of documentation and systematisation. The art hinges on the proposition that knowledge is attainable through ἐμπειρία, that perceptions impart real facts about the world and, moreover, that our receipt of these facts permits us to make judgements about how we should proceed in the face of novelty. The model of 'transition from the similar' (previously encountered at **IV.5.2.3**) depends on the Empiricist's willingness to make (at least, tentative) inferences about the perceptible world; x has been observed to effectively treat y1, therefore there is *a likelihood* of its effectiveness as a treatment for y2 on the basis of y. But how much hope the Empiricist was permitted to invest in the success of x as a treatment for y2 is controversial.[75] In *Subf. Emp.*,[76] Galen records a system for determining the Empiricist's expectation of success based on the number of similarities between the tested and proposed cases, where expectation is (predictably) proportionate to similarity.[77] Significantly, the application of this model was itself rooted in ἐμπειρία; Galen tells us explicitly that the Empiricists justify their recourse to 'transition from the similar' by appealing to their experience of the method having

[71] Gal. *SI* II (= I.66-68 K.).
[72] Cel. *Med.* Pr. 33-35.
[73] *Ibid.* The example given in Gal. *SI* II (= I.66-68 K.) is that of a physician noticing that a spontaneous nosebleed seemed to aid in the recovery of a fever. When he next encounters a patient stricken with fever, he lets blood from a vein, such is his faith in experience.
[74] Cel. *Med.* pr. 38 Gal. *Subf. Emp.* 9, 74.9-23 Diechgr.
[75] See Hankinson (1987a) p.332-334.
[76] An account of the sect in a developed stage.
[77] Gal. *Subf. Emp.* 9, 74.9-23 Diechgr.

proven effective in the past.[78] Thus, the Empiricist makes inferences from experience about the world of experience, and the method by which such inferences are made is determined via recourse to experience. Though the Empiricist never makes inferences about the *non-evident* from ἐμπειρία – for such is the province of the Rationalist – his faith in the data of experience in unambiguous.

As the Pyrrhonist's arguments rest on his refusal to assent to the cognitive value of perceptions – the mechanism by which experiences are extracted from the external world – the purpose and sustainability of the Pyrrhonist-Empiricist alliance in the second century AD must be interrogated. We treat next how this conflict surfaces in the work of Sextus Empiricus – our aperture into the Pyrrhonist-Empiricist alliance – then explore how the alliance may nonetheless have proven beneficial.

V.3 Interdisciplinary conflict in Sextus Empiricus

Our best sources for Pyrrhonian scepticism are the works of an avowed Empiricist. The *Outlines of Pyrrhonism* (hereafter *PH*) is a concise exposition of Pyrrhonist philosophy, written as the sun was setting on the school's extensive history.[79] It consists of three books. The first book provides the 'outlines of Pyrrhonism'. The latter two interrogate branches of doctrinaire philosophy from the perspective established in book one, structured around the trisection of philosophy into τόποι – into Logic (book two), Physics and Ethics (book three). The second text, standardly abbreviates as *M,* is in fact a chimera of two distinct works, the first six books comprising *Against the Mathematicians* proper – a complete, self-contained work – and the latter five comprising part of an incomplete second work.[80] Adhering to the commonplace (and firmly entrenched) abbreviation, *M* 7-11 covers the same ground as *PH* 2-3 in finer detail (albeit occasionally in (complicatedly) different ways). In *M* 1-6 Sextus applies his scepticism to the so-called 'cyclical' (ἐγκύκλια) disciplines – bodies of theoretical knowledge (collected by the Grammarians, the Rhetoricians, the Geometers, the

[78] *Ibid.* 9, 80.10-20 Deichgr.

[79] D. L. IX.1160 mentions a student of Sextus Empiricus named Saturninus but we know nothing of this individual beyond his name. Our evidence for the continuation of the Pyrrhonist tradition beyond Sextus Empiricus is meagre.

[80] Bett (1012) p.vii-ix. Thus, *Against the Logicians* became *M* 7-8, *Against the Physicists* became *M* 9-10, and *Against the Ethicist* became *M* 11.

Arithmeticians, the Astrologers and the Musicians respectively) whose propagation he is unable to countenance on the grounds of both his Pyrrhonism and his Empiricism.

Of the man himself we know almost nothing. He is traditionally dated to the second century AD but the curious absence of his name in Galen has been taken, by some, to suggest a slightly later date for his period of activity.[81] Two details can be asserted with confidence. The first, his Pyrrhonism; if his subject matter alone were not sufficient indication – he is 'the author of ten books on scepticism'[82] –, he recurrently refers to the Pyrrhonists as 'we' throughout his extant works and is listed in Diogenes Laertius' genealogy of successors to the Pyrrhonist tradition. [83] The second, that he was a doctor; he volunteers this information on several occasions and Diogenes Laertius confirms it.[84] On the subject of philosophy's transposition into medicine, he provides us with a counterpoint to Athenaeus of Attalia and Asclepiades of Bithynia, not merely on account of his antipathy towards dogmatism – for the Stoics and Epicureans were of a piece in their conception of truth as something accessible to the intellect – but because he operated in both medical and philosophical domains simultaneously, where, as I have argued throughout this thesis, the former pair were champions of medical knowledge as something that escaped the reach of broader epistemologies. As I hope to explore throughout this section, Sextus Empiricus is a figure with two intellectual identities: he is Sextus the Physician, and he is Sextus the philosopher. These identities may overlap considerably – as the arguments of the Pyrrhonist may, in certain contexts, align with those of the Empiricist – but they remain distinct on account of their τέλη; Pyrrhonism and Empiricism are oriented towards different ends, as philosophy and medicine are unique disciplines. Sextus' engagement with medicine was more than merely practical; he refers to his (lamentably lost) works the *Medical Treatise* and *Empirical Treatise* in *M* at VII.202 and I.61 respectively and expounds on the philosophy of medicine at *PH* I.236-261.**[85]** He divided his intellectual life between elucidating two *distinct* methodologies, and is therefore a crucial figure in the

[81] e.g. Bett (2018) p.1.
[82] D. L. IX.116.
[83] *Ibid.*
[84] S. E. *PH* II.238, *M* I.150, II.47. cf. D. L. IX.116.
[85] The *Medical Treatise* and the *Empirical Treatise* may, in fact, refer to the same work. But the point stands.

history of Hellenistic philosophy's transposition into medicine. In the absence of his medical treatise – whose Pyrrhonian character can only be guessed at – our analysis of *PH* and *M* will be guided by the following questions:

1) How far was Sextus' Pyrrhonism tempered/distorted by his Empiricism?

2) Where contradictions arise, what does this tell us about the disparity between medical and philosophical τέλη?

3) To the extent that they were, how were these disparities accommodated?

Questions (1) and (2) will concern us In **V.3.1** and **V.3.2**. Answering (3) in **V.3.3** will bring this section to a close. With Sextus' Pyrrhonism, his Empiricism, the tension in their alliance and the framework within which such tension might be accommodated fully established, we will then explore the question of how such an alliance came about in **V.4**.

V.3.1 Mnemonic vs. Indicative signification

At *PH* II.96, having disassembled 'truth' as debated by the Dogmatists, Sextus turns his attention to species of sign. He introduces the distinction between commemorative/mnemonic and indicative signification, attributed broadly to his Dogmatist opponents:

> …they call a sign 'mnemonic' if, having been observed together with the thing signified, it, by its clearness at the time when it occurs to us (while the thing signified is non-evident), leads us to recall what was observed together with it and is not occurring clearly now, as is the case with smoke and fire. A sign is 'indicative', as they say, if it is not clearly observed together with what is signified, but it signifies that of which it is a sign by its own individual nature and constitution; for example, the motions of the body are signs of the soul.[86]

The background of this passage is the dogmatic frame in which objects of discourse (τὰ πράγματα) are divided into 'evident' and 'non-evident' matters where the former, like daylight, 'come to our awareness directly' and the latter, like that claim that the number of stars is even, 'do not naturally fall within our apprehension'.[87] 'Non-evident' things are divided further into the 'temporarily non-

[86] S. E. *PH* II.100-101 trans. Mates (1996).
[87] *Ibid.* II.97, *M* VIII.145-147.

evident' and the 'non-evident by nature.'[88] τὰ πράγματα are 'temporarily non-evident' when they are sense-apprehensible by nature, but temporarily occluded by some contingent factor.[89] τὰ πράγματα are 'non-evident by nature' if their remoteness from perception is integral to their character.[90] According to Sextus, the Pyrrhonist argues only against the truth-value of the indicative sign, it being a Dogmatist invention.[91] He defends his restricted opposition on the following grounds:

> …the mnemonic sign is relied on in the normal course of life, since fire is signified to the person who sees smoke, and if he observes a scar he says that there has been a wound. Hence, not only do we not fight against the normal course of life, but we are allied with it in that we assent undogmatically to what it relies on, while opposing peculiar creations of the Dogmatists.[92]

The question of how it is that a Pyrrhonist, for all that he might temper his assent by skirting around the language of belief, can justify his adherence to mnemonic signification – rooted, as it is, in assumptions of phenomenal continuity and the reliability of memory and perception as instruments of pattern recognition – has alerted scholars to the origin of the mnemonic-indicative distinction in the Empiricist-Rationalist debate;[93] the Empiricist is permitted to infer facts about the temporarily non-evident through a combination of memory and the evidence of his senses; the Rationalist conceives the evident as indicative of the non-evident by nature. The example Sextus gives for inference to the non-evident by nature at *PH* II.98 – that the body contains intelligible pores 'which can never appear themselves but *may be thought to be* apprehended' via evident things such as perspiration – recalls not merely generic Rationalist methodology but Asclepiades of Bithynia, one of the earliest and most prominent critics of Empiricism (see esp. **IV.5.2**), in particular.

---

[88] S. E. *PH* II. 98.
[89] In the example at S. E. *PH* II.98, the city of Athens is classified as 'temporarily non-evident' on account of its location relative to Sextus as he writes.
[90] *Ibid.*
[91] *Ibid.* II.102.
[92] *Ibid.* trans. Mates (1996).
[93] Allen (2001b) p.88-89, 107-108.

J. Allen, in his 2001 study of sign-inference in the ancient world, remarks in his chapter on Sextus Empiricus that 'the division of epistemic labour' to which Sextus attributes all contending dogmatic schools, where objects of knowledge are either grasped immediately through the evidence of the senses or inferred by means of sign-inference from the evident to the non-evident, seems particularly suited to Epicurean epistemology.[94] This is despite Sextus' tendency to pass over Epicurean contributions of semiotics in favour of the Stoic analysis, of which far less is known.[95] If we understand Sextus' discussion of sign-inference to be framed within the Empiricist-Rationalist debate – in which arguments for Epicurean epistemology, repurposed as anti-Empiricist arguments by Asclepiades of Bithynia, form part of the bedrock of Rationalism's defence for several centuries (see **IV.5.2**) – then this disparity becomes less perplexing; what Allen identifies as the Epicurean character of the Dogmatist's 'division of epistemic labour' in Sextus Empiricus might best be framed as the Asclepiadean character of the *Rationalist's* division of epistemic labour which Sextus identifies with all bodies of theoretical knowledge. The foregrounding of Stoicism is explicable by the school's prominence during Sextus' lifetime, as well as the long history of rivalry between the Stoics and the sceptics, dating to the founding of the New Academy.[96] The tendency in Sextus to conflate the Empiricist-Rationalist debate with the Pyrrhonist-Dogmatist/Stoic debate and what we may infer from this confusion of the relationship between his Pyrrhonism and Empiricism is covered below. I raise it here as further evidence for why, regarding the question of sign-inference, the Epicurean character of Sextus' generic Dogmatist goes unaddressed; it stems from the Empiricist-Rationalist dispute which Epicurean arguments informed. The confusion indicates the influence of Empiricism on Sextus' Pyrrhonist exposition. It is in his discussion of sign-inference that 'Sextus the Empiricist' would seem to earn his title; the question of whether he does so at the expense of his Pyrrhonism naturally arises.

Given Aenesidemus' systematised arguments against assenting to the truth-value of perceptions,[97] Sextus' endorsement of mnemonic signification appears,

[94] Allen (2001b) p.87-88.
[95] *Ibid.*
[96] See e.g. Cic. *Acad*. II.16 for evidence that Arcesilaus was principally concerned with refuting the Stoic theory of knowledge. For more on the relationship between Stoicism and scepticism, see Couissin (1983) p.31-63; Frede (1983) p.65-93.
[97] Recorded by Sextus himself in *PH* I.

on first analysis, to conflict with his scepticism; it presumes a more or less pristine correspondence between sense-data and the external world. Some (though, crucially, not all) accounts of Aenesidemus' writing on sign-inference ascribe to him the stronger position against signs which we would expect from the compiler of the Ten Tropes. Photius of Constantinople, reporting on Aenesidemus' *Pyrrhonist Discourses,* records that the founder of the Pyrrhonist school adopted a general opposition to sign-inference, denying the possibility that *any* non-evident information could be discerned from the evident.[98] Diogenes Laertius attributes a similar blanket opposition to sign-inference to Aenesidemus.[99] A successful inference from the evident to the temporarily obscure can only be made within an epistemic framework which held the natural world, as gifted to perception, to be (to some degree) predictable. In the absence of this assumption, our knowledge of the evident is on no surer epistemic footing than our knowledge of what is not evident. Thus, the epistemic hierarchy on which the endorsement of mnemonic signification depends collapses into rubble.[100] We will circle back to the compatibility of mnemonic signification and Pyrrhonism once the details of Sextus' arguments in favour have been fully explored. I will treat the arguments in *PH* and *M* separately, as they provide distinct insights into the nature of the Empiricist-Pyrrhonist bond.

V.3.1.1 Mnemonic vs. Indicative signification in *PH* II.94-188

At *PH* II.103, having set out the basis of the indicative-mnemonic distinction, Sextus announces his intention to 'show completely the nonexistence of the indicative sign.'[101] However, in the following argument, spanning *PH* II.104-118, Sextus instead proceeds to dismantle the logical basis of *Stoic* semiotics.[102] This

[98] Phot. *Bibl.* 170b3-35 (LS 72 L). Much of the fourth discourse is reportedly devoted to refuting sign-inference to the non-evident, which would seem to include mnemonic signification in its scope. This is, of course, to take Photius' summary of the fourth book the *Pyrrhonist Discourses* at face value. It is quite possible, as we shall see below, that Aenesidemus was not *universally* dismissive of sign-inference, as Photius implies.

[99] D. L. IV.96.

[100] Allen (2001b) p.114. Sextus allows at *PH* II.95-6 and *M* VIII.141-2 that there are matters which are evident by nature only provisionally. The distinction between evident and non-evident objects of discourse, he tells us at *PH* II.97, is fathered on the Dogmatists. The Pyrrhonist, he asserts, cannot begin to make claims about the non-evident because non-evident matters are accessible via observation of the evident, whose place of epistemic privilege rests upon premises to which the Pyrrhonist does not assent. And yet, the endorsement of commemorative signs over indicative signs is entirely dependent on the privileged status of the evident.

[101] Trans. Mates (1996).

[102] The remainder of the section, *PH* 2.118-133, where Sextus broadens the argument to include more widely held assumptions about sign-inference, similarly fails to live up to the promise of *PH* 2.103.

is a broader target than the indicative sign as defined in *PH* II.101. It is, moreover, of a different philosophical character to what *PH* II.103 led us to expect; the logical focus of the passage comes as a surprise after Sextus has prepared us for an attack upon dogmatist epistemology.[103] To summarise Sextus' argument, the Stoics maintain that signs are λεκτά, incorporeal 'sayables'. The λεκτά are non-evident. Therefore, proposing their existence demands proof. But proofs are also λεκτά. Thus the journey to proving the existence of signs *per se* is infinitely regressive.[104] This jarring shift in emphasis arrives in tandem with the move *away* from the Empiricist-Rationalist debate indicated at *PH* II.97-103 (though not explicitly attested),[105] and towards the debate between the Pyrrhonists and the Stoics. With this abrupt shift come casualties of coherence. Most damagingly, Sextus' attack upon the logical character of a sign seems no less applicable to the mnemonic sign; Sextus is attacking the logical foundations on which the sign *per se* is proposed as an existent.[106] J. Allen suggests this inconsistency is born of a possibly unconscious conflation of the distinction between mnemonic and indicative signification, which originated in epistemological debates within the medical sphere, with the conflict between sceptical and dogmatic approaches to sign-inference where the Stoics were the anointed champions of the latter.[107]

It is worth considering how closely entwined two independent schools of thought must become such that a conflation of this kind can be made 'unconsciously', especially when, as we are already beginning to see, the conclusions the Empiricists and Pyrrhonists drew about the possibility of sign-inference to the non-evident are not obviously consistent. For an error of the kind Allen proposes to have gone unnoticed, we might posit that Sextus had become accustomed to advancing both Empiricist and Pyrrhonists positions on this question without finding his identities in conflict. Assuming the level of compartmentalisation necessary to preserve this error is less outlandish if we consider – as we should – Empiricism and Pyrrhonism as differently oriented systems. Empiricism is an epistemology oriented towards the treatment of

---

[103] Allen (2001b) p.115-118.

[104] This recalls the second of the Five Tropes attributed to 'more recent Pyrrhonists' at *PH* I.164-177.

[105] The identification of the indicative sign with the Stoic sign at *PH* 2.101 has long been acknowledged to be out of place in *PH* 2.97-103, which is undoubtedly based on epistemological disputes in medicine, and at odds with the account of the Stoic conception of signs given from *PH.* 2.104. It was first suggested to be an interpolation nearly a century and a half ago by Natorp (1884) p.138.

[106] *Ibid* p.117. First argued in Phillipson (1881) p.61.

[107] Allen (2001b) p.115-122.

disease; Pyrrhonism is a system of arguments collected in pursuit of an ethical τέλος - ἀταραξία, the state of equanimity achieved through ἐποχή.[108] When a Pyrrhonist is inducted into τέχνη (a productive science) – as he must be, according to Sextus Empiricus, since he cannot be wholly inactive[109] – he accedes to the coterminous body of routines. His instruction in the art does not encroach upon ἐποχή providing that the discipline in question does not require his assent to a body of explicitly *theoretical* knowledge.[110] Thus, his discipline functions as a self-sufficient enclave within the greater topology of his thought. It has its own τέλος, independent of that of his philosophy, and the presence of the enclave satisfies his innate need to act. Certain types of contradiction are sustainable if the systems that generate opposing views are never *practically* opposed; while the Pyrrhonist could never countenance a Rationalist epistemology – for to do so is to assent to one theory above others – a system that did not stray beyond appearances, even if some of its epistemological axioms might wither in the light of Pyrrhonist scrutiny, will seldom be found in *direct* opposition to the broader system of thought. We infer from the confusion in *PH* II.94-118 that Sextus' interest in debating Rationalists is a consequence of his Empiricism, not his Pyrrhonism. When he moves away from the medical sphere at *PH* II.104 and argues as Sextus the Pyrrhonist, his target shifts abruptly to the Stoics. So here is our scenario:

i) Sextus the Physician endorses mnemonic signification because without it the medical profession to which he belongs could not exist in any form. He opposes indicative signification on the grounds of his Empiricism.

ii) Sextus the Philosopher advances Pyrrhonist arguments which, while intended to dismantle the Dogmatists' conception of evident-to-non-evident sign-inference (with which he has conflated the Rationalists' endorsement of indicative signification), are equally applicable to the mnemonic sign.

Our full exposition of the behavioural framework which accommodates this compartmentalised approach to differing systems of thought in Pyrrhonism awaits us in **V.3.3.** I raise it here as an assessment of the plausible circumstances in

[108] S. E. *PH* I.8.
[109] *Ibid.* I.23-24
[110] *Ibid.* This detail – that the profession he absorbs himself into be built on established routines and not theoretical knowledge – would appear to be the factor which distinguishes medical Empiricism from the kinds of disciplines to which Sextus objects in *M* I-VI. See Bett (2018) p.20.

which Sextus might have confused two different debates in *PH* II.84-118. It is obvious that the boundary between his Empiricism and his Pyrrhonism was vulnerable to a certain amount of permeation, most likely on account of both schools' shared opposition to the accessibility of the non-evident by nature to rational inquiry (wherein I locate Empiricism's sceptical appeal (**V.3.3**)), but the peculiar cognitive dissonance he exhibits in *PH* II.94-118 suggests that we treat Sextus' τέχνη and his philosophy as distinct epistemic frames. Internal contradictions such as that at *PH* II.84-118 occur when Sextus confuses the 'enclave' for the entire structure of his thought.

V.3.1.2 Mnemonic vs. Indicative signification in *M* VIII.141-299

That Sextus' failure to produce an argument against indicative signification in *PH* results from an unconscious conflation of disparate epistemologies is supported by the fact that he does deliver on his promise elsewhere. At *M* VIII.141-299 we find an attack on indicative signification that preserves the truth-value of the mnemonic sign. Significantly, Sextus approaches indicative-mnemonic debate in a professional capacity. From *M* VIII.244, when 'intelligible' signs are the focus – distinguished from the 'sensible' in the language of *M* VIII.141-299 – the Stoic analysis of sign-inference is once again Sextus' target; we see the same arguments against the logical foundations of the λεκτόν that we see in *PH* II.104-188. However, in the preceding discussion of the 'sensible' sign, the missing epistemological arguments against indicative signification are unearthed. After a brief and typically Pyrrhonian excursion into the question of whether sensibles are illusory, in which the disputes between Democritus, Epicurus, the Stoics and the Peripatetics are accentuated,[111] Sextus concedes, as he does in *PH* II.102, that the mnemonic sign 'is generally trusted by everyone in ordinary life to be useful.'[112] To summarise the argument at *M* VIII.187-188, around which the rest of the discussion of sensible signs is built, Sextus begins with the following proposition:

> …every sensible thing is of a nature to impinge on everyone in the same condition, and to be grasped equally. The colour white, for example, is not apprehended in one way by Greeks and in another way by foreigners, or

[111] S. E. *M* VIII.183-186.
[112] Trans. Bett (2005).

> differently by craftsmen and by ordinary people, but in the same way by everyone who has unimpaired senses.[113]

However, if signs of the non-evident by nature were included among the sensibles, then they too would affect the observer equally. And yet they do not:

> Thus in medicine, for instance, the same appearances are signs of one thing to this man (such as Erasistratus), but of another to that man (say, Herophilus), and of another to a third (such as Asclepiades).[114]

Therefore the sign cannot be sensible; its purported effects on the observer vary.[115] It follows, on Sextus' account, that indicative signification is not, as its advocates claim, an inference from the evident to the non-evident, but an inference *from the non-evident* to the non-evident – an impossibility, for signs are necessarily apparent.[116] Here then, is the epistemological argument against indicative signification. From *M* VIII.107-188 we learn two things. 1) Sextus' failure to deliver on the promise of *PH* II.101 in *PH was* likely an oversight; it should be read as evidence for his tendency to confuse two distinct (and differently oriented) systems of thought. 2) Sextus' epistemological argument against indicative-signification is entrenched in an ancillary debate about the nature of artistic/technical knowledge.

M VIII.187-188 foregrounds the disparity between the artists and the layperson. As Allen observed,[117] this choice of dichotomy signifies the argument's roots in the Empiricist-Rationalist debate. Two types of distinction are introduced: that between 'craftsmen' and 'ordinary' folk,[118] and that between different Rationalists/misguided craftsmen.[119] In the first example, the artist and the layperson experience the world in the same way so long as their faculties remain unimpeded. This claim is problematic from a Pyrrhonist perspective but foundational to Empiricism. In the second example, the Rationalists, through their

---

[113] S. E. *M* VIII.187 trans. Bett (2005).
[114] *Ibid.* VIII.188 trans. Bett (2005).
[115] See Allen (2001b) p.128-130 for a breakdown of the aetiological character of the argument at *M* VIII.187-188.
[116] This argument is recapitulated at D. L. IX.96.
[117] Allen (2001b) p.130-139.
[118] To which the distinction between Greeks and foreigners in *M* VIII.187 may be considered analogous. The Greeks are distinguished from non-Greeks by their linguistic skill. Sextus' point is that acquiring this skill makes no difference to how sensible phenomena are perceived.
[119] S. E. *M* VIII.187-188. Note that medicine is employed synecdochally in *M* VII.188 to denote τέχναι; it is through medicine that technical knowledge is defined against broader systems of thought.

disagreements, are united by their misguided accession to the truth-value of indicative signification. The failure of bodies of theoretical knowledge to privilege the artist on the question of sign-inference is the focus in both cases. That Sextus, seeking an example of the failure of the indicative sign to move, as one, its learned observers, draws from the world of Rationalist medicine hints at the argument's medical roots.[120] The argument against indicative signification in *M* can only be properly understood in the context of the ongoing debate about the *kinds* of knowledge to which an artist can lay claim. It is an argument which Sextus himself summarised later in *M* VIII. At *M* VIII.280, Sextus raises the question of whether art necessitates theory – is it access to a wellspring of specialised knowledge that accounts for the artist's deeper understanding of his subject than the layperson? The Rationalist's answer, preserved in *M* VIII.280, is that the artist's claim to specialised knowledge rests on his access to the non-evident by nature which can only be discerned through indicative signification; knowledge of the evident, the Rationalist agrees, is equally accessible to all.[121] Sextus' response at *M* VIII.291, though not explicitly labelled as such, is a defence of medical Empiricism. He agrees that art necessitates a *theorem – i.e.* a system of rules to which one's adherence distinguished one from the layperson, stripped of all speculative and theoretical connotation; a valid theorem can only be exploited by the artist who confines himself to evident things:

> For [the art] brings about the construction of rules on the basis of things often watched or examined; and the things often watched and examined are peculiar to the people who have most often been watching – they are not common to everyone.[122]

Galen, in *Med. Exp.,* reports a similar Empiricist defence of disciplines minus theory, where observation and history are purported to account for the entirety of a professional's specialised knowledge.[123] The arguments at *M* VIII.187-188 are framed by this debate. As Allen argued, the Empiricists' argument that specialised bodies of knowledge arise from codified observations of evident things permits

[120] As, indeed, does Sextus' choice of doctors at *M* VIII.188. As noted in **V.2.2**, Empiricism developed in part in response to the anatomical discoveries of Herophilus and Erasistratus. Asclepiades, as discussed at **IV.5.2**, was one of the earliest and most prominent defenders of Rationalism against Empiricist critique.
[121] See Allen (2001b) p.132.
[122] S. E. *M* VIII.291 trans. Bett (2005).
[123] Gal. *Med. Exp.* 98-99. See Allen (2001b) p.133.

them to reflect the Rationalist argument back upon itself.[124] If the Rationalist locates in sensory phenomena an indication of non-evident things – or, if nature, through phenomena, guides the mind towards her unseen transformations – then surely he must grant that this information is accessible to all? As Sextus puts it at *M* VIII.272:

> …whatever the sign may be like, either it itself has a nature suitable for indicating and revealing what is unclear, or we are capable of remembering the things that have been exposed together with it. But it does not have a nature indicative of unclear things, since in that case it ought to indicate unclear things to everyone equally. Therefore, the way we go with regard to the subsistence of objects parallels how we are doing in terms of our memory.[125]

This, then, is the argument that was promised but omitted in *PH* II.94-118. It is demonstrably Empirical in character, oriented, as it is, towards defending the Empiricist's conception of explicitly *artistic* knowledge, rooted in the truth-value of mnemonic signification.

V.3.1.3 Mnemonic signification in the *Pyrrhonian Discourses*

We return to the question of the mnemonic sign's compatibility with Pyrrhonism. We have already seen how the argument at *PH* II.94-188 is applicable to both mnemonic and indicative forms of sign-inference. Recall the passages in Photius and Diogenes Laertius in which Aenesidemus' opposition to all forms of sign-inference is implied.[126] Recall also how the Pyrrhonist's attested scepticism regarding the truth-value of perceptions denudes evident things of the epistemic privilege bestowed on them by the Empiricists – the basis of their adherence to the mnemonic sign.

It was on these grounds that the nineteenth century scholar Robert Philippson – the first to give the conflict between Sextus' medical and philosophical sects considered attention – concluded that Sextus' endorsement of the mnemonic sign amounted to a late-stage 'watering down' of Pyrrhonian scepticism, brought about by the influence of Empiricism on some among their number in the twilight

[124] Allen (2001b) p.134-135.
[125] S. E. *M* VIII.271 trans. Bett (2005).
[126] Phot. *Bibl.* 170b3-35 (LS 72 L); D. L. IX.96. See *supra* **V.3** (intro.).

of their sect.[127] But Philippson's conclusion neglects the evidence for a far earlier alignment of Pyrrhonist and Empiricist thought.[128] In his attack on indicative signification in *M*, Sextus quotes the fourth book of Aenesidemus' *Pyrrhonian Discourses*, revealing his argument's pedigree:

> …if apparent things appear alike to all who are similarly disposed; and signs are apparent things, signs appear alike to all who are similarly disposed; But signs do *not* appear alike to all who are similarly disposed; yet apparent things do appear alike to all who are similarly disposed; therefore signs are not apparent things.[129]

Here, as in *M* VIII.187-188, it is only the indicative sign that is endangered. If apparent things appear alike to all then continuity in the phenomenal world can be established. With continuity comes rudimentary notions of cause and effect whereby history and observation allow us to make inferences from evident things to the temporarily obscure – from smoke to fire. A little later in *M* VIII, Sextus summarises the position he attributes to Aenesidemus with the argument's epistemological premises more clearly defined:

> For that apparent things appear equally to those who have unimpaired senses is evident; for white does not appear differently to different people, nor does black appear differently to different people, nor does sweet appear differently, but they affect everyone similarly. Well then, if these things appear equally to everyone and have the power of indicating unclear things, then unclear things, too, necessarily strike everyone equally, seeing that the causes are the same and the underlying matter is similar. But this is *not* so; for not everyone recognises unclear things in the same way, even though they encounter perceptible things equally, but some do not even come to a conception of them, while others do, but are seduced into a variety of shifting and conflicting assertions.[130]

If correctly attributed, the above is an argument against indicative signification attributed to Pyrrhonism's founder which rests on the assumption that 'apparent

---

[127] Philippson (1881) p.61.
[128] Allen (2001b) p.131.
[129] S. E. *M* VIII.215 trans. Bett (2005).
[130] S. E. *M* VIII.240-241 trans. Bett (2005).

things appear equally to those who have unimpaired senses'.[131] Given that Aenesidemus' enduring contribution to philosophy is a system of arguments designed to undermine one's faith in the truth-value of 'apparent things' based upon the factors that prevent perceptions from telling a universal story,[132] his reported endorsement of the premise that apparent things appear equally to all is, on first analysis, perplexing. We lack the context in which Aenesidemus' argument against indicative signification is framed – Sextus is selecting an argument from the *Pyrrhonian Discourses* that aligns with his purpose at *M* VIII.187-244 – but it is plausible that this premise was chosen as one to which Aenesidemus' dogmatic opponents would agree to, and then the argument's unwelcome consequences – that indicative signification is *refuted* on the grounds that identical phenomena do not lead all healthy observers to the same conclusions about non-evident things – were drawn out.[133] That the argument recorded at *M* VIII.240-241 reflects the Empiricist's argument against the Rationalist model of specialised knowledge must be acknowledged.[134] As Allen (2001b) argued, the components of this argument that are apt to confuse – Aenesidemus' synonymising of phenomenal and semiotic content, for example – are made intelligible when understood as Empiricist imports; insofar as *M* VIII.240-241 is jarring, it is because an argument in defence of Empiricist epistemology has been repurposed as part of a broader argument against sign-inference *per se*.[135] We need not suppose that Aenesidemus was concerned with defending the foundations of Empiricism – this is not an *endorsement* of a Empiricist premise, any more than the Ten Tropes are *endorsements* of the delusive quality of sense-data; we need only suppose that he found it useful to draw on Empiricist argumentation when indicative signification was proposed. As we will see at **V.3.2**, it was not outside the purview of the Pyrrhonist to utilise arguments derived from different schools/intellectual fields without committing to the systems of belief from which those arguments originated. From these tantalising hints in *M* we infer the possibility that the utility of some Empiricist

[131] *Ibid.* VIII.240.
[132] *Supra* **V.2.1.**
[133] On the reading of Morison (2018) p.286-293, the purpose of Aenesidemus' Tropes was simply to construct equal and opposing arguments to those of the dogmatists. The Ten Tropes are not endorsements of an unknowable cosmos or the delusive nature of phenomena; they are a bundle of premises intended to neutralise arguments which hold the truth-value of phenomena to be axiomatic.
[134] cf. Gal. *Med. Exp.* 98-99.
[135] Allen (2001b) p.129-134.

arguments to Pyrrhonism was recognised early in the school's development. We will return to Aenesidemus in **V.3.2.**

V.3.1.4 Coda

To maintain a meaningful distinction between mnemonic and indicative signification is to behave as a dogmatist. This, simply, is the problem at the root of Sextus' schizophrenic treatment of sign-inference in *PH* and *M.* The question of dogmatism in Empiricism – and the manner in which Sextus deals with the dogmatism of the Empiricist sect – is sufficiently complex to merit a subsection of its own. With this final piece in place, we can examine how these distinct systems of thought can be reconciled and then ask, to what end?

V.3.2 Empiricism vs. Methodism at *PH* I.236-241 (or, Sextus Empiricus vs. dogmatic Empiricism)

For all that Sextus' analysis of sign-inference is informed (and occasionally confused) by his Empiricism, for all that he articulates his sympathy for Empiricist ideas in his works,[136] and despite his authoring of at least one work on the sect for which he is named, when, at *PH* I.236, he addresses the question of the Empiricism's relationship to Pyrrhonism,[137] his response is perplexing:

> …it needs to be recognised that inasmuch as Empiricism firmly maintains the inapprehensibility of the non-evident, it is not the same as scepticism; nor would it benefit a sceptic to take up that system. He might better adopt the so-called Method, it seems to me, for it alone of the medical systems seems not to make precipitate assertions about non-evident things by self-assuredly telling us whether they are apprehensible or not apprehensible; and following the appearances, it takes from them what seems beneficial in accord with the sceptic practice. For we said above that everyday life, in which the sceptic shares, has four parts: one involving nature's guidance, another involving the compulsion of the πάθη, still another the traditions of law and customs, and a fourth the teaching of the arts. Accordingly, just as the sceptic, in accord with the compulsion of the πάθη, is led by thirst to

[136] S. E. *PH* II.246, 244; *M* V.104, VIII.191, 288, 291.

[137] This comes at the end of a list of responses to popular comparisons between Pyrrhonism and another schools at *PH* I.210-241. It seems noteworthy that of all the schools to which Pyrrhonism is compared in *PH* I.210-241 (the Heracliteans, the Democriteans, the Cyrenaics, the Protagoreans and the Academics), the Empiricists are the only school belonging to a different discipline.

> drink and by hunger to food…so too the Methodic physician is led by the πάθη to what is appropriate – by tightness to loosening up, as when one deems refuge in heat from a cold-induced attack of cramping…It is also very evident that conditions that are naturally alien to us impel us to their removal, seeing that even a dog, when stuck by a thorn, proceeds to pull it out. And so in sum…I consider that all the things thus said by the Methodics can be classed as instances of the compulsion of the πάθη, whether these compulsions are natural or unnatural.[138]

Sextus goes on to cite the Methodist's 'undogmatic and relaxed use of words' in support of their affinity with Pyrrhonism;[139] according to Sextus, when the Methodist speaks of 'indication' (a Methodic concept expounded below) he makes no dogmatic assertion about nature's proclivity to interface with reason;[140] he speaks instead in terms of 'guidance of the apparent πάθη' and is led to the appropriate remedy as a hungry man is led to food.[141] Sextus concludes his discussion with the thoroughly destabilising claim that Methodism has a closer kinship with Pyrrhonian scepticism than any other medical system.[142] Pyrrhonism's kindship with Empiricism is dismissed in a single line.[143]

PH I.236-241 is central to the question of the Pyrrhonist-Empiricist alliance in the secondary century AD. On the one hand, it further indicates the friction between Sextus' art and his philosophy – that generated when scepticism rubs flanks with medical dogmatism; on the other, it clarifies the nature of the bond. In this section, I ask the question of what *PH* I.236-241 can tell us about the nature of Empiricism's sceptical appeal.

V.3.2.1 Introduction to Methodism

Before we proceed, some historical context and clarification of terms. Methodism came to prominence in the first century BC, in reaction to both Rationalist and Empiricist epistemologies.[144] The Methodists dissent from the Rationalists in their unwillingness to allow that medicine 'should consist in conjecture about hidden

---

[138] S. E. *PH* I.236 trans. Mates (1996) slightly altered, with some omissions.
[139] *Ibid.* I.239.
[140] *Ibid.* I.240.
[141] *Ibid.*
[142] S. E. *PH* I.241.
[143] *Ibid.* I.236.
[144] Cel. *Med.* Pr. 56-57. Frede (1987) p.261-278 remains a valuable introduction to Methodism and its relationship with rival schools of medical thought in later antiquity.

things.'[145] They dissent from the Empiricists in their contention that the proper method of treating bodily affection is not revealed through observation and history, but is in fact 'immediately evident'; the thirsty man is not led to water by his memory of water having sated his thirst in the past, but his instinctive understanding that water is required.[146] Methodism recognises three readily observable recurrent features of disease (κοινότητες), namely 'constriction', where the movement of fluids in the body is impeded; 'flux', where the fluids move too freely, and 'mixture', where both constriction and flux are simultaneously evident in different parts of the body.[147] Crucially, the relationships between the recurrent features of disease and the disease itself is not causal; constriction and flux do not cause disease; they are concomitant features which account for physical impairment. Treatments follow from the recognition of one of the three κοινότητες via the process of 'indication' (ἔνδειξις);[148] the Methodists rely upon no physical theory, nor upon a corpus of accumulated ἐμπειρία. If the body is constricted, it needs to be relaxed. If the body is too relaxed, it needs to be constricted. In the case of a mixture, the most severe affection is prioritized and treated accordingly.[149] Such is the Method. It presents itself as a system of natural responses to readily observable generalities. Indication does not follow immediately from observation; the purported self-evidence of κοινότητες did not invalidate training; one must, we infer, learn how to look. But the Methodists did not claim to be the keepers of a vast body of specialised knowledge. Indeed, they made the opposite boast; Thessalus, according to Galen, claimed that he could teach the art in only six months.[150] Methodism is simple; once the initiate has been instructed where/how to look, nature shepherds him from recognition to the implementation of the cure.

The Methodists' 'undogmatic' commitment to ἔνδειξις as the only reliable source of medical knowledge – at least on Sextus' account – permitted them to operate at a remove from the epistemological debate that dominated medicine at the time of the school's founding. Despite their self-confinement to the evident, they avoid the negative dogmatism Sextus attributes to the Empiricists (or certain

[145] Cel. *Med.* Pr. 57.
[146] *Ibid.*; S. E. *PH* I.238.
[147] Cel. *Med.* Pr. 58.
[148] See Frede (1987) p.263-266.
[149] Cel. *Med.* Pr. 55-57.
[150] Gal. *MM* 1.1 (= X.5 K.)

factions therein).[151] For this reason, they attract the Pyrrhonist's favour at *PH* I.236-241. This would seem to account, in part, for Sextus' rejection of Empiricism's sceptical value in this passage. But it is not the whole story.

V.3.2.2 Guidance of the apparent πάθη

When Sextus writes of the πάθη he refers to one of four modes of behaviour in accordance with which the sceptic can live the ordinary life without acquiescing to belief.[152] They are 'the guidance of nature' (one's acknowledgement of sense-reality unmarred by claims to its veracity); compulsions of the πάθη (primitive, involuntary drives exemplified by thirst); 'the handing down of customs and laws' and instruction in the arts.[153] Sextus finds in the Methodic commitment to ἔνδειξις, where the phenomenal content of diseases are themselves instructive of the method of their treatment, an example of actions taken in accordance with the πάθη.[154] This is not an example of indicative signification as decried at *PH* II.94-103 and *M* VIII.141-299. Methodic indication, as Frede puts it, necessitates no 'detour via the non-manifest' on the journey from identifying indicative generalities (a) to the administration of treatment (b).[155] The Methodist is unconcerned with hidden things;[156] a and b are both evident, as the sense-data tossed up by a thorn in a dog's paw (a) indicates the correct method of treatment (b). This type of indication is identified with the πάθη at *PH* I.240 and owes its sceptical endorsement to the fact that it requires no belief of the physician; nothing external to the πάθη is assumed; the physician is merely moved to act. Note that the claim that an affection is indicative of its treatment *is* an appeal to a kind of reason, just not that which elaborates grand theoretical cosmoses to explain why a is indicative of b.[157] The Method recognises that nature is instructive of the means by which humans can induce favourable changes to her structure without recourse to an esoteric roadmap. Whatever, if anything, occurs beneath perception, some problems have evident solutions. This is the basis of the πάθη-ἔνδειξις parallelism; we infer from thirst (a) only our apparent need for water (b), we infer from diseases of constriction (a) only our apparent need to induce dilation

[151] See Gal. *SI* VI (= I.82 K.).
[152] Set out in S. E. *PH* I.23-24.
[153] S. E. *PH* I.23-24.
[154] *Ibid.* I.240.
[155] Frede (1987) p.265.
[156] Cel. *Med.* Pr. 57.
[157] Frede (1987) p.265-266.

(b). Thus, when Sextus argues for the kinship of Pyrrhonism and Methodism, his attack on Empiricism is two-pronged. 1) Their dogmatic assertion that the non-evident is by-nature-inapprehensible is not sceptical; 2) their dogmatic anti-Rationalism, which locates all medical knowledge in history and observation, would seem to run contrary to the πάθη.

V.3.2.3 Pyrrhonian Empiricism in *PH* I.236-241

We will postpone the question of Empiricism's compatibility with the 'fourfold ordinary regimen of life' at *PH* I.23-24 until **V.3.3**. For the time being, I want to focus on what *PH* I.236-241 clarifies of the Pyrrhonist-Empiricist alliance. First, a caveat. Sextus' endorsement of Methodism is not elaborated beyond *PH* I.236-241 and is not repeated in any of his extant works or other sources for Pyrrhonism. The complaint that Empiricism is too unsceptical in its insistence that the non-evident by nature is (by nature) inapprehensible does, however, appear elsewhere. In his *Outline of Empiricism,* Galen, adopting an Empiricist point of view, rebukes Menodotus, one of the four Pyrrhonian Empiricists listed in D. L. IX.115-116, for insisting that the theories of Asclepiades of Bithynia are categorically false despite maintaining that the Empiricist, like the Pyrrhonist, should withhold judgement on matters non-evident.[158] Galen's text hints at a self-policing culture within Empiricism, where Empiricists take measures to steer each other clear of the perils of negative dogmatism. *PH* I.236-241 can certainly be read in this way; the polemical tone of the passage is more evocative of scolding than it is of refutation, a rebuke to one's colleagues for *lapsing* into negative dogmatism. Sextus' language is conditional: 'it needs to be recognised that *inasmuch as Empiricism firmly maintains the inapprehensibility of the non-evident,* it is not the same as scepticism.'[159] Given the abundant evidence for Sextus' Empiricism, the most plausible reading of *PH* I.236-241 is that it is an attack on a particular strain of Empiricism, not the sect's foundational methodology.[160] Note his singular use of the first person in *PH* I.237 – 'He might better adopt the so-called Method, it seems to *me*.'[161] – where typically Sextus writes of Pyrrhonian orthodoxy in terms of 'us' and 'we'.[162] There is little to indicate

[158] Gal. *Subf. Emp.* 20, 84.11-85.3 Deichgr. See Allen (2010) p.232-233.
[159] S. E. *PH* I.236 trans. Mates (1996); Allen (2010) p.233.
[160] Such is the argument in Allen (2010) p.232-248.
[161] Trans. Mates (1996).
[162] Allen (2010) p.234.

that Sextus' stated preference for Methodism over (we should stress, *dogmatic*) Empiricism at *PH* I.236-241 speaks to a wider trend in Pyrrhonism.

PH I.236-241 does, however, cause us to refine our model of Pyrrhonist-Empiricist relationship which came to light in the discussion of sign-inference (**V.3.1**). Contrary to Galen's claim in *Subf. Emp.* that the Empiricist is to medicine what the Pyrrhonist is to life,[163] the Pyrrhonist physician is not wedded to the tenets of Empiricism; his affinity for Empiricism is conditional and, if we are correct to read *PH* I.236 as an admonishment of a certain faction therein, it is limited to its most sceptical expression.[164] His Pyrrhonism informs the extent to which he can absorb himself into the system of his art, if only – and this may be a necessary qualifier – on the occasion when he has cause to reflect on the affinity between his philosophy and his profession; the Sextus of *PH* II. 94-188 is so intellectually bimodal that he confuses Pyrrhonian and Empiricist arguments (**V.3.1.1**); the Sextus of *PH* I.236-241, whose only goal is to expound Pyrrhonism by comparison to a superficially similar system – one to which it is popularly compared –, can expose faults in (certain strains of) Empiricist thinking from an unpolluted Pyrrhonist perspective.[165] Outside Empiricism, looking in, the Pyrrhonist is free to emphasise alternative approaches to the medical art which may map more precisely onto his broader epistemology.

Why, then, does he not embrace the Method? Allen (2010), comparing Empiricist epistemology with its absence in the Methodic school, suggests that 'Methodism, or Methodism as Sextus conceives it, has a better, more sceptical attitude towards the phenomena than Empiricism, or a form of it.'[166] This claim invites the question of why we see no evidence for Pyrrhonian-Methodic association elsewhere, where the Pyrrhonist-Empiricist association was such that it needed to be qualified. Allen emphasises the fact that Sextus gives a rather 'scepticising' account of Methodism, ignoring, for example, the accusations that Methodism was simply another species of Rationalism,[167] and glossing over the disparity between the example of a thirsty man led by the πάθη to take water,

[163] Gal. *Subf. Emp.* 9, 82.28 *et seq.* Deichgr.
[164] We are left to wonder whether the various Empiricist factions were delineated in *On Empiricism*.
[165] That S. E. *PH* I.236-241 stands out so clearly as an outlying passage in *PH,* where Empiricist influence can otherwise be felt throughout Sextus' work, is perhaps a testament to how rarely this reflection was performed.
[166] Allen (2010) p.243.
[167] Such as those reported in Cel. *Med.* Pr. 62-64.

and that of the physician led by the πάθη *of the patient* to administer the appropriate treatment; the estrangement of the physician from the patient's direct experience would seem to presuppose a more deductive process on his part that resists the analogy to the πάθη.[168] It is important to remember that Methodism is utilized in *PH* I.236-241 as a means of criticising dogmatic tendencies in Empiricism; it is evoked instrumentally, not as the *subject* of Pyrrhonist scrutiny.[169] We might ask if Sextus had cause to exaggerate Methodism's sceptical tendencies in service to his critique of 'dogmatic Empiricism'. Concomitantly, in keeping with our reading of *PH* I.236-241 as, above all, an attack on a particular tendency within Empiricism, we might assume that the mode of Empiricism the Pyrrhonists practiced was, itself, of a sceptical variety.

The evidence for early Pyrrhonist-Empiricist interaction cannot be ignored here. We noted at **V.3.1.3** the case for Aenesidemus having made use of Empiricist arguments as part of his more general attack on semiotics, and we will return to Aenesidemus at **V.4.2**. What the Empiricists had which the Methodists did not was a system of arguments against Rationalist premises, a selection of which could be appropriated as arguments against analogous tendencies in doctrinaire philosophy. Methodism's *de facto* abstention from epistemological debate may, I propose, have made it less attractive to the earliest Pyrrhonian sceptics; if Pyrrhonian methodology consisted, in part, in neutralising dogmatic arguments via counterhypotheses,[170] they would have surely found in venerable Empiricism a richer seam of anti-doctrinaire hypotheses – to be employed without endorsement when the situation demands – than in the tenets of their first century rival. Even if *PH* I.236-241 does represent a sincere acknowledgement, late in the life of the Pyrrhonian school, that (a certain interpretation of) Methodism was the more 'Pyrrhonian' school of medicine, the two schools had grown so intertwined that bond could not truly be severed.[171] Sextus may favour Methodism *when reflecting* on the sceptical credentials of medical schools, but his

[168] Allen (2010) p.245-246.

[169] The question of 'wherein scepticism differs from Methodism' is not addressed, presumably because nobody was asking it.

[170] Morison (2018) p.306-307. Morison cites as examples *M* III.11-12 and *M* VIII.370.

[171] Recall, again, how Sextus Empiricus enacts his Empiricism when he argues against indicative signification in *M* VIII.141-299 from an ostensibly Pyrrhonist perspective (see **V.3.1.2**).

Empiricism surfaces in *PH* and *M* when medicine is not explicitly in focus, when it is no longer the *object* of inquiry.

V.3.3 Reconciliation of Pyrrhonism and Empiricism (or, the performance of reconciliation)

I have described Sextus' Empiricism as an independently oriented enclave within the greater topology of his thought. How, precisely, can its presence be abided? The answer depends upon a fuller account of the Pyrrhonist's conception of appearances. We will not find a model by which sceptical and Empirical epistemologies can be reconciled, but we find a model by which reconciliation can be performed.

The Ten Tropes of Aenesidemus, as set out at **V.2.1** above, are not positive arguments for the delusive nature of perceptions. Rather, they are premises from which to build counterarguments against dogmatic claims that appeal to the data of appearances.[172] The Pyrrhonist withholds judgement about the truth-value of perceptions but is nonetheless guided by his senses. We encountered at **V.3.2.2** the Pyrrhonist's fourfold regime for the ordinary life.[173] The 'criterion for action', as Sextus conceives it, is a methodology for living in accordance with appearances without assenting to dogma.[174] Nature guides, the πάθη compel, our activities are hemmed by the laws and customs of the community in which we are resident and our professional lives are correspondingly constrained by the system of routines which form a discipline.[175] These are instruction for avoiding the perilous life of the caricatured Pyrrho of Ellis, a figure of such scepticism that he withheld assent to the appearance of an incoming wagon,[176] and for preventing the state of inaction we might expect to follow a wholesale rejection of perceptions.[177] Crucially, a life lived in adherence to the sceptic's criterion for

---

[172] Morison (2018) p.291: '…those arguments which proffer, as considerations in favour of the proposition that *x* is *F,* proposition which appeal to the fact that *x* appears *F* in situation *S.* The sceptic constructs the counterargument by appealing to the fact that *x* appears *F** (*i.e.* something incompatible with *F*) in another situation *S**.'

[173] S. E. *PH* I.21-24.

[174] *Ibid.*

[175] *Ibid.* I.23-24.

[176] D. L. IX.61-62.

[177] The argument that inaction follows from Pyrrhonist premises was advanced most famously by David Hume in *An Enquiry Concerning Human Understanding* (1748) 12.23: '…[a Pyrrhonian] must acknowledge, if he will acknowledge anything, that all human life must perish, were his principles universally and steadily to prevail. All discourse, all action would immediately cease; and men remain in total lethargy, till the necessities of nature, unsatisfied, put an end to their miserable existence.' Hume continues that it is in

action is a life conducted by appearances.[178] That such a life reflects the 'ordinary life' is enforced by Sextus throughout his works.[179] Mnemonic signification is (for want of a better verb) 'endorsed' in both *PH* and *M* on the grounds that it is relied upon in the normal course of life.[180] The endorsement is not intended to be read as a concession to the truth-value of appearances, but instead as a simple acknowledgement that to live an 'ordinary life' is to yield to the pressure of phenomena. We *naturally* infer from evident things the properties of the momentarily obscure based on our recollection of what typically follows or precedes or otherwise relates to the phenomenon observed.

Pyrrhonism is a 'system' insofar as 'system' denotes 'a way of life that, in accordance with appearances, follows a certain rationale, where that rationale shows how it is possible to seem to live rightly…and tends to produce the disposition to suspend judgement.'[181] Epistemology is subordinated to ethics; the Pyrrhonist is sceptical about knowledge – at least insofar as one professes to have knowledge of 'what is' – but his first enemy is belief, the force that terminates inquiry and condemns one to live a life remote from ἀταραξία.[182] A life remote from belief is a life guided by appearances. The knowledge one acquires over the course of such a life is of a sort that never penetrates beneath the veil of phenomena, nor is it changeless; it is not knowledge of 'what is', but knowledge of 'what seems to be'.[183] The life described is a life lived empirically in all but the formally articulated assertion that phenomena have greater epistemic value than non-evident things. As Sextus puts it:

---

fact impossible for the Pyrrhonian to live his scepticism. See Burnyeat (1983) p.117-141 for an account of how a Pyrrhonist might respond to Hume's accusation.

[178] S. E. *PH* II.256 provides some insight into how the enactment of crystallised disciplinary practices coheres with the life conducted by appearances. In the context of Sextus' critique of logical pathways towards the resolution of sophisms (*i.e.* superficially plausible but ultimately specious arguments), Sextus writes briefly of the correct method by which to resolve amphibolies: linguistic expressions with two or more meanings, pending assessment of the correct meaning in context. He argues that these must be resolved 'not by the logician but by people practiced in each particular art, who themselves have the experience of how they have created the conventional usage of terms to denote the things signified…' – trans. Mates (1996).

[179] e.g. S. E. *PH* II.102, 237, 244, 245; III.151; *M* VIII.158; XI.165.

[180] S. E. *PH* II.102; *M* VIII.156.

[181] S. E. *PH* I.16-17.

[182] Burnyeat (1983) p.126.

[183] *Ibid.* p.126. Burnyeat argued convincingly that 'appearances' should not be taken to mean 'sense-data' exclusively. Our *impressions* of phenomena, and all that they entail, are included under the rubric of 'appearances'.

> …I think it sufficient to live, empirically and undogmatically, in accord with the common observances and notions, suspending judgment about the things that are said as a result of dogmatic subtlety and are very far from the usage of daily life.[184]

Prima facie (lower case) empirical epistemology is judged to be compatible with the ordinary practice of existence. There is little in (upper case) Empiricist methodology that draws the physician away from 'common observances and notions'; his self-confinement to ἐμπειρία ensures this. It is, however, worth noting that Sextus does not synonymise 'empirically' and 'undogmatically' in *PH* II.246. As we saw in **V.2.2**, Empiricism is not in itself a denouncement of negative dogmatism, but evidently the practice of Empiricist methodology, mediated by the sceptic's non-dogmatic vocabulary,[185] cohered with the Pyrrhonist's criteria for action. The Pyrrhonian Empiricist, therefore, is one whose non-dogmatic adherence to the guidance of appearances permits him to practise medicine in a manner that confines his thought to memory and observation.[186] He does not credit his profession's epistemological foundation with any indication of the Truth; he allows only that the practice seems compatible with 'what seems to be'. It is tempting to submit, however, that this qualified adherence to Empiricist methodology – of the sort to which *PH* I.236-241 alludes (**V.3.2.3**) – was, in practice, hardly distinguishable from dogmatic Empiricism; though the Pyrrhonian Empiricist may reveal himself through his non-dogmatic treatment of non-evident things, and though he may reprimand negative dogmatic strains within his professional sect, his scepticism has minimal material impact on the nature of his therapeutics. To paraphrase Allen (2001b), it is the *character,* and not the *content*

---

[184] S. E. *PH* II.246 trans. Mates (1996). This passage follows immediately after Sextus recounts 'an amusing tale' of the physician Herophilus's encounter with Diodorus who 'exhibiting with logic his foolishness, was wont to rehearse sophistical arguments about many things' (*PH* II.245). When Diodorus dislocates his shoulder and visits Herophilus for treatment, the physician jokingly explains, by means of the same sophistry Diodorus was wont to espouse, that his shoulder had not been dislocated. Diodorus begs him to skip over such arguments and just give him the treatment suited to his case. Though Sextus' polemic in this passage is directed specifically towards sophism, the story he tells about Herophilus and Diodorus reads like an empiricist fable. Diodorus' request can be read as a request for empirically effective treatment, unaccompanied by theoretical musings. Sextus' endorsement of a life lived empirically at *PH* II.246 enforces this, and the story in turn gives *PH.* II.245 its medical relevance.

[185] Recall *PH* I.239 in which the Methodist's 'undogmatic and relaxed use of words' explains, in part, their sceptical appeal.

[186] To quote Allen (2001b) p.140: 'Medical Empiricism appealed to the Pyrrhonists because it appears to be little more than a more specialized and complicated version of ordinary experience, what one is left with if one cultivates experience of certain matters with enough diligence and concentration.'

of the Pyrrhonist's 'beliefs' which distinguish them from dogmatic beliefs.[187] Thus, though the Pyrrhonist and the Empiricist remain divided on the *epistemic* fertility of evident things, the Pyrrhonist's non-dogmatic adherence to sense-data, his *ethical* imperative, permits the performance of Empiricism.

But what of the Empiricist's dogmatic anti-rationalism? We learn from *PH* I.326-241 that the Pyrrhonist, unlike the Empiricist, is not opposed to indicative signification of the sort the Methodists promote – the species which requires no 'detour via the non-manifest', identified with the πάθη.[188] However, by the time Sextus was writing, the Empiricist's relationship to a certain species of deduction had (at least in certain factions) evolved into something more in keeping with the Pyrrhonist's inclusive definition of phenomena[189] – or rather, the manner in which certain Empiricists expounded their process was less averse to the vocabulary of rational deduction.[190] As we touched upon in **V.2.2**, Galen's *SI,* which introduces the Empiricist school at a developed stage, does suggest that the later Empiricists practised a form of deduction that confined itself to ordinary experience.[191] According to *Subf. Emp.,* the practice of 'transition to the similar' was justified on the basis of experience; it is not employed in accordance with a guiding theory, but because it has been demonstrated to work in the past.[192] Sextus' precursors, Menodotus and Theodas, who were both Pyrrhonists and Empiricists, endorsed a mode of deduction that did not breach the surface of phenomena.[193] To the extent to which the later Empiricists were dogmatically anti-rationalist (lower case), they were dogmatically anti-Rationalist (upper case), against the application of λόγος as their opponents conceived it. Naturally, the Pyrrhonist reflecting on the sceptical character of Empiricism would be moved to neutralise dogmatic assertions of any sort. But the distinction between the Pyrrhonian and the dogmatic Empiricist's objection to (upper case) Rationalism is, as before, one of non-dogmatic vs. dogmatic vocabulary. The deductive tools themselves, beneath the level at which they are exposited, can be integrated into the Pyrrhonist's criterion for action.

---

[187] Allen (2001b) p.97-106, 140.
[188] *Ibid.* p.143. See Frede (1987) p.265.
[189] *i.e*. not merely 'perceptions' but the variety of ways in which nature can be said to guide us.
[190] Allen (2001b) p.113.
[191] Gal. *SI* II (= I.66-68 K.).
[192] Gal. *Subf. Emp.* 70.9-23 Deichgr.
[193] *Ibid.* 50.3; 87.25 Deichgr. See Allen (2001b) p.112-113.

The Pyrrhonist's pursuit of ἀταραξία does not conflict with the physician's τέλος so long as the physician can achieve his goals without succumbing to belief.[194] Pain is a phenomenon of nature, one which naturally calls for its abatement (as an oncoming wagon incites its evasion).[195] The need for a medical art *per se* is not predicated on belief; the art of medicine only undermines the Pyrrhonist's τέλος when it reaches beyond perceptions in pursuit of its own.

V.4 The novelty of Pyrrhonian Empiricism

It remains to clarify the novelty of the Pyrrhonian-Empiricist alliance. Why does this intersection of medicine and Hellenistic philosophy differ so greatly in character from those which we have previously encountered? This final section has three parts. **V.4.1** functions as a summary of a persistent theme in this chapter – that, in the case of the Pyrrhonian Empiricists, the separation of profession and philosophy is implicit in the nature of the alliance. **V.4.2** examines the evidence for an Empirical influence on first century Pyrrhonism. **V.4.3** asks the question of whether later Pyrrhonists conceived of Empiricism as more than merely a viable occupation.

V.4.1 Incorporation vs. Adaptation

This part is straightforward. Where the onus was on Athenaeus and Asclepiades to enforce the epistemological perimeter of their schools – developed, as they were, from the seedbeds of existing philosophies – the Pyrrhonian Empiricist *enacts* his devotion to Empiricism while, at a deeper level,[196] remaining true to ἐποχή. Medicine, for the Pyrrhonian Empiricist, is not an *exploratory* endeavour – it is not a means to discovery, but a rather inert species of τέχνη; it is not the generative capacity of Empiricism that appeals, but its formalised attendance to phenomena, nature's guiding images. It is an occupation whose assimilation into one's 'ordinary regimen of life' conflicts minimally – and, as we have seen (**V.3.3**), not insurmountably – with Pyrrhonism's singular aim. The two schools' (at least,

[194] In Pyrrhonism, ἀταραξία is attained through ἐποχή (S. E. *PH* I.8). By contrast, the Epicurean mode of ἀταραξία depends upon a degree of certainty which I argued at **II.5** was considered to be incompatible with the medicine art, at least in a Rationalist mode (see esp. **II.5.3**). The disparity between how each school conceives the enactment of ἀταραξία accounts for their disparate attitudes towards the practice of medicine *per se*.

[195] See Polito (200b) p.355-356 and **V.4.3** below for the argument that the Pyrrhonian Empiricist Menodotus sought, in preservation of his craft, to excise from the Pyrrhonist lineage early Pyrrhonist antecedents whose refusal to assent to phenomena such as pain made a nonsense of the medical art.

[196] The level of inquiry vs. the level of behaviour.

mostly (**V.4.2**)) independent roots facilitate this kind of qualified entanglement. Empiricism, as we saw in **V.2.2**, is not a reoriented outgrowth of scepticism (in any form); the Pyrrhonist takes no responsibility for Empiricism's epistemological claims. 'Empiricist' is a role to be played. What is more, the affiliation of Pyrrhonism and Empiricism never amounted to the wholesale assimilation of one school into the other.[197] *PH* I.236-241 alerts us to the distinction between sceptical (Pyrrhonism compatible) and dogmatic (Pyrrhonism non-compatible) Empiricism in the twilight years of the Pyrrhonian sect. Empiricism never became the formulation of Pyrrhonism with a medical τέλος. It remained a distinct entity, congruent, in certain sceptical strains, with the Pyrrhonist's criterion for action. But there is a little more to this story.

V.4.2 Empiricist influence on Aenesidemus?

Empiricism predates Aenesidemus' defection from the Academy in the first century BC. The chronology dictates that, insofar as one school influenced the development of the other, it was the medical sect that informed the development of the philosophical school. Already, we have seen hints of this. In **V.3.1.3** we encountered evidence for Aenesidemus, the founder of the Pyrrhonian sect, having made use of an Empiricist argument against indicative signification.[198] This does not, as I argued above, attest to Aenesidemus' Empiricist credentials. It does, however, speak to a tendency within early Pyrrhonism to collect diversely sourced counterarguments which can be used to neutralise dogmatic claims. There is a question, however, of whether Empiricist methodology had a more enduring impact on the development of the Pyrrhonist school.

There is one subtle but intriguing piece of evidence for Empiricist influence on Aenesidemus. The following passage is from Diogenes Laertius, translated by Polito (2014) in his compilation of Aenesidemean testimonia:

> The Pyrrhonist line of reasoning, then, is a kind of record of things that appear or are in any way thought of, a record (μνήμη τις) according to which everything is set alongside everything else and in being compared is found

[197] *Contra* Polito (2007b), see **V.4.3** below.

[198] S. E. *M* VIII.215, 234, 240-241. Context is provided by Phot. *Bibl.* 170b3-35 (LS 72 L). Photius' report that the *Pyrrhonian Discourses* set out to disprove the existence of signs *per se* hints at the inclusion of Pyrrhonian arguments against mnemonic signification. If this were discovered to be true, it would not invalidate my argument that the early Pyrrhonists discovered in Empiricist a rich seam of anti-dogmatic arguments in potentiality.

> to contain much anomaly and disturbance, as Aenesidemus says in his *Outline Introduction to Pyrrhonism.* With regard to the contradictions that come to light in inquiries, they first set forth the modes according to which things persuade, and then, on the basis of those same modes, demolished conviction regarding them.[199]

Our focus is the phrase μνήμη τις, 'a *record* according to which everything is set alongside everything else'. The phrase, as Polito argues, recalls the central tenet of Empiricist epistemology – that experience plus memory, not λόγος, is the foundation of empirical science.[200] It is not otherwise employed as a technical term in the extant literature on Pyrrhonian scepticism.[201] Confusingly, D. L. IX.78 would appear to ground the Tropes of Aenesidemus – counterpropositions to 'modes according to which things persuade' – on an empirical foundation.[202] As with the passages from the *Pyrrhonian Discourses* referenced in S. E. *M* VIII (**V.3.1.3**), here we find an empirical premise which seems to persist through the Pyrrhonist's sceptical manoeuvring. It was noticed by Aristocles, who argued that the phenomena Aenesidemus sought to discredit with the Tropes provided the tools with which he sought to interrogate their veracity.[203] From Aristocles:

> '…every time [the sceptics] reviewed [the justification for their scepticism], they speak of nothing but a sort of induction, showing what appearances and particulars are like. Just that kind of thing is, and is called, trust. Now, if they give assent to that trust, it is clear that they have beliefs; but if they do not put their trust in it, we would have no desire to pay any attention to them either.'[204]

The conclusion, on Aristocles' reading, refutes the methodology by which the conclusion was established. How Aenesidemus might have defended his recourse to such a record – if, indeed, he anticipated this critique – is unknown. We might suppose that just as the Tropes are not themselves endorsements of any negative epistemology, their basis in 'a record according to which everything is set alongside everything else' was not upheld with any conviction – indeed,

---

[199] D. L. IX.78 (= B16.1-4 Polito) trans, Polito (2014).
[200] Polito (2014) p.248.
[201] *Ibid.*
[202] *Ibid.* p.249.
[203] Aristoc. *Ap* Euseb. *Praeb. Ev.* 14.18.13 (= B18 Polito).
[204] *Ibid.* trans. Polito (2014).

that the Ten Tropes seem to nullify themselves might have been part of the dialectical game, 'a final move' in the guiding of one's interlocutor towards ἐποχή. But the premise does not lose its Empirical flavour if, as above, we recognise Empiricist arguments as devices to be used by the early Pyrrhonists for sceptical ends and then discarded when they ceased to be productive. We should not be surprised that Empiricist epistemology, being a mechanism whereby sceptical arguments could be formulated without recourse to λόγος, was attractive to Pyrrhonism's founder; submitting to the influence of memory and observation – to 'the guidance of nature', interpreted in an Empiricist (which is to say, more rigorous) framework[205] – gave him grounds for argumentation that was preferable to those which relied upon an extra-sensory tool. A plausible reading of the argument at D. L. IX.78 is that if one attends to 'a record according to which everything is set aside everything else', one sees that Nature indicates the means by which arguments begotten of perceptions can be disassembled. If the implicit paradox is raised in objection, the Pyrrhonist responds that he affirms nothing; he merely floats a plausible counterhypothesis, crafted through cumulative perceptions, that is no more absurd than the dogmatist's original thesis.[206] The method is evocative of Empiricism; the conclusion is sceptical. Though his reason for referring to memory is at variance to that of the Empiricists, the outline preserved at D. L. IX.78 indicates an early form of Pyrrhonian – which is to say, passive – acquiescence to phenomena that recalls Empiricist argumentation. The fourfold regimen for an 'ordinary life' at *PH* I.21-24 is thus subtly recontextualised; one wonders whether there may be some Empiricist influence beneath the stipulation that the Pyrrhonist should submit to the guidance of phenomena, when phenomena is understood to communicate with both one's faculties of sense-perception and of recollection.

It is appropriate to note that Diogenes Laertius lists as a teacher of Aenesidemus a certain Heraclides.[207] From the Empirical character of some Aenesidemean fragments it is tempting to identify this Heraclides with Heraclides of Tarentum, the Empiricist physician of the first century BC,[208] known to us

[205] Which is to say, one that includes memory in its definition of phenomena.
[206] This additional step would seem to anticipate the Trope according to Hypothesis in S. E. *PH* I.116, particularly on the reading of Morison (2018) p.305-311.
[207] D. L. IX.115-116.
[208] Heraclides' dates are established in Guardasole (1997) p.23.

through quotations in Galen and Caelius Aurelianus.[209] The chronologies of Heraclides and Aenesidemus support this hypothesis, as does their shared time in Alexandria.[210] A further conduit of early Empirical influence suggests itself. The Pyrrhonian Empiricist of the second century AD, Menodotus of Nicomedia, claimed that Aenesidemus inherited the Pyrrhonist tradition from one Ptolemy of Cyrene, whom Polito speculates might be the Empiricist doctor of the same name.[211] Menodotus, of course, had his own agenda. His claim that Ptolemy of Cyrene re-founded the Pyrrhonian sect sometime after Timon's death can be read as an attempt by the Pyrrhonian Empiricist to recontextualise contemporary Pyrrhonism by tracing it back to an Empirical provenance.[212] This was not, in my view, intended to 'Empiricise' Pyrrhonism – the evidence from Sextus Empiricus suggests that the distinction between the sects was recognised and accommodated *within* Pyrrhonism (**V.3.1**). More plausible is Polito's suggestion that Menodotus sought to prune Pyrrhonism's lineage of those whose legendary disregard of the phenomenon of pain threatened to devalue the medical profession.[213] It should be read, therefore, not as a retroactive bid to unify Pyrrhonism and Empiricism – to muddle the distinction between container and content –, but to ensure the compatibility of the former with the medical art *per se.*

Reported lineages should, in general, be treated with caution as evidence of downstream influence; they are inevitably (at least) partially retro-constructed, authored by the last links in the chain.[214] But we need not argue that Aenesidemus inherited the substance of his philosophy from Heraclides or Ptolemy to suppose that his brand of scepticism was, in some small way, informed by Empiricist arguments. Safer to suggest that Aenesidemus' philosophy was a concrescence of influences.[215] The Empiricists, in their replacement of medicine's logical foundations with a formalised attendance to

[209] Polito (2014) p.2.
[210] *Ibid.* Aenesidemus' excursion in Alexandria is attested in Aristoc. *ap.* Euseb. *Praeb. ev.* 14.18.29.
[211] D. L. IX.115. Menodotus is listed at an Empiric physician at D. L. IX.116. See Polito (2014) p.57.
[212] Polito (2014) p.57.
[213] Polito (2007b) p.356-357. We know nothing of the individuals removed from Menodotus' lineage except for what Diogenes Laertius (IX.115) tells us of one Praylus of the Troad, that he suffered a traitor's death with remarkable 'patience'.
[214] Polito (2007b) p.355-359.
[215] The spectrum of which would appear to range from Heraclitus (S. E. *PH* I.210-212) to the sceptical Academy (S E. *PH* I.220-235) with Pyrrho and Timon somewhere in between. The philosophy of Heraclitus seems to have been a point of fascination for Aenesidemus, explored in Polito (2004).

ordinary experience, may have furnished Aenesidemus with a method of argumentation that made no appeal to reason, which could therefore be reformulated sceptically – that is, as a means of sign-inference that limited its scope to the world *as it seems to be*; any method of inquiry that penetrates beneath the senses resists a sceptical framing; reason either guides us to the truth or begets ungrounded abstractions; a conception of experience that incorporates memory either keeps us to the truth or conforms to nature's ostensible guidance – a distinction that is brought to light in exposition, not in practice.

As to whether Empiricism lay somewhere near the root of Pyrrhonism's submission to nature, the answer is unlikely to be straightforward. Diogenes' Laertius indicates that Timon, Pyrrho's scribe and disciple, promoted a sceptical acquiescence to phenomena of the sort that we see upheld at *PH* I.23-24.[216] Though this may have amounted to all the literature Aenesidemus need indicate to justify his acquiescence to phenomena at any given moment, the scant fragments from Timon are not by themselves sufficient to accommodate his recourse to a *record* of phenomena – to memory's epistemological role as phenomena's ordering principle – reported at D. L. IX.78, to the guidance of nature over an extended period of time.*[217]* Though we speculate, credulity will not be stretched to breaking point if we suggest that while recourse to Timon might have given Aenesidemus' argumentation some sceptical pedigree – permission, perhaps, to incorporate memory into his argumentation[218] – the Empirical model of ἐμπειρία was sufficiently abundant to give his scepticism a firmer 'theoretical'

[216] D. L. IX.104-105. We are not, of course, obliged to take these fragments at face value. An alternative plausible interpretation of the fragment from Timon's *Images* (D. L. IX.105) – 'But the appearance prevails everywhere, wherever it goes' (LS 1 H) – is that Timon is bemoaning the hold that perceptions have over people. See e.g. Decleva Caizzi (1981) p.262-264. The fragment from *On the Senses* – 'That honey is sweet I do not affirm, but I agree it appears so' (LS 1 H) – relates nothing about how one is to behave, given the appearance of one's senses. Bett (2003) p.84-83 argues, rather convincingly, for a face-value interpretation of the fragments at D. L. IX.105.

[217] Naturally, how we behave 'in the moment' is guided, in part, by our memories of how the situation in which we find ourselves typically unravels. Simple mnemonic signification is, we might think, instinctual. But Diogenes' (IX.105) paraphrase of the *Pytho* – 'Timon…says…that he has not departed from normal practice' (LS 1 H) – seems like a defence of Timon and Pyrrho's general (though sceptically framed) adherence to the most basic human conventions. It does not read like the basis for a method of argumentation.

[218] Aenesidemus' likely reinvention of Pyrrho of Ellis (as reported at D. L. IX.196) attests to his desire to promote a more experience-friendly history of Pyrrhonism. See Bett (2003) p.84-85.

foundation,[219] a rigorous means of mnemonic sign-inference which, as set out above, could, when required, be formulated non-dogmatically.[220] What this amounts to is an (albeit, sporadic) Empirical presence in Pyrrhonian argumentation dating back the school's first century foundation. If later Pyrrhonists found that Empiricism, being a rigorous attendance to 'ordinary experience', could be accommodated by their philosophy, this may be accounted for, in part, by Empiricism's influence on how the Pyrrhonist interfaces with the world. The 'novelty' of Pyrrhonian Empiricism, then, in contrast with other intersections of Hellenistic philosophy and medicine, may be consequent, in part, on the river of influence running from the technical sect into the philosophy, a philosophy which, in its maturity, reincorporated its medical antecedent.

V.4.3 The sceptical value of the Empiricist sect

A final question. Does the Pyrrhonist practise medicine because he is moved to dedicate his life to an art, or is there more to be gleaned from the Empiricist sect than the satiation of his need for complex action, for intellectual fulfilment? Roberto Polito (2007b) proposes that the 'coalescence' (to adopt his – I think, somewhat misleading – language) of Pyrrhonism and Empiricism in the second century AD 'served the purpose of bridging the lack of public recognition and patronage that Skepticism was suffering on its own.'[221] He builds his case around the institution of chairs of philosophy in Athens and elsewhere, sanctioned by Marcus Aurelius in AD 176.[222] Salaried chairs are awarded to the Platonists, the Aristotelians, the Stoics and the Epicureans but not to the sceptics.[223] This prejudice, Polito argues, 'rests upon a revised sect canon that had already formalized this situation long before' as reflected in the work of Augustus's court philosopher Arius Didymus, which seems also to have restricted its scope to the

[219] Of Pyrrho's pupils, Timon was the only one who shows any signs of being concerned with developing 'theory'. The account of Diogenes Laertius (IX.109-116), however, indicates that he followed his master in subordinating theory to praxis. See Polito (2007b) p.339-341.

[220] The matter is complicated further by the fact that Timon is listed among the leaders of the Empiricist sect in Gal. *Subf. Emp.* 1, 42.22-43.6 Deichgr. Though Diogenes Laertius (IX.109) reports that Timon taught medicine to his elder son, Xanthus, the claim is evidently a retrojection. Polito (2007b) p.353 suggests that Galen owes this interpretation to the Empiricists themselves, one of whom, one Aischrion, was his teacher at Pergamon. See **V.4.3** for Polito's account of why the later Empiricists may have been so motivated, and my reservations (esp. n.231 for Timon's Empiricist reception).

[221] Polito (2007b) p.353.

[222] *Ibid.* p.349-151; Cass. Dio LXXII.32.

[223] Lucian *Eunuchus* 3.

four most salient Hellenistic sects.[224] Thus, by the second century AD, the philosophical curriculum of the Roman elite failed to recognise the Pyrrhonists as equal in stature to their Hellenistic rivals. Polito cites Aenesidemus' reported dedication of the *Pyrrhonist Discourses* to a Roman politician as evidence for the Pyrrhonists having been concerned with finding sponsorship from the inception of their school,[225] and Seneca's apparent ignorance of the Pyrrhonist tradition as evidence of their partial failure.[226]

Polito argues that Empiricism endowed a dwindling Pyrrhonism with 'an institutional setting throughout the Roman age'.[227] Menodotus' Empiricised history of Pyrrhonism may be regarded in this light,[228] and a more complete institutional amalgamation of Pyrrhonism and Empiricism in the second century AD would indeed account for the fact that virtually all the leading figures in post-Hellenistic scepticism are known to have also been Empiricists.[229] I am reluctant, however, to fully endorse Polito's argument, at least not with an assertiveness to match that with which it is posed. I do not dispute the claim that Empiricism endowed late Pyrrhonism with an institutional structure, nor do I suggest that they were unconscious of this advantage; I push back against the proposal that the alliance came about *solely* because of the Pyrrhonists' lack of an 'institutional frame', and that the two schools can ever be said to have 'coalesced' in the sense that evokes a seamless unification. I do not accept the claim that 'Sextus' specious schizophrenia' – express through his critique of Empiricism at *PH* I.236-241 – 'makes best sense on the hypothesis that he joined the Empiricist sect because the medical sect provided the institutional frame from which to teach skepticism in his day.'[230] Surely, Sextus Empiricus' qualified endorsement of Methodism at *PH* I.236-241 is most plausibly read as evidence *against* the uniformity of the contemporary Empiricist sect,[231] and thus, it would seem, against

[224] Polito (2007b) p.250, see further n.78 in that same work.
[225] Polito (2007b) p.351; Phot. *Bibl.* 169b.18.
[226] Polito (2007b) p.351. In *Ep.* 88.44 Seneca conflates Pyrrhonism with the sceptical Academy.
[227] Polito (2007b) p.359.
[228] D. L. IX.115. See **V.4.2** above.
[229] Polito (2007b) p.353.
[230] *Ibid.* p.354.
[231] See Allen (2010). This argument is glossed over at Polito (2007b) p.354. I am also hesitant to accept that the later Empiricists uniformly accepted that their views were 'borrowed from Timon.' (*Ibid.* p.355). Galen's *Subf. Emp.* 1, 42.22-43.6 Deichgr., the source for this claim, merely lists Timon among a number of doctors for whom the Empiricist sect might have been named. While I accept that Galen's interpretation was plausibly derived from his Empiricist teacher at Pergamon, I am reluctant to accept that this individual, of whom we know nothing, came to speak for the entire sect.

Polito's model of Pyrrhonist-Empiricist 'coalescence'. Two differently oriented, independently originating disciplines cannot 'coalesce' without engendering a third, unique school; as we saw at **V.3** above, the school with the broader τέλος can *accommodate* the more narrowly occupied school, provided that their dual proponents can find a means of sealing one identity against the other. The inconsistency we identified at **V.3.1.1** is an example of what happens when the Pyrrhonian Empiricist conflates his profession with his philosophy; the fact that this inconsistency persists is testament to the disjunction of Sextus' professional and philosophical identities, to the boundary between the schools.

Moreover, while Empiricism may have served to preserve Pyrrhonism for a generation or two longer than history may have otherwise permitted, I am hesitant to accept that Sextus' principal motivation for joining a medical sect – and thus enrolling himself in the performance of a τέχνη – was to teach the (as we have seen, not obviously compatible) values of an entirely different discipline. The assimilation of a certain kind of scepticised Empiricism into Pyrrhonism is unlikely to have been *merely* opportunistic; Empiricism – not least on account of its plausible influence on the development of the philosophy (**V.4.2**),[232] and thus the familiar structure of its methodology, if not its dogmatic character – could *be made* compatible with Pyrrhonism, reformulated only in exposition (**V.3.3**). That the Pyrrhonist, seeking a means of occupation, would be drawn to Empiricism is not surprising; he would recognise the Empiricist's devotion to memory and observation as reflective of familiar argumentation, remote from λόγος, and find it natural to practice medicine in this way, provided that his performed and undogmatically defended adherence to Empiricist epistemology – as distinct from certain modes of Empiricist argumentation (**V.4.2**) – was not permitted to escape into the enveloping philosophy, that it remain a 'technical epistemology', sealed against his scepticism.

V.5 Conclusion: the curious alliance of the anti-doctrinaire

Pyrrhonian Empiricism is not the product of fusion, a third body born of the mutually destructive union of prior substances; it results from the *juxtaposition* of independently oriented sects – the accommodation of the narrowly occupied, technical discipline by the broader ethical system, insofar as a 'system' describes

[232] For which Polito himself argues at (2014) p.248-249.

'a way of life that, in accordance with appearances, follows a certain rationale, where that rationale shows how it is possible to seem to live rightly…and tends to produce the disposition to suspend judgement.'[233] It is, in the broadest terms, a mixture that preserves the independence of the parts. But we should perhaps understand this as the terminal condition of a complex entanglement of differently oriented sects.

In **V.2**, we explored the independent origins of Pyrrhonism and Empiricism and found that, although the two schools share an aversion to theory-based deduction, the medical sect's dogmatic faith in the authenticity of sense experience was incompatible with the Tropes of Aenesidemus, Pyrrhonian scepticism's foundational (methodological) tenets. The discordance of Empiricist and Pyrrhonist epistemology is variously apparent in Sextus Empiricus' analyses of sign-inference. I argued in **V.3.1** that Sextus' (apparently unconscious) conflation of Pyrrhonism's (totalising, logical) and Empiricism's (narrowly targeted, epistemological) arguments against sign-inference speaks to the bifurcation of Sextus' intellectual personae, one made possible because the two intellectual traditions to which Sextus belonged are oriented towards distinct τέλη; the two schools, though imperfectly compatible, are seldom found in opposition to one another. Pyrrhonism is a philosophy; Empiricism is a productive science. The Pyrrhonist's ethical τέλος does not obstruct the physician's pursuit of bodily health provided the physician can achieve his goals without succumbing to belief. Incoherencies occur when the two sets of arguments which Sextus Empiricus retains – the professionally and the philosophically oriented – become comingled.

I argued in **V.3.3** that the accommodation of Empiricism by Pyrrhonian scepticism is a performed reconciliation; empirical epistemology is considered compatible with the ordinary practice of existence – with the Pyrrhonist's criteria for living in accord with appearances without assenting to dogma. The Pyrrhonist, however, strips his adopted τέχνη of its dogmatic character; he does not credit his profession's epistemological foundation with any indication of the Truth; he allows only that the practice seems compatible with what *seems to be*. The distinction is not in found in the method by which he practices medicine, but in the vocabulary with which his τέχνη is expounded. The Pyrrhonist's aversion to

[233] S. E. *PH* I.16-17.

dogmatic exposition of τέχναι is evident in Sextus' ostensible endorsement of Methodism at *PH* I.236-241. I argued at **V.3.2** that Sextus' qualified critique of Empiricism in this passage reminds us that the boundary between Empiricism and Pyrrhonism retained much of its integrity; Sextus, writing as Sextus the Pyrrhonist, can reflect critically on the Empiricist sect as a distinct intellectual entity. His Empiricism, as we saw in **V.3.1**, bleeds into *PH* and *M* when his sights are directed elsewhere. Empiricist arguments, evidently, were found to have utility outside of their intended context. This, I have argued, lies at the root of Empiricism's sceptical appeal over that of the Methodic sect.

Despite the preservation of the boundary between the sects – the duality of the Pyrrhonian-Empiricist, contingent on bifurcated τέλη –, the term 'juxtaposition' may not adequately capture the complex nature of their entanglement over time. At **V.3.1.3** and **V.4.2** I examined the evidence for an Empiricist influence on the development of Pyrrhonist argumentation in the first century BC. Pyrrhonism is in no sense an outgrowth of Empiricism; it is an independently originating sect but one whose founder may have identified in Empiricist argumentation a sceptical utility; the Empiricists, in their rejection of λόγος as the instrument of inquiry in a technical context, developed a method of argumentation, grounded in memory and experience, which Aenesidemus could, when necessary, reformulate sceptically and release from the context for which it was intended. The conflation of intellectual personae with which we diagnosed Sextus Empiricus of at **V.3.1** seems less implausible if we allow that the Pyrrhonist tradition had a long history of reformulating Empiricist arguments in non-technical contexts. We considered at **V.3.1.3** an example of Aenesidemus ostensibly offering an Empiricist argument against indicative signification – one which preserved Empiricist methodology – for sceptical purposes. The difference between Aenesidemus and Sextus Empiricus is that, for the former, Empiricism is conceived as a deposit of anti-doctrinaire hypotheses, ripe for reformulation and ultimately disposable; for the latter, it is *technical* methodology whose viability, in the context of his Pyrrhonism, depends upon its independent τέλος. Pyrrhonian-Empiricism describes the accommodation by the philosophical school of an intellectual antecedent. The influence, in this case, seems to run from τέχνη to philosophy.

*

Conclusion

Over the course of this thesis, I have sought to illuminate the mechanisms whereby Hellenistic philosophy, selected in these pages for its therapeutic affectation, was transposed or integrated into the subsequent medical tradition. My findings can be generalised as follows: i) Rationalist physicians, seeking to secure the medical art's reputation as a generative epistemology, are motivated to stringently enforce the boundaries of their τέχνη; ii) excluding the appropriation, by Hellenistic philosophers, of medical vocabulary for rhetorical ends, there are three mechanisms by which philosophy and medicine become entangled, namely, adoption, adaptation and accommodation; iii) in matters of adoption/adaptation, the structure of the mother-doctrine determines the nature of the mechanisms employed. Let us examine these points in further detail.

i) Technical epistemologies

In chapters **I** & **III** I argued that the disjunction between Stoicism and Pneumatism is clarified by the disparity between the ethicist and the physician's τέλος, between the goal of the true practical scientist and the productive scientist/technician in Aristotle's taxonomy of sciences (**III.3**.**1**). The founding of the Pneumatist sect is the formalization of the territory pertinent to medical inquiry within the theoretical structure of the mother-doctrine, a goal-oriented cosmology which developed in pursuit of the correct mode of human behaviour, εὐδαιμονία. A τέχνη, in this case, is carved into the body of the antecedent philosophy, oriented towards an otherwise neglected goal. This is clear in Athenaeus of Attalia's restrictive element theory (**III.2**), the anti-cosmological nature of which is explained by the physician's aspiration to distinguish the 'elements of medicine' (τῆς ἰατρικῆς στοιχεῖα) from the elements *per se*, thus delineating the relatively narrow epistemic ambit of his τέχνη. Precedent for the formalization of technical epistemologies can be found in the work of Athenaeus' Hellenistic predecessors, the anatomists Erasistratus of Ceos and Herophilus of Chalcedon (**III.2.2**), albeit without, in their case, an analogue for the Pneumatist's engagement with a pre-existing body of doctrines. Athenaeus, like his Hellenistic predecessors, locates the boundary of medical inquiry at the limit of 'apparent things' (τὰ φαινόμενα).

The aspiration to formalize and to enforce the parameters of a technical epistemology is, I argued at **III.3**, most intelligible when conceived as a response

to the hierarchy of sciences set out in Aristotle's *Nicomachean Ethics*. We may partially identify Athenaeus with Aristotle's model of the 'productive scientist', the technician (or specialist) who constrains his epistemic ambit to that which is productive of his τέλος. However, where Aristotle conceived of the specialist mantle as a system of constraints to be adopted and discarded according to one's immediate purpose (**III.3.2**), Athenaeus contends with both the Aristotelian frame that subordinated medicine to ethics and the more immediate Stoic ethical taxonomy of 'virtue', 'vice' and 'indifferents' that questioned even the *instrumental* value of health to pursuing the ethicist's goal (**III.3.3**). Thus, Athenaeus was motivated not merely to establish the epistemic ambit of his τέχνη within Stoic cosmology, but to emancipate, clearly and cleanly, his medical sect from Stoicism's ethical objective. He is not a Stoic physician, but a Pneumatist, the founder of a medical sect whose eponymous substance can be traced beyond its centrality to Chrysippean physics into the crucible medically oriented, physiological discovery (**I.3.9**, **III.3.3**). From the formalized territory of medical inquiry, innovations can be claimed by the medical τέχνη. I argued at **III.4** that Athenaeus introduced the αἴτιον προηγούμενον into an adopted Stoic analysis of causation – one designed with universal application in mind – to account for the peculiarities of physiological processes. His innovation does not constitute a challenge to Stoic theory; instead, he nurtures it from the limited domain of specialist inquiry, a vantage which the philosopher, pursuant to his τέλος, is not motivated to adopt.

I suggested in chapter **IV** that Asclepiades of Bithynia was similarly motivated to distance his medical theory from its philosophical roots, to emphasise the medical art's generative potential. In his case, however, the nature of Epicureanism precluded the demarcation of a constrained, technical epistemology within a broader cosmological framework. We will return to this below (**iii**). In the case of Pyrrhonian Empiricism, as I sought to demonstrate in chapter **V**, the disparate nature of the Pyrrhonist and the Empiricist's τέλη permitted the juxtaposition of distinct professional and philosophical identities; contradictions are tolerable because distinct τέλη render a direct conflict of personae unlikely (**V.3.1.1**). This permits the Pyrrhonist to adopt a *de facto* Empiricist epistemology in professional/technical contexts – albeit tempered, in exposition, by non-dogmatic vocabulary – while, in non-technical contexts,

advancing arguments which undermine Empiricist methodology. I argued throughout chapter **V** that the Pyrrhonist-Empiricist alliance depends upon a managed discontinuity between one's philosophical and one's technical personae. We return to this shortly below (**ii**).

ii) Adoption, adaptation and accommodation

Adoption refers to the wholesale transposition of ideas from one intellectual domain into another. It is the mechanism whereby Pneumatism selectively draws from Stoicism. What is adopted and what is discarded – more exactly, in the latter case, what is alluded to only as a means of clarifying the physician's narrow ambit of inquiry (**III.2.1.1**) – is determined by what is productive of the physician's τέλος. Asclepiades also adopts a variety of Epicurean physical doctrines. I argued in **IV.2.2** that Asclepiades' original medical theory was, in its essentials, rooted in Epicurean-style atomism. In its final iteration, several Epicurean doctrines survive intact: Asclepiadean πόροι correspond to Epicurean void-gaps (**IV.2.1**); atoms and ἄναρμοι ὄγκοι share their qualitative status and the nature of their motion **IV.2.3.2-4**); ἄναρμοι ὄγκοι, like atoms, are perceptible only to reason (**IV.2.3.1**) and Asclepiades' epistemology is, I have argued (**IV.5**), extracted more or less wholesale from Epicureanism.[1]

Adaptation refers to the purposeful modification of ideas as they traverse disciplinary boundaries. Ideas are modified in order that they might better accommodate their new technical imperative. Asclepiades' interaction with Epicureanism is in large part typified by adaptation. However, discerning a technical motivation for every deviation from the mother-doctrine is an intricate task, but one whose complexities may be resolved if we accept that a) Asclepiades was motivated to uncouple his physical model from its Epicurean predecessor for reasons that are not necessarily oriented towards the production of health – we might consider 'signalling intellectual autonomy' to be an additional purpose (an aberration in the context of Aristotle's taxonomy of sciences) – and b) his scope to adapt Epicurean physics was constrained by his devotion to an essentially Epicurean epistemology. Concerning (a), I argued at **IV.2** (esp. **IV.2.5**) that Asclepiades' most striking adaptation to Epicurean physics, the replacement

[1] For the caveat concerning the threat of determinism to the Epicurean conception of reason, see **II.3.8** and esp. **IV.5.3.3**.

of atoms with frangible ἄναρμοι ὄγκοι, is best explained as having been catalysed by Asclepiades' bid for intellectual emancipation, both for himself and for his τέχνη. This is not to suggest Asclepiades discovered no practical advantage to replacing atoms with ἄναρμοι ὄγκοι. My argument is that, in the absence of compelling evidence as to what that motivation might have been (**IV.5.1**), and accounting for the fact that Asclepiades' theory of pathology can largely be accommodated by Epicurean-style atomism (**IV.2.2**), we need to consider the possibility that uncoupling one's theory from its intellectual ancestor is, in itself, a compelling motivator for adaptation. We will return to the broader context of (a) below (**iii**). Concerning (b), Asclepiades' rejection of the localised ἡγεμονικόν (**IV.4**) is most intelligibly conceived as a reactive doctrine, an attempt to reconcile his adoption of Epicurean epistemology – and thus, Epicurean-style psychology and sense-mechanics – with post-Erasistratean neurophysiology. Here, then, we have a case of adaptation introduced for the purpose of securing an *adopted* doctrine into an updated model of human (psycho)physiology. As Asclepiades' epistemology is propounded in defence of the efficacy of Rationalist inquiry, the psychophysics upon which it depends is ultimately oriented towards the production of health. Of Asclepiades' deviations from Epicurean physics, the doctor's commitment to necessity is perhaps the most straightforward example of practically motivated adaptation – that is, adaptation as a means of aligning an adopted doctrine with a distinct τέλος. Necessity poses no (obvious) threat to non-ethical, medically oriented materialism. Moreover, predictable – for the corpuscularist, wholly mechanistic – activity at the level of the elements of medicine – synonymous, for Asclepiades, with the elements *per se* – is essential to the Rationalist project. Adaptation, for Asclepiades, is at once a necessity of his practical τέλος and a mechanism for signalling intellectual emancipation.

As for Athenaeus, I have argued that the invention of the αἴτιον προηγούμενον constitutes an adaptation to Stoic causal analysis (**III.4.4**). Attempts to identify a Stoic precedent for the αἴτιον προηγούμενον have proven unconvincing (**III.4.4.1**). More likely, the αἴτιον προηγούμενον was designed to account for physiological peculiarities (**III.4.4.2**) which were not sufficiently accounted for by Stoicism's original taxonomy of causes, designed with universal application in mind. The life that the αἴτιον προηγούμενον continued to have in the medical sphere, uncoupled from its Stoicising roots, attests to its peculiar utility to

explaining the aetiology of disease(s). In contrast with Asclepiades' adaptations to Epicurean physics, Athenaeus' invention of the αἴτιον προηγούμενον should not be read as a challenge to Stoic orthodoxy. The relationship between Pneumatism and Stoicism is not, for reasons I articulate below (**iii**), straightforwardly antagonistic. The αἴτιον προηγούμενον was born of the conjunction of Stoic causal analysis and the manifest complexity of human physiology. It could, I maintain, be incorporated into Stoic causal theory; that is was not – as the extant testimonia suggests – attests to its limited, technical appeal. By diligently clarifying, through selective *adoption*, the boundaries of his technical epistemology, Athenaeus – and therefore the medical τέχνη – can claim ownership of the αἴτιον προηγούμενον, the adaptation, as a formal causal category. The disparity between how Asclepiades and Athenaeus' adapt the philosophies they draw upon can be accounted for by the nature of their respective mother-doctrines (**iii**).

Accommodation refers to the alliance of independently originating schools of thought which, in a manner that evokes a *juxtaposition* of ingredients (as opposed to a 'fusion'), preserves their independence. It is made possible, in the case of the Pyrrhonian Empiricists, because the allied schools – which share an anti-theoretical complexion – are oriented towards distinct τέλη; the two schools, though imperfectly compatible (**V.3.1-2**), are seldom directly opposed to one another. The Pyrrhonist philosopher, through ἐποχή, acts in pursuit of ἀταραξία (**V.2.1**); the Empiricist physician, through attendance to ἐμπειρία, acts in the pursuit of the production of (physiological) health (**V.2.2**). Pyrrhonism is a philosophy; Empiricism is a productive science. The Pyrrhonist's τέλος does not obstruct the physician's pursuit of bodily health provided the physician can achieve his goals without succumbing to belief (**V.3.3**). Medicine, for the Pyrrhonian Empiricist, is not a *generative* epistemology in the sense that it seeks to produce new ideas; it is an *occupation* (**V.4.1**), one which can, in its non-dogmatic formulation, be reconciled with the Pyrrhonist's regime for the ordinary life, free of belief (**V.3.2.2** & **V.3.3**). The affiliation of Pyrrhonism and Empiricism never amounted to straightforward assimilation, to the generation of a third, unique sect. As we saw at **V.3.2**, Sextus Empiricus, expounding the sceptical credentials of medical sects in his Pyrrhonist persona, can write critically of

Empiricism as a separate entity. The possibility of such reflection requires that the boundary between the sects remain intelligible.

The term ‘juxtaposition’, however, might not fully capture the nature of the Pyrrhonist-Empiricist alliance. At **V.4.2** I considered the evidence for an Empiricist influence on the development of Pyrrhonian scepticism in the first century BC. The Empiricists, in their rejection of λόγος as the instrument of inquiry, developed a method of argumentation, grounded in memory and experience, which Aenesidemus could reformulate sceptically, preserving the mechanism of Empirical inquiry while ridding its epistemological foundation of its claim to interface with the Truth. I argued at **V.3.2** that, for the Pyrrhonists, the appeal of Empiricism over Methodism lay in the body of arguments the former school had collected against Rationalist inquiry over the course of its existence. Aenesidemus located in Empiricism a selection of anti-doctrinaire hypotheses. In *adapting* those hypotheses for his own ends – preserving their form but denuding them, we are led to suppose, of their negative dogmatism – he permits arguments constructed with technical intent to influence the dialectical character of his philosophy (**V.3.1.3** & **V.4.2**). That later Pyrrhonists were drawn to their school’s medical antecedent should not surprise us. Pyrrhonism’s accommodation of Empiricism may describe a qualified alliance with an intellectual ancestor.

iii) The structure of the mother-doctrine

Returning to doctrinaire philosophy and Rationalist medicine, I argued throughout chapters **I-IV** that the structure of the mother-doctrine determines the nature of its adoption/adaptation. Let us deal, in this concluding section, with Stoicism and Epicureanism in turn.

I sought, throughout chapter **I**, to emphasise the unity of physics and ethics in Stoicism, the correlative affinity between ‘what is’ and ‘what ought to be engendered in the human’. The Stoic cosmos is the paradigm, identified with the Stoic God, from which the Stoic discerns his moral τέλος, virtue (ἀρετή) – ‘living in accordance with experience of what happens by nature’.[2] The Stoic cosmos is a unified continuum, a blend of mutually coextensive principles, and (to a degree) structurally self-similar (**I.3**); the harmony exemplified by the whole can be realised at different scales, conceptualized as individual ‘goods’ or as morally

[2] Stob. 2.75, 11-76, 8 (LS 63 B).

neutral (though, in orthodox Stoicism, nonetheless innately preferable) micro-harmonies, all with a physical signature characterised by 'correct proportionality' (**I.3.1** & **III.3.3**). The moral status of the cosmos is contingent upon its psychophysiological peculiarity (**I.4**-**5**); the human shares his/her psychophysiological topography with that of the whole (esp. **I.5.4**). He/she can thus behave in a manner that reflects, most completely, divine/cosmic harmony in microcosm. The harmonious soul is a corporeal body, identified with the proportionate blend of its constituents. The Stoic philosopher, who analogises his administrations to soul to those of the physician to the body (**III.5.2**), seeks to cause this state in himself and in others, to rid the corporeal soul of its physical affections, its deviations from 'correct proportionality', its pathologies.

At **III.5** we examined the relationship between Athenaeus' theory of health and Chrysippus' conception of psychological pathology in the extant fragments of his work *On Affections.* I argued that Chrysippus' model of psychophysical pathology is structurally affinitive with Athenaeus' theory of physiological pathology (esp. **III.5.3.1**); pathology is the deficit/surfeit of a particular constituent (of the body or soul) which throws the system into disarray. (The role of all-penetrative πνεῦμα is of less explanatory utility to localised psychological pathologies, which perhaps explains the most significant structural discrepancy between the mechanism of disharmony in the two systems). The Stoic ethicist (the Stoic proper) seeks to restore harmony to the constituents of the soul; the Stoicising physician (the Pneumatist) seeks to restore harmony to the constituents of the body. The Chrysippean and Pneumatist analyses of the soul/body respectively are dependent on the same physical system. If the Pneumatist, in his adherence to a technical epistemology, is more dogmatic than the Stoic-as-'productive scientist' – one who utilises medical analogy to signify the practical value of his physics (**III.5.3.3**) – this does nothing to invalidate the correlative affinity of the therapeutic mechanism in both cases. Stoicism, having rigorously physicalised psychological health and pathology, provided the Pneumatist with a template for a *bone fide* theory of bodily health. Because of Stoicism's self-similarity – the isomorphism of good/preferred patterns – the model of psychological health can be repurposed (*i.e.* adopted) into medicine. The continuous nature of the Stoic cosmos, as well as the mutual coextensivity of its elements, allows for technical epistemologies (**i**) to be delineated within its structure, oriented towards the

pursuit of (otherwise neglected) localised micro-harmonies. The Pneumatist, motivated to distinguish his craft from Stoicism *per se* (**III.3.3** and **i** above), can achieve this through selective adoption; his adaptations are the *fruits* of Pneumatism; they are not themselves mechanisms by which Pneumatism and Stoicism are distinguished. That health is most commonly categorised as a 'preferred indifferent' in Stoicism, reflective of but not (necessarily) instrumental to the realisation of εὐδαιμονία/ἀρετή, necessitates Pneumatism's status as a separate sect despite its consistency with Stoic physics.

To reproduce my language from **II.5.6**, where Stoic physics provides a template for its ethics – for the mechanism of 'healing' –, Epicurean physics provides a justification – a sequence of premises from which to draw conclusions about appropriate conduct; the model of the world Epicurus offers is designed to quench our fear, but the model is remarkably recalcitrant when we seek understand, in material terms, what fear's dissipation entails. The final goal of ἀταραξία is nowhere explicitly identified with the atomic constellations in Epicurean sources/testimonia, nor do we find anything more than a cursory – and largely unsatisfactory – analysis of bodily pain (**II.5.6**). I argued throughout **II.5** that Epicurus developed his physics only as far as was necessary to accommodate its role as a psychological medicament; Epicurus' attitude towards physical pain was that one should recognise its causes and avoid them; if pain is unavoidable, one must cultivate the appropriate outlook such that pain may be endured. For all that Epicurus, like Chrysippus, found rhetorical utility in medical analogy, it is plausible that he perceived the medical τέχνη *per se* – with its pragmatic accommodation of uncertainty – to run contrary to his philosophy's τέλος. I noted at **II.5.3** Lucretius' peculiar aversion to the medical τέχνη in *De rerum natura*. This is an intriguing counterpoint in a poem that presents itself as the honey-sweetened vessel of Epicurean true-medicine.

Asclepiades, then, is afforded no physicalised ethical template upon which to model his medical theory. Though I argued at **IV.2.2** that his theory of pathology is broadly consistent with the cursory analysis of pain at *DRN* II.963-967, it is nonetheless a pronounced rigorization of the Epicurean antecedent. Asclepiades, whose thought wanders independently of Epicureanism's τέλος, is free to settle his attention on underexplored physical questions. If Epicureanism had presented itself as a superior 'medicine' to that which was produced by the medical τέχνη,

then Asclepiades would have further cause to emphasise his art's generative potential by *correcting* Epicurus' mistakes (e.g. **IV.2.4.2**). Moreover, as I argued at **IV.5.2**, Asclepiades did not inherit a physical system that allowed for the delineation of internal technical epistemologies. Epicurean epistemology has two distinct tiers: 1) the world as it is known to reason; 2) the world as it is known to the senses. To terminate medical inquiry at the limits of perception – to assume, as Athenaeus would, the epistemological constraints of Asclepiades' other great influence, Erasistratus of Ceos – would be to *entirely* disconnect his theory from its Epicurean roots (**IV.2.1**) and whatever medical utility was identified therein. With few opportunities for selective adoption, Asclepiades was further motivated to *adapt* Epicurean doctrine (**ii**).

Where Stoic ethics provided the template for Pneumatist therapeutics, and Stoic causal theory the basis for the Pneumatist's aetiology of disease, Epicurean epistemology, to Asclepiades, provided a physical account of the sense-mechanics whereby inferences from the evident to the non-evident-by-nature via λόγος – the central Rationalist stratagem for accumulating knowledge about the world – could be defended from Empiricist critique. The Epicureans share with the Empiricists two key premises: 1) sense-impressions are non-illusory; 2) the application of reason and the receipt of sensory data are meaningfully distinct processes. I argued at **IV.5.2.3** that the Rationalist, adopting Epicurean scientific methodology, could defend the medical necessity of λόγος – and the insufficiency of ἐμπειρία alone as the basis of medical inquiry – on empirical grounds, thus confronting Empiricist arguments on something close to their own terms. Epicurus' epistemology was inextricable from his physics (**II.2-3**); the former justifies the latter as the latter justifies the former. Our sources firmly indicate that Asclepiades' epistemology was adopted more or less intact from Epicureanism (**IV.5**). To exploit the medical utility of Epicurean epistemology is to assume responsibility for the physical system upon which Epicurean sense-mechanics depend. Adaptations – which, for Asclepiades, are a requirement of intellectual emancipation (**ii**) – must be negotiated around an inseparable, cyclically nourishing alliance of physical and epistemological doctrines.

*

Bibliography

*

Works cited

Allen J., ‘Galen as (Mis)informant about the Views of his Predecessors’ p.81-89 in *Archiv für Geschichte der Philosophie* Vol. 83, De Gruyter, 2001a.

Allen J., *Inference from Signs: Ancient Debates about the Nature of Evidence,* Oxford University Press, 2001b.

Allen J., ‘Pyrrhonism and medicine’, p.232-248 in Bett R. (ed.), *The Cambridge Companion to Ancient Scepticism,* Cambridge University Press, 2010.

Annas J. E., Barnes J. (eds.), *The Modes of Scepticism: Ancient Texts and Modern Interpretations,* Cambridge University Press, 1985.

Annas J. E., ‘Epicurus on Agency’, p.53-71 in Brunschwig J., Nussbaum M. (eds.), *Passions and Perceptions*: *Proceedings of the Fifth Symposium Hellenisticum, Studies in Hellenistic Philosophy of Mind*, Cambridge University Press, 1993.

Annas J., E., ‘Ethics in Stoic Philosophy’, p.58-87 in *Phronesis 52,* BRILL, 2007.

Asmis E., *Epicurus’ Scientific Method,* Cornell University Press, 1984.

Asmis E., ‘Review Article: Asclepiades of Bithynia Rediscovered?’ review of Vallance J. T., *The Lost Theory of Asclepiades of Bithynia,* p.145-156 in *Classical Philology* Vol. 88, issue 2, 1993.

Asmis E., ‘Epicurean Epistemology’, p.260-294 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Asmis E., ‘Epicurean empiricism’, p.84-104 in Warren J. (ed.), *The Cambridge Companion to Epicureanism,* Cambridge University Press, 2009.

Bailey C., *The Greek Atomists and Epicurus: A Study,* Oxford: Clarendon Press, 1928.

Barnes, J., Schenkeveld D. M., ‘Language’, p.177-225 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Bean G. E., and Mitford T. B., ‘Journeys in Rough Cilicia’ in *Denkschriften der Akademie dear Wissenschaften in Wien,* 102, 1970.

Bénatouïl T., ‘How Industrious can Zeus be?’, p.23-45 in Salles R. (ed.), *God and Cosmos in Stoicism,* Oxford University Press, 2009.

Bevan E., *Stoics and Sceptics,* Oxford University Press, 1913.

Betegh G., ‘Epicurus’ Argument for Atomism’, p.261-284 in Sedley D. (ed.), *Oxford Studies in Ancient Philosophy* 30*,* 2006.

Bett R., *Pyrrho, His Antecedents and His Legacy,* Oxford University Press, 2003.

Bonazzi M., ‘Antiochus and Platonism’, p.307-333 in Sedley D. (ed.), *The Philosophy of Antiochus,* Cambridge University Press, 2012.

Boudon-Millet V., *Galien. Theriaque a Pison,* Les Belles Lettres, 2016.

Brittain C., *Philo of Larissa: The Last of the Academic Sceptics,* Oxford University Press, 2001.

Brittain C., ‘Antiochus’ epistemology’, p.104-130 in Sedley D. (ed.), *The Philosophy of Antiochus,* Cambridge University Press, 2012.

Brunschwig J., ‘The Stoic Theory of the Supreme Genus and Platonic Ontology’, p.92-157 in Brunschwig J., *Papers in Hellenistic Philosophy,* Cambridge University Press, 1994.

Brunschwig J., ‘Introduction: the beginnings of Hellenistic epistemology’, p.227-259 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Burnyeat M., *The Skeptical Tradition,* University of California Press, 1983.

Burnyeat M., ‘Can the Skeptic Live His Skepticism?’, p.117-148 in Burnyeat M. (ed.), *The Skeptical Tradition,* University of California Press, 1983.

Cambiano G., ‘Philosophy, science and medicine’, p.585-613 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Casadei E., ‘La dottrina corpuscolare di Asclepiade e i suoi rapporti con la tradizione atomista’, p.77-106 in *Elenchos* 18.1, 1997.

Caston V., ‘Dicaearchus’ Philosophy of Mind’, p.175-192 in Fortenbaugh W. E. (ed.), *Dicaearchus of Messana: Text, Translation and Discussion*, New Brunswick, NJ: Transaction Publishers, 2001.

Chiaradonna R., ‘Universals in Ancient Medicine’, p.381-423 in Chiaradonna R. & Galluzzo G. (eds.), *Universals in Ancient Philosophy,* Edizioni della Normale, Pisa, 2013.

Clay D., *Lucretius and Epicurus,* Cornell University Press, 1983.

Commager H. S. Jr., ‘Lucretius’ Interpretation of the Plague’, p.105-118 in *Harvard Studies in a Classical Philology* Vol. 62, Harvard University Press, 1957.

Coughlin S., ‘Athenaeus of Attalia on the Psychological Causes of Bodily Health’, p.107-142 in Thumiger C., Singer P. (eds.), *Mental Illness in Ancient Medicine,* BRILL, 2018.

Couissin P., ‘The Stoicism of the New Academy’, p.31-63 in Burnyeat M. (ed.), *The Skeptical Tradition,* University of California Press, 1983.

Decleva Caizzi, F. (ed. and trans.), *Pirrone: Testimonianze,* Naples: Bibliopolis, 1981.

Englert W., *Epicurus on the Swerve and Voluntary Action*, Oxford University Press, 1987.

Erskine A., *The Hellenistic Stoa*, Gerald Duckworth and Co., 1990.

Everson, S., 'Epicurean Psychology', p.542-559 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Fish J., Sanders K. R., Introduction to *Epicurus and the Epicurean Tradition,* Fish J., Sanders K. R. (eds.), Cambridge University Press, 2011.

Flemming R., 'Antiochus and Asclepiades: medical and philosophical sectarianism at the end of the Hellenistic era', p.55-79 in Sedley D. (ed.), *The Philosophy of Antiochus,* Cambridge University Press, 2012.

Frede M., 'The original notion of cause', p.217-240 in Schofield M., Burnyeat M., Barnes J. (eds.), *Doubt and Dogmatism, Studies in Hellenistic Epistemology,* Clarendon Press, Oxford, 1980.

Frede M., 'Stoics and skeptics on clear and distinct impressions', p.65-93 in Burnyeat M. (ed.), *The Skeptical Tradition,* University of California Press, 1983.

Frede M., *Essays in Ancient Philosophy,* University of Minnesota press, 1987.

Frede M., 'An anti-Aristotelian Point of Method in Three Rationalist Doctors' p.115-138 in Morison B., Ierodiakonou K. (eds.), *Episteme, etc.: Essays in Honour of Jonathan Barnes,* Oxford University Press, 2011.

Furley D., 'Cosmology', p.412-451 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Furley D., *Two Studies in the Greek Atomists,* Princeton University Press, 1967.

Gaskin J. (ed.), *The Epicurean Philosophers,* Everyman, 1995.

Gourinat J., 'The Stoics on Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's *Timaeus*', p.46-70 in Salles R. (ed.), *God and Cosmos in Stoicism,* Oxford University Press, 2009.

Gottschalk, *Heraclides of Pontus,* Oxford University Press, 1980.

Guardasole A., *Eraclide di Taranto: Frammenti,* Napoli: D'Auria, 1997.

Hahm D., *The Origins of Stoic Cosmology,* Ohio State University Press, 1977.

Hankinson R. J., 'Causes and Empiricism', p.329-348 in *Phronesis* 32, Brill, 1987a.

Hankinson R. J., 'Evidence, externality and antecedence: inquiries into later Greek causal concepts', p.80-100 in *Phronesis* 32, Brill, 1987b.

Hankinson R. J., *The Sceptics,* London and New York, 1995.

Hankinson R. J., 'Explanation and Causation', p.479-512 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Hankinson R. J., ‘Substance, Element, Quality, Mixture: Galen’s Physics and His Hippocratic Inheritance’ in Guyomarc’h G., Marchand S. (eds.), *Études sur le* De elementis *de Galien, Aitia* 7.2/2017 (article found at https://doi.org/10.4000/aitia.1863).

Harig G., ‘Die Philosophischen Grundlagen des medizinischen Systems des Asklepiades von Bithynien’, p. 43-60 in *Philologus* 127, 1983.

Hatzimichali M., ‘Antiochus’ biography’, p.9-30 in Sedley D. (ed.), *The Philosophy of Antiochus,* Cambridge University Press, 2012.

Havrda M., ‘Galenus Christianus? The Doctrine of Demonstration in *Stromata* VIII and the Question of its Source’, p.343-375 in *Vigiliae Christianae* 65, BRILL, 2011.

Heidel W. A., ‘The ἄναρμοι ὄγκοι of Heraclides and Asclepiades’, p.5-21 in *Transactions of the American Philological Association,* 40, 1909.

Inwood B., ‘How Unified is Stoicism Anyway?’, p.223-242 in Kamtekar R. (ed.), *Virtue and Happiness: Essays in Honour of Julia Annas,* Oxford University Press 2012.

Inwood B., ‘The origin of Epicurus’ concept of void’, p.273-285 in *Classical Philology* 76, 1981.

Inwood B., *Ethics and Human Action in Early Stoicism,* Clarendon Press, 1985.

Inwood B. & Donini P., ’Stoic Ethics’, p.675-738 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Irwin T. H., ‘Conceptions of Happiness in the *Nicomachean Ethics*’, p.495-528 in Shields C. (ed.), *The Oxford Handbook of Aristotle,* Oxford University Press, 2012.

Kollesch J., *Untersuchungen Zu Den Pseudogalenischen Definitiones Medicae,* Berlin, 1973.

Konstan D., ‘Epicurus on ‘Up’ and ‘Down’ (Letter to Herodotus 60)’, p.269-278 in *Phronesis* 17, BRILL, 1972.

Konstan D., ‘Problems in Epicurean Physics’, p.494-418 in *Isis* Vol.70, No. 3, University of Chicago Press, 1979.

Kudlien F., ‘Poseidonios und die Ärzteschule der Pneumatiker’, p.419-429 *Hermes,* 90, 1962.

Kupreeva I., ‘Galen’s Theory of Elements’. p.153-196 in *Bulletin of the Institute of Classical Studies* No.144*, Philosophical Themes in Galen,* Oxford University Press, 2014.

Lear J., *Aristotle: the desire to understand,* Cambridge University Press, 1988.

Lefebvre D., ‘Physique et médecine chez Aristote: Subordination, séparation, communauté’, p.51-83 in Crignon C., Lefebvre D. (eds.), *Médecins et philosophes: une histoire.* Paris, 2019.

Leith D., ‘The Qualitative Status of the *Onkoi* in Asclepiades’ Theory of Matter’, p.283-320 in Inwood B. (ed.), *Oxford Studies in Ancient Philosophy,* Vol. XXXVI, 2009.

Leith D., ‘Pores and Void in Asclepiades’ Physical Theory’, p.164-191 in *Phronesis* 57, BRILL, 2012.

Leith D., ‘Galen’s Refutation of Atomism’, p.213-234 in *Philosophical Themes in Galen,* Oxford University Press, 2014.

Leith D., ‘Elements and Uniform Parts in Early Alexandrian Medicine’, p.462-491 in *Phronesis* 50, BRILL, 2015a.

Leith D., ‘Erasistratus’ *Triplokia* of Arteries, Veins and Nerves’, p.251-262 in *Apeiron* Vol. 48, 3, De Gruyter, 2015b.

Leith D., ‘Athenaeus of Attaleia on the Elements of Medicine’, paper given at the Northern Associate for Ancient Philosophy (NAAP) annual meeting, University of Edinburgh, 2017.

Leith D., ‘Asclepiades’ Therapeutics in the Elder Pliny’, p.55-75 in *Technai,* Fabrizio Serra editore, Pisa – Roma, 2019.

Leith D., ‘Herophilus and Erasistratus on the *Hēgemonikon’,* p.30-61 in Inwood B. & Warren J. (eds.), *Body and Soul in Hellenistic Philosophy,* Cambridge University Press, 2020.

Leith D., ‘The Fragments of Asclepiades of Bithynia’ (provisional title), forthcoming from Cambridge University Press.

Lewis O., *Praxagoras of Cos on Arteries, Pulse and Pneuma,* BRILL, 2017.

Lloyd G. E. R., *Polarity and Analogy,* Cambridge University Press, 1966.

Long A. A., *Hellenistic Philosophy,* Duckworth, 1974.

Long A. A., ‘Soul and Body in Stoicism’ in *Phronesis 27,* BRILL, 1982.

Long A. A., ‘Heraclitus and Stoicism’, p.35-57 in Long A. A., *Stoic Studies,* Cambridge University Press, 1996.

Lonie I. M., ‘The ἄναρμοι ὄγκοι of Heraclides of Pontus’, p.156-164 in *Phronesis* 9, BRILL, 1964.

Manetti D., ‘Autografi e incompiuti: il caso dell’Anonimo Londinese P. Lit. Lond. 165’, p,47-58, in *Zeitschrift für Papyrologie und Epigraphik* 100, 1994.

Mansfeld J., ‘Sources’, p.3-30 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Mayhew R., ‘Aristotle (on fever) in *Problemata* I’ in *Apeiron* Vol. 48, 2, De Gruyter, (published online) 2015.

Morison B., ‘The Sceptic’s Modes of Argumentation’, p.254-282 in Bénatouïl T., Ierodiakonou K. (eds.), *Dialectic After Plato and Aristotle,* Cambridge University Press, 2018.

Natorp P., *Forschungen zur Geschichte des Erkenntnisproblems im Altertum,* Berlin: Wilhelm Hertz, 1884.

Nussbaum M., *The Therapy of Desire,* Princeton University Press, 1994.

Nutton V., *Ancient Medicine*, Routledge, 2013 (2nd edition).

O’Keefe T., *Epicurus on Freedom,* Cambridge University Press, 2005.

O’Keefe T., *Epicureanism,* Acumen, 2010.

Petit C., ‘What does Pseudo-Galen tell us that Galen does not? Ancient medical schools in the Roman Empire’, p.269-290 in Adamson P., Hansberger R. Wilberding J. (eds.), *Philosophical Themes in Galen,* Institute of Classical Studies, University of London, 2014.

Philippson R., *De Philodemi libro, qui est Περὶ σημείων καὶ σημειώσεων et Epicureorum doctrina logica,* Berlin: Berliner Buchdruckerei Actien-Gesellschaft, 1881.

Phillips J. H., ‘Lucretius on the Inefficacy of the Medical Art’, *Classical Philology* Vol. 77, No. 3, University of Chicago Press, 1982.

Pigeaud J., ‘La physiologie de Lucrèce’, p.176-200 in *Revues des études latines,* 58, 1980.

Polito R., *The Sceptical Road: Aenesidemus’ Appropriation of Heraclitus,* BRILL, 2004.

Polito R., ‘Matter, Medicine, and the Mind: Asclepiades vs Epicurus’, p.285-335 in *Oxford Studies in Ancient Philosophy* 30, 2006.

Polito R., ‘Frail or Monolithic? A Note on Asclepiades’ Corpuscles’, p.314-316 in *Classical Quarterly* 57, 2007a.

Polito R., ‘Was Skepticism a Philosophy? Reception, Self-Definition, Internal Conflicts’, p.333-362 in *Classical Philology,* Vol. 102, No. 4, University of Chicago Press, 2007b.

Polito R., ‘Asclepiades of Bithynia and Heraclides Ponticus: Medical Platonism’, p.118-138 in Schofield M. (ed.), *Aristotle, Plato and Pythagoreanism in the First Century BC: New Directions for Philosophy,* Cambridge University Press, 2013.

Polito R., *Aenesidemus of Cnossus: testimonia*, Cambridge University Press, 2014.

Purinton J. S., ‘Epicurus on ‘Free Volition’ and the Atomic Swerve’, p.253-299 in *Phronesis* 44, BRILL, 1999.

Purinton J. S., ‘Magnifying Epicurean Minima’, p.115-146 in *Ancient Philosophy* 14, 1994.

Rawson E., ‘The Life and Death of Asclepiades of Bithynia’, p.358-370 in *Classical Quarterly,* Vol.32, No.2, 1982.

Reesor M., *The Nature of Man in Early Stoic Philosophy*, Gerald Duckworth and co., 1989.

Sales R., ‘Compatibilism: Stoic and Modern’, p.1-23 in *Archiv für Geschichte der Philosophie* Vol. 83, De Gruyter, 2001.

Salles R., ‘Chrysippus on Conflagration and the Indestructibility of the Cosmos’, in Salles R. (ed.), *God and Cosmos in Stoicism,* Oxford University Press, 2009.

Scade P, ‘Plato and the Stoics on Limits, Parts and Wholes’, p.80-105 in Long A. A. (ed.), *Plato and the Stoics*, Cambridge University Press, 2013.

Schiefsky M. J., *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary,* Brill, 2005.

Sedley D., ‘Epicurus’ refutation of determinism’, p.11-51 in *ΣΥΖΗΤΗΣΙΣ: studi sull'epicureismo greco e romano offerti a Marcello Gigante*. Vol.1, 1983a.

Sedley D., ‘The motivation of Greek Skepticism’, p.9-29 in Burnyeat M. (ed.), *The Skeptical Tradition,* University of California Press, 1983b.

Sedley D., ‘Philosophical allegiance in the Greco-Roman world’, p.97-119 in Griffin M. T., Barnes J. (eds.), *Philosophia Togata: Essays on Philosophy and Roman Society,* Oxford University Press, 1989.

Sedley D., ‘Chrysippus on Psychophysical Causality’, p.313-331 in Brunschwig J. and Nussbaum M. (eds.), *Passions & Perceptions: Studies in Hellenistic Philosophy of Mind: Proceedings of the Fifth Symposium Hellenisticum.* Cambridge University Press, 1993.

Sedley D., *Lucretius and the Transformation of Greek Wisdom,* Cambridge University Press, 1998.

Sedley D., ‘Hellenistic Physics and Metaphysics’, p.356-411 in Algra K., Barnes J., Mansfeld J., Schofield M. (eds.), *The Cambridge History of Hellenistic Philosophy,* Cambridge University Press, 1999.

Sedley D., ‘The origins of the Stoic God’, p.41-93 in Frede D. & Laks A. (eds.), *Traditions of Theology,* BRILL, 2002.

Sharples R., *Stoics, Epicureans, and Sceptics: An introduction to Hellenistic Philosophy,* Routledge, 1996.

Smith W. D., *The Hippocratic Tradition*, Ithaca: Cornell University Press, 1979.

Steckerl F., *The Fragments of Praxagoras of Cos and his School*, BRILL, 1958.

Striker G., ‘The Ten Tropes of Aenesidemus’, p.95-116 in Burnyeat M. (ed.), *The Skeptical Tradition,* University of California Press, 1983.

Striker G., *Essays on Hellenistic Epistemology and Ethics,* Cambridge University Press, 1996.

Taylor C. C. W., 'Aristotle's Epistemology', p.116-142 in Everson S. (ed.), *Companion to Ancient Thought: Epistemology,* Cambridge University Press, 1990.

Tieleman T., *Chrysippus'* On Affections: *Reconstruction and Interpretation,* BRILL, 2003.

Van der Eijk P. J., '*On Sterility* (*Hist. an.* 10), a medical work by Aristotle?', (repr.) p.259-275 in Van der Eijk P. J., *Medicine and Philosophy in Classical Antiquity,* Cambridge University Press, 2005.

Van der Eijk P. J., 'Theoretical and empirical elements in Aristotle's treatment of sleep, dreams and divination in sleep', (repr.) p.169-205 in Van der Eijk P. J., *Medicine and Philosophy in Classical Antiquity,* Cambridge University Press, 2005.

Verde F., *Elachista: La Dottrina Dei Minimi Nell'Epicureismo*, Leuven University Press, 2013.

Vlastos G., 'Ethics and physics in Democritus' Parts I & II, p.578-92; 53-63 respectively in *Philosophical Review* 54, 55, 1945-1946.

Vlastos G., 'Minimal parts in Epicurean Atomism', p.121-147 in *Isis* vol.56, no.2, The University of Chicago Press, 1965.

Wellmann M., *Die Pneumatische Schule bis auf Archigenes,* Berlin: Weidmannsche Buchandlung, 1895.

Wenley R. M., *Stoicism and its Influence,* London: Harrap and Co., 1925.

White M. J., *The Continuous and The Discrete: ancient physical theories from a contemporary perspective,* Clarendon, 1992.

Whitehead A. N., *Process and Reality: An Essay in Cosmology (1929)*, corrected edition, Griffin D. R. And Sherburne D. W. (ed.), Free Press, 1979.

Zeller E., *Stoics, Epicureans and Sceptics,* translated from German by Reichel O. J., London: Longmans, Green, and Co., 1870.

Translations of ancient texts

Aristotle, *De Caelo* translated by Stocks J. L.in McKeon R. (ed.), *The Basic Works of Aristotle,* New York: Modern Library, 2001.

Aristotle, *On Generation and Corruption* translated by Joachim H. H. in McKeon R. (ed.) *The Basic Works of Aristotle,* New York: Modern Library, 2001.

Aristotle, *Metaphysics,* in Aristotle in 23 Volumes, Vol. 17, 18, translated by Tredennick H., Harvard University Press, 1933 as found at www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.01.0052.

Aristotle, *On the Soul, Parva Naturalia, On Breath* translated by Hett W. S., Leob Classical library, Harvard University Press, 1935.

Aristotle, *The Nicomachean Ethics* translated by Rackham H., Loeb Classical Library, Harvard University Press, 1926.

Celsus, *De Medicine* translated by Spencer W. G., Leob Classical Library, Harvard University Press, 1935.

Cicero, *De finibus bonorum et malorum* translated by Rackham H., Leob Classical Library, Harvard University Press, 1914.

Cicero, *De natura deorum* translated by Rackham H., Leob Classical Library, Harvard University Press, 1911.

Cicero, *De oratore, De fato, Paradoxa stoicorum, De partitione oratoria,* translated by Rackham H., Leob Classical Library, Harvard University Press, 1942.

Cicero, *Tusculan disputations*, translated by King J. E., Leob Classical Library Harvard University, 1927 (revised 1945).

Cleomedes, *Lectures on Astronomy,* translated by Bowen C. & Todd B., University of California Press, 2004.

Diogenes Laertius, *Lives of the Eminent Philosophers,* translated by Hicks R. D., Harvard University press 1972 (first published in 1925) as found at www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.01.0258

Galen, *On Cohesive Causes,* first edition of the Arabic version translated by Lyons M., *Corpus Medicorum Graecorum* (*CMG*), Berlin: Akademie Verlag, 1969.

Galen, *On the Causes of Symptoms,* translated by Johnston I. from *Galen on Diseases and Symptoms,* Cambridge University Press, 2006.

Galen, *On the Doctrines of Hippocrates and Plato,* edition, translation and commentary by De Lacy P., *Corpus Medicorum Graecorum* (*CMG*), Berlin: Akademie Verlag, 1978.

Galen, *On the Elements according to Hippocrates,* edition, translation and commentary by De Lacy P., *Corpus Medicorum Graecorum* (*CMG*), Berlin: Akademie Verlag, 1996.

[Hippocrates], *Ancient Medicine* translated by Schiefsky M. J. in *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary,* Brill, 2005.

[Hippocrates], *On the Nature of Man* from *Hippocrates Volume IV* translated by Jones W. H. S., Leob Classical Library, Harvard University Press, 1931.

Lucretius, *On the Nature of the Universe,* translated by Melville R., Oxford University Press, 1997.

Plato, *Theaetetus,* from *Theaetetus and Sophist,* translated by Rowe C., Cambridge University Press, 2015.

Plato, *Timaeus, Critias, Cleitophon, Menexenus, Epistles,* translated by Bury, R. G., Leob Classical Library, Harvard University Press, 1929.

Sextus Empiricus, *Against Those in the Disciplines (Adversus Mathematicos I-VI),* translated by Bett R., Oxford University Press, 2018.

Sextus Empiricus, *Against the Ethicists (Adversus Mathematicos XI*), translated by Bett R., Oxford University Press, 1997.

Sextus Empiricus, *Against the Logicians* (*Adversus Mathematicos* VII-VIII), translated by Bett R, Cambridge University Press, 2005.

Sextus Empiricus, *Against the Physicians* (*Adversus Mathematicos* IX-X), translated by Bett R., Cambridge University Press, 2012.

Collections of sources

Bailey C. (ed.), *Epicurus: The Extant Remains,* Oxford, Clarendon Press, 1926.

Deichgräber K. (ed.), *Die griechische Empirikerschule,* Berlin: Weidmann, 1930 (repr. 1965).

Diels H., Kranz W. (eds.), *Die Fragmente der Vorsokratiker,* Zurich: Weidmann, 1951-2 (6th edn.).

Garofalo I. (ed.), *Erasistrati Fragmenta,* Pisa, 1998.

Kidd I. G. (ed.), *Posidonius, Volume III: The Translation of the Fragments,* translated by Kidd I. G., Cambridge University Press, 1999.

Kühn K. G. (ed.), *Claudii Galeni Opera Omnia*, Vols. 1-20, online edition, Cambridge University press, 2012 (originally published, Leipzig: C. Cnobloch, 1821-1833).

Lewis O. (ed.), *Praxagoras of Cos on Arteries, Pulse and Pneuma,* fragments translated by Lewis O., BRILL, 2017.

Long A. A, Sedley D. N. (eds.), *The Hellenistic Philosophers, Volume I: Translations of Principal Sources, with Philosophical Commentary,* Cambridge University Press, 1987.

Longrigg R. (ed.), *Greek Medicine from the Heroic to the Hellenistic Age,* Duckworth, 1998.

Waterfield R. (ed.), *The First Philosophers: the Presocratics and Sophists*, Oxford University Press, 2000.

Wehrli F. (ed.), *Die Schule des Aristoteles,* Basel, 1969 (second edition).

Usener H. (ed.), *Epicurea*, Cambridge University Press, 1887 (Online Publication 2010).

Van der Eijk P. J. (ed.), *Diocles of Carystus: A Collection of Fragments with Translation and Commentary,* BRILL, 2000.

Von Armin J. (ed.), *Stoicorum Veterum Fragmenta* (*SVF*)*,* Vol.I-III; Vol. IV indices by Adler M., 1903-1905, 1924, (repr.) Teubner, 1964.

Von Staden H. (ed.), *Herophilus: The Art of Medicine in Early Alexandria: Edition, Translation and Essays,* Cambridge University Press, 1989.

*