PNEUMA IN EARLY STOICISM

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Declaration of Authorship

I …… hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

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Abstract:

The thesis proceeds on the supposition that there is an underlying theoretical unity between the three parts of philosophy and that the principle of coherence presupposes an element of continuity from one Stoic head to another. As such, whilst a fully-fledged theory of *pneuma* can only be attributed to Chrysippus, the third head of the school, the character of the theory is seen to be determined from much earlier with Zeno, who is the cause for the emergence of a *pneuma* with such unique characteristics in Chrysippus. Although the thesis does not pretend to be a comprehensive study of the concept of *pneuma* in Stoic thought, in order to trace the key characteristics of the Chrysippean concept in the earliest stages of the school and to reconstruct an outline of the underlying theory, I chart the evidence describing the mechanical processes involved in the *pneuma's* variations in tension, its contraction and expansion, its growth and nourishment and the relation between the *hegemonikon* and the soul. These themes are discussed in chapters which are related to specific theories of the Stoics like cosmogony and cognitive process. The nature of the methodological approach means that I often use evidence from seemingly disparate parts of the Stoic system in order to better understand the processes involved and I also consider evidence from the doxographical records and extant commentaries which is largely ignored in the modern literature or is absent from von Arnim's collection.

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Introduction

The integration of theory is an idea which captivates the greatest of minds. When faced with diverse mechanisms and seemingly opposing explanatory approaches we may observe in ourselves an underlying intuition or proclivity which compels us to try to make sense of this diversity in a unified way. This is true of the Stoics as it is true of much of contemporary theoretical physics which seeks to integrate the laws of the fundamental physical forces with those of elementary particles. To what extent integration of theory may be expected to be a reflection of reality and to what extent it is imposed by our own intuitions is a matter that has been and remains to be up for debate. In this thesis I take the hard-line view that, for the Stoics, the integration of reality is not only contingent but it is a precondition that applies to their whole system of thought and I treat it as necessary in the study of our sources. This view, that reality and our speculation about it should be treated as coherent, has recently been challenged in relation to both Stoicism[1] and also modern physics.[2] The basic challenge is premised on the belief that it is an impoverished and irresponsible methodological approach that tries to impose subjective notions of beauty, elegance and simplicity on otherwise complex and varied ideas, rather than basing them on empirical data or evidence. To my mind this challenge is formulated not necessarily to deny the presence of a natural aesthetic in the universe and our understanding of it but rather to caution against stubborn adherence to and careless application of individual notions of beauty when dealing with our evidence. In my view, our natural intuition to maintain an aesthetic approach with regards to how the Stoics describe the universe, its parts and philosophy as harmonious and integrated, is, at its core, a correct one. This is moreover part of the great appeal of Stoicism.

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[1] Brad Inwood, "How Unified Is Stoicism Anyway?," in *Virtue and Happiness: Essays in Honour of Julia Annas (OSAP Supplementary Volume)*, ed. Rachana Kamtekar (Oxford: Oxford University Press, 2012), 223–44.

[2] George Ellis and Joe Silk, "Scientific Method: Defend the Integrity of Physics," *Nature* 516, no. 7531 (2014).

It is the aim of this thesis to offer a reconstruction of Stoic philosophy from the perspective of the coherence and methodological integration of the theories implemented by the early Stoics. This study does not constitute a full treatment of Stoic philosophy, after a first chapter on ancient and modern views of the tri-partite division of philosophy, the main body of the thesis focuses on how aspects of the notion of *pneuma* are integrated into wider Stoic theory both theoretically and diachronically between the first three heads of the school. In the main I explore how the idea emerged in Zeno and Cleanthes and only touch upon the Chrysippean theory in so far as his version of the notion of *pneuma* involved appropriating ideas from his predecessors.

Why a study of pneuma *is necesssary*

There have been numerous discussions of *pneuma* in Stoicism in the modern literature. In a seminal work dedicated to the subject Verbeke[3] offers an erudite historical account in which he describes how the notion emerged in Zeno purely as a material breath and gradually undergoes a "spiritualisation" by the time it reaches Chrysippus and later St. Augustine. He conceives that Zeno had no philosophical conception of *pneuma* and that with Cleanthes the notion starts to shed its empirical and medical origins under the influence of Plato. The idea of a universe pervaded by *pneuma* is for Verbeke developed out of Stoic psychology and argued for from the part to the whole. That is to say that the Stoics extrapolated their understanding of the cosmos from their understanding of human beings, rather than conceiving of the human being as a micro-cosmic expression of the cosmos or offering a two-way description of reality from whole to part and vice versa. The state of our evidence has meant that most studies which consider *pneuma* in Stoicism begin with an elucidation of the *scala naturae* and the different degrees of pneumatic tension determining the type of *pneuma* that exists within the bodies. *Pneuma* is called ἕξις in inanimate bodies like stones and bones, φύσις in things like plants which have the capacities for nourishment and

[3] Gerard Verbeke, *L'évolution de La Doctrine Du Pneuma, Du Stoicisme à s. Augustin : Étude Philosophique* (Paris: D. de Brouwer, 1945).

growth and ψυχή in animals which also have the capacities for sensation and impulse; the human *pneuma* has the added capacity for reason. From this description it is a natural step to take a particular interest in the role of *pneuma* in rational beings, which often takes the form of an examination of its role in sensation, for which we have explicit evidence. In this way the more recent scholarship follows a similar model to that of Verbeke in presenting the evidence for *pneuma* as a theory which is first and foremost psychological.[4]

Other studies present the purely physical side of our extant sources and these studies take the form of a discussion of the physical composition of *pneuma* as also its role as a pervasive and vitalising force in the cosmos.[5] As far as I know, there is but one study which is explicitly devoted to bridging the physical and psychological descriptions of *pneuma*.[6] The available examinations of *pneuma* are more often than not discussed within articles or book chapters which are focused on other aspects of Stoic theory and are not specifically directed towards the role of *pneuma* in Stoicism. A consequence of this is that we do not have any clear notion of the inner-workings of *pneuma*, let alone how well integrated it is with the rest of Stoic theory. Thus we encounter many

[4] Cf. esp. J. B. Gould, *The Philosophy of Chrysippus* (Leiden: Brill, 1970), 51–66; R. B. Todd, "Συνέντασις and the Stoic Theory of Perception," *Grazer Beiträge : Zeitschrift Für Die Klassische Altertumswissenschaft* 2 (1974): 251–61; Julia Annas, "Stoic Epistemology," in *Epistemology*, ed. Stephen Everson (Cambridge: Cambridge Univ. Pr., 1990), 186–87; Julia Annas, *Hellenistic Philosophy of Mind* (Berkeley: Univ. of California Pr., 1992), 65–68; Jean-Baptiste Gourinat, *Οι Στωϊκοί για την ψυχή [Les stoiciens et l'ame]*, trans. Κωνσταντίνος Ν. Πετρόπουλος (Athens: Kardamitsa [P.U.F.], 1999), 51–109.

[5] Cf. F. Solmsen, *Cleanthes or Posidonius ? The Basis of Stoic Physics* (Amsterdam: Noord-Holl. Uitg. Maats., 1961); S. Sambursky, *Physics of the Stoics* (London: Routledge, 1959), 1–7 & 21–48; Michael Lapidge, "Ἀρχαί and Στοιχεῖα: A Problem in Stoic Cosmology," *Phronesis* 18, no. 3 (1973): 274–77; David E. Hahm, *The Origins of Stoic Cosmology* (Columbus: Ohio State University Press, 1976), 61–71 & 157–74; Paul Hager, "Chrysippus' Theory of Pneuma," *Prudentia* 14, no. 2 (1982): 97–108; David N. Sedley, "Hellenistic Physics and Metaphysics," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe A. Algra et al. (Cambridge ; New York: Cambridge University Pr., 1999), 387–89; David Furley, "Cosmology," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe A. Algra et al. (Cambridge ; New York: Cambridge University Pr., 1999), 440–41; Michael J. White, "Stoic Natural Philosophy (Physics and Cosmology)," in *Cambridge Companion to the Stoics* (Cambridge: Cambridge University Pr., 2003), 134–36; Dorothea Frede, "Stoic Determinism," in *The Cambridge Companion to the Stoics*, ed. Brad Inwood (Cambridge ; New York: Cambridge University Pr., 2003), 185–87.

[6] David N. Sedley, "Chrysippus on Psychophysical Causality," in *Passions and Perceptions*, ed. Jacques Brunschwig and Martha C. Nussbaum (Cambridge: Cambridge University Pr., 1993), 313–31.

references to the obscurity present in our understanding of the inner workings of the *pneuma* both on a cosmological and psychological level. A few examples of this are to be found in Solmsen who says: "There being no fuller accounts, we must admit our ignorance regarding the details of the doctrine";[7] Hankinson who claims with regards pneumatic tension: "The actual mechanics of this are obscure";[8] Long who argues: "The Stoics have left us little to show what this means and how it is possible";[9] Scade who says: "However, exactly how this mechanism would act at either the higher or lower level remains obscure".[10] Other scholars, recognising the obscurity choose not to deviate their focus from their current topic of examination. For example Todd, considering that *pneuma* be studied in relation to the principles, says: "A more positive characterisation of the Stoic principles, which I do not attempt to offer here, would have to be based on such material".[11] Sedley, considering the Stoic theory of *pneuma* in relation to Platonic psychology, is more concerned with its causal aspect and says: "Leaving aside many issues associated with this doctrine, I shall turn directly to its causal implications."[12] There are of course many more examples but these comments should suffice to illustrate that we clearly have a severe gap in our understanding of the Stoic theory of *pneuma*. This state of affairs is in large part due to the state of our evidence but it also may be attributed to the absence of a more specialised study on the topic. Whilst my thesis presented here aims to explore what is to be found inside this gap, I do not claim to fill it but only to set the necessary groundwork for further examination.

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[7] Solmsen, *Cleanthes or Posidonius ?*, 19.

[8] Robert James Hankinson, "Explanation and Causation," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe A. Algra et al. (Cambridge ; New York: Cambridge University Pr., 1999), 482.

[9] Anthony A. Long, "Stoic Psychology," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe A. Algra et al. (Cambridge ; New York: Cambridge University Pr., 1999), 561.

[10] Paul Scade, "Stoic Cosmological Limits and Their Platonic Background," in *Aristotle & the Stoics Reading Plato* (Institute of Classical Studies, University of London, 2010), 157.

[11] R. B. Todd, *Alexander of Aphrodisias on Stoic Physics. A Study of the De Mixtione with Preliminary Essays, Text, Translation and Commentary* (Leiden: Brill, 1976), 34 n. 65.

[12] Sedley, "Chrysippus on Psychophysical Causality," 326.

The study of *pneuma* that I undertake is only secondarily aimed at describing the inner processes of *pneuma* and its emergence in Stoic theory. Its primary, and arguably more challenging, aim is to explore the methodological possibility of tracing some form of integration in Stoic theory. The complexity of the study and of the material makes it even harder to lay claim to success in this latter aim than in the former. In spite of this, the evidence does reveal some clear lines of integration both diachronically between heads of the school as also doctrinally within the Stoic system itself. The former pattern emerges most clearly in chapters two and six, whilst the integration of doctrine is more evident in chapters four and five. Chapter three details some of the problems in Stoic cosmology in relation primarily to fire and the cosmic *hegemonikon*. This sets the scene for understanding how the Stoics, *pace* Verbeke, extrapolated aspects of their psychological doctrine from cosmological processes and for showing that it is possible to talk of a bi-directional macrocosm-microcosm relation.

Methodological Caution

At this point a few remarks on what I am not doing in this thesis are appropriate so as to remove certain expectations at the outset. In setting out on this project I initially planned on using the Stoic theory of time to explore the integration of Stoic theory. In the course of my research I began to realise that the theory of time, despite being very interesting, was not ideal for my methodological approach of exploring said integration. This is because, partly due to our fragmentary evidence, the idea is not as pervasive in the Stoic system as I had at first thought. I therefore switched my focus to the theory of *pneuma*, which I had noticed in my research on the theory of time was a notion that was more fundamental for the Stoics and also more diverse. It was only with starting to research the Stoic theory of *pneuma* that I began to become acutely aware of differences between heads in the school. One scholar I encountered even emphasised the lack of a formalised Stoic school commensurate with that of the Academy for Academics, the Lyceum for Peripatetics or the Garden of the

Epicureans.[13] This brought into relief the individuality of each Stoic figure even further. I gradually became more conscious of the prevalence of Chrysippus in our approach to Stoicism. In modern scholarship we have a strong conviction that Chrysippus was the systematiser and most brilliant exponent of Stoicism, a so called "Pan-Chrysippeanism" trend.[14] The roots of this view runs back to contemporaries of Chrysippus who claimed that without him there would be no Stoa. Moreover, Carneades, the Academic, even claimed that without Chrysippus there would be no Carneades[15]. Having learned to admire Chrysippus' genius it comes naturally to downplay the role of earlier Stoics; this is partly due to the ancient commentators and partly to von Arnim's selection of Stoic sources which began with volume II attributing the sources to Chrysippus only later to regurgitate many of these for vol. I which was also actually the last to be published.[16]

The dominance of Chrysippus in areas of logic is paralleled with the dominance of Posidonius in areas of physics. Until the latter half of the 20th Century Posidonius had been credited with vitalising the Stoic cosmos, extending Cleanthes description of the inner heat in living organisms to the Cosmos itself. In the English literature this late attribution first started to be demolished with a paper by F. Solmsen,[17] which demonstrated that sections of Book II of Cicero's *De natura deorum* must be attributed to Cleanthes and not Posidonius as other scholars had claimed.[18] The idea that we

[13] Ivor Ludlam, "Two Long-Running Stoic Myths : A Central Orthodox Stoic School and Stoic Scholarchs," *Elenchos* 24, no. 1 (2003): 33–55.

[14] A term coined by John Glucker, "Stoics, Para-Stoics and Anti-Stoics: Methods and Sensibilities," *Philosophia* 31, no. 1–2 (2003): 221–324.

[15] D.L. 7. 183 and for Carneades 4. 62

[16] For shortcomings of *SVF* and a brilliant overview of scholarship on Stoicism cf. Glucker, "Stoics, Para-Stoics and Anti-Stoics" esp. 242-7.). See also Keimpe A. Algra, "Zeno of Citium and Stoic Cosmology: Some Notes and Two Case Studies," *Elenchos: Rivista di studi sul pensiero antico* 24, no. 1 (2003): 9–32. and Teun Tieleman, *Galen and Chrysippus on the Soul : Argument and Refutation in the « De Placitis » Books II-III* (Leiden: Brill, 1996), 136.

[17] Solmsen, *Cleanthes or Posidonius ?*

[18] A forthcoming and much-awaited volume on the philosophy of Cleanthes (the result of a workshop in Vienna organised by G. Karamanolis in 2015) will hopefully clarify and elaborate the progressiveness of this early Stoic head. Whilst Solmsen was reclaiming these arguments for Cleanthes *pace* scholars who had argued for a Poseidonian origin, Mansfeld responded by arguing that Solmsen was too liberal

might take much of earlier Stoicism for granted and attribute the greatest parts of it to Chrysippus was engraved on my mind, and I began to be cautious with giving credit to Chrysippus for the developments in Stoic theory. I started to pay closer attention to the attributions present in our evidence and gradually noticed that much of what Chrysippus expounded was already present in different form with the earliest Stoics back to the founder, Zeno. As a consequence I started to focus more on Cleanthes and Zeno and thus in this thesis I do not give a primary focus to Chrysippus.

At the same time I started to better comprehend how deeply and intricately the doxographical difficulties are involved in any study of Stoicism. I have tried, as far as I am able, to be extremely careful when using the source material and have avoided taking seemingly obvious things for granted. It is only after appropriating this caution that I divested myself of the initial fascination I had with the apparent connections that exist between Stoicism and Platonic and, particularly, Aristotelian theory. I now see these connections as being fraught with difficulties of their own and as far as possible in this thesis I have avoided making such connections. As I currently see it, it is near impossible to know how detailed was the Stoic study and understanding of Aristotelian and Platonic philosophy on specific points. My personal view is that the Stoics were both very influenced by their predecessors and themselves influential on the intellectual environment of the time. They clearly were philosophically well educated and had a high regard for all schools of thought. However, trying to prove direct points of contact for individual doctrines, without having explicit evidence, is a project in itself. Such things can be traced to an extent and much scholarly work, too

with his selections and specifies which passages can be attributed to Cleanthes with certainty Jaap Mansfeld, *The Pseudo-Hippocratic Tract [Peri Hebdomadōn.] : Ch. 1-11 and Greek Philosophy* (Assen: Van Gorcum, 1971), 86 ff. The latest argument regarding the extent to which the arguments should be derived from Cleanthes is to be found in A. J. Kleywegt, "Cleanthes and the 'Vital Heat,'" *Mnemosyne* 37, no. 1/2 (1984): 94–102.. Cf. also Jaap Mansfeld, "The Cleanthes Fragment in Cicero, De Natura Deorum II,24," in *Actus. Studies in Honour of H. L. W. Nelson* (Utrecht: Inst. voor Klass. Talen, 1982), 203–10, for a more focused account of the Cleanthean attribution than the in depth and elaborate one present in Jaap Mansfeld, *The Pseudo-Hippocratic Tract [Peri Hebdomadōn.] : Ch. 1-11 and Greek Philosophy* (Assen: Van Gorcum, 1971).

voluminous to list, has been done to bring out these connections.[19] The only works of which I am aware which specifically try to disenchant us regarding some of these connections are Sandbach's important monograph on Aristotle and the Stoics and a recent paper by Sellars which cautions against taking Plato's *Sophist* as influential in the Stoics' formation of their ontology.[20] Rejecting these influences on Stoicism is not so agreeable to many scholars and a direct riposte to Sandbach's sobering study is provided in Hahm.[21]

Arguably, attempting to understand Stoic theory based on such tentative connections acts as a diversion from the reconstruction of specifically Stoic theories, unless a clear dialogue between schools of thought is shown to have taken place.[22] These dialogic reconstructions work especially well for the *development* of a doctrine within the school but may fall short in so far as focus is removed from the doctrine itself in relation to the Stoic project, *viz*. the integration of ideas in their system. The result of this regarding my own approach is that I have focused primarily on what the Stoics have to say as also on the more isolated difficulties of our extant evidence. I have tried to see through Stoic, rather than Peripatetic or Academic, eyes and so I have not approached the material with the predisposition of seeing Aristotle or Plato there. There are of course weaknesses in this approach also, for there are clearly connections to be made with Plato and Aristotle which may very well elucidate and inform Stoic theory. As such, there is very little speculation or argument in this thesis regarding the influences of other traditions of thought on the Stoic philosophers. The first chapter on the division of philosophy is the only exception to this approach.

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[19] For Aristotle see esp. Hahm, *The Origins of Stoic Cosmology*.; for Plato cf. A.G. Long, *Plato and the Stoics* (Cambridge: Cambridge University Press, 2013).

[20] F. H. Sandbach, *Aristotle and the Stoics* (Cambridge: Cambridge Univ. Pr., 1985); John Sellars, "Stoic Ontology and Plato's Sophist," in *Aristotle & the Stoics Reading Plato*, ed. Verity Harte et al. (London: Institute of Classical Studies, University of London, 2010), 185–203.

[21] David E. Hahm, "Aristotle and the Stoics : A Methodological Crux," *Archiv Für Geschichte Der Philosophie* 73 (1991): 297–311.

[22] cf. esp. Mauro Bonazzi and Christoph Helmig, *Platonic Stoicism, Stoic Platonism : The Dialogue between Platonism and Stoicism in Antiquity* (Leuven: Leuven University Pr., 2007).

Methodology and Approach

In facing the challenges of our extant fragmentary material I have allowed the evidence to largely determine the direction which the thesis has taken. The evidence has prevented me from imposing a structure that explores the concept of *pneuma* in the three parts of philosophy (logic, physics and ethics). Instead I have explored certain themes as they appear in the evidence which roughly deal with aspects of the three parts of philosophy, but the corporeal nature of *pneuma* has meant that the examination has always occurred from the perspective of physics. As will be shown, there is a dearth of evidence for the term *pneuma* for Zeno and Cleanthes. However, we may clearly observe the processes which would later be appropriated into a theory of *pneuma* by Chrysippus. It is largely these processes, in the early school, on which I try to shed some light.

I have been examining Stoic doctrines often from sources which may not seem to be the obvious ones from which to begin a study of each relevant theory. Sometimes I may not even include a study of some of the well-weathered sources at all so as to avoid a creative re-expression of what has already been said; instead I refer the reader to the relevant sources and where discussion of these can be found in the modern secondary literature. My concern is with the aspects of the Stoic theory which are at the borders of what we already know or has been previously expressed. I have tried to show whenever I am aware of it if other similar discussions have taken place by other scholars.

My approach in handling the fragmentary material has been to treat the evidence contextually within the works in which they are to be found, so as not only to avoid (as far as possible) misrepresenting the evidence but also to try to observe the way the commentators chose to record and present Stoic theory. In this way certain trends emerge which I have recorded throughout the thesis: the chapter on nourishment in particular developed out of this approach when I was dealing with Stoic cosmology. In the course of examining the sources I have tried to disentangle terminology related

to *pneuma* which recurs in various forms and in mistaken usages across diverse works: the chapter on cognitive process largely grew out of this approach. In my study of the evidence, rather than actively trying to integrate Stoic theory I have allowed the integration to emerge naturally out of the exploration of the inner workings of *pneuma* in the evidence itself. In this way I hope to have offered an account that is not based on the "easy generalisations" of coherence (that Inwood's critique of this approach is aimed at) but rather on detailed evidence of how the Stoics integrated their philosophical system.

1. The Division of Philosophy

Introduction

Zeno the founder of Stoicism hailed from the Phoenician town of Citium on the South East coast of Cyprus. Being uniquely positioned between eastern and western civilisations and the son of a merchant, as a young man Zeno travelled the trade routes and no doubt experienced the cultural diversity of the Hellenistic world first hand. He was 11 years old when Alexander the Great, who had tried to unify the disparate cultures and traditions of the then known world, died. These early years of Zeno's life may be seen as formative with regards to his peculiar (to the philosophical tradition of the time) proclivities to advance a philosophy which was driven by a desire for systematicity, unity in diversity and harmony between doctrines.

Zeno arrived in Athens at the age of twenty two.[1] At this time the dominating philosophical schools of thought were the Academy, the Lyceum, the Cynosarges, and the Megarian school. The Cynics, being concerned primarily with *living* philosophically, did not impart much by way of written works, whilst only fragments survive from the Megarian school. Therefore, the works of Plato and Aristotle are probably the best place to start in order to establish some background to the division of philosophy in Stoicism. Zeno arrived on the philosophical scene at Athens two generations apart from Plato and one generation apart from Aristotle. The Lyceum and the Academy had become established institutions or centres for philosophical exploration. Within the Aristotelian and Platonic world view there is no elaborate evidence highlighting an interest or concern to study the relations that exist between diverse theories and philosophical doctrines. Instead we find a clear division, hierarchical in character, in which separate domains of philosophical enquiry are explored with dialectic and first philosophy being regarded as the epitome of

[1] According to Persaeus (D.L. 7.28). Diogenes Laertius (7.2) makes him thirty years old on his arrival. For more on Zeno's chronology and complications cf. n. 4 below.

philosophical thought.[2] Aristotle acutely observed that each science must develop its arguments from its own principles, taking into account the unique aspects of the object it considers and thus rules of precision cannot be expected in the domain of ethics in the same way as they can be for biology, due to the nature of the subject matter.[3] The apparently irreproachable assertion of Aristotle concerning different types of knowledge did not deter the Stoics from introducing a radically different methodology. Their methodological ingenuity springs forth from their innovations in metaphysical and ontological theorising; for no longer does the 'essence of things' dominate in the understanding of reality as in Plato and Aristotle. Instead, they focus on the reciprocity that exists between things, making the individual corporeal item central. This philosophical manoeuvre strategically adopts Plato's definition of 'being' in the *Sophist*. Plato (using the Eleatic visitor as mouthpiece) defines being as 'that which acts and is acted upon'. This definition is part of Plato's polemic against the materialists who deny the existence of things like soul, justice, mind etc.; in defining 'being' thus he shows not only that incorporeal entities must exist but also that these are the entities which are permanent, which persist unchangeable through time, for they are not part of the immersed reality of material becoming that is doomed to generation and destruction (cf. *Sophist* 246a-248b). Zeno, then, happily accepts Plato's definition of being but expands the horizons of the material making Plato's incorporeal mind, soul and justice into corporeal things and thus redefining the philosophical framework that is essentially attached to such a notion. That is to say that there is a shift from viewing being and becoming as essentially different realities of the same world (even if the latter is ontologically dependent on the former), to viewing the world as pure becoming or process. The Stoics are often regarded as followers of Heraclitus for this reason, whilst in turn Alfred North Whitehead's process philosophy has sometimes been compared to Stoicism. However, the Stoic bend on this theme is determined by their definition of body as acting or being acted

[2] This is discussed in more detail further down: p.21-24.

[3] Aristotle *Nicomachean Ethics* 1094b11-26

upon; for in this way all becoming is mutual interaction, with the two principles of the active and passive cause underlying all things.

This brief excursus on the radical shift implemented by the Stoics on the philosophical tradition divulges a key towards understanding the Stoic description of both the cosmos and philosophy as living organism. A gateway is thus opened which leads onto the fields of the Stoic philosophical project as well as their methodology which lies at the heart of this. The infinite diversity that exists in a reality of becoming is part of the appeal of Stoicism. Yet, true to the Hellenic spirit and tradition there is a certain aesthetic that lies behind the Stoic view; for they are not willing to accept entropic states of disorder that are generally considered to invariably arise out of ever increasing difference. It follows that the Stoics do not accept a disparity or conflict to exist between the parts that make up the whole and thus their philosophical project is one in which coherency of doctrine adopts a role of primacy. So, to return to the shift the Stoics implemented from Aristotle's approach, not only is coherency within a specific field a measure for its effectiveness and accuracy, but, unless a theory is found that can claim coherency within and between diverse fields, then the system of thought is flawed. It is in this way that the notion of a philosophical system is introduced by the Stoics and their division of philosophy is to be understood along these lines.

Origins and Development of the Tri-partite Division of Philosophy

The tri-partite division of philosophy into the three sciences of logic, physics and ethics permeates the history of philosophy; it is widely accepted as the most generic and exhaustive division of philosophy. Kant in the preface to his *Groundwork for the Metaphysics of Morals* appropriates this division adding that "one cannot improve upon it".[4] Whilst Kant views the division as being characteristic of Ancient Hellenic

[4] cf. Kant in his introduction to *Groundwork for the Metaphysics of Morals*, ed. Allen W. Wood and Jerome. B. Schneewind (New Haven: Yale University Press, 2002), wherein he accepts the tripartite division as acceptably comprehensive.

philosophy, the biographer Diogenes Laertius (3rd century CE) claims that it is Zeno of Citium, the founder of Stoicism, who was the first to make this division (D.L. 7.39). Despite the fact that the Stoic school was certainly the greatest exponent of the tri-partite division and is most likely responsible for initiating its historical impact, the tri-partite division seems to pre-date them. It is not always clear whether the division is imposed on earlier thinkers retrospectively or whether such a division may be explicitly extracted from the philosophical tradition that precedes the Stoics. Nevertheless, there is evidence to suggest that the origin of the division should be attributed to one of Zeno's mentors from within the Academy.

Sextus Empiricus the Pyrrhonian sceptic philosopher and physician (ca. 160-210 CE) claims that it was Xenocrates (396/5-314/3 BCE), the heir of Speusippus and third head of the Academy, who first divided philosophy into logic, physics and ethics. After studying with Crates the Cynic for 10 years Zeno turned to the teachings of Xenocrates for a further 10 years.[5] It is clear that these decades were formative for Zeno's own brand of philosophy and no doubt during his time with Xenocrates he was also developing into an independent thinker. It is, therefore, quite likely that it is during his time with Xenocrates that he developed the idea of a tri-partite division of philosophy.[6] When Sextus speaks of the origins of the threefold division he claims in

[5] During this time Zeno became acquainted with Polemo, Xenocrates' successor, and also studied with Stilpo of the Megarian school. Cf. also Cicero *De Finibus* 4.2

[6] There is dispute about whether it is possible for Zeno to have attended any of Xenocrates' lectures due to the chronological difficulty: see Hahm, *The Origins of Stoic Cosmology*, 223–26; Sandbach, *Aristotle and the Stoics*, 13.. For more on the chronology of Zeno see Alfred Chilton Pearson, *The Fragments of Zeno and Cleanthes* (Cambridge: Cambridge University Press, 1891), 1–3; C. B. Armstrong, "The Chronology of Zeno of Citium," *Hermathena : A Trinity College Dublin Review*, 1930; Tiziano Dorandi, "Chronology," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe A. Algra et al. (Cambridge ; New York: Cambridge University Pr., 1999), 31–54. It is not always easy to corroborate the evidence in Diogenes Laertius with regards to chronological events. Diogenes does not give us a date of birth for Zeno but only that he came to Athens at thirty years of age (D.L. 7.2), and that he was ninety-eight when he died. Neither is the date of Zeno's birth expressed in the evidence outside of Diogenes Laertius. Instead, it has been calculated at around 334/3 BCE based upon the account of his age at his death, which according to Philodemus (Phld. *Stoic. Hist*., cols. 28–9; Phld. *De Stoic*., cols. 1–8) is said to have occurred during the archonship of Arrheneides (262/1). Diogenes Laertius makes Zeno ninety-eight when he died, Persaeus in Diogenes Laertius makes him seventy-two, others in Phld. *De Stoic*., col. 5.9 make Zeno live to be one hundred and one. If the evidence for his death is correct this could make the possible

the same passage that it exists implicitly (ἐν δυνάμει) already in Plato (*M* VII.16). This may be corroborated with a passage from Diogenes Laertius (3.56) who describes a development in philosophy similar to that which existed in tragic theatre.

> Just as long ago in tragedy the chorus was the only actor, and afterwards, in order to give the chorus breathing space, Thespis devised a single actor, Aeschylus a second and Sophocles a third, so too with philosophy in early times it discoursed on one subject only, namely physics, then Socrates added the second subject, ethics, and Plato the third, dialectics[7], and so brought philosophy to perfection.

It is clear that the interpretation in this passage is imposed by the later tradition in an attempt to show the tri-partite division as one which was led up to. It is arguable whether Plato himself ever took an interest in organising the structure of philosophy. The works of Plato and Aristotle, through their historical journey, have been organised in multiple ways by commentators, translators and pedagogues. The divisions that have resulted from these organisational efforts are often claimed to be inherent within the works themselves, yet the divisions are mostly developed out of

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date of Zeno's birth 360 or 334 or 363 BCE. The widely accepted date for Zeno's birth is 334 BCE based upon the evidence of Persaeus corroborated with that of Philodemus. If we are to accept Diogenes' remark that Zeno studied under Xenocrates for ten years then the date of his birth at 334 BCE must be inaccurate. Scholars who have rejected any meeting occurring between Zeno and Xenocrates have done so because of accepting the standard date of Zeno's birth, which would make him arrive in Athens either at 312 BCE (if we corroborate the evidence from Persaeus) or 304 BCE (if we follow Diogenes Laertius), that is to say that Xenocrates who died in 312BCE would have barely had any opportunity to meet Zeno. We should not readily accept Zeno's birth date as 334BCE. If we corroborate the other evidence, Apollonius (D.L. 7.28) says Zeno presided over the school for 58 years, which means he must have set the school up in 320 BCE; if we add the 20 years of study under Crates, Xenocrates, Polemo and the Megarians and his being 22 years of age on his arrival at Athens, this would make his date of birth to be 363 BCE, which would correspond with the account that Zeno lived to be one hundred and one. The main reason I can see for accepting the less plausible date of 334BCE is that it seems like one hundred and one is a very old age even for contemporary life expectancies. Yet, the majority of the evidence points to an earlier birth and a death at an older age. It should be noted that living to one hundred was not so rare for many of the philosophers according to our testimonies, which need not be enumerated in this footnote. It is well to remember that Socrates was put to death at the age of seventy, part of the tragedy being that his time came too soon.

[7] Hadot makes the salient observation that logic is not used as a part of philosophy in any Platonic or Aristotelian book. The use of the word logic (τὸ λογικὸν μέρος) in later terminologies just goes to show the influence of Stoic vocabulary "Les Divisions Des Parties de La Philosophie Dans l'Antiquité," *Museum Helveticum* 36, no. 4 (1979): 201–23.

a desire to form an ordered philosophical curriculum out of the works of the great philosophers.[8] Therefore, for chronological accuracy regarding the development of ideas that would later influence much of western philosophy, we would do well to ask the following questions. What can be said about Plato and Aristotle's own attempts to organise their works? Did they view philosophy as having an inherent structure or as requiring certain organisational divisions?

It appears that both Plato and Aristotle held some idea on how they would have divided philosophy. The Platonic system, as examined within its temporal and philosophical context embraces a limited bipartition into (a) physics and (b) ethics. The reason why this bipartition may be thought to exhaust the subject matter of philosophy becomes clear only when related to the philosophical thought of Plato. This typology excludes the division of works into "logical" parts as it is discerned that these are integrally tied to ethics, considered as virtues and studied as a part of ethical education.[9] In Plato's *Statesman* we encounter a bi-partite division of knowledge into the practical and the theoretical.[10] Within this division there is a clear hierarchy; the theoretical, which deals with knowledge in itself, is higher than the practical, which is knowledge of technical expertise, for example in manual tasks like manufacturing and carpentry. In the *Republic* it is only those who are of a dialectical nature that have the capacity to achieve a unified vision.[11] Such a capacity is described, in the *Timaeus* (29b-d) as one which is attached to a second type of *logos.* One type of *logos* is concerned with the sensible world, which, due to its impermanence, yields only opinion (*doxa).* It is only by relinquishing the senses that one may reach an understanding of the second type of *logos,* that is to say of the intelligible world and thus obtain knowledge

[8] For a detailed discussion of this see Ilsetraut Hadot, "L'organisation de l'enseignement Philosophique à l'époque Impériale," in *Arts Libéraux et Philosophie Dans La Pensée Antique* (Paris: Vrin, 2005), 411–29.
[9] David N. Sedley, "Plato's Theaetetus as an Ethical Dialogue," in *Ancient Models of Mind : Studies in Human and Divine Rationality*, ed. Andrea Wilson Nightingale and David N. Sedley (Cambridge ; New York: Cambridge University Pr., 2010), 64–66.
[10] Plato *Statesman* 258e
[11] Plato *Republic* 537c

(*epistêmê*).[12] Although this bi-partition dominates Plato's work, in the *Cratylus* one may discern an embryonic tri-partition into physics, ethics and logic, which gives credence to Sextus' claim that the tri-partition exists already in Plato implicitly. Such a division may only be said to be implicit as Plato speaks of cosmology (physics)[13] on the one hand and ethics (411a–c) on the other; logic (or rather dialectic), being an intellectual virtue, appears only as a sub-division of ethics.[14]

The Aristotelian classifications of knowledge correspond to essentially Platonic methods of division and to typically Academic conceptual structures. The Aristotelian division of the sciences is conceived as threefold, consisting of the theoretical, practical and productive sciences with their sub-divisions. Aristotle's originality lies in replacing Platonic dialectic with the supreme or First science. For Aristotle the practical and productive sciences are inferior to the theoretical sciences because they refer to a contingent object viz. human action, while First science relates to being (οὐσία).[15] In a famous passage in the *Topics* (105b19) Aristotle distinguishes between ethical, physical and logical propositions, yet this division does not correspond to his division of the sciences into practical, productive and theoretical (*Metaph.* 1025b25).[16] If the threefold division of philosophy be applied to Aristotle we encounter the problem that the sciences are separate, yet logic is utilised in both ethics and physics in a purely formal way and is thus not an independently designated discipline in itself. Indeed, this became a problem during late antiquity and particularly in the medieval period where a dispute was sparked between those who would only accept logic in

[12] This bi-partition has exercised a lasting influence on philosophy with the development of the idea of pure reason.

[13] Plato *Cratylus* 397c-401c

[14] For a more detailed study of this in Plato's *Cratylus* cf. David N. Sedley, *Plato's « Cratylus »* (Cambridge ; New York: Cambridge University Pr., 2003) esp. ch.7 §5.

[15] Aristotle *Metaphysics* 982a26-982b10; cf. also 1025b-1026b32; *Physics* 193b22 ff.; *De Partibus Animalium* 639a1 ff.

[16] It should be noted that the division in Aristotle's *Topics* may reflect early Academic practice and predates Aristotle's own later division as found in *Metaphysics* (I am grateful to Teun Tieleman for this point). For more on why this division should not be understood as applying to philosophy see Hadot, "Divisions," 207–8; Katerina Ierodiakonou, "The Stoic Division of Philosophy," *Phronesis* 38, no. 1 (1993): 57–74 n.3.

Aristotle as an instrument of philosophy and those, presumably following Stoic influence, who viewed it as a part. The prevalence of logic as an instrument of philosophy is emphasised by the fact that the Aristotelian division into theoretical, practical and productive sciences would later be extended by the commentators to include the propaedeutic part or "Organon" (a study of the *Categories*, *de Interpretatione*, *Topics* and the *Prior* and *Posterior Analytics*). Moreover the clearly hierarchical nature of the Aristotelian division is perhaps one of the greatest contributing factors for the survival of many of Aristotle's works from antiquity. This is because the hierarchy proved itself useful in succeeding centuries for relating the science of philosophy to the doctrines of theology.[17] We cannot know with certainty how Aristotle and Plato would have chosen to organise their work for this project was one that occurred mainly after their deaths by commentators and other philosophers who were driven by the need to organise the large body of work which they inherited. Yet, as we have seen it is possible to form an understanding of the character of the conceptual structure they developed, which is essentially hierarchical.

The Stoic division of philosophy is unlike the divisions we find in Plato and Aristotle. Though it is tripartite into physics, ethics and logic, the character of this division and its relation to philosophy is fundamentally different. The Stoics are set apart from their predecessors due to their innovations in metaphysics and in how philosophy itself is understood as having an inherent structure. It is clear that the tri-partite division of philosophy takes on a more significant countenance with Stoicism.[18] More than this

[17] This also played an integral part in the bifurcation of philosophy and science. The theoretical sciences of physics (the objects of which are material) and metaphysics (the objects of which are immaterial) became segregated from one another in perceiving that they do not even utilize the same cognitive faculties. This epistemology evolved into an independent exposition of the sciences creating an unbridgeable gap between sensation and intellection. In understanding the conceptual relations between the philosophies and the sciences we can already perceive one of the possible origins of the separation. The "epistemic gap" between the various knowledge structures came to define fundamentally disassociated methodologies, which cannot be integrated.

[18] By Sextus' time (2nd Century C.E.) the tripartite division of philosophy into physics, ethics, logic was a given cf. *Outlines of Pyrrhonism* 1.18 also Ps. Galen, *On the History of Philosophy*, 6, 603 2-14 (Diels.). It was also a division that was presumably followed by commentators in the doxographical tradition see

though, it also exercised a certain charm on the history of philosophy. This may very well be due to some imaginative analogies, which help to embed the division in our minds:

> Philosophy, they say, is like an animal, Logic corresponding to the bones and sinews, Ethics to the fleshy parts, Physics to the soul. Another simile they use is that of an egg: the shell is Logic, next comes the white, 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.[19]

Here Diogenes does not distinguish the analogies as belonging to certain Stoics but speaks of them as being generically Stoic. Further down we will see that certain Stoics did prefer certain analogies over others.[20] In our descriptions of these analogies Logic is always described as the fortification or structure which supports the orchard, the egg, the animal or the city. When it comes to Physics and Ethics, however, depending on the Sextus passage or the Diogenes Laertius passage, they are interchangeable. It may be that the analogy reflects the type of way each part was viewed to be connected to the other, according to each Stoic. Individual Stoics must have placed different emphasis on Physics and Ethics or at least viewed their roles as different or interchangeable. It would be a mistake to assume that this would also imply a greater significance or priority being applied to one part over another, for it is self-evident in the analogies that each part is a necessary condition for the existence and functioning of the whole.

Jaap Mansfeld, "Sources," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe A. Algra et al. (Cambridge ; New York: Cambridge University Pr., 1999), 21.

[19] Diogenes Laertius 7. 40

[20] The garden simile may well pre-date the Stoics cf. *SVF* 2. 39 and 2. 40. Ierodiakonou claims that "the most important argument in favour of the view that the garden simile is not specifically Stoic comes from the analysis of the simile itself. For according to the garden simile… the interrelation of the parts of the garden, and consequently, that of the three classes of philosophical theorems seems to be extremely loose", "The Stoic Division of Philosophy," 72.

This is emphasised when we distinguish what sets Stoic metaphysics apart from Plato and Aristotle. Concision rather than elaborate argument will be more useful at this point in order to form an idea of the basic differences. Plato's ontology of being and becoming, otherwise expressed as a distinction between Forms and particulars corresponds to an epistemological distinction between knowledge and belief. On a practical level this dual ontology and epistemology accounts for Plato's tri-partite soul (the reasoning part, the spirited and the appetitive); for only the logical part may comprehend the intelligible world of Forms, the appetitive part is immersed in the world of particulars whilst the spirited acts as a mediator between the two. In a just system there is a proper order of progression or subordination with the appetitive at the bottom and the logical at the top. In a similar fashion Aristotle's metaphysics is concerned with the *essence* of things which cannot be known using inferior sciences like the practical and productive, but only with the theoretical. Stoic psychology asserts that the substance of the soul is unitary, single.[21] In congruity with this unitary schema, the groundwork of Stoic metaphysical beliefs depends on thinking of the world in terms of pure relations between things. That is to say, rather than focusing on an inherent hierarchy in their ontology they are more concerned with the simple interaction that exists in order to explain the harmony and unity that exists between bodies. Thus, their ontological genera (the so-called Stoic categories) are devised according to their capacity for interaction with and reception of the environment that surrounds them. With the Stoic innovations in metaphysics there exists a complete interpenetration of corporeal reality, which makes a hierarchical conception of the parts of philosophy, in Platonic or Aristotelian style, an impossibility. That is to say that there is a symmetry in the architectonic of their system, which is necessarily absent in Plato and Aristotle.

[21] See e.g. Galen, *PHP* 4.1.6

Contemporary Literature

The best way to understand the role of individual parts within the Stoic system is to have a strong grasp on the background of the Stoic concept of their philosophical system and its division into parts. In the English scholarship the role of and relation between the parts is a hotly debated topic, but when it comes specifically to the Stoic division of philosophy there is but one detailed study.

In her paper on the Stoic division of philosophy Katerina Ierodiakonou clarifies some important features of how the Stoics divided philosophy and what this may have meant for the philosophical system. Diogenes Laertius (7.39) tells us that the parts of philosophy were treated in terminologically different ways by different Stoics. The traditional term μέρη was abandoned in favour of τόποι by Apollodorus and εἴδη by Chrysippus and Eudromos. Ierodiakonou gives a convincing analysis of how different terminological use corresponds to an alternative approach towards the unity of philosophical discourse. There is a distinction between διαίρεσις (division) and μερισμός (partition), which Ierodiakonou argues conforms to what is meant by the use of εἶδος and τόπος in the Stoic system. The table I have made below describes the character of these differences according to the sources.[22]

διαίρεσις	**μερισμός**
εἶδος	τόπος
e.g. Chrysippus, Eudromos	e.g. Apollodorus
Division is definite in number and should not fail to list all species	Partition is infinite and failure to enumerate all of them is acceptable if not unavoidable
The number of the species belonging to a genus is well-determined	The number of the parts may be indefinite

[22]It should be noted that although these characteristics are quite plausible from the source evidence, they are reconstructed from a general discussion of the Stoics regarding division and partition and not directed specifically to the Stoic division of philosophical discourse. In addition some of the features of εἶδος and τόπος can only speculatively be applied to the Stoics.

The species share the characteristics of the genus	The parts do not share in the characteristics of the whole
The species are not indispensable for the existence of a genus	The parts are indispensable for the existence of the whole

When these distinctions are applied to philosophical discourse Ierodiakonou concludes that: "the Stoics who used the term τόποι viewed philosophical discourse as a unitary discipline divided in parts which correspond to different areas of knowledge; on the other hand, the Stoics who used the term εἴδη stressed the fact that each part of philosophical discourse shares with the rest common theorems but from different perspectives. That is to say, that the term εἴδη represents a Stoic approach which views the philosophical discourse as a plurality of independent parts which are united as far as they all share the same theorems from different perspectives, whereas the use of the term τόποι implies another Stoic approach which views the philosophical discourse as a unitary whole divided into interdependent parts which deal separately with a portion of the philosophical theorems".[23]

The significance of Ierodiakonou's study becomes clearer in the context of a heated debate that has developed in recent years about the relation between the parts in Stoicism. The debate is split into two camps with one side arguing for the contingency of the intellectual connection between the parts in Stoic philosophy and thus claiming that Stoic theses can be studied based on individual merit.[24] The other side argues that Stoic theses are necessarily linked with each other and as such are integral to elucidating and informing Stoic theory.[25] The debate is well-established and subtly

[23] Ierodiakonou, "The Stoic Division of Philosophy," 67.

[24] Annas, *Hellenistic Philosophy of Mind*, 160–65. and "Ethics in Stoic Philosophy," *Phronesis* 52, no. 1 (2007): 58–87.; T. Engberg-Pedersen, "Discovering the Good: Oikeiosis and Kathekonta," in *The Norms of Nature. Studies in Hellenistic Ethics*, ed. M. Schofield and G. Striker (Cambridge: Cambridge Univ. Pr., 1986), 149–50.; Terence Irwin, "Stoic Naturalism and Its Critics," in *The Cambridge Companion to the Stoics*, ed. Brad Inwood (Cambridge ; New York: Cambridge University Pr., 2003), 346.

[25] Anthony A. Long, "The Logical Basis of Stoic Ethics," (135–47) and "Dialectic and the Stoic Sage," (101-3) in *Stoic Studies* (Cambridge ; New York: Cambridge University Pr., 1996); Gábor Betegh,

nuanced in its details but more generally we may cultivate an essential understanding of the central themes and the direction in which they lead. According to Ierodiakonou's distinctions it would appear as though the modern debate can be set to represent the different Stoic approaches with the camp arguing for the intellectual contingency of the parts representing a division of the εἶδος type, whilst those arguing for the intellectual necessity of the parts agree with a partition of philosophy into τόποι. Interestingly, the exponents on either side of this debate rarely make reference to the details of the Stoic division of philosophy or the structure of their system. In neglecting this important aspect, their arguments, as they are developed in their studies, often prove to be insufficient to reach any persuasive conclusions.

I turn now to a more detailed description of either side of this debate. Betegh's paper on 'Cosmological Ethics in the Timaeus and Early Stoicism' (2003) is the most representative of the τόπος version in general. From the title it is clear that Betegh is concerned primarily with the relation between physics and ethics. Indeed, a characteristic in this debate is often that logic is altogether left out of the discussion. Betegh in this paper is responding to some of the arguments presented by Annas a decade earlier (1992). The goal of Betegh's paper is twofold: (i) to show that Stoic Ethics is founded on their cosmological beliefs and (ii) to describe how they derived this relationship from arguments in the *Timaeus*. The thrust of his argument is grounded in the Stoic theory of the *telos*, according to which the fulfilment of human life is "to live according to one's experience of what happens by nature" (D.L. 7. 87). This affirmation is taken as proof that in Stoicism knowledge of physical and cosmological processes is pre-requisite to understanding the causal structure of the cosmos and thus of ourselves. The value of such knowledge extends beyond scientific

"Cosmological Ethics in the « Timaeus » and Early Stoicism," in *Oxford Studies in Ancient Philosophy (OSAP)*, ed. David N. Sedley, vol. 24 (Oxford: Oxford University Press, 2003), 273–302; Brad Inwood, *Ethics and Human Action in Early Stoicism* (Oxford : New York: Clarendon Press, 1985), 212–15.; John M. Cooper, "Eudaimonism, the Appeal to Nature, and '"Moral Duty"' in Stoicism," in *Reason and Emotion : Essays on Ancient Moral Psychology and Ethical Theory* (Princeton (N.J.): Princeton University Pr., 1999), 439–44.

curiosity of knowledge for its own sake but has an ethical dimension in that the knower reflects the known and as such may attain the *telos* of harmonising oneself with nature. To this extent, according to Betegh, cognitive psychology is a sub-discipline of Physics and not of Ethics as may also be gleaned from D.L. 7. 156-7 where the nature of the soul as *pneuma* comes after a discussion on meteorology and geography. There is a plethora of source evidence, which may be found in the studies of the exponents of this side of the debate. The explicit nature of the evidence is itself a compelling enough argument to support the view that physics is foundational for ethics in Stoicism. However, this evidence also is weak on the details, which may only be explored implicitly from what survives of Stoic theory. This is problematic and will attract the polemic of Julia Annas to whom we now turn.

Annas is probably the most outspoken advocate of the εἶδος version and she dexterously supports this view in her paper *Ethics in Stoic Philosophy* (2007). She directly criticises the supporters of the opposing view that knowledge of one part is necessary to understand and utilise any other part of philosophy in Stoicism. Annas' criticism is forceful and her own position is strongly defined. She is one of the few scholars who has taken into account Ierodiakonou's paper on the division of philosophy and in so doing her presentation of the debate is more comprehensive in relation to the Stoic system as a whole. In her argument Annas wants to be clear that physics and ethics are distinctively different parts of philosophy. Those who are of the view that physics is a necessary condition for ethics use a gamut of sources to support their view. Amongst this evidence, along with the standard teleological argument discussed above, is the very general notion that an understanding of the providence of the cosmos offers a more holistic view with regards to any suffering one may experience. That is to say, to understand the causal and necessary link between events is to embrace one's life and circumstances. Further evidence utilised is that Chrysippus is often said to have begun discussion on ethical issues with reference to physical doctrines as well as a passage which simply says that Stoic physics is

foundational for ethics (D.L. 7. 87-88). The evidence, compelling though it might be, is, according to Annas, inadequate for supporting a strong view that physics is foundational for ethics in Stoicism. She insightfully argues that this strategy is problematic in that it misapprehends an essential aspect of the Stoic system. That is, that if we regard physics as the foundation for ethics, we are introducing a hierarchy between the parts in Stoicism, which involves an important asymmetry in one part of the system and in one part only, which implies that the foundation is more important than what it grounds. Annas is convinced that a proper understanding of ethics can, from her point of view, be had purely from its own principles. Any explicit integration that exists between the parts in the Stoic texts is lacking in detail and offers only a synoptic perspectival standpoint from the side of the subject and therefore is ethical in nature. A necessary philosophical integration is thus absent from Stoicism. Annas' strategy is aimed at removing the notion that there is any priority of parts in the Stoic system and arguably this is a necessary point to make. The way she hopes to achieve this is to give each part self-sufficiency. With a perspectival integration of the parts rather than a philosophical one, the system's structure allows for a part to be whole in itself. The relations between the parts thus attain a reduced role in that they function only contingently to help to enrich and illumine our understanding of individual parts rather than to actually interact in such a way as to inform the other parts.

In the early 90's Hadot produced the most general overview of the Stoic system of philosophy in relation to its division into parts. The great strength of Hadot's analysis is the insight he provides into the basic character of Stoicism. This study is contrary to much of the scholarship that has taken place in the Anglo-Saxon tradition which focuses primarily on the differences and distinctions amongst the Stoic heads and their theories across the school's lifetime.[26] Interestingly, it is a study which has also been

[26] In relation to the succession within schools of thought, Mansfeld regards the emphasis on different historical periods as the prevailing model in modern scholarship, whilst the ancients more often than not emphasised continuity: Mansfeld, "Sources," 24.

totally ignored in the heated debate of the relation of the parts in the English scholarship. Hadot accepts a strong reading of the coherence of the Stoic system, which by its nature follows a sort of fundamental intuition of the requirement for absolute coherence. This requirement is expressed as consistency across and within the philosophical division. A consistency of thought with itself, of the will with itself and of the universe with itself.[27] Annas, in her study, persuasively argued against the foundationalist approach of those who would ground Stoic ethics in physics because of the inevitable asymmetry between the parts which arises and which is against the character of Stoicism. Likewise, Hadot claims that the Stoics refused to privilege a part of philosophy to the detriment of others; however, he extrapolates an entirely opposite view to Annas. That is to say that (i) no part is eminent over another, (ii) no part precedes another and (iii) all parts are mixed together. It is (iii) on which Annas and Hadot maintain polarised views. If we turn to the evidence there are only a few explicit claims for the blending of the parts of philosophy in Stoicism and maintaining such a position is made more difficult by the fact that we also have explicit claims for the opposite view, that is to say that the parts are separate entities.[28] A consequence of this state of affairs is that, without a detailed analysis of the Stoic theories themselves, it is possible to argue effectively from both Annas' and Hadot's position, basing our interpretations solely on an implicit understanding of Stoic philosophy.

For Hadot, since the explicit evidence regarding the blending or non-blending of the parts is to be found in relation to the educational curriculum of the Stoics, it should be understood as holding interpretive value only for the educational curriculum. Indeed, he argues that the evidence on the educational curriculum in Stoicism demonstrates that establishing an order between the parts was a topic of much discussion within the Stoic school in contrast to Plato and Aristotle who, themselves, never remark on

[27] Pierre Hadot, "Philosophie, Discours Philosophique, et Divisions de La Philosophie Chez Les Stoïciens," *Revue Internationale de Philosophie* 45, no. 178 (1991): 216.

[28] An example of this is the Stoic Ariston of Chios, who, despite focusing solely on ethics and rejecting both logic and physics, could still lay claim to the title of 'Stoic', albeit a renegade one.

the problem of whether it is better to study the ethical before the physical or vice versa. Hadot distinguishes two kinds of educational programmes, which affect the temporal ordering of study of the parts. These are: (i) the logical ordering; that is to say, the order to be put between the various concepts and (ii) the psychological ordering, necessary to convey the theories espoused to the listeners for them to be received in the most effective way.[29] For Hadot when Plutarch accuses Chrysippus of putting both physics and ethics first at different times, this is because of the different sorts of educational programmes that can be chosen: in the logical order of exposition physics is taught before ethics; in the psychological exposition ethics is taught before physics. Hadot's primary focus is on the Stoic division of philosophy as it appears in the analogies and in the evidence regarding the varied ordering of the parts. In this respect his study excludes some useful evidence regarding the systematicity of Stoic philosophy. Nevertheless, it is rather insightful and offers a refreshing perspective on Stoicism as a coherent school rather than as a disparate lineage of Stoic heads. He argues his case that Stoicism maintains a small number of fundamental principles, which act as theoretical principles serving as a starting point for what we call the Stoic system.[30] The intuition for consistency that exists in Stoicism enables the system to be worked out with variations by different advocates of Stoicism. This can, according to Hadot, legitimately lead to a lack of unanimity in the school. So, although theoretical discourse is not totally absent from Stoicism, it will not question the fundamental dogma but will instead seek only the best methods of demonstration and of systematisation of dogma. It is worth quoting a small passage in which Hadot summarises the general unity that exists between logic, physics and ethics:

> We can say the systematisation of Stoic discourse is meant to first obtain a total and comprehensive explanation of all reality [physics], but with an unwavering small group of principles, strongly

[29] Hadot, "Philosophie, Discours Philosophique, et Divisions de La Philosophie Chez Les Stoïciens," 210.

[30] Kidd argues for a very similar understanding of Posidonian Stoicism "Philosophy and Science in Posidonius," *Antike Und Abendland* 24 (1978).

> articulated together, which on the one hand give this systematisation greater persuasive force [logic] and on the other hand enables the philosopher to navigate the world [ethics].[31]

There is of course a danger with Hadot's reading, for detailed analyses of individual theses are simply absent in his study in favour of perceiving the general patterns within Stoicism. Arguably, there is a limit in a study of this size to offering such an analysis and in its general appraisal of Stoicism his case is a compelling one, which has regrettably been overlooked in the debate on the relations between the parts in Stoicism.

Clearly there is no consensus regarding the nature of the Stoic philosophical system and thus also of the types of relations that exist between the parts. The natural intuition that one invariably develops when reading Stoic texts is that their system of philosophy is characterised by its coherence and integrity. Indeed, this is the claim that the Stoics themselves make, and the majority of scholars would accept the idea of the unity of Stoic philosophy on principle, albeit accepting the integrity to lesser or greater degrees. Yet, as some scholars argue and as Annas persuasively shows, this view is often taken for granted and the arguments in support of it are not adequately examined or supported in connection with the limited evidence. The question that remains then is whether the state of surviving evidence makes it possible to support a reading of Stoicism where coherence between theses is an integral part of their system or not.

The Stoic System

It is my intention to show that it is possible to successfully argue for the integrity of the Stoic system and indeed even for a strong account of the said integrity based on the surviving evidence. I have already suggested that one of the deficiencies of the accounts hitherto has been a failure to take into consideration what the Stoics have to

[31] Hadot, "Philosophie, Discours Philosophique, et Divisions de La Philosophie Chez Les Stoïciens," 216.

say about the division of philosophy and the nature of division more generally. The basic hypothesis is that along with a study of the division of philosophy we can corroborate what the Stoics say about philosophy itself to build a solid foundation on which to ground a more detailed examination of the integrity of the Stoic system in later chapters. What is important at this stage is to clarify a few points of what can be meant by a system of thought and what can be extrapolated from the sources in order to formulate an understanding of what is meant by the Stoic 'system of thought'.

In studying the philosophy of antiquity from the approach of history of philosophy we speak of 'schools of thought'. Underlying this notion is the conception that there is something that can be said to be unitary in each school which makes it possible to speak of Academics, Peripatetics, Skeptics, Megarians, Epicureans, Stoics etc. as separate and distinctive. In this sense a school of thought is seen to have its own systematic world view and we can thus speak of a school of thought and a system of thought synonymously. A second way of viewing philosophy in antiquity as systematic is in the way it was used by later paedagogues to teach the thought of a certain philosopher and the way in which philosophy was later divided and organised into themes or sections for ease of transmission regarding philosophy as curriculum. These first two perspectives on 'system of philosophy' are the dominating ones and the ones which can readily be applied to most of philosophy in antiquity after Plato. A third view is one which is distinctive of the Hellenistic period and most clearly defined and elaborated within Stoicism. This is the view that philosophy itself has an inherent structure; that truth and reality are of necessity understood within a certain framework defined by our human and divine capacities and as such are developed architectonically to reflect this. Therefore, if reality is considered to be coherent and integrated so too must the philosophical system which describes it. Evidence will be gathered to show that, for the Stoics, this cognitive structure was to be developed in such a way as to reflect our own natures but also to represent the physical reality which was conceived by them as an integrated whole wherein nothing is wholly

isolated or disconnected; the structure of philosophy as such becomes an accurate representation of the way things are in the world.[32]

The Stoics may be credited with the technicalisation of the term "*systema*". In ancient Greek, σύστημα (from syn-histemi, "to [make to] stand together") originally meant a composite whole made up of parts joined together. In Greek antiquity the term is used to describe a wide variety of composite bodies – military formations, flocks or herds of animals, organised governments, musical scales, metres in poetry, medications etc. The Stoics, however, applied the term to biological, physical, dynamic and conceptual structures such as art,[33] life,[34] scientific knowledge,[35] reason,[36] education[37] and the physical universe.[38] However, there is no source of which I am aware in which the Stoics describe philosophy itself using the word σύστημα. Yet, even if it happens to be the case that amidst the lost evidence the Stoics had not used the word σύστημα to describe philosophy itself, it is reasonable to suppose both that they view philosophy in the third sense of system above and that they developed their philosophy based on the notion that it is such a system.

As we saw with both Plato and Aristotle, although their philosophies can be seen as systematic, they were only viewed as systems by later Academics and Peripatetics, who imposed an architectonic on their philosophy mainly, it would seem, for paedagogic purposes and always retrospectively.[39] The Stoics, however, seem to have

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[32] Interesting later historical developments of such a view of 'system of philosophy' can be found in Nicholas Rescher, "Leibniz and the Concept of a System," *Studia Leibnitiana* 13, no. 1 (1981): 114–22; and Leo Catana, *The Historiographical Concept "System of Philosophy": Its Origin, Nature, Influence and Legitimacy*, Brill's Studies in Intellectual History 165 (Brill, 2008), 19–20. Whilst Rescher acknowledges a debt to Stoicism, Catana oddly does not recognise any Stoic usage, but he gives a useful list of how the word 'system' and its cognates were used in ancient and medieval philosophy.

[33] Sextus *M* 2.10

[34] Clement *Paed*. 1, 13.102 (=SVF 3.293)

[35] Stobaeus *Ecl*. II, 7. 5ιβ

[36] D.L. 7.45

[37] Sextus *PH* 3.269

[38] D.L. 7.138

[39] This is fundamental to understanding the nature of the Stoic division in contrast to Plato and Aristotle. I have found no awareness of this in contemporary literature, or at least it is nowhere clearly stated except in a work by Stephen Gersh, *Middle Platonism and Neoplatonism. The Latin Tradition* (Notre

presupposed the systematic structure of philosophy and proceeded to develop their philosophy at the first stage based upon this presupposition. This is evident most graphically from their well-known analogies wherein philosophy is likened to an egg, an animal, a garden and a city. We can readily assume from this that they had a clear idea of philosophy having an innate structure. It is pertinent to note that Posidonius expressed a preference for the analogy of the animal for its precision in describing the nature of the relationship between the parts as necessary as well as describing philosophy as a living organism. This preference of Posidonius has sometimes lead to the assumption in contemporary scholarship that the analogy of the animal must have also been introduced by Posidonius to better express how he viewed philosophy but is not necessarily a view shared by earlier Stoics. Yet, the analogy is only ascribed to Posidonius in one of our texts (Sextus *M* 7. 17-19); it also appears in Diogenes Laertius (7.40) without any ascription. On its own this would not be enough to support the claim that earlier Stoics may have also held the analogy of the animal but there is also a difference between Sextus and Diogenes Laertius as to which parts of the animal are ascribed to which parts of philosophy. This tells us two significant points. First, Posidonius was not the only Stoic to use the analogy of an animal to describe philosophy, and, second, it suggests that the analogies were used purely for illustrative purposes and that invariably some were more helpful, in terms of accurately representing the character of the Stoic system of philosophy, than others. The analogies are useful therefore primarily in understanding that the Stoics regarded philosophy as having an inherent, systematic structure and only secondarily in understanding the types of relations that exist between the parts. Although some analogies may be more representative of the Stoic position regarding the relation of the parts of philosophy and its systematic structure, any analogy is but an illustration which appeals to the imagination and perhaps our intuitions, but may fail to persuade or give a distinct account as to how these parts interact or even whether they do or are

Dame: Notre Dame University Press, 1986), 75, who claims that the tripartition of philosophy in the early Academy "resulted essentially from an historical analysis".

intended to. This is, moreover, as we have seen, one of the weaknesses in Hadot's account, which did not leave such an impact in the academic literature perhaps because its primary focus was on these analogies and on the paedagogical aspect of Stoicism rather than the cognition of Stoicism as a conceptual structure.

In conceiving of philosophy as a conceptual structure a few scholars have saliently observed that this structure is unified and yet somewhat paradoxically is subject to a division. This has proved to be problematic for the Stoics and evidence of this is observed from antiquity.[40] No doubt it is a predilection of the rational mind to be disconcerted when we speak of the division of something unified and this may well be what in some interpretations drives the notion that the division only takes place for paedagogical purposes and is not an essential characteristic of philosophy in itself. On the opposite end of the debate the division of philosophy bolsters the idea that the parts are separate and can, perhaps even should, be studied separately. In both these instances the interpretations are founded on the notion of philosophy as curriculum. To my mind this notion of philosophy as curriculum is a retrospective development and not one that is immediately relevant to early Stoic thought, when the division was initially made. For this reason a distinction needs to be employed regarding philosophy as curriculum and philosophy as a conceptual structure. The former is concerned with how best to convey philosophical ideas and in what order they should be taught or learnt. The latter is the notion that philosophy itself has an inherent structure. That is to say that philosophy is not merely something created in order to best describe the world, reality or the human psyche. Rather, philosophy is itself a reflection or representation of these. To this extent it is important to study the Stoic position more precisely; for it is not philosophy which has this conceptual structure but rather the κατά φιλοσοφίαν λόγος or 'the *logos* pertaining to philosophy'. As such it is not philosophy itself which is divided but the κατά φιλοσοφίαν λόγος which is

[40] cf. Seneca *Epistle* 89: "I shall therefore comply with your demand, and shall divide philosophy into parts, but not into scraps. For it is useful that philosophy should be divided, but not chopped into bits."

tripartite. In this way the κατά φιλοσοφίαν λόγος is also that which the analogies are to be applied to.[41]

A few comments should be made regarding the ontological essence of philosophy and the *logos* pertaining to philosophy. It has been argued that the former is corporeal while the latter is incorporeal. The basis for this interpretation seems to be the way in which the term *logos* is understood and consequently translated from the phrase κατά φιλοσοφίαν λόγος. Supporters of the above idea (that the 'κατά φιλοσφίαν λόγος' is incorporeal) translate this as 'philosophical discourse', thus making it something sayable (λεκτόν) and so incorporeal.[42] Though I have been unable to extract the significance of such a distinction from those who maintain it (beyond claiming that philosophy, as corporeal, is an internal disposition of the soul thus supporting the view that it is something lived), it seems to me that if this ontological distinction is valid it would suggest that the difference between philosophy and 'philosophical discourse' is that whilst the former is a disposition of the soul the latter is, in a way, independent of it. I thus translate κατά φιλοσοφίαν λόγος as the *logos* pertaining to philosophy, which could embrace the distinction or not but also as it seems to me maintains the wide spectrum of meaning that exists in the term *logos*. At this point I cannot see any good reason to maintain such an ontological distinction or not based on the evidence, I will as such refrain from maintaining one or the other. With the above in mind we can turn to an examination of what the Stoics say about philosophy rather than of the *logos* pertaining to philosophy.

Stoic Definitions of Philosophy

From the various accounts of Stoic descriptions of philosophy we may piece together certain central characteristics for what according to the Stoics is entailed in

[41] With this distinction made clear at this point I will sometimes indiscriminately refer to the division of philosophy rather than to the division of the κατά φιλοσοφίαν λόγος.

[42] cf. Ierodiakonou, "The Stoic Division of Philosophy," 60–61; and John Sellars, *The Art of Living: The Stoics on the Nature and Function of Philosophy*, Second Edition (London: Bloomsbury Academic, 2013), 82–83.

philosophy. Of the explicit evidence we have five independent sources which describe philosophy as understood by the Stoics. These definitions are often accompanied by a definition of wisdom alongside that of philosophy. Some scholars have remarked that the Stoics speak of wisdom and of philosophy interchangeably. This may simply be a matter of Latin authors using 'sapientia' for philosophy. Regardless, when it comes to formal descriptions of philosophy and of wisdom the Stoics make a clear-cut distinction. The difficulty arises over the way in which we consider the Stoics would have viewed the relation between philosophy and wisdom. In seeing what the sources have to say about philosophy we will be in a better position to understand not only the distinction between philosophy and wisdom, but also what is entailed in the practice of philosophy and so gain an insight into the Stoic division of philosophy into parts. Our purpose with this examination is to find the common features within the various sources to gain a clear picture of the Stoic view.

In our first text (Ps. Galen, *On the History of Philosophy*, 5, 602.19-603.2 Diels)[43] we have perhaps our most concise Stoic definition of philosophy and wisdom:

> Others defined philosophy as the practice of *fitting art* of the best life for human beings, saying that philosophy is exercise, and calling wisdom *fitting art*, which is also a cognitive grasp of human and divine matters.[44]

So philosophy, simply put, is the practice of wisdom. This differs from the etymological sense in which philosophy is the love of wisdom or the Platonic sense where philosophy is the striving after wisdom. The practice aspect of philosophy is key.[45] What is entailed in this practice of wisdom is not entirely clear. The first intuition is that it must be of a moral or ethical character in the same way as we speak of

[43] Not in SVF or FDS

[44] τὴν φιλοσοφίαν . . . οἱ δὲ ἄσκησιν ἀνθρώποις ἀρίστης ζωῆς *ἐπιτηδείας τέχνης* ὡρίσαντο, ἄσκησιν μὲν τὴν φιλοσοφίαν εἴποντες, *ἐπιτηδείαν* δὲ *τέχνην* τὴν σοφίαν ὀνομάσαντες, ἥ τίς ἐστι κατάληψις θείων τε καὶ ἀνθρωπίνων πραγμάτων.

[45] There are studies which focus solely on this particular aspect of Stoicism cf. for instance Sellars, *The Art of Living: The Stoics on the Nature and Function of Philosophy*; Pierre Hadot, *La Citadelle Intérieure : Introduction Aux Pensées de Marc Aurèle* (Paris: Fayard, 1992).

'practical philosophy', though when we look at the definition of wisdom we see that it seems to be more epistemological in nature; for the practice of philosophy involves a cognitive grasp of both human and divine things. The epistemological character of this practice becomes clearer in our next text. In a passage that can be found in the so-called *Placita Philosophorum* Preface 2 (*SVF* 2.35, *LS* 26A, *FDS* 15), a treatise that is now considered to be written by an otherwise unknown Aëtius and dated to around the 1st perhaps early 2nd c. CE,[46] we encounter in the preface the following account of wisdom and philosophy and its division into parts:

> The Stoics said that [i] wisdom is knowledge (ἐπιστήμην) of human and divine matters, and [ii] philosophy practice of a *fitting art*; [iii] the single and supremely *fitting art* (ἐπιτήδειον) is excellence (ἀρετήν)[47], [iv] and excellences at their most general are three: in nature, in behaviour, in reasoning. [v] For this reason philosophy is also divided into three parts: physical, ethical and logical. [vi] Physical is when we investigate the world and the matters in the world, ethical is that which is occupied with human life, logical is that concerned with reasoning – the last they also call dialectical.[48]

Here we have what appears to be a more complete account of the Stoic position. In this text, philosophy emerges as the practice of the art of excellence. This seems to be at odds with the previous text, unless being excellent and being wise are equated. It is significant that wisdom is here described as ἐπιστήμη; for in other sources we also have excellence (ἀρετή) described as such. The sense in which philosophy derives its division into three parts from the division of excellence into three parts is one which

[46] This dating of Aëtius is determined by the fact that in the work attributed to him no information of philosophers later than 1st c. BCE is provided.

[47] Translating ἀρετή throughout as excellence as this seems to me to better capture the meaning of the word in Stoicism.

[48] οἱ μὲν οὖν Στωικοὶ ἔφασαν [i] τὴν μὲν σοφίαν εἶναι θείων τε καὶ ἀνθρωπίνων ἐπιστήμην, [ii] τὴν δὲ φιλοσοφίαν ἄσκησιν *ἐπιτηδείου* τέχνης, [iii] *ἐπιτήδειον* δ' εἶναι μίαν καὶ ἀνωτάτω τὴν ἀρετήν, [iv] ἀρετὰς δὲ τὰς γενικωτάτας τρεῖς, φυσικὴν ἠθικὴν λογικήν· [v] δι' ἣν αἰτίαν καὶ τριμερής ἐστιν ἡ φιλοσοφία, ἧς τὸ μὲν φυσικὸν τὸ δ' ἠθικὸν τὸ δὲ λογικόν· [vi] καὶ φυσικὸν μὲν ὅταν περὶ κόσμου ζητῶμεν καὶ τῶν ἐν κόσμῳ, ἠθικὸν δὲ τὸ κατησχολημένον περὶ τὸν ἀνθρώπινον βίον, λογικὸν δὲ τὸ περὶ τὸν λόγον, ὃ καὶ διαλεκτικὸν καλοῦσιν.

we shall return to later. Now we turn to some sources which differ slightly regarding the definition of philosophy:

> Philosophy is the *cultivation of a habit* of wisdom, and wisdom is the knowledge of things human and divine.[49]

And:

> For philosophy is the *cultivation of a habit* of wisdom, and wisdom is the knowledge of all divine and human things, and of the respective causes of them.[50]

In these two texts we encounter almost identical definitions for wisdom but the definition of philosophy is slightly altered. What dominates is a similar view to the first text above; that philosophy is directed to wisdom rather than to excellence as in the Aëtius text examined above. A further point is that these sources suggest a somewhat watered down version of our previous texts in that there is the nuanced notion that philosophy is no longer the practice of wisdom, which implies attainment, but it is instead a striving towards wisdom (i.e. in the Platonic sense) by a cultivation of habit or devoted study of wisdom. It is possible, even likely, that this is a later version of the orthodox Stoic definition of philosophy because as with most alterations to orthodox theorems it is a weaker and more flexible position to maintain and thus was probably developed after attacks from other thinkers, in particular Academics. If this is right it is an interesting instance of change of doctrine via change in terminology.[51] The word that is used in both versions is almost identical but by using the noun (ἐπιτήδευσις) instead of the adjective (ἐπιτήδειος) the meaning is altered quite significantly from one wherein the philosopher is a practising sage to one

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[49] Sextus *M* 9.13 (=SVF 2.36): τὴν φιλοσοφίαν φασὶν *ἐπιτήδευσιν* εἶναι σοφίας, τὴν δὲ σοφίαν ἐπιστήμην θείων καὶ ἀνθρωπίνων πραγμάτων.

[50] Philo Judaeus, *Περί της προς τα προπαιδεύματα συνόδου (De congressu eruditionis gratia)*, 79: ἔστι γὰρ φιλοσοφία *ἐπιτήδευσις* σοφίας, σοφία δὲ ἐπιστήμη θείων καὶ ἀνθρωπίνων καὶ τῶν τούτων αἰτίων.

[51] Cf. René Brouwer, *The Stoic Sage : The Early Stoics on Wisdom, Sagehood and Socrates* (Cambridge ; New York: Cambridge University Pr., 2014) ch. 3, wherein he discusses changing attitudes towards the sage throughout the development of the school, though not making reference to the use of this term in the definitions.

wherein the philosopher must be a person progressing in the right way towards wisdom. The emphasis here seems to be that linguistically speaking by using ἐπιτήδευσις the alteration from the original (?) definition is slight, but further than this it is not simply a study of wisdom but a serious, attentive, devoted study. Translated as the 'cultivation of a habit or character' of wisdom we follow a more Platonic meaning but one also which may be positioned more harmoniously within the Stoic view of the practice of philosophy as a corporeal disposition of the soul both of which are determined by the tension prevalent in the *pneuma*. Presumably the study of wisdom will be done with a very high tension within the soul for it is only in this way that it can fulfil the requirements of the Stoic term usage with ἐπιτήδευσις.

I turn now briefly to the use of the term ἐπιτηδείος. Philosophy is described as the practice (ἄσκησιν) of a fitting (ἐπιτηδείου) art (τέχνης). This brief definition has been translated variously as: 'the practice of expertise in utility' (LS: 1987), 'the exercise of a fitting expertise' (Brouwer: 2014), 'the practice of an appropriate art' (Sharples: 2010)[52]. In the original language the expression is not common, some scholars have gone so far as to call it 'awkward'[53], this is primarily due to the use of the word ἐπιτηδείου. Long and Sedley's translation offers perhaps the most philosophically specific translation, yet the translation of ἐπιτηδείου as 'in utility' can be deceptive; for in the Greek, whenever ἐπιτηδείος is used in the sense of useful it nevertheless retains connotations of being useful but in a conformable or appropriate way. The word is often used in poetry or in mythic story-telling to denote something, an object, a name or a person, being well-suited to a particular task. Alongside usefulness and appropriateness the word also has connotations of being necessary and being fit for a

[52] Cf. also Brad Inwood and Lloyd P. Gerson, eds., *The Stoics Reader : Selected Writings and Testimonia* (Indianapolis (Ind.): Hackett, 2008), 9.: 'suitable'; Jaap Mansfeld and David T. Runia, *« Aëtiana » : The Method and Intellectual Context of a Doxographer. 2, The Compendium* (Leiden: Brill, 2009), 63: 'required '.
[53] See A. A. Long and D. N. Sedley, eds., *The Hellenistic Philosophers. Vol. 2 Greek and Latin Texts with Notes and Bibliography* (Cambridge: Cambridge University Press, 1987), 163: "The expression is awkward. We interpret ἐπιτηδείου as shorthand for περὶ τοῦ ἐπιτηδείου."

purpose.[54] It is likely that the Stoics would have embraced the rich spectrum of meaning that may be applied to this word for they could easily have used many other words which more precisely refer to one of these qualities instead of a word which can mean all of them. Thus, it seems likely that their use of ἐπιτηδείος is intentional and that with this uncommon usage of ἐπιτηδείος they would like to say in as concise a way as possible that the practice of philosophy is not only appropriate but also purposeful, necessary and useful. I choose to translate it here using the word 'fitting' for this is the meaning which seems to dominate in the historical journey of the term up to the Stoics and the one which also guides or directs its other meanings as purposeful, useful and necessary.

So now that we have a clear grasp of the various descriptions of philosophy it will be useful to look at what τέχνη means for the Stoics; for philosophy is the practice of a fitting art (τέχνη). As noted earlier we have no explicit evidence which describes philosophy itself as a system. However, this word is used quite specifically, from the very first stages of the school's development, to define τέχνη:

> Zeno says that 'art is a system of cognitions unified by training towards some useful end in life'.[55]

In the definition of art, the utility aspect is clearly expressed by the use of εὔχρηστον, which provides a good contrast with the vague usage of ἐπιτηδείος in the definition of philosophy, supporting the notion that the vagueness is intentional, but also emphasises the usefulness of practicing a fitting art, as interpreted by Long and Sedley in their collection of sources. Perhaps what is more interesting in the Stoic definition

[54] E.g. Herodotus *Hist.* 6.102: "Marathon was the place in Attica most suitable (ἐπιτηδεότατον) for riding horses"; Xenophon *Ways and Means*: "but if some parts were proceeded with and others postponed, the income realised would help to provide the amount still required (τὸ ἐπιτήδειον)." Lysias *Against Nicomachus* "And from whom amongst our citizens could it be more suitably (ἐπιτηδειότερος) exacted than from Nicomachus?" etc.

[55] Olympiodorus, *Commentary on the Gorgias* 12. 1 (= SVF 1.73, FDS 392, LS 42A): Ζήνων δέ φησιν ὅτι 'τέχνη ἐστὶ σύστημα ἐκ καταλήψεων συγγεγυμνασμένων πρός τι τέλος εὔχρηστον τῶν ἐν τῷ βίῳ'.Translation is Brouwer's (2014); συγγεγυμνασμένων translated here as 'unified by training' captures the meaning well I think and is more comprehensible than 'co-exercised'.

of art is that it is viewed as a system, but not one made up of habituated physical motions as one would expect in a craft such as carpentry or stone-masonry, rather an art is characterised by its cognitive structure and how this structure is unified by the effort of personal training. It emerges as essentially intellectual and, if it were to be applied to practice, 'art' in the Stoic sense refers not to the actions themselves but rather to the stage before any action takes place; for art is confined to thought in this definition. Moreover, we may observe that in the later definition of philosophy, that we looked at above,[56] the term τέχνη is removed from the definition; nevertheless that 'art' is defined here as including training is implied by the use of the noun ἐπιτήδευσις. If we collate this with the definition of τέχνη here we may observe that training or attentive study is in fact an essential characteristic of philosophy in both definitions regardless of changes.

If we return to Aëtius text above we observe the tri-partite division of physics, ethics and logic implicitly in the definition of wisdom and explicitly in the descriptions of philosophy and excellence. More than this it is claimed that the philosophical division is in fact founded on the division of excellence. This passage as such has become a corner-stone in the debate regarding the unity of virtue in Stoicism.[57] However, in relation to the architectonic of philosophy, the thesis that the tri-partite division of philosophy is based on the tri-partite division of excellence has been challenged by Inwood on the grounds that philosophy is a practice (ἄσκησις) whilst excellence (ἀρετή) is knowledge (ἐπιστήμη) and thus more needs to be said about how one leads or connects to the other.[58] It seems to me that there are several assumptions which need to be dealt with here. First, it is not clear that this bridge would have concerned the Stoics. The problem of describing the link between *askêsis* and *epistêmê* appears to be based on a modern view that the two are essentially separate, one which the Stoics

[56] Cf. the two passages quoted on p. 42 above
[57] See esp. M. Schofield, "Ariston of Chios and the Unity of Virtue," *Ancient Philosophy* 4 (1984): 83–96.
[58] Brad Inwood, "Why Physics?," in *God and Cosmos in Stoicism*, ed. Ricardo Salles (Oxford ; New York: Oxford University Press, 2009), 203 n. 6.

did not necessarily concern themselves with; for they come from a philosophical tradition in which knowledge and the good are so intimately bound together. Moreover, this passage refers to the Stoics in general[59] so we cannot know if this correlation is one which was developed later or earlier. We do know however that the Stoics from as early on as Zeno divided philosophy into three parts and the correlation we receive in this passage of the philosophical division being related to the division of the excellences is an interesting one even if it is a later development. It is also useful to remember that when the Stoics speak of a tripartite division of philosophy, they are referring to something more specific than philosophy itself or philosophy as *askêsis* per se. As discussed above, they qualify the division by saying that it is a division of the κατὰ φιλοσοφίαν λόγος, "the *logos* pertaining to philosophy". So it is in fact the *logos* and not philosophy that permits such a division. If we are to understand the division as being one of the *logos* pertaining to philosophy rather than of philosophy itself we are lead to a more epistemological study of the division rather than a practical one. This latter point seems to validate the connection between the division of the excellences and the division of philosophy because the *askêsis*/*epistêmê* distinction is removed altogether.

Nevertheless, I think that something more can be said about the nature of *askêsis* which would connect it to *epistêmê* regardless of the above points, for from the sources examined so far it has become apparent that there is something distinctive about the practice of philosophy. From the definitions and from more elaborate discussion of aspects of the definitions, philosophical *askêsis* is conceived as something more composite than the traditional view of philosophy as spiritual practice or as 'way of life', that is to say we may observe that what is entailed in the practice of philosophy is something more than right actions in relation to ourselves, to other people and to our environment or some internal training of impulse and repulsion. No doubt these are involved in the progress (προκοπή) towards wisdom. But from the definitions we

[59] Von Arnim attributes the passage to Chrysippus in the SVF.

discover that these are either absent, and thus only secondary characteristics of philosophy, or else they are extrapolated but from one part of the definition of wisdom, that is as 'knowledge of human things'. In fact it seems that philosophy as *askêsis* is at the first stage not concerned with these actions, but rather that right actions are the result of philosophical practice and not part of the process as such. Invariably, the philosophers' practice is, like wisdom and excellence, of a cognitive character. In concise terms, the philosophers' practice is to train with awareness of the connections between things. This is how art or expertise is understood by the Stoics and moreover explains why the tri-partite division is prevalent not only in the *logos* pertaining to philosophy, but also in wisdom and in the excellences. This may be taken as a spiritual practice in itself but also offers itself as a more objective groundwork for the development of character for it takes into account the physical and the logical parts of philosophy.

Such a reading corroborates the view that Stoicism is not a philosophy of foundationalism wherein ethics is founded in physics or vice versa implying that one is prior, or superior to another, but is instead a philosophy in which there exists a symmetry between the role of the parts.[60] It seems that caution should be exercised with viewing philosophical practice in Stoicism solely from an ethical perspective. Certainly, it is the case that ethics dominates the later and imperial periods of Stoicism, the periods for which moreover we have the most complete evidence, but a detailed look at the definitions of philosophy shows that the dominance of ethics is not applicable to earlier Stoicism. Beyond there existing a symmetry between the parts, the definitions show that an essential characteristic of practising philosophy as an art is the combination of apparently disparate elements.[61] That the integration of the parts

[60] Both Annas and Hadot argue, albeit from opposite ends, that the Stoic division is not characterised by hierarchy but by symmetry. See discussion above: p.30-34

[61] Cf. Olympiodorus source above p. 44

is integral to the philosophers' practice is moreover described in two neglected sources:

> In the first place, philosophy is either a striving after the correctness of *logos*, or the knowledge thereof, or more particularly the diligent study devoted to *logos*. *For once we are thoroughly familiar with the parts of the logos and their combination, we shall use it the right way.*[62] By *logos* I mean the one all rational beings possess.[63]

In this text we perceive that philosophy is described not only as the study of right reason (i.e. an aspect of *askêsis*) but also as an ἐπιστήμη suggesting that, *pace* Inwood, a bridging argument between the two is unnecessary. Moreover, the right use of reason is made dependent on internalising our grasp of the parts of the *logos* and on how they are arranged or combined in relation to each other. This cognitive harmonising of the parts is in Stoic philosophical practice temporally prior to our right or expert use of reason and actions. Thus if we follow Mansfeld's translation of '*striving* after the correctness of *logos*' the Stoics' training programme will necessarily be directed by coherence and integrity, that is to say by the relations and interactions between doctrines and the parts of philosophy.

Likewise, in our second text attributed to Zeno we have a similar account as to the practice of the philosopher:

> Of what kind are his theorems? Are they those about the way in which the beard becomes great or the hair long? No, but rather what Zeno says, "to know the elements of reason, what kind of a thing each of

[62] My Itallics

[63] Mansfeld's translation. *Pap. Herc.* 1020, col. I. 11-24 (= *FDS* fr. 88): Πρῶτον μὲν γάρ ἐσ|τιν [ἡ] φιλοσοφία, εἴτ' ἐ[πὶ|τήδευ[σις] λόγου ὀρ[θ]ότητος [εἴ]τ' ἐπιστήμη | ἢ [μαλισ]τα περὶ λόγον π[ραγ]ματεία κα[ὶ γὰρ] ἐντὸς ὄντες τῶν το[ῦ] |λόγου μορίων καὶ τῆς |συν[τάξεως αὐ]τῶν χρ[η]|σόμεθα ἐμπ[ε]ίρως α[ὐ]|τῶι· λόγον δὲ [λέ]γω τὸν |κα[τὰ φύσ]ιν π[ᾶσ]ι τ[οῖς] | λογικοῖς ὑπάρχοντα.

them is, and how they are fitted to one another, and what things are consequent upon them".[64]

It is clear then that this view, which can be extrapolated from the definitions is also confirmed and elaborated on in other sources and moreover is a position held within the Stoa at its initial formation by the founder of the school.

The picture that emerges from the sources thus far is that the practice of philosophy seems to be very much of an intellectual and epistemological nature rather than of a practical nature in the traditional sense of the word. It is well-known that in Stoicism our psychological well-being is within our control in so far as our own judgments are within our control. By looking at the definitions of philosophy we may discern, contrary to the vulgate view, that in Stoicism the practising philosopher takes a very active and positive stance rather than an impassive one; for the practice is not simply an altering of our stance towards external circumstances by simply rejecting our impassioned, impulsive reaction to things and the strength of character that goes with this. Rather it is an active process of cognitive unification which persuades the individual that certain passions are useless, unnecessary, futile and inappropriate. It seems as though this is the conclusion we are invariably led to when we combine Stoic accounts of philosophy and wisdom. As we saw, wisdom is an ἐπιστήμη, whilst philosophy is an ἀσκήσις of this ἐπιστήμη. Wisdom being the knowledge of human and divine things, along with their causes, fits the tripartite division of philosophy neatly. We may say that knowledge of human things is Ethics, of divine things Physics and of their causes Logic. There is a sense in which philosophy itself cannot be systematic within the Stoic framework in any fixed or objective way; for philosophy, being a practice, is chiefly dependent on the individual who practises it and the way in which this is done can vary to greater or lesser extents; hence sources which speak of disparity between paedagogic methods amongst the Stoics (D.L. 7. 40-41). Although

[64] Epictetus' *Diss* 4.8.12: ποῖα θεωρήματα; μή τι τὰ περὶ τοῦ πῶς πώγων μέγας γίνεται ἢ κόμη βαθεῖα; ἀλλὰ μᾶλλον ἃ Ζήνω(ν) λέγει· «γνῶναι τὰ τοῦ λόγου στοιχεῖα, ποῖόν τι ἕκαστον αὐτῶν ἐστι καὶ πῶς ἁρμόττεται πρὸς ἄλληλα καὶ ὅσα τούτοις ἀκόλουθά ἐστιν».

philosophy as practice is not necessarily systematic the art which is practiced by philosophy, which is wisdom, is systematic[65] and also an ἐπιστήμη which can be systematic.

In Stoicism human *logos* is physically connected with the *logos* of the cosmos and though it may never be structurally identical unless the individual is a sage the architecture of philosophy is based on the architecture of the universe. If this is the case, as it seems to be, it is necessary to posit that the parts of philosophy are inextricably linked and are studied as such by the philosopher. The link between human wisdom and cosmic reality is moreover explicitly stated by Posidonius (DL 7. 138): "Posidonius in his elementary treatise *On Celestial Phenomena*, (defines cosmos as) a system made up of heaven and earth and the natures in them, or, again, as a system constituted by gods and men and all things created for their sake".[66] The unity of the parts of philosophy is thus presupposed on Stoic principles for the dynamic unity of reality in Stoic philosophy.

The debate regarding the relation of the parts in Stoic philosophy has been heated over recent years, with little agreement being reached. In basic terms one side argues for the importance of the relation between the parts and the other argues for the possibility of studying one part independent of the others. In the first part of this chapter the relevant literature was explored in detail and a critical account of the strengths and weaknesses set the groundwork for the next section on the definitions and descriptions of philosophy. From the study of the relevant sources on the definitions of philosophy it has been determined in this chapter that, at least for early

[65] See text quoted on p. 40 (= Ps. Galen, *On the History of Philosophy*, 5, 602.19-603.2 Diels).

[66] «ὥς φησι Ποσειδώνιος ἐν τῇ Μετεωρολογικῇ στοιχειώσει, σύστημα ἐξ οὐρανοῦ καὶ γῆς καὶ τῶν ἐν τούτοις φύσεων ἤ σύστημα ἐκ θεῶν καὶ ἀνθρώπων καὶ τῶν ἕνεκα τούτων γεγονότων». See also Diogenes of Babylonia SVF 3. 117 and D.L. 7.87: "as Chrysippus says in the first book of his *On Ends*; 'for our individual natures are parts of the nature of the whole universe'." «ὥς φησι Χρύσιππος ἐν τῷ πρώτῳ Περὶ τελῶν· μέρη γάρ εἰσιν αἱ ἡμέτεραι φύσεις τῆς τοῦ ὅλου. διόπερ τέλος γίνεται τὸ ἀκολούθως τῇ φύσει ζῆν».

Stoicism, the combination and unity of the parts is essential for the correct study of Stoic philosophy. Moreover, beyond considerations of curriculum, it has been argued that the unity of philosophy describes an inherent structure with which Stoic philosophy was designed from the outset in such a way as to best reflect the architecture of the cosmos. The source evidence on the nature of philosophy guides us to an understanding of the practising philosopher as someone who is primarily concerned with the harmony that exists between the parts of philosophy in the same way as there exists a harmony between the parts of the cosmos. Only once the philosopher becomes aware of the way in which the parts are fitted together can the *logos* be used correctly and actions be made to cohere in the right way in an individual's life and in relation to the cosmos. Whilst philosophical practise may begin with an extirpation of the passions or a control of impulse and repulsion or some other such technique, this is all preliminary work to bring oneself into closer concordance with nature. The final stage of practise, which may be viewed as theology, is the cognitive grasping of the connections and the perception of the patterns which account for the harmony between things. To this extent, and as far as we are able, we should try to see how the Stoics conceived of the integration of their philosophy in order to bring our selves closer to the harmony that exists in nature and achieve a good flow in life. In the following chapters we shall attempt to trace this integration of their philosophy by exploring the emergence of the theory of *pneuma* in their system and that this concept is fundamental to their overaching goal of making philosophy and philosophical practise harmonious with nature and god.

2. *Pneuma* and its Emergence in Stoic Thought

Introduction

Pneuma, breath or spirit, is certainly one of the more fundamental concepts of Stoicism. If the Stoic cosmos is alive, it is by virtue of the life-giving breath that is *pneuma*. If plants are able to grow and animals able to perceive, it is only because of the *pneuma* present within them. If bodies are individuated such that they cohere with themselves and are not manifest simply as amorphous lumps of matter, it is because of *pneuma*. If bodies, whilst individuated, are also connected and in constant interaction with each other it is the pervading *pneuma* which is responsible. All actions occur because of the internal workings of pneumatic motion. All passions, thoughts, memories and experience are determined by the state of our own *pneuma*, which is our internal spirit or breath. There is no doubt that *pneuma* plays a decisive role in all three parts of Stoic philosophy and it is well suited for a study of how the Stoics integrated their system of thought such that they could claim that it is a coherent whole. But what is this *pneuma* and how is it to be understood?

Now, to understand the theory of *pneuma* and its significance for Stoicism it is most important to trace the ideas involved in its emergence. By this I mean that the interest lies not simply in extracting any reference to *pneuma* as it appears in the fragments. Instead, the robust and flexible character of the theory emerges only when its underlying physical processes are understood. This chapter will lay the foundation for what is to come but only in the sense that it will be shown that *pneuma* as an integrated theory in the Stoic system was not present at the earliest stages of the school. The theory was properly introduced by Chrysippus. However, the ideas which were integrated into the theory of *pneuma* were certainly present in Zeno and Cleanthes in the form of elaborate physical theory utilising similar concepts but without being unified under the heading of *pneuma*. This section will thus be a brief excursus charting the early references to *pneuma*. What this chapter does not do is to seek influences from outside of the Stoic school such as from medical or oriental

origins. It does not seek to elaborate on the theory of *pneuma* as present in Chrysippus. The purpose here is instead to show the lack of an integrated pneumatic theory in the philosophy of Zeno and Cleanthes, an aim which will help us later on to discern what can safely be attributed to these early heads of the school and what cannot. This will also be useful in other research to show which aspects of *pneuma* were appropriated by Chrysippus from earlier theories, what changes he made and also possibly why he made them. This is not to say that Chrysippus developed the theory of *pneuma* on his own, there is ample evidence to show that the *framework* for Chrysippus' theory of *pneuma* was present already in Zeno and this will become evident in the course of the thesis. At this stage we will be charting only the evidence that directly refers to *pneuma* in Zeno and Cleanthes; no further connections to other doctrines will be made at this point so as to bring into relief the limitations of this evidence.

Zeno of Citium

Even though *pneuma* in Zeno does not fulfil all the functions of *pneuma* enumerated above, we can clearly distinguish what role the concept of *pneuma* played in his system from the sources available to us. By gathering all the evidence in one place it will be possible to formulate a clearer understanding as to what Zeno used *pneuma* for. A Pseudo-Galenic text preserves for us a brief description:

> Both Plato and Zeno said the soul was a mover; Plato however claimed that the substance of the soul was incorporeal, Zeno and his followers that it is corporeal because they considered that its substance is *pneuma*.[1]

Some caution is warranted here for the Zenonian attribution as it is said to be the doctrine of Zeno "and his followers"; such formulations often indicate a retrospective attribution to Zeno based on doctrine of later Stoics.[2] Nevertheless, Galen tells us that

[1] Ps-Galen *Hist Phil.* 24. 10-15 (= SVF 1. 136). I follow Mansfeld's emendation of the text "Some Stoics on the Soul (SVF I 136)," *Mnemosyne* 37 (1984): 443–45.: Τὴν δὲ οὐσίαν αὐτῆς [*sc.* τῆς ψυχῆς] οἱ μὲν ἀσώματον (*sc.* κινοῦν) ἔφασαν, ὡς Πλάτων, οἱ δὲ σωματικὸν κινοῦν, ὡς Ζήνων καὶ οἱ ἐξ αὐτοῦ· πνεῦμα γὰρ εἶναι ταύτην ὑπενόησαν καὶ οὗτοι.

[2] See Algra, "Zeno of Citium and Stoic Cosmology."

for Zeno, as for Cleanthes and Chrysippus, "soul is nourished from the blood and the substance of soul is *pneuma*."[3] A passage in Diogenes Laertius is more specific in saying that Zeno in his treatise *On Soul* defined the soul as a warm breath (πνεῦμα ἔνθερμον) and that moreover "we are alive through this *pneuma* and are moved by it."[4] These three sources taken together inform us that (i) *pneuma* is a physical substance (ii) through which our bodies are given life and (iii) motion and moreover (iv) that it is warm. In this way it would seem that Zeno is equating soul with *pneuma* and his reason for doing so is that he wants to establish the corporeal nature of soul which is a type of breath.

Moreover, a text from Macrobius says that "Zeno said that the soul is the solid spirit of the body".[5] This text is unique in attributing solidity to *pneuma* but for this reason it may not be reliable and may simply be an exaggerated emphasis of the corporeal nature of soul espoused by Zeno.[6] Nevertheless, it is clear that Zeno wanted to establish the corporeal nature of soul for in one of his syllogistic arguments he starts out with the premise that a living being dies when a corporeal substance departs from the body. He calls this corporeal substance *pneuma* or breath:

> Tertullian *de anim.* Ch. 5 (= SVF 1. 137)
>
> Indeed, Zeno, defining the soul to be a breath generated with (the body,) constructs his argument in this way: that substance which by its departure causes the living being to die is a corporeal one. Now it is by the departure of the breath, which is generated with (the body,) that the living being dies; therefore the breath which is generated with (the body) is a corporeal substance.

A similar syllogism is recorded in Calcidius *in Tim.* 220 (= SVF 1.138):

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[3] Galen *PHP* 2. 8 (= SVF 1. 521)

[4] D.L. 7. 157 (= Pearson 85; SVF 1. 135). The doctrine is also attributed to Antipater and Posidonius in the same passage.

[5] Macrob. *in Somn. Scip.* 1,14 (= SVF 1.137 part)

[6] A further discussion of the solid nature of body in Zeno is discussed in relation to the definitions of body in the chapter on tension p. 151-3.

> Indeed, Zeno raises the question of breath being the soul in this way: that thing on the occasion of whose departure from the body the living being dies is without doubt soul; but when the natural breath departs, the living being dies; therefore the soul is natural breath.

According to Tertullian the breath is generated with the body; whether this is during the embryonic stage or after birth is not specified but from these two sources together we receive the additional piece of information that *pneuma* has the capacity to depart from the body. Its departing is also the death of the body. However, the fact that it departs implies that it must go somewhere and have an existence after the death of the body. This is confirmed in another passage preserved in Epiphanius:

> "He [Zeno] also said that < the soul persists for some time* > after its separation from the body, and called the soul a long-lived breath but said that it is certainly not fully immortal. For it is exhausted to the point of extinction by the length of its existence, or so he says."[7]

It is most likely the case that because the soul is constituted by physical substance this also determines its mortality. Even if the *pneuma* is able to survive the body it nevertheless is extinguished at some point.[8] The continued existence of *pneuma* has led some commentators on Stoic theory to believe that the Stoics may have posited a theory of transmigration of souls[9] but this would be a Pythagorean or Platonising interpretation and not at all Stoic, as has been shown by Mansfeld.[10] The *pneuma* of individuals does not depart the body and re-enter other bodies. There is in fact an

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[7] Epiphanius *Panarion* (= *Adversus Haereses*) 3. 508, 20-25 (= SVF 1. 146) ἔλεγε δὲ καὶ μετὰ χωρισμὸν τοῦ σώματος * καὶ ἐκάλει τὴν ψυχὴν πολυχρόνιον πνεῦμα, οὐ μὴν δὲ ἄφθαρτον δι' ὅλου ἔλεγεν αὐτὴν εἶναι· ἐκδαπανᾶται γὰρ ὑπὸ τοῦ πολλοῦ χρόνου εἰς τὸ ἀφανές, ὥς φησι.

[8] Cf. also Themistius *de anim*. 30.17 (=SVF 1. 145) "Yet some defence is left for Zeno [the Stoic], since he claimed that the whole soul was completely blended with the body, and did not make its exit without the compound being destroyed." Earlier on in this passage there is a reference to "those who claim the soul is *pneuma*" but this most likely indicates the Stoics in general.

[9] Cf. Verbeke, *L'évolution de La Doctrine Du Pneuma*, 49–50.

[10] Jaap Mansfeld, "Resurrection Added. The Interpretatio Christiana of a Stoic Doctrine," *Vigiliae Christianae* 37 (1983): 218–33.

explanation as to how the *pneuma* enters bodies in the first place and this is found in Eusebius[11]:

> The seed, says Zeno, which man emits is breath combined with moisture, a portion and fragment of soul, and a blending of the parents' seed, and a unified mixture of the various parts of the soul. For this, having the same laws as the universe, when emitted into the womb is caught up by another breath, which is a portion of the female's soul and grows into one with it, and being there stirred and kindled by it grows in secret, continually receiving additions to the moisture and increasing of itself.

Pneuma enters at conception and is a blend of the *pneumata* of the mother and father. It is not clear that this blend should as of yet be considered an individuated soul. Nevertheless, this passage reveals a fully physical conception of the soul's entrance into bodies, not via some mysterious metaphysical means but via the vital *pneuma* found in the fertile capacities of man and woman. It is very interesting to note that, according to Zeno, the *pneuma* is contained in what he calls the seed (σπέρμα) of the parents and that this seed contains the same laws as the universe. This is an implicit indication that for Zeno the cosmos, or perhaps the seed of the cosmos, is connected in some way to *pneuma*. Scholars have traditionally claimed that Zeno never applied the theory of *pneuma* on a cosmic level.[12] Nevertheless, another passage in Calcidius explicitly records that Zeno attributed breath to the substance of the cosmos:

> Zeno adds that this substance is itself finite and that it is the one substance common to all of the things that exist, also that it is divisible and susceptible of change in every respect, for its parts change although they do not perish in the sense that they dissolve from their existent state into nothing. Rather, he thinks that it is as in the case of innumerable different forms, including waxen ones: no form, shape,

[11] Eusebius *Praep. Evang.* 15.20 (= SVF 1. 128)

[12] cf. e.g Hahm, *The Origins of Stoic Cosmology*, 159 and Michael Lapidge, 'ἀρχαί and στοιχεῖα', *Phronesis*, 18 (1973), p. 274 who claims that it was Chrysippus who 'discovered' cosmic *pneuma*. See also Verbeke who argues that the role of the cosmic *pneuma* in Zeno is taken over by the creative fire *L'évolution de La Doctrine Du Pneuma*, 22 & 24.

> or quality generally is proper to matter, the foundation of all things, although it is conjoined and inseparably coheres with some quality. And he thinks that since it is equally without origin or end - since it does not come to subsist from a non-existent or dissolve into nothing - from eternity *there is not lacking to it the breath and power to move it rationally*, sometimes as a whole, sometimes in part, which is the cause of the frequent and violent process of change in the universe. *He thinks, moreover, that this motive breath is not nature but soul, rational soul, which in bestowing life adorned the sensible world for the sake of this beauty which now makes it resplendent.* And they call the world a blessed living being or god."[13]

In this passage, which describes Zeno's physical theory, the substance of the cosmos, which is ever-changing but eternal, receives its eternality from the *pneuma* present within it. We may suspect that the eternality of the substance may be inferred from its not lacking breath or power. This inference is plausible because *pneuma* in Zeno, as we saw in the Epiphanius passage above, is described as πολυχρόνιον.[14] We may assume that whilst in individual bodies the πολυχρόνιον *pneuma* has a limited lifespan, when in relation to the whole it is eternal. The attribution of the second half of this passage to Zeno may be disputed; yet it is quite feasible that he considered the substance of the cosmos to be composed of *pneuma* in the same way as the substance of the human soul is composed of *pneuma*.[15] The final piece of evidence which attributes the concept of *pneuma* to Zeno is one which is often quoted and provides a connecting point with

[13] Calcidius *Tim.* 292 (= SVF 1.88)

[14] In their sourcebook Long and Sedley question how the inference of the eternality of substance arises from *pneuma*. They do not make the connection with the Epiphanius text and instead connect its eternal character not with the *pneuma* but with the active principle; Long and Sedley, *The Hellenistic Philosophers. Vol. 2 Greek and Latin Texts with Notes and Bibliography*, 267 (44 D).

[15] Verbeke, *L'évolution de La Doctrine Du Pneuma* cf. n. 91 & n. 95 is not keen on attributing this to Zeno, despite the direct reference, preferring to suggest its Posidonian provenance. In this passage Hunt sees Chrysippean influences because of the contrast between nature and soul: see *A Physical Interpretation of the Universe. The Doctrines of Zeno the Stoic* (Carlton, Australia: Melbourne Univ. Pr., 1976), 34. Yet the distinction between *hexis*, *physis* and *psyche* is Zenonian cf. Pearson, *The Fragments of Zeno and Cleanthes*, 92 fr. 43. and also Themistius *In de anima* 35,26 (on Aristotle *De anima* 411a7-16).

Cleanthes. This is the statement by Rufus of Ephesus that for Zeno "*pneuma* and heat are one and the same".[16]

To recapitulate, Zeno makes the soul physical and corporeal by describing it as a breath. This breath is both hot and vitalising and gives us the capacity for self-motion. When this *pneuma* departs from the body, we ourselves die but the *pneuma* lives on for a limited period of time. He removes any mysterious aspects of the soul by saying that it is naturally present in the sexual organs of man and woman and it is via procreative activity that it is transferred to a new life form, through the seed of the man and an element in the womb of the woman, who each provide a part of the breath present in the embryo. The embryo's *pneuma* is united with that of the mother but grows on its own. The *pneuma* of the individual corresponds also with the *pneuma* of the whole and consequently the soul of the cosmos can be described as a breath. It is evident that for Zeno the main role he assigns to *pneuma* in his philosophy is to establish the physical nature of the soul on both the macro and micro cosmic levels. The significance of this for the integrity of the Stoic system will be explored in later chapters. Perhaps the most significant piece of information that can be gleaned from the evidence, however, is what is not said. For Zeno, whilst the *pneuma* has motion it is not the tensional motion that moves inwards and outwards simultaneously. The absence of this motion in Zeno also means that *pneuma* is not conceived of as creating coherence within individual bodies or within the cosmos. The *pneuma*, moreover, is not used to describe elaborate theories of sensory experience or action. This general absence of an elaborated theory, suggests that Zeno's physical theory is lacking in both explanatory and integrative force when compared to later Stoic theory.

Cleanthes of Assos

The situation for Cleanthes is not much improved. In fact we have even less evidence for Cleanthes' use of *pneuma* than we do for Zeno's. In his seminal work on *pneuma*

[16] SVF 1. 127 (= Pearson 84)

Verbeke dealt with this dearth of evidence by discussing texts that refer to soul (ψυχή) and mind (νοῦς) for his chapter on Cleanthes. Since for us at this stage our main interest is in the use of the concept of *pneuma* in these early heads of the school it serves for now to simply catalogue those references in which the term appears in relation to Cleanthes. Along with the reference already quoted for Zeno, Cleanthes is included as one of the Stoics who makes the substance of the soul *pneuma*.[17] There are only two other sources which refer to Cleanthes using the concept of *pneuma* but both of these are informative. First we have a passage in Tertullian[18]:

> This *logos* Zeno defines as the maker who has formed and ordered all; he will have it that this *logos* is also called fate and God, and mind of Jove, and universal law. All this Cleanthes gathers up into breath and affirms it to pervade the universe.

This text is an indication that Cleanthes makes a significant move away from Zeno's original position. If we are to take the Calcidius text above as being an accurate account of Zeno's theory then we see that whilst Zeno had attributed *pneuma* to the substance of the cosmos (i.e. the passive principle) Cleanthes applies it to the active principle and god. As we saw Zeno wanted to establish the corporeal nature of soul by defining it as a breath, however, he does not assign any sensory powers or reason to it, nor does he use the concept to designate the deity.[19] Presumably for Zeno these aspects are not to be found in the *pneuma* itself but in the *hegemonikon*, which also makes it clear for us that Zeno needs the notion of the *hegemonikon*, not to vitalise the body but to make it rational and percipient. Cleanthes, on the other hand, activates the *pneuma*. It would seem that he did not clarify all of the ramifications of this since if the *pneuma* is active, the need for a *hegemonikon* is reduced because the *pneuma* would have already within it the rationality transmitted to it by the rational active principle. This clearly becomes a problem in later commentaries on Stoic theory where sensation

[17] Galen *PHP* 2. 8 (= SVF 1. 521)
[18] Tertullian *Apol.* 21 (= SVF 1.160 (part) and 1. 533)
[19] This final point was also noticed by Verbeke, *L'évolution de La Doctrine Du Pneuma*, 39.

and vitality are often conflated. Hahm briefly discerns this issue but expresses it somewhat differently as an apparent conflict between *pneuma* and heat competing for creation in Cleanthes, which he tentatively attributes to Chrysippus' influence on his master with no further discussion.[20] I discuss this further in the next chapter. Suffice to say that we may discern the emergence of what will later become an interpretative issue, already with the alteration of Zeno's original position by Cleanthes.[21]

That Cleanthes still insisted on the *hegemonikon* and its distinctiveness from the *pneuma* is clear from another passage found in Seneca:[22]

> Cleanthes and his pupil Chrysippus did not agree on what walking is. Cleanthes said it was breath extending from the *hegemonikon* to the feet, Chrysippus that it was the *hegemonikon* itself.

This oft cited source indicates a distinction between Chrysippus and Cleanthes.[23] However, it is useful to understand this in relation to Zeno. Cleanthes appears to be retaining aspects of his master's account of *pneuma* with the active rational *hegemonikon* acting on the passive substance of the *pneuma* and guiding its motion. Clearly, there is some discrepancy here in Cleanthes' use of the concept of *pneuma*, unless it is the case that his theory here is not that the *hegemonikon* is acting on the *pneuma* but that the *pneuma* is an extension of the *hegemonikon*. If this is the case, as the source seems to indicate, then it may be said with some certainty that Cleanthes is here combining the physical aspect of Zeno's *pneuma* with the active principle, which in Zeno has no obvious physical manifestation. In this way Cleanthes theory of *pneuma* would be able to accommodate the pervasion of god through matter via the extension of *pneuma* through the cosmos.

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[20] Hahm, *The Origins of Stoic Cosmology*, 159.
[21] Cf. p. 97-9 and n.64 in ch.3
[22] Seneca *Epist*. 113.23 (= SVF 1. 525)
[23] Cf. p.91-4 and n.54 in ch. 3

The evidence gathered above offers a brief indication of the emergence of the concept of *pneuma* in early Stoicism. It is clear that Zeno had not elaborated the theory of *pneuma* to be integrated with wider Stoic theory and it remains to be seen if he was able to offer a physical account of things like thought and action which would later be incorporated into the more elaborate pneumatic theory of his successors. Whilst Zeno was keen to use *pneuma* to establish the corporeal nature of the soul. Cleanthes adopted the concept of *pneuma* for his theory of action and to designate god and the deity's corporeal pervasion throughout the cosmos. What is perhaps most important to take away from this collection of evidence is that we have no indication of *pneuma*'s peculiar motion, which is described as moving in towards the *hegemonikon* and out away from it, for these early heads. Cleanthes made a firm step in this direction with his theory of walking but there is no clear evidence that he elaborated a theory of *pneuma* which was interactive between the internal motions of individuals and their contact with the external world. An understanding of how these early Stoics may have conceived of this interaction between the individual and the whole will require a diversion into Stoic cosmology. The next chapter will lay this groundwork for what follows.

3. Pervading Fire and the Cosmic *Hegemonikon*

Introduction

Ἐκπύρωσις is a central physical phenomenon in the Stoic world view. It not only is a pre-requisite for the innovative physics of the Stoics but it also has wider theoretical and practical applications in Stoic philosophy. The difficulty to comprehend what is happening at conflagration has repercussions on our understanding of Stoic views regarding their principles and incorporeals, their theory of knowledge and even their understanding of virtue and its attainment. The reason for this is primarily because it is in their theory of conflagration that we gain glimpses into the most contradictory aspects of their philosophical system; for it is there, where the *hegemonikon* of the universe is based, where we can gain a deeper understanding of the Stoic concept of *pneuma* and the processes involved in its motion, which leads to the manifest world order (*diakosmêsis*) and consequently details the drive and leading part of that motion. It seems clear to me that many of the contradictions that arise in the recondite extant evidence have to do with the conflation of notions which, arguably, were not fully articulated by the Stoic founder or even perhaps his immediate disciples, but which are crucial distinctions to make in order to comprehend the source of the difficulty. The requisite distinction is evidenced in our sources both explicitly and implicitly and the problem can be described as follows: in what way does the *hegemonikon* differ from the *pneuma* and what is the relation between the two? This chapter is an exploratory venture into not only the evidence that involves this conflation but also into the problems which derive from both the conflation and the distinction for the Stoics themselves.

Intellectual Underpinnings

Stoic cosmology dramatically differs from the Platonic and Aristotelian world views in significant ways, making it difficult to penetrate the polemical reports of the extant evidence but also exposing something of the way in which the Stoics attempted to combat the prevailing views and render their cosmic theory systematic and coherent

with reality more broadly and with their philosophy more specifically. Since many of our sources on Stoic cosmology come down to us from commentators, thinkers or doxographers who have an Aristotelian or Platonic bent, and since our own comprehension of philosophy during this period is *a priori* coloured by these views, the reconstruction that takes place is often susceptible to interpretations which presuppose notions which the Stoics had already dismissed or altered when setting up their system.[1] That is to say, it is easy to fall into the trap of measuring Stoic doctrines by their capacity for standing their ground *in relation* to other schools and not examined relative to their own claims for coherency within the Stoic system of philosophy itself; thus the Stoic arguments are often valued according to criteria which are externally applied but which they themselves reject. It seems to me that these difficulties make it necessary to enumerate the fundamental features of Stoic cosmology which markedly differ from Aristotle and Plato at the outset in order to avoid this 'trap' and focus on the problems which the Stoics themselves have to face according to their own claim for coherency and based on their own principles. The purpose here is not to give a detailed analysis of the intellectual heritage the Stoics had access to but rather to bring into relief aspects of Stoic cosmology which distinguished them from Plato and Aristotle.

Platonic cosmology describes a uni-directional eternality from an initial starting point or creation of the cosmos, that is to say that whilst the cosmos has a starting point it has no end point.[2] Aristotle, reacting against this, claims that eternality must be infinite

[1] Though Plato and Aristotle clearly provided strong stimuli to the development of Stoic thought, the Stoics were largely innovators, breaking free from philosophical conventions. There are many theoretical examples of this but it was also common knowledge at the time that Stoic philosophy was new; this is well brought out by a biographical element on record that the comic poets tried to ridicule Zeno but ended up praising him as with Philemon in his play *Philosophers*: "This man adopts a new philosophy. He teaches to go hungry, yet he gets disciples." D.L. 7.27.

[2] For Plato's discussion of this see the *Timaeus* and also David N. Sedley, *Creationism and Its Critics in Antiquity* (Berkeley (Calif.): University of California Pr., 2007), 98–113. As is often the case Plato's view is far more complex than a simple initial creation out of nothing. Plato was only a creationist with regards to the physical world. But if the Stoics read the *Timaeus* literally, as many later thinkers were apt to do, including Aristotle (*De caelo.* 1.280a30), then Plato can appositely be interpreted as a creationist.

on both ends and removes genesis altogether.[3] Here we have the first differentiating feature of Stoic cosmology; for they argue (it can be said somewhat paradoxically) that though the cosmos is eternal, it simultaneously is born and dies. Eternality, for the Stoics, then, derives not from an ethical understanding of divinity or of geometric circular perfection of celestial phenomena but instead from the integrative aesthetic requirement of coherency between whole and part and that even divinity must follow physical laws of creation and destruction. Thus the eternal is found not in something inherently and objectively fixed but rather in the *process* of death and re-birth.

This leads onto the second feature of differentiation in that the cosmos is seen by the Stoics to be a living organism. In this way not only is it presupposed that the world is not eternal in itself but it is physically determined to be such that it is; for a living organism whilst being born must also, inevitably, die.[4] As such any value structures which are imposed onto the nature of god must take this point into account as we shall see later. The final significant differentiating feature which I will be taking into account, is probably the most problematic for the Stoics; this is the bridge between the death and re-birth of the cosmos, the *ἐκπύρωσις*. When the cosmos dies it is 'destroyed' by fire and when the cosmos is born again it is 'created' by this same fire. Do the Stoics therefore ascribe eternality to process or to fire or to both? If to fire then they are required to uphold an ethical perspective of god, similar to that of Plato and Aristotle wherein greater value is conferred on that which best withstands the ravages of time; if to process then their theory is more mechanical and physically based and they can avoid charges of an inhuman god whose providence conflicts with the evils

[3] Aristotle took his refutations of creationism to be one of his greatest achievements and innovations to vulgate cosmological speculation (*De caelo* 279b4-280a33). The three views: (i) of a created but imperishable world (Plato); (ii) of an uncreated imperishable world (Aristotle) and (iii) of a created and perishable world (Stoics) are also presented in Philo *De aeternitate mundi* 7. For Philo's presentation methods which are systematic rather than historical see Jaap Mansfeld, "Philosophy in the Service of Scripture: Philo's Exegetical Strategies," in *The Question of Eclecticism : Studies in Later Greek Philosophy*, ed. John M. Dillon and A. A. Long (Berkeley: University of California Press, 1988), 78–79.

[4] Whilst the cosmos may be a living organism for Plato he also posits an eternal intelligible world, which, importantly, the Stoics deny.

that are manifest in a deterministic universe; if to both then we need a clarification as to how the one differs from the other and whether the process (cosmic cycle) is also god or separate from him, in which case we have to posit two eternal things in the cosmos. This tripartite distinction is used here for analytic purposes and it must be said that the Stoics do not make such clear-cut distinctions in their cosmology. Nevertheless, it will become clear that the early heads of the school placed different emphases based upon one of the three options enumerated. In what follows I aim to show that their primary concern is to show the unity of, or harmony between, god and cosmos, a concern which is directly correlated with the uniqueness of their cosmological theories and is why I consider it important to emphasise their differentiation from Aristotle and Plato rather than indicating any appropriation of ideas. Any changes to doctrine within the school will be shown to be incidental to their concern for internal harmonisation of theories.

Methodological considerations

The underlying premise which guides the Stoic study of the natural world is that there is a natural correspondence between the microcosm and the macrocosm. There have been many suggestions regarding the origins for, or influences on, this substratum of Stoic thought which have been dealt with elsewhere[5] and which will be left out of the following line of discussion so as to avoid divergence from the topic at hand. What is of concern here is the consequence of this substratum more broadly for the Stoic system. Methodologically for Stoicism the character of their microcosm-macrocosm connection leads to two possible approaches for the study of the natural world (i) from a study of nature *per se*[6] and (ii) from discovering truths about ourselves and extrapolating those onto nature. Another way of looking at this is that the study takes place from the part to the whole vis-à-vis the relation of the individual to the cosmos and vice versa. Effectively this leaves the Stoics always with a dual way of

[5] For oriental origins see Verbeke, *L'évolution de La Doctrine Du Pneuma* n. 101; for pre-Socratic origins see Hahm, *The Origins of Stoic Cosmology*.

[6] Plutarch makes reference to the "strictly physical assertions" of the Stoics (*De comm. not.* 1077 A-C).

understanding the natural world, for each examination necessarily presupposes or implicates the other. That is to say that no study of the natural world can be complete without an understanding of the individual nature and likewise no study of individual nature can be complete without an understanding of the nature of the whole. The extant evidence is honeycombed with sources of such a dual character which are difficult to understand not only because of their fragmentary nature but precisely because the information that comes down to us comes laden with associations which require a background knowledge in more than one field that, moreover, presupposes a familiarity with the Stoics binary methodological framework.

The clearest examples of such dual nature sources are ones which formulate arguments explicitly applying characteristics of the individual to the whole. These arguments are often formulated by analogy from part to whole or from whole to part. Moreover, they exist from the earliest stages of the school with some of the extant evidence being directly attributed to Zeno.[7]

These arguments or assertions are usually made about physical reality extrapolated from an understanding of the individual and human psychology. So the types of arguments that predominate in the extant evidence are ones like: the cosmos is rational because humans are rational or the individual has heat and a soul which animates it and so too must the cosmos, making it a living organism. Using such sources which make the microcosm-macrocosm connection explicit, scholars have bolstered a claim that the Stoic study of nature emerges from the ground up, such that the whole is understood through the part and not the other way around. This view is supported by the natural, if mistaken, intuition that the particular brand of materialism adopted

[7] Some examples are to be found at 1077D-E (= SVF 2. 1064) [Zeno]; Cicero *ND* 2.23 (= LS 47 C) [Cleanthes]; *de comm. not* 1077 D-E (= SVF 2. 1064) [Chrysippus]. For Stoics in general (probably Chrysippus) cf. Sextus *M* 9. 78 (= SVF 2. 1013); Plutarch *Stoic. Repug.* 1049F-1050B and 1055 C.

by the Stoics is compatible with thinking that their system is belligerent towards metaphysical thinking.[8]

It is an interpretation that follows this line of thinking that is adopted by Verbeke in his seminal study of Stoic pneumatology and it has been hugely influential in subsequent literature. Early on in his study he frames the position succinctly: "cosmological considerations are not, like those of Ionian naturalists, at the origin of the Stoic system, but rather psychological doctrines, if at least the term is given a rather broad meaning to embrace all that relates to the explanation of life."[9] The advantage of this vulgate view is that our task for interpreting Stoic fragments is made easier in that we can easily give precedence to Stoic ethics and avoid much of the difficulty of reconstructing their physics and even effectively ignore the relevance of physics to Stoic ethics by maintaining that the path between the two is mainly uni-directional. This then becomes a philosophy where only our internal judgments about things are of service to our understanding. It is a view which implies that all truth exists in us because we are a reflection of the whole, but it is unbalanced because of the disregard for the questions that are asked of the whole which we are a reflection of. With this oversight we not only neglect large swathes of evidence which implicate the double-turning methodology argued for above but, more importantly, we make it far more difficult to interpret many of our other sources which are often brooded over for their complexity or otherwise dismissed on the grounds that the original meaning and utility have been lost through the polemical agendas of the commentators on Stoic

[8] For recent attacks on this "intuition" cf. D. T. J. Bailey, "The Structure of Stoic Metaphysics," in *Oxford Studies in Ancient Philosophy*, ed. Brad Inwood, vol. 46 (Oxford: Oxford University Press, 2014), 253–309; Katja Maria Vogt, "Sons of the Earth: Are the Stoics Metaphysical Brutes?," *Phronesis* 54, no. 2 (2009): 136–54. Cf. also Jean-Baptiste Gourinat, "The Stoics on Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's Timaeus," in *God and Cosmos in Stoicism*, ed. Ricardo Salles (Oxford ; New York: Oxford University Press, 2009), 46–70, who specifically rejects the idea that the Stoics are materialists as it does not fulfil two criteria of materialism: first their system is not materially monistic (it only appears so because the two principles are blended to form a unified body) and second the 'inferior reality' does not account for the 'superior reality'. Already through Gourinat's conclusions there emerges a delineation of the underlying methodological premise that I argue for above when approaching Stoic sources.

[9] Verbeke, *L'évolution de La Doctrine Du Pneuma*, 16 (my translation)

theory. These "obscure" sources become far more accessible to us if we recognise the prevailing methodology adopted by the Stoics and introduce knowledge from other fields in Stoicism in order to understand Stoic sources which are otherwise convoluted, complex and confusing.[10] As such, emphasis must be placed on abandoning the one-sided (asymmetrical, overbalanced) approach of interpreting Stoic sources through the narrow lens of what I have called from the part to the whole.

In addition it is significant to note that the physical part of philosophy is constituted by two stages beginning with a study of the natural world and ending with theology; the paedagogical transmission of this latter part has been called "initiation in the mysteries".[11] The prevailing trend in the modern literature is to study Stoic cosmogony from the aspect of either one or the other of these two approaches: the physical or the theological. In studies of Stoic cosmogony the former approach is concerned mainly with the stratification of the elements and how they arrive at their respective locations,[12] whilst the latter approach is concerned primarily with considerations of the Providence of god and his benevolent nature regarding the *diakosmesis* and destruction of the world.[13] The bifurcate approach of the modern literature corresponds in some way to Stoic paedagogical methods which suggests

[10] A similar strategy is taken up by Jaap Mansfeld in his paper "Providence and the Destruction of the Universe in Early Stoic Thought, with Some Remarks on the Mysteries of Philosophy," in *Studies in Hellenistic Religions* (Brill, 1979), 129–88, where he appeals to ethical and theological arguments in response to Lapidge's purely physical approach in his paper "Ἀρχαί and Στοιχεῖα". It is made clear that physical doctrine can be informed and elucidated by ethical doctrine but we are obliged to concede that this methodology is also functional in the opposite direction from physics to ethics.

[11] Plutarch *Stoic. Repug.* 1035 A-B cf. also SVF 2. 1008

[12] Lapidge, "Ἀρχαί and Στοιχεῖα"; John M. Cooper, "Chrysippus on the Physical Elements," in *God and Cosmos in Stoicism*, ed. Ricardo Salles (Oxford ; New York: Oxford University Press, 2009), 93–117; Ricardo Salles, "Chrysippus on Conflagration and the Indestructibility of the Cosmos," in *God and Cosmos in Stoicism*, ed. Ricardo Salles (Oxford ; New York: Oxford University Press, 2009), 119–34; Furley, "Cosmology"; Michael Wolff, "Hipparchus and the Stoic Theory of Motion," in *Matter and Metaphysics : Fourth Symposium Hellenisticum*, ed. Jonathan Barnes and Mario Mignucci ([Napoli]: Bibliopolis, 1988), 471–545; Hahm, *The Origins of Stoic Cosmology*.

[13] Mansfeld, "Providence and the Destruction of the Universe in Early Stoic Thought, with Some Remarks on the Mysteries of Philosophy"; Michael Frede, "La Théologie Stoïcienne," in *Les Stoïciens*, ed. Gilbert Romeyer Dherbey and Jean-Baptiste Gourinat (Paris: Vrin, 2005), 213–32; Ricardo Salles, "`Εκπύρωσις and the Goodness of God in Cleanthes," *Phronesis* 50, no. 1 (2005): 56–78.

studying physics before theology and yet the progression from one to the other - the bridge that connects the two - is largely neglected.

By taking a doctrine of the Stoics that plays a significant role both on the macrocosmic and also on the microcosmic level, then, we may begin to get an inkling as to how to bridge the apparent gap between the theological (or providential) and the physical (or elemental) approach to Stoic cosmology. The initiatory process which involves an understanding of physics before moving on to theology probably consisted in grasping how the individual or (the part) is similar to god (or the whole).[14] As mentioned above, to my mind the fundamental physical difficulty from which a great many *Stoicorum repugnantia* may be said to derive has to do with what appears to be a difficulty in the extant evidence regarding the relation between the *πνεῦμα* and the *ἡγεμονικόν*. The next section attempts to clarify some ways in which the connection between these two is conceived of by the early heads of the school.

Locating the Cosmic *Hegemonikon*

The *hegemonikon* has a definite location in the universe. In a passage in Diogenes Laertius (7.139) describing the three ways in which the cosmos is referred to by the Stoics, Diogenes lists the differing ways in which the *hegemonikon* of the cosmos is understood by various Stoics. We are told that whilst Cleanthes names the sun as the ruling part of the cosmos, Chrysippus in the first book of his *On Providence* says that heaven (οὐρανός) is the *hegemonikon*. Posidonius in his book *On the Gods* follows the same lines as Chrysippus naming heaven as the ruling part. Antipater of Tyre, who chronologically antedates Posidonius but postdates Chrysippus, names the aether as leading part. From a separate piece of evidence recovered by Mansfeld it seems

[14] The similarity of the part to the whole and the sensation or perception of this is implied in a passage from Plutarch. In reporting Chrysippean doctrine he says that it is a natural consequence of their belief that our virtue is neither greater nor lesser than the virtue of god, that the sensation of congeniality (αἴσθησις τοῦ οἰκείου) exists within us (*Stoic. Repug.* 1038 C-D)

plausible that Zeno of Citium like Cleanthes considered the sun to be the ruling part also[15]. However, later we shall see that there were some Stoics who, strangely, posited the earth as the *hegemonikon*.

From the above quoted texts, we have what appear to be three different locations for the *hegemonikon* ascribed to different heads of the school. It is possible that there was disagreement in the school and that these locations were changed as a response to polemics from other schools of thought. Yet, these disputes have not been traced anywhere and such a view would also imply that the Stoics readily changed their doctrines whenever encountering any resistance to their theories. It seems to me far more plausible to adopt the presupposition that the differences denote a developing and refining of pre-existing doctrines, as is also quite common in the Stoic literature more generally. Indeed, if we explore the context of the Diogenes Laertius text more closely, we see that in the immediately preceding passage, referring to the elements and their locations, he says: "Fire has the uppermost place, it is also called aether, and in it the sphere of the fixed stars is first created." If we understand the sphere of the fixed stars as denoting heaven then we see that, in terms of location, heaven and aether may be equated. In addition to this, we may note that Chrysippus himself is likely to have thought of these as equivalent for although he locates the *hegemonikon* in the heaven, we are told that later on in the same work (*On Providence*) he offers a more nuanced description of the *hegemonikon* as the purest part of aether (D.L. 7.139). The only discrepancy that should be considered, therefore, is with the earliest heads of the school, Zeno and Cleanthes, who both seem to posit the sun as the ruling part. Our knowledge of Zeno's physical speculations is scanty and indeed it is only by Mansfeld's a fortuitous stumbling across a new piece of evidence that we can even

[15] Alexander of Lycopolis *Contra Manichaeorum opiniones disputatio* ch. XII, p.19,2 f. Br (Not in SVF = LS 46 I); cf. P. W. van der Horst and J. Mansfeld, *An Alexandrian Platonist against Dualism. Alexander of Lycopolis' Treatise « Critique of the Doctrines of Manichaeus »* (Leiden: Brill, 1974), 74 n. 293-296; also Mansfeld, "Providence and the Destruction of the Universe in Early Stoic Thought, with Some Remarks on the Mysteries of Philosophy," 154; cf. also Plutarch *De comm. not.* (= SVF 1.510 = LS 46L) where Cleanthes is said to have the sun assimilate the moon and all the stars at *ἐκπύρωσις*.

argue that Cleanthes most likely followed Zeno in understanding the sun as the *hegemonikon.* But why would later Stoics, starting from Chrysippus, alter this original doctrine from the founder of the school? There is no ready answer to this problem and, to my knowledge, it has been utterly neglected in contemporary literature. The sun is clearly a more precise location for the *hegemonikon*, so it may be rather odd that the development was to make its location vaguer, broader or even perhaps obscure by positing the aether in the heavens. This is a complex and composite issue and requires several diversions into wider Stoic cosmological theory.

In practically all the surviving evidence the *hegemonikon* is reported to be the source from which all motion derives. This is true on both a cosmic and an individual level. Our understanding of this is partly informed by Stoic embryology. Galen reports that in the formation of the foetus "the heart is that which is generated before anything else" (*De Foet Form.* 4.698, 2-9; = SVF 2.761, LS 53 D) and Calcidius notes that the parts of the soul "flow from their seat in the heart, as if from the source of a spring, and spread through the whole body" (Calcidius 220 = SVF 2.879, LS 53G). The parts of the soul which Calcidius reports here must be the standard seven parts of the soul which the Stoics are known to have posited. These are outlined in an Aëtius passage which supports the wider context of Calcidius by describing the parts of the soul as growing and stretching out from the *hegemonikon* (4.21. 1-4 = SVF 2.836, LS 53H), which in Stoic tradition is placed in the heart.[16] In numerous sources we discover how this stretching out takes place. It is described as a dual action motion which moves simultaneously inwards and outwards (Nemesius 70,6 -71,4 = not in SVF, LS 47 J) or, as Alexander of Aphrodisias describes, this simultaneous motion that occurs in bodies happens to be "out of itself and into itself" (Alexander *de mixt.* 224, 23-6 = SVF 2.442, LS 47 I). These sources suggest that the location from which this dual motion takes place not only is

[16] But for one recorded exception Diogenes of Babylon who placed the commanding faculty in the head (Philodemus *de pietat.* 15 = *SVF* 3 Diogenes 33). Diogenes is known to have been a renegade also regarding cosmological theory. Along with Panaetius, his disciple, he is reported to have rejected the ἐκπύρωσις and eternal recurrence doctrines.

the *hegemonikon* but is also centrally positioned; for it stretches out (we assume in all directions) and returns to where it came from.

Indeed, it seems as though this is a problem that Cleanthes, following his master in claiming that the sun is the *hegemonikon,* encountered. Heliocentric models of the universe were fairly common in the time of Cleanthes. One of the better known instantiations of this view is to be found in the theories of Aristarchus of Samos (310 – c. 230 BCE) who was a contemporary of both Zeno and Cleanthes and a disciple of the third head of the Lyceum, Strato of Lampsacus (aka "the physicist"), whom he met at Alexandria.[17] Although Cleanthes claimed the sun was the central power in the universe, he nevertheless subscribed to a geocentric view, which also happened to be the traditionally accepted view in Hellenic culture from both religious and philosophical perspectives.[18] We thus hear in his *Hymn to Zeus* (Stobaeus *Ecl.* I, 1.12 = SVF 1. 537 = LS 54 I) that "All this cosmos, as it spins around the earth, obeys you [Zeus]". But whilst the whole cosmos spins around the earth, Zeus is the ruling power of the cosmos and equated with the sun. This would seem somewhat contradictory for whilst the greatest power is given to the sun (otherwise referred to as the *hegemonikon* or Zeus), yet everything revolves around the earth. If this does not seem to us to be coherent it appears that Cleanthes did not think that, for it is clear that he was also familiar with the heliocentric models and is even known to have attacked Aristarchus' views. Indeed it was not an idle attack but a more detailed and in depth refutation as is evidenced from the fact that he dedicated a whole book to responding to Aristarchus (*Πρὸς Ἀρίσταρχον*; D.L. 7. 174). In fact, rather than Cleanthes simply accusing and refuting Aristarchus, his book was most likely a response to Aristarchus who directly accused Cleanthes of being a bad Stoic who did not accept the

[17] Aëtius 1.15.5 = Stob. *Ecl.* 1.16.1; for Strato's stint in Alexandria cf. Robert W. Sharples, "Strato of Lampsacus: The Sources, Texts and Translations," in *Strato of Lampsacus : Text, Translation, and Discussion*, ed. Marie-Laurence Desclos and William W. Fortenbaugh (New Brunswick (N.J.): Transaction Publ., 2011), 14–16.

[18] Thomas Bénatouïl, "Cléanthe contre Aristarque : stoïcisme et astronomie à l'époque hellénistique," *Archives de Philosophie* 68, no. 5 (2005): esp. 208 & n.7.

consequences of his own principles, that is to say that Cleanthes should in fact be a heliocentrist like Aristarchus.[19]

It could be that Cleanthes response to Aristarchus was largely ignored by the doxographers who preferred to record some aspects which distinguished one Stoic from the next or else chose to report the more provocative or apparently contradictory views and so if Cleanthes ultimately refined his theory of the sun as the *hegemonikon* and the earth at the centre, these developments were simply not transmitted for the above reasons. This cannot be known. There are numerous sources for early Stoic doctrine which speak of a movement of all bodies and elements towards a centre and in some of these the earth is explicitly reported as being found at the centre.[20] Of all the sources where we have a geocentric perspective attached to the Stoics, Cleanthes' *Hymn* is the only explicit extant evidence in which a geocentric doctrine can be ascribed specifically to him.[21] There are numerous sources from early Stoic doctrine which speak of a movement of all bodies and elements towards a centre and in some of these the earth is explicitly reported as being found at that centre. What is notable in all the evidence is that very little has survived regarding the planetary motions

[19] In the modern literature on Stoic theory there has been, so far as I know, no recognition of this initial attack from Aristarchus; see for instance the paper by Bénatouïl dedicated to this very topic (n.17). The reason for this is that the manuscript as it has been transmitted down to us reads as follows: « ὦ τάν, μὴ κρίσιν ἡμῖν ἀσεβείας ἐπαγγείλῃς, ὥσπερ Ἀρίσταρχον ᾤετο δεῖν Κλεάνθης τὸν Σάμιον ἀσεβείας προσκαλεῖσθαι τοὺς Ἕλληνας ὡς κινοῦντα τοῦ κόσμου τὴν ἑστίαν ὅτι <τὰ> φαινόμενα σῳζειν ἀνὴρ ἐπειρᾶτο μένειν τὸν οὐρανὸν ὑποτιθέμενος ἐξελίττεσθαι δὲ κατὰ λοξοῦ κύκλου τὴν γῆν ἅμα καὶ περὶ τὸν αὑτῆς ἄξονα δινουμένην. » (Plutarch *de facie lun.* 923A). The accusation of impiety being levelled against Aristarchus by Cleanthes is probably backwards. This is persuasively shown by two Italian scholars who traced the transmission of the Plutarch manuscript on which the canonical "modernized" version has been based. They show that the passage in question was altered by a 17th century French scholar who, most likely influenced by the prosecutions of Galileo and Giordano Bruno, emended an accusative for a nominative and vice versa. This emendation changes the meaning such that it would have been Aristarchus who ridiculed Cleanthes for being an impious Stoic who insisted on a geocentric model whilst making the sun the hearth (*hestia*) of the universe. For more on this story along with the manuscript alterations cf. Lucio Russo and Silvio M. Medaglia, "Sulla Presunta Accusa Di Empietà Ad Aristarco Di Samo," *Quaderni Urbinati Di Cultura Classica* 53, no. 2 (1996): 113–21.

[20] See the excellent discussion by Lapidge, "Ἀρχαί and Στοιχεῖα," 255–57. on the confusion created by these sources.

[21] The evidence is charted in Germaine Aujac, "Stoïcisme et Hypothèse Géocentrique," *Aufsteig Und Niedergang Der Römischen Welt* 2, no. 36 (1989): 1430–53.

relative to this debate; instead the evidence indicates that these motions were described in reference to the elements and Stoic elemental theory, such that the earth at the centre refers not to our world but to the element 'earth'. Although it is not possible to know for certain it is likely that Cleanthes was a heliocratic cosmologist whilst at the same time supporting a geocentric perspective.

The *hegemonikon* being found at the periphery of the universe, in the celestial sphere, indicates a breakdown of the analogy between whole and part. If we proceed on the presupposition that Stoic cosmology is extrapolated from Stoic psychology, as is often the case, then we would expect to discover that the *hegemonikon* of the cosmos is to be found at its centre following the fact that the *hegemonikon* in humans is centrally located in the chest, but this is clearly not the case. This discrepancy has, as far as I know, been wholly neglected in the modern literature,[22] possibly because it does not sit well with the prevalent methodological presupposition that the Stoics formulated their cosmology from their psychology and not the other way around or independently from it. The discrepancy is easy to overlook. In Lapidge's excellent study, for instance, he does not give due attention to the problem of the *hegemonikon*'s location, thus neglecting Cleanthes' heliocratic geocentricism and even rejecting perfectly reliable sources on account of not being "Stoic" enough, whilst failing to adduce at least two further pieces of evidence which confirm the doctrine.[23] I think this "faulty" evidence may be rehabilitated into the story by appreciating that the early

[22] With the exception of one German scholar in the late 19th century Ludwig Stein, *Die Psychologie Der Stoa* (Berlin: Verlag von S. Calvary & Co, 1886), 211.

[23] Lapidge, "Ἀρχαί and Στοιχεῖα," 267–68 n.146. The sources he rejects for Stoic cosmogony are Aetius 2.6.1 (= SVF 2.582) and SVF 1.495 (Hermias). Lapidge also fails to adduce two other pieces of evidence for the same doctrine being attributed to the Stoics in Eusebius *Praep.* 15. 15 and Stobaeus I, 21. 6ᵉ [Archedemus], both of which are quoted below. For the sake of comprehensiveness it is worth also recording Philo *de aet. mundi* 109-111 "The uphill journey begins from earth. Earth is transformed by melting into water, water by evaporation into air, air by rarefaction into fire. The downhill path leads from the top, the fire as it is extinguished subsides into air; air as it is compressed subsides into water, while water is condensed as it changes to into earth". This text goes hand in hand with another one (SVF 2. 413 [Arius Didymus]), which Lapidge in the same note finds "confusing". The Hermias text (SVF 1.495) he refers to should more correctly be related to these latter sources, rather than the earlier ones, as it also refers to the transmutation of the elements into each other.

Stoic account was itself faulty, in so far as it was open to the attack of incoherence. The incoherence lies both in positing that, whilst everything gravitates around earth at the centre, the *hegemonikon* is in some way displaced at the periphery, and also in the fact that this dislodges the harmonious symmetry between the whole and the part, the cosmic and the psychological.

As it seems to me, the evidence can only be rehabilitated if we presuppose that, for the Stoics, coherency of doctrine was in many respects methodologically more important than specific aspects of doctrine. Thus in an extract from Arius Didymus preserved in Eusebius we are told that certain unnamed Stoics held a radically different view than Zeno, Cleanthes and Chrysippus in that they "thought that the earth was the *hegemonikon*."[24] Aëtius confirms that was a Stoic view, adding that "the generation of the world started from the earth, as from a centre, and the starting point of a sphere is the centre."[25] We also discover a more precise attribution of this doctrine to the Stoic Archedemus of whom it is explicitly said that "the *hegemonikon* of the cosmos is found in the earth".[26] It is more than likely that the Stoics who made the earth into the *hegemonikon* of the cosmos were attempting to defend the Stoic system against attacks on its apparent lack of coherence. This need not necessarily mean that they abandoned the doctrine that fire is that out of which everything derives but merely that they were responding to attacks on the *location* of the *hegemonikon* and not its composition. So whilst fire is lifted up to the stratosphere early on in the world cycle, it gradually returns to the centre, such that, by the end of the cycle, the centre has been converted fully back into its fiery state. Arguably this account fits in better with the numerous sources which describe how everything, even fire, has a centripetal motion, with all the elements being pulled, as it were, towards the centre. In this way they would have a theory of the *hegemonikon* which equated it also with a force in the universe which was so powerful that it pulled everything towards it. The focus of this

[24] Eusebius *Praep.* 15.15
[25] Stobaeus I, 21. 3β (= SVF 2.582)
[26] Stobaeus I, 21. 6ε

account is on *hegemonikon* as force rather than as substance, which also connects it to the active rather than the passive principle. The appeal to the integrity of the system of locating the *hegemonikon* centrally in the cosmos is clear, especially if, as we have seen with Cleanthes, that integrity was coming under attack. Altering the *hegemonikon*'s location was an easy and arguably even effective solution.

Nevertheless, the first three heads of the school seemed to think it was important that the location and composition of the *hegemonikon* should coincide. Indeed, if we were to try to discover a weakness in the account which locates the *hegemonikon* at the central earth it would be this: that, since the focus is not on the composition or substance of the *hegemonikon*, but rather on its force, Stoics like Archedemus may have made the *hegemonikon* of the cosmos into an incorporeal in an attempt to avoid some of the difficulties of the strictly physical account that Zeno had set out in formulating his philosophy. This may account for the two antithetical views we have in our evidence about the principles as incorporeal (following the *Suda*) and corporeal (following the manuscripts of Diogenes Laertius).[27] That is to say that the *Suda* and Diogenes Laertius respectively may have been referring to two different schools of thought within Stoicism, possibly with Archedemus heading the Stoics who preferred the principles to be incorporeal. This not unlikely possibility has the advantage in accepting both sources as reliable for different Stoics rather than claiming that one or the other is wrong for all Stoics in general. For the first three heads of the school, however, the principles were certainly corporeal. With regards to the analogically symmetrical relationship between whole and part, their insistence on the *hegemonikon*'s location at the periphery of the cosmos need not necessarily cause them

[27] It is generally accepted in recent literature that the principles are corporeal, following the Diogenes Laertius manuscript 7. 134 and rejecting the *Suda* reading of ἀσωμάτους, cf. Gourinat, "The Stoics on Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's Timaeus," 55, for a good background account into why the principles should be seen as corporeal for the Stoics in general. In the past this was widely disputed with numerous scholars having supported the *Suda* text e.g (implicitly) F. H. Sandbach, *The Stoics* (New York: Norton, 1975), 73–74; R. B. Todd, "Monism and Immanence: The Foundations of Stoic Physics," in *The Stoics*, ed. J. M. Rist (Univ. of California Pr., 1978), 139–43 etc.

too much trouble because it may be noted that such symmetry does not exist either when they speak of the *hegemonikon* of lower organisms like plants whose *hegemonikon* was said to be found in their roots (i.e. also not centrally).[28] The cosmos is clearly far superior to the individual, just as a rational animal is superior to a plant; differences are to be expected in this hierarchy and the location of the *hegemonikon* is one of these. The larger problem is the fact that the earth appears to be the strongest force in the cosmos because everything is in a way guided towards it. The result of focusing instead on the substance of the *hegemonikon* in determining its location is that these earlier heads must have considered its guiding power in a different way than viewing it as a centripetal force. More than this, though, they must have accounted for its integration with the Stoic system also, an integration which may have been neglected by later Stoics such as Archedemus after the onslaught of criticisms that the original account received.

Increasing Fire?

It will be possible to form a more integrated understanding if we have a clearer grasp of the role of fire in Stoic cosmology. It is well known that for the Stoics the cosmic fire that constitutes the *hegemonikon* and is located at the periphery of the cosmos is said to also be, or represent, the reason which pervades the cosmos. This fiery stuff forms a continuum allowing for no gaps or empty spaces to exist between the multiplicity of bodies, for it pervades every part of the cosmos and plays a decisive role in the unity and coherence that exists therein. It is also recorded in numerous places that the cosmic soul is analogous to the individual soul as for example in Plutarch: "Chrysippus asserts that Zeus, that is the universe, is like the human being and his providence is like its soul".[29] It would seem that once again this analogy is not as water tight as we might expect when it comes to describing the presence of fire in cosmic

[28] Cicero *ND* 2.29 (= LS 47C)
[29] Plutarch *De comm. not.* 1077D-E (= SVF 2. 1064)

and individual souls. Cleanthes described how this vitalising principle is present in the individual and that its departure invariably leads to death:

> For everything which is hot and fiery is roused and activated by its own movement; but a thing which is nourished and grows has a definite and regular movement; as long as this remains in us, so long sensation and life remain, but when the heat has been chilled and extinguished, we ourselves die and are extinguished.[30]

We should suppose that the death of the cosmos would involve a similar chilling as it ages, with a gradual relaxation of its fiery tension. It is easy to suppose that, being a living organism with a limited life cycle, the cosmos will die as it runs out of vitalising heat and fire and that conflagration occurs due to this gradual depletion of the vitalising principle within it. In his work on *the Obsolescence of Oracles* Plutarch records (411 C) that there existed a debate in antiquity about whether fire burns better when it is cold or hot outside; it would be plausible to place the Stoics on the side of the debate that views fire burning hottest when it is coldest outside, since in their physics fire is nourished by the colder elements. If the universe is coldest at the end of the cycle, then fire will naturally burn hottest, and this is confirmed by their theory of conflagration. However, in an interesting paper by Michael Frede the opposite view is suggested. He argues primarily from the theological perspective that as the cosmos ages it becomes more and more rational. Since Stoic nominalism allows for the substance of the cosmos to be called by different names including fire, reason and god, Frede's view naturally involves a cosmos that gets hotter as it ages. As it happens this view is better supported in the evidence. And two sources can be adduced which explicitly state this Stoic position:[31]

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[30] Cicero *ND* 2.23

[31] Hager, "Chrysippus' Theory of Pneuma," 107, without too much explanation asserts that tension is at zero during conflagration and at maximum just before it i.e. it gradually increases during the cosmic cycle. "Third, if this account of Chrysippus is correct, it helps explain the significance of the dissolution of the universe into fire (*ekpyrosis*), signalling the end of one cycle and the start of another. The cycle

> Zeus goes on growing until he has assimilated all things to himself, for, since death is the separation of soul from body, whereas the Soul of the cosmos not only is not separated, but continually (συνεχῶς) goes on growing (αὔξεται) until it has completely absorbed into itself the matter (ὕλην), it should not be affirmed that the cosmos dies.[32]

> The common reason having advanced so far, and a common nature having become greater (μείζων) and fuller (πλείων), and having at last dried up (ἀναξηράνασα) all things and absorbed (ἀναλαβοῦσα) them into itself, finds itself in the universal substance, having gone back to the condition first mentioned and to that resurrection which makes the Great Year, in which takes place the restitution (ἀποκατάστασις) from itself alone to itself again.[33]

Nevertheless, Keimpe Algra has disputed the position of any increase in rationality for the Stoics in general both during conflagration and also for different stages of the cycle.[34] He does not delve much deeper into this topic but there is another source which suggests that, contrary to the above sources, there is neither increase nor decrease of the substance of fire in the cosmos. This evidence has been largely neglected in studies of Stoic cosmogony, perhaps because of its absence from sourcebook translations. The position is recorded in the doxographical reports of Stobaeus (one of our most reliable sources) and comes in the common form of a definition describing the essential characteristics of the substance of the cosmos:

> According to Zeno, the substance (οὐσία) is the prime matter (ὕλη) of all existing things; this is wholly eternal and neither does it increase

starts with *pneuma* uniformly inter- penetrating *hyle,* the interpenetration becomes non-uniform as the cycle proceeds and returns to uniformity at *ekpyrosis.* In thermodynamic terms, in the pre-cosmic chaos the entropy is at a maximum (tension of the *pneuma* at a minimum). As the cosmos is formed entropy decreases (as tension of the *pneuma* is increased). Finally, *ekpyrosis* is inevitable, signalling a return to maximum entropy (and minimum tension)." It seems as though Hager argues thus because of his view that Chrysippus introduced tension; implied in the concept is that the tension can also snap when at maximal state i.e. leading to conflagration.

[32] Plut. *Stoic. Repug.* 1052C (= SVF 2.604)

[33] Eusebius *Praep.* 15.19

[34] Keimpe A. Algra, "Stoic Philosophical Theology and Graeco-Roman Religion," in *God and Cosmos in Stoicism*, ed. Ricardo Salles (Oxford ; New York: Oxford University Press, 2009), 237.

> (πλείω) nor decrease (ἐλάττω). Its parts, however, do not remain stable (διαμένειν) but are divided (διαιρεῖσθαι) and fused together (συγχείσθαι). It is due to this [the substance] that the *logos* of the all, which some call fate, is propagated.[35]

This substance which is being referred to exists in different ways which it is important to distinguish before further discussion. If we assume that the substance of the universe is primal fire then we need not enter into the difficulties regarding the separability and inseparability of the principles at this point.[36] There appear to be two basic phases of the cosmic cycle which are relevant to substance, though we will later see, more precisely, that there are three. These two basic phases can be distinguished as substance during conflagration and substance during the cosmic cycle, otherwise known as the world of coming-to-be and passing away. During conflagration substance, equated with primal fire, exists alone. During the cosmic cycle, however, primal fire exists inside things as their vitalising and cohesive principle. If we maintain that the cosmos undergoes either a gradual chilling or else a gradual desiccation we find ourselves in both instances in contradiction with this doctrine of the Stoics which is not only attributed to the founder of the school but is prevalent throughout much of the early school's lifetime, for Stobaeus tells us that it was also held by Chrysippus.[37]

It is possible to avoid this problem by arguing that the definition applies to substance solely during the conflagratory phase of the universe and consequently need not be predicated of substance during the cosmic cycle. This is ultimately an unsuccessful enterprise also, for multiple sources can be adduced which speak of the increase of fire during conflagrationand indeed the extra-cosmic void is introduced into Stoic theory

[35] Stobaeus *Ecl.* I, 11. 5α

[36] For a recent analysis of this problem along with a summary of the modern literature cf. Ian Hensley, "On the Separability and Inseparability of the Stoic Principles," *Journal of the History of Philosophy*, Forthcoming.

[37] Stobaeus *Ecl.* I, 10. 16γ

primarily to accommodate this expansion of the fiery substance.[38] Our records for Chrysippus and Posidonius offer a few further details which introduce a possible distinction between the increase that is being described during conflagration and the cosmic cycle and the type of increase that is being denied of substance:

> Chrysippus says that "prime matter is the substratum with reference to quality (ποιότητα): it is eternal and does not undergo either increase (αὔξησιν) or decrease (μείωσιν). As far as its parts are concerned, it accepts division (διαίρεσιν) and fusion (σύγχυσιν) with the result that corruption is developed between some parts and others, [this corruption is accomplished] not by division but by analogy relative to the fusion of some [parts] which arise from some [other parts]."[39]

Chrysippus here offers us an additional piece of Stoic doctrine that is useful for understanding the type of increase that is being spoken of. We gain an insight into what the processes of division and fusion, which Zeno had mentioned, mean for the parts of the cosmos. Chrysippus claims that fusion is that which leads to the passing away of the parts of the cosmos. Division, then, must be that which leads to their generation. In another passage from Stobaeus, Posidonius confirms this:

> Posidonius says that there are four kinds of destruction and generation from the existent to the existent. For they recognised that there was no such thing as generation from, or destruction into, the non-existent, as we said before. But of change into the existent he says that one kind is by division (διαίρεσιν), one by alteration (ἀλλοίωσιν), one by fusion (σύγχυσιν), and one an out-and-out change which they call 'by resolution' (ἀνάλυσιν). Of these, that by alteration belongs to the substance, while the other three belong to the so-called 'qualified individuals' which come to occupy the substance. And it is along these lines that processes of generation come about. The substance neither grows (αὔξεσθαι) nor diminishes (μειοῦσθαι) through addition

[38] e.g. Cleomedes *Caelestia* 6. 11-17 (= SVF 2.537 = LS 49 G); Philo *De incorr. mund.* 257.12 (= SVF 2.619); Plutarch *De comm. not.* 1077 B; *Stoic. Repug.* 1052 C etc.
[39] Stobaeus *Ecl.* I, 11. 5α

> (πρόσθεσιν) or subtraction (ἀφαίρεσιν), but simply alters, just as in the case of numbers and measures.[40]

Posidonius offers us a more precise description by qualifying the type of increase and decrease that are not predicated of substance: no new substance is contributed and no substance is taken away. That is to say, fire remains stable in terms of quantity and this is true during all phases of the cosmic cycle. Finally, thanks to Plutarch's consistent desire to show the inconsistencies in Stoic thought we can determine the type of increase and decrease that is permitted of the substance which is incorporated into Stoic etymologising.

> Of their more strictly physical assertions, however, isn't it at odds with the common conception to say that a seed is ampler and bigger than what is produced from it? … wherefore they say that the seed has been named *sperm* <after> the *spir*aling (σπείρασιν) of a large mass into a little one and nature has been named *physis* because it is a dif*fu*sion (ἐμφύσησιν) or expansion (διάχυσιν) of the formulae or factors which it explicates or resolves.
>
> On the other hand, however, they assert that fire is as the seed of the universe and that in the course of the conflagration the universe changes into seed, having its lesser corporeal mass greatly diffused (χύσιν) and taking over from the void an immense additional space upon which it encroaches by its growth, but that when the universe is being generated again the magnitude shrinks (υποχωρεῖν) and dwindles (συνολισθαίνειν), the matter subsiding (δυομένης) and contracting (συναγομένης) into itself in the process of generation."[41]

In his polemic Plutarch has provided us with a more precise understanding of the phases of substance, for whilst we had earlier made a distinction into just two phases (conflagration and cosmic cycle), Plutarch has shown us that the conflagration itself has two phases: one which is an expansion and one which is a contraction, the former corresponding to the end of the cycle and the destruction of the world and the latter

[40] Stobaeus *Ecl.* I, 20. 7

[41] Plutarch *De comm. not.* 1077 A-C

corresponding to generation and the new world cycle. In addition to this extra detail and significantly for our discussion, the discrepancy in our sources regarding the lack of increase and decrease of fire is clarified. For the increase and decrease of fire is here being referred to in a spatial sense and not a quantitative one. So on a minute level, then, we can fill out the details: fire undergoes a spatial increase and decrease in extension, understood as a contraction or expansion. The Stoics conceive of a substance that whilst remaining quantitatively the same becomes more rarefied and thus larger at conflagration and denser and thus smaller when undergoing the process of generation.

This account may seem insignificant but it invariably brings into relief the Stoic concern for a rigorous coherence between their physics and ethics. We discover that since fire does not increase or decrease there is no reason to conceive of fire as running out. Moreover, we discover that from the earliest stages of the school the Stoics were keenly concerned with the integration of their theories across the parts of philosophy: in this case between physics and ethics. In making the substance finite they recognised that the cosmos must be taken to be a closed system for otherwise hypothetical third world influences may be able to alter the parameters of the processes involved and the coherency of their physical system would be lost. So whilst they accommodate complex relations between the parts these relations are fixed or pre-determined by the unitary nature of the whole. There is no clear delineation of whether this view emerged as a consequence of their ethical belief in determinism or if their views on fate derive from their physical theory. What is clear is that they made elaborate efforts for these two fields of philosophy, physics and ethics, to cohere with each other. If they had not secured the finite nature of substance in their physics they would be unable to defend themselves against accusations of contradiction for they would leave themselves exposed to the possibility that the substance would have the capacity to replicate itself during the cosmic cycle, thus allowing for an infinite and consequently open system within which their strict determinism could hold no place, demolishing one of their

fundamental ethical doctrines. Further it would allow for an eternal cosmos that has no need for conflagratory regeneration as it replicates itself, thus also demolishing their own conception of a vital cosmos which inevitably must die.[42]

That the finiteness of fire is well integrated into Stoic physical theory is evident also in the type of sympathy that the Stoics advocate for their system. Yet, the evidence once again needs to be pieced together from apparently disparate sources. The Stoics uphold the permeability of matter, making the incredible claim that there is no such thing as a discrete body. This position secures the physical backdrop for the unity of their cosmos yet based on how their theory of generation has survived we have little understanding of how fire is said to pervade the universe and create sympathy. A large problem which has also led to some of the contradictions in our sources is that the Stoics followed the intellectual tradition regarding the stratification of the elements.[43] The cosmographical picture is described according to the grades of weight from light to heavy or else relative to the rarity and density of matter. Fire and earth being the rarest and densest elements are found at the highest and lowest extremes of the cosmos with air and water in their own spheres of influence in between. There have been some inconclusive studies on how they arrive at their positions in the cosmic scene, but my concern here is rather with how fire exists across the stratification and not only at one extreme of it, for it is only in this way that their theory of cosmic sympathy and of conflagration can be physically feasible.

Zeno and the Homogeneity of the Cosmos

To speak of fire as the element which permeates reality while at the same time upholding a theory of the stratification of the elements is *prima facie* contradictory. As

[42] It would be interesting to know how the Stoics who rejected conflagration conceived of the substance of the universe and whether it was limited or unlimited.

[43] For the standard stratification cf. Aristotle *De Cael.* 1. 1-2; 3. 2; 4. 3; *Physics* 4. 5.212b20-22. Cf. also F. Solmsen, *Aristotle's System of the Physical World. A Comparison with His Predecessors* (Ithaca: Cornell Univ. Pr., 1960), 254 ff.

it seems to me this contradiction is not solved by examining the stratification of the elements and how they rise or fall into their respective positions. Instead we should be looking at how fire is said to exist throughout the cosmos. By studying the body of Philo's works we see that there was an active debate in antiquity regarding the problem of the homogeneity of the cosmos. Through Philo we receive a backdrop that helps explain a fundamental doctrine of the school that dates back to its founder, whilst also offering a likely reason for Chrysippus' shift to perceiving the aether rather than the sun as the ruling part. First, though a few words need to be said with regards to using Philo as a source for Stoicism. Philo was writing in the first half of the 1st Century CE and his works, especially his allegorical corpus, have generally been neglected as a source for Stoic physics. Von Arnim's collection contains no less than 194 passages from Philo according to Adler's index;[44] by contrast Long and Sedley's sourcebook contains only 10 texts, Inwood and Gerson's not one, Algra et al. (*The Cambridge History of Hellenistic Philosophy*) cite only 17 passages, while Hahm's seminal *The Origins of Stoic Cosmology* utilises only one passage from Philo, from his work *De Aeternitate Mundi*. More recently it has been argued by Long that Philo may not be as useful as Cicero or Seneca (with whom Philo shares a timeline) for our understanding of Stoic theology and physics more generally, but nevertheless there is a gold mine of useful information for Stoic physics to be found in Philo.[45] This is especially the case

[44] Von Arnim is described by Runia as a vacuum cleaner who with regards to Philonic texts "indiscriminately sucks up everything in sight": see David T. Runia, "Philo of Alexandria and Ancient Philosophy," in *Greek and Roman Philosophy, 100 BC - 200 AD*, ed. R. W. Sharples and Richard Sorabji, vol. II (London: Institute of Classical Studies, School of Advanced Study, University of London, 2007), 485–86. It is said that the long awaited and currently abandoned project of the Utrecht edition of the fragments of the Early Stoa will be deleting most of the excerpts from Philo, one of the main reasons being that effective use of these excerpts may only be achieved, as Runia concludes in the above work, via a contextual appreciation of Philo's aims and methods, that is to say not by studying them in the fragmentary way they appear in sourcebooks.

[45] On this cf. A. A. Long, "Philo On Stoic Physics," in *Philo of Alexandria and Post-Aristotelian Philosophy*, ed. Francesca Alesse (Leiden: Brill, 2008), 121–40, who also recognises the possibility of recreating "the essence of Stoic physics simply by studying Philo's works" (p.140). For a more nuanced understanding of the relevance of Philo cf. Mansfeld, "Philosophy in the Service of Scripture: Philo's Exegetical Strategies". Mansfeld argues (p.73) that "once it is acknowledged that some of the individual tracts constituting the *Allegorical Commentary* are constructed as a series of questions and answers geared to the exegesis of the individual verses that form a biblical pericope, after the pattern of the much more

when we start weaving Philo's references to Stoic ideas together. His syncretic bent and the historical period in which he flourished do not always offer his works up for direct comparison to Stoic thought. This is partly due to the various influences and general pervasion of Stoic thought and terminology throughout the philosophical schools of the Hellenistic world. Yet, working with the texts, one gains a growing familiarity with Philo's approach. His largely spurned allegorical works have often fallen victim to the general approach in scholarship on early and middle Stoicism, namely, to read the texts which only directly refer to Stoic thought or Stoic thinkers via the fragmentary style in which they appear in sourcebooks like the *SVF.* This approach invariably ignores the wider context of the arguments. With specific reference to Philo's allegorical works one soon realises that there is much Stoic argument incorporated within the wider context of the exposition which is not referred to directly and which substantially reveals the subtleties both of Stoic argumentation and the development within the school through the surrounding debates which Philo brings together in his accounts.[46]

With this in mind we may enter into a discussion of some of these Philonic texts. Philo in his work on *The Confusion of Tongues* does not refer directly to the Stoics at any point and yet his work makes constant reference to Stoic doctrine, it would seem both in

formal *Quaestiones et solutiones in Genesim* and *In Exodum*, these treatises turn out to be far less rambling and incoherent than they have often been assumed to be." For the dangers but also the importance of using Philo as a source for Hellenistic philosophy see David T. Runia, "The Beginnings of the End : Philo of Alexandria and Hellenistic Theology," in *Traditions of Theology* (Leiden: Brill, 2002), 281–316. He also recommends working contextually with the material found in individual works as these are usually consistent in themselves but notes that it is unreasonable to expect accurate results if we pick and choose from across the corpus (p. 288): "It is reasonable to expect that the internal doctrinal consistency of these large-scale works will be greater than that of the corpus as a whole."

[46] This methodological approach is also recognised and attempted by Long *ibid.* p.135-7. A good example on the general methodological approach to Philo's allegorical works as useful in regurgitation of Stoic ideas but not Stoic arguments can be found in Todd, *Alexander of Aphrodisias on Stoic Physics. A Study of the De Mixtione with Preliminary Essays, Text, Translation and Commentary*, 50–51, who observes Philo's use of Stoic ideas and his exposition of original Stoic doctrine in relation to the Stoic theory of mixture, yet does not see the contextualised argument; in this way Philo is seen as simply picking and choosing whatever ideas come to his mind., Methodologically this does not account for the coherence in Philo's own thinking which may offer us insights not only into the ideas he does choose to include but also (more indirectly and surreptitiously) the reasons for which he does so.

specific terms and also more generally.[47] At §133 Philo offers a well-described picture of a common theme which runs throughout this work and is connected to Stoic (and sometimes Epicurean) philosophy more generally and to our particular problem specifically:

> "Many too have exalted their senses, as though they were a tower, so that they touch the boundaries of heaven, that is symbolically our mind, wherein range and dwell those divine forms of being which excel all others. They who do not shrink from this give the preference to sense rather than understanding. They would use perceptible things to subdue and capture the world of things intelligible, thus forcing the two to change places, the one to pass from mastery to slavery, the other from its natural servitude to dominance."[48]

This passage must be situated in the wider aim of the work which is to show that those who try to build bridges between heaven and earth misconceive their essentially different natures. Philosophically this is a distinction between the empirical and intelligible world, between Platonists and Stoics/Epicureans. Biblically, Philo connects this with *Genesis* and the building of the Babel tower, an act which is punished with the fragmentation of the common tongue leading to 'the confusion of tongues'. Philo finds support for the folly of this enterprise of connecting heaven with earth in mythology as well; quoting Homer he refers to the legendary Aloeidae who attempted to pile three mountains on top of each other in order to ascend to the heavens. He uses the evidence

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[47] Three passages from this work are found in von Arnim's collection without any Stoic being named directly. There are numerous other passages which may also be used that are not in *SVF* esp. e.g. §82 for Philo's appropriation of the concept of *oikeiosis* refuting the Stoic notion of affinity with oneself as a corruption of the Jewish idea of an affinity with god, in a similar application as *homoiosis*. For the differences which are applied here, see Carlos Lévy, "Éthique de l'immanence, Éthique de La Transcendance : Le Problème de l'« Oikeiôsis » Chez Philon," in *Philon d'Alexandrie et Le Langage de La Philosophie* (Turnhout: Brepols, 1998), 162–64. For the Platonic influences on the "likeness to god" cf. Dillon's commentary in *Alcinous: The Handbook of Platonism (Trans. with Commentary by J. M. Dillon)* (Oxford: Clarendon Press, 1995), 171–76.

[48] Trans. Colson and Whitaker. This passage is not found in *SVF*, though it has been recognised as Stoic by other scholars cf. Mauro Bonazzi, "Towards Transcendance: Philo and the Renewal of Platonism in the Early Imperial Age," in *Philo of Alexandria and Post-Aristotelian Philosophy*, ed. Francesca Alesse (Leiden: Brill, 2008), 249. Regardless of whether Philo is here referring directly to the Stoics, with whom he was very familiar as we know from his other works, or speaking more generally about philosophers who take a more empirical approach to knowledge, we cannot deny that the theme has a Stoic flavour.

he gathers to describe the insolence and folly of philosophers who hypothesise that the world in its entirety is corporeal; a position which is predominantly Stoic and commonly Hellenistic.

The passage above has an epistemological bent to it and so it is not so relevant to our problem of how the Stoics may have conceived of the unity between the peripheral fire and central earth. Fortunately, Philo extends his jeremiad into a denunciation of elemental theory and this is complemented by an addition of specifically Stoic terminology and typical use of etymology. Philo's argument clearly draws on Stoic notions and the passage quoted below appears faithful to Stoic doctrine as is evident from the notions of sympathy and conflagration implied therein. Moreover, there is a clear distinction in the passage between the doctrine on the one hand and the argument which concludes it in the last sentence on the other, and it is plausible that Philo was quoting Stoic theory in such a way as to refute the Stoics through their own doctrine; that is to say, arguing that heaven and earth cannot touch directly for if they did the earth would be consumed based on the Stoics' own principles. The passage §§156-7 (the main part of which is found in *SVF* 2. 664) is as follows:

> "No part of the earth can possibly touch the heaven for the reason already mentioned [cf. § 5], namely that it is just as impossible as it is for the centre to touch the circumference. Secondly, because the aether, that holy fire, is an unquenchable flame (φλόξ ἄσβεστος), as its very name shows, derived as it is from αἴθειν, which is a special term for "burn." This is attested by a single part of the heavenly expanse of fire, namely the sun, which, in spite of its great distance, sends its rays to the corners of the earth, and both earth and the naturally cold extent of air, which divides it from the sphere of heaven, are warmed or consumed by it as the case may be. For to all that is at a long distance from its course or lies at an angle to it, it merely gives warmth, but all that is near it or directly under it it actually destroys with the force of its flames. If this is so, the men who ventured on the ascent could not

> fail to be blasted and consumed by the fire, leaving their vaulting ambition unfulfilled."[49]

This passage is used by Philo to further his argument for the separation of heaven and earth and in the process he exposes an aspect of Stoic theory which is largely lost and can only indirectly be understood as being ascribed to them; as we have seen his purpose is to destroy the notion that heaven and earth are connected, his method is to attack corporealist philosophers like the Stoics for their epistemological convictions and he does this by showing that their physical and elemental theory destroys their own arguments for if the earth touched the heavens directly it would be "consumed by fire". Philo's argument is not elaborate but the thread is clearly visible and it offers us a clue to two difficulties in the Stoic view. First, that Platonists and Aristotelians would be prone to rejecting Stoic theory outright based on their own convictions that the celestial and terrestrial spheres were wholly separate. Secondly, that the common stratification of the elemental spheres, and in particular the fact that the aether and the earth are at the lowest and uppermost points, makes their unification problematic. Another, more subtle, problem is also revealed and that is that Philo sees the Stoics as making matter transcendent, or vice versa, the transcendent corporeal and in doing so, according to Philo, the problem they face is not that conflagration occurs but rather that they are committed to accepting that it occurs continuously. Indeed, this argument, though not so persuasively articulated by Philo, causes a serious problem to Stoic cosmology with its adherents having to balance two contradictory theories; the four-layer stratification of the elements and their natural separation with aether/fire at the periphery and earth at the centre on the one hand and their inherent unity on the other. Philo's point seems to be that they cannot maintain both of these simultaneously and still lay claim to the coherency of their system. It is one or the other. If the elements are stratified they are also separated and the Stoics need to let go of their cosmic sympathy. If heaven and earth are indeed unified then there can be

[49] Φλόξ as Stoic may also be corroborated by another text by Philo where he ascribes three kinds of fire to 'a certain Stoic' *SVF* 2. 612. Cf. also Lapidge, "Ἀρχαί and Στοιχεῖα," 273.

no cosmic cycle as we know it, for there is perpetual conflagration and this is because the Stoics want to maintain that the incorporeal and the corporeal are one and the same, that is that what is commonly conceived as transcendent and separate is conceived by the Stoics as being inseparable from matter and indeed completely permeates it.

However, Philo's description of the Stoic theory is misleading for, despite his use of Stoic ideas, his primary aim in this work as in the entire *Νόμων Ἱερῶν Ἀλληγορίαι* is to interpret the world view of Moses as it is found in *Genesis*. In order to do so he blithely assumes that Stoic cosmology is similar to Aristotle's, which had tried to secure elemental differentiation precisely for the purpose of separating the celestial or divine realm from the earthly one. Yet if we delve further into our evidence we discover that elemental differentiation in Stoicism must be understood very differently.

By collating the evidence from another allegorical work of Philo's we gain an insight into the essence of his objection to this doctrine of the Stoics and in so doing the remnants of an ancient debate are made palpable. In *On the Migration of Abraham* Philo places god outside of the cosmos for reasons which are commonly known, that is because God is unbounded and consequently he does not fit into the universe. He contrasts this with the Chaldean theory of the harmony between heaven and earth which bears an indirect resemblance with the Stoic concept of cosmic sympathy.[50] I quote a large portion of the passage in order to follow the main lines of argument as sections of this text have been used inappropriately in other places[51]:

[50] Cf. Verbeke, *L'évolution de La Doctrine Du Pneuma*, n.139, where he adduces certain eastern origins for the Stoic theory of the sun as heart of world, in particular Mithras, Chaldeans and Hermetic literature.
[51] Cf. e.g. Susan Sauvé Meyer, "Chain of Causes: What Is Stoic Fate?," in *God and Cosmos in Stoicism*, ed. Ricardo Salles (Oxford ; New York: Oxford University Press, 2009), 81, who takes an isolated section of this passage to be in support of Stoic cosmic sympathy, whereas precisely the opposite is the case, with Philo supporting a completely different type of cosmic sympathy to that of the Stoics. Many passages from this work appear in von Arnim's selection despite there being no direct attribution by Philo to any individual Stoic or the Stoics more generally. Here we see not only that context is required when using

"The Chaldeans have the reputation of having, in a degree quite beyond that of other peoples, elaborated astronomy and the casting of nativities. They have set up a harmony between things on earth and things on high, between heavenly things and earthly. Following as it were the laws of musical proportion, they have exhibited the universe as a perfect concord or symphony produced by a sympathetic affinity between its parts, separated indeed in space, but housemates in kinship. These men imagined that this invisible universe was the only thing in existence, either being itself God or containing God in itself as the soul of the whole. And they made Fate and Necessity divine, thus filling human life with much impiety, by teaching that apart from phenomena there is no originating cause of anything whatever, but that the circuits of sun and moon and of the other heavenly bodies determine for every being in existence both good things and their opposites. Moses, however, while he seems to confirm the sympathetic affinity of its parts displayed throughout the universe, is at variance with their opinion concerning God. He endorses the former doctrine by declaring the universe to be one and to have been made; for it came into being and is one, it stands to reason that all its completed several parts have the same elementary substance for their substratum, on the principle that interdependence of the parts is a characteristic of bodies which constitute a unity. He (Moses) differs from their opinion about God, holding that neither the universe nor its soul is the primal God, and that the constellations or their revolutions are not the primary causes of the things that happen to men. Nay, he teaches that the complete whole around us is held together by invisible powers, which the Creator has made to reach from the ends of the earth to heaven's furthest bounds, taking forethought that what was well bound should not be loosened: for the powers of the Universe are chains that cannot be broken. Wherefore, even though it be said somewhere in the Law-book "God in heaven above and on the earth below" (*Deut*. Iv, 39), let no one suppose that He that IS is spoken of, since the existent Being can contain, but cannot

Philo but also that caution is necessary to not simply assume that he is espousing Stoic doctrine. Cf. also the following footnote with Runia's cautionary remarks.

> be contained. What is meant is that potency of His by which he established and ordered and marshalled the whole realm of being."[52]

Though the positions of the Chaldeans and of Moses both support the idea of a sympathy or unity between the parts of the cosmos, as Philo presents them they are clearly differentiated. On the one hand we have the world view attributed to Moses which is that the world is ruled and directed by God as if from a source; He exists outside of the cosmos for he cannot be contained, due to his infinite nature, but he contains the cosmos; it is not God Himself who unifies the cosmos but rather it is His power that binds the world together in a great chain of being. On the other hand and by contrast we have the world view of the Chaldeans (which resembles that of the Stoics), which maintains that God is to be found inside of things, He is contained within the cosmos and pervades it; Fate and Necessity are described as divine and it is emphasised that sympathy derives from the complex relations that exist between things; the affinity which they display is due to the fact that all the parts contain an element of God, pervaded as they are by the primary substance which constitutes God and, to some degree, all things; God, as a consequence of being contained must be quantitatively limited.[53] The metaphysics of relations is contrasted to a metaphysics of emanation from one simple source, a philosophy where the cosmos and the things in it are directed from the inside out as opposed to one which functions from the outside in.

From our above examination this passage has the potential to yield an interesting insight into a well-recognised and long standing problematic between Chrysippus

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[52] Philo *De migrat. Abraham.* §§178-183. See Runia, "The Beginnings of the End," 290, who argues that accounts of Chaldean theology in Philo should not be confused as being Stoic on account of the absence of providence. For our purposes the passage serves to show that Philo generally took issue with theologies which conceived of god as existing within the cosmos rather than being transcendental. Whatever the case may be regarding who Philo attributes these ideas to there are clear Stoic hues with regards the presence of god inside rather than outside the cosmos.

[53] Cf. also Plutarch *Obsolescence of Oracles* 424 A who discusses this doctrine in relation to theories which posit multiple worlds "as for the dread which some especially have felt, and so use up the whole of matter on the one world, so that nothing may be left over outside to disturb the structure of it by resisting or striking it – this fear of theirs is unwarranted"

and Cleanthes regarding the nature of the *hegemonikon* and its interaction with the *pneuma*. Although the difference between the two heads relates to the example of walking and so to the *pneuma*'s role in their theory of action, the distinction between *pneuma* and *hegemonikon* in the part may be assumed to be applicable also to the whole. As such this differentiation has considerably confused both the modern understanding of Stoic cosmogony but also the natural philosophers of antiquity. The difference between the two heads is preserved in Seneca, *Epist*., 113, 23 (SVF 2.836, LS 53L):

> "Cleanthes and his pupil Chrysippus did not agree on what walking is. Cleanthes said it was breath extending from the commanding-faculty to the feet, Chrysippus that it was the commanding-faculty itself." [54]

[54] Transl. Long and Sedley Cf. commentary for 53 L in Long and Sedley, *The Hellenistic Philosophers. Vol. 2 Greek and Latin Texts with Notes and Bibliography*, where the difference between Cleanthes and Chrysippus is described as unclear and "difficult to elucidate". For a discussion of the difference in relation to: theory of action and psychology cf. Inwood, *Ethics and Human Action in Early Stoicism*, 50–51 and J. M. Rist, *Stoic Philosophy* (Cambridge: Cambridge Univ. Pr., 1969), 33–34; the categories cf. Stephen Menn, "The Stoic Theory of Categories," in *Oxford Studies in Ancient Philosophy*, ed. David N. Sedley, vol. 17 (Oxford: Oxford University Press, 1999), 241–42 and Jacques Brunschwig, "Stoic Metaphysics," in *The Cambridge Companion to the Stoics*, ed. Brad Inwood (Cambridge ; New York: Cambridge University Pr., 2003), 227–32; the emotions and impulse cf. Margaret Robson Graver, *Stoicism and Emotion* (Chicago (Ill.): University of Chicago Pr., 2007), 27 also Sauve Meyer's forthcoming paper on impulse and action different sections having been presented at Oxford (June 2015) and Utrecht (April 2016) Susan Sauvé Meyer, "Affect and Impulse in the Stoic Doctrine of the Passions," n.d., http://www.sas.upenn.edu/~smeyer/documents/Affect_and_ImpulseMay2013_000.pdf. Pearson sees the passage as recording a deviation caused by a desire (from Chrysippus) to insist more strongly on the essential unity of the soul and also gives a few more references for this: *The Fragments of Zeno and Cleanthes*, 268. For the latest study cf. Brad Inwood, "Walking and Talking: Reflections on Divisions of the Soul in Stoicism," in *Partitioning the Soul: Debates From Plato to Leibniz*, ed. Dominik Perler and Klaus Corcilius (Berlin ; New York: De Gruyter, 2014), 69–74. It is worth noting the contextual point that this reference to the disagreement between the two heads is used by Seneca to support his right to reject an essential part of Stoic doctrine, that of the virtues being vitalised bodies; i.e. 'if Chrysippus can disagree with original doctrine I can too'. This is not a unique strategy and was used by Cicero also to make allowances for the Academic Sceptics who altered theories within their own school, just like e.g. Panaetius had done: Cicero *De Divinatione* 1. 3, 6-7. As far as I know and on a more philosophical note, there has been no discussion of the consequent differences regarding the physical mechanisms of *pneuma* for each head which seems to me to be the most basic and valuable point, which Seneca draws out in preserving this distinction; this was also recognised by Inwood in his monograph of 1985 where he argued that the difference in relation to the theory of action is insignificant. Also cf. previous chapter p. 59-60.

In this case, if we extend this view of the relation between the *hegemonikon* and *pneuma* to a cosmic level we see that with regards to cosmogony there was a radical difference between Chrysippus and Cleanthes. It is not immediately clear what this difference is, in relation to cosmogony, but what can be gleaned from this at first glance is that Chrysippus saw the *hegemonikon* as that which pervaded the whole body whilst Cleanthes saw the *pneuma* directed by the *hegemonikon* as that which supports this function. The Philo texts may put us in a position to understand how and from where this division between the two heads originated, for, as we saw earlier, Cleanthes as well as Zeno considered the sun to be the *hegemonikon* of the universe and this was altered by Chrysippus to aether. The clues we have extracted from Philo already suggest that in antiquity there were arguments levelled against the Stoics for their theory of the sun being the source of the creative fire which pervades the universe. This is to be found in the passage from *On the Confusion of Tongues* discussed above and can be summed up as follows: If the sun's fire is also god and god is thereby made into something corporeal rather than transcendent and separate, then cosmic sympathy which is produced by the activity of god would, for an advocate of corporealism, inevitably lead to the world being set ablaze without the opportunity even to undergo *diakosmesis*, for the fire must inevitably touch the earth in order to pervade it and produce sympathy between the parts. Combined with the passage from *On the Migration of Abraham* which follows the same theme in criticising the notion of not separating the divine from the terrestrial, the line of argument reveals a different approach: God or fire permeates all bodies and is moreover contained within them, there is no constant emission here as such but only total pervasion. Although it is apparent that Philo makes no real distinction regarding individual Stoic thinkers in these works and though he presents the ideas in syncretic style, it is apparent that the first passage is dictated by notions that were dominant in the teachings of Zeno and Cleanthes and the second passage leans more to a Chrysippean understanding of the coherency of the cosmos. Indeed we have here an insight into one of the weaknesses

of early Stoic cosmology which inspired Chrysippus to make the change to aether as the *hegemonikon*.

As noted in the introduction, many of the more elaborate theories of the Stoa are attributed to Chrysippus.[55] One such instance is observed precisely with the topic under investigation. For though concepts such as sympathy and a coherent cosmos have largely been attributed to later Stoics in past studies[56] these notions often have their roots already in the philosophy of Zeno. It is well recognised that the pervasion of the cosmos by a rational principle is part of Stoic dogma; this doctrine indeed goes back to the origin of the school. Chrysippus is credited with securing the mechanics of this pervasion, that is to say, with describing in a coherent way the underlying internal processes involved in the pervasion and permeability of the cosmos.[57] Nevertheless, Philo's texts have lead us to understand that the question of the sympathy of the world involves the way in which we understand both matter and god as existing in the world or outside it. Philo, whilst agreeing with the Stoic notion of sympathy, cannot agree with the way in which this sympathy functions; for he does not allow for god to be contained within the world as this would implicate that god is quantifiably limited.

In Zeno we receive an account of god existing within the world, which invariably brings into question the mechanics of just how god is in the world. Early signs of this are available and are preserved in a passage from Sextus *M* 9. 101-3:

> And Zeno of Citium, taking Xenophon as his starting point[58], argues thus: - "That which projects the seed of the rational is itself rational;

[55] Cf. p. 12-13 above.

[56] E.g. Lapidge, "Ἀρχαί and Στοιχεῖα," 274 , who sees Chrysippus as the one who "discovered" cosmic *pneuma*, implying that there was no coherent theory beforehand; René Brouwer, "Stoic Sympathy," in *Sympathy: A History*, ed. Eric Schliesser, Oxford Philosophical Concepts (New York: Oxford University Press, 2015), 20ff, who sees Cleanthes as the first explicit exponent of a sympathetic universe in Stoicism, but does not remark that it is, at least, implicit in Zeno.

[57] Cf. Cooper, "Chrysippus on the Physical Elements," 95–97.

[58] This is Xenophon the Socratic cf. Xen. *Mem*. 1. 4. 2. Also there is apparently a fundamental difference between Xenophon and the Stoics in that the former took the elements to be simple whereas the latter made them compound (Sextus *M.* 9.92-98)

> but the Cosmos projects the seed of the rational; therefore the Cosmos is rational. And thereby the existence thereof is also concluded." The plausibility of this argument is obvious. For the origin of motion in every nature and soul seems to come from the *hegemonikon* and all the powers that are sent forth into the parts of the whole are sent forth from the *hegemonikon* as from a fount, *so that every power which exists in the part exists also in the whole owing to its being distributed from its hegemonikon*. Hence, what the part is in point of power, that the whole must certainly be first. Consequently, if the Cosmos projects the seed of a rational animal, it does not do so, like man, by frothy emission, but as containing (περιέχει) the seeds of rational animals[59]; but it does not contain them in the same way as we might speak of the vine "containing" its grapes, - that is, by way of inclusion (κατὰ περιγραφήν), - but because the seminal reasons of rational animals are contained within it. – "The Cosmos contains (περιέχει) the seminal reasons of rational animals; therefore the Cosmos is rational."

Here Zeno uses the Greek word for contain (περιέχει) with terminological precision and he makes a distinction between the containing that is expressed for things like grapes on a vine, that is as being self-contained and separable (κατὰ περιγραφήν)[60] such that we may pick them off the vine and eat them without believing that they are still a part of the vine and we are also eating the vine whilst eating the grapes. The 'grapes on a vine' way of understanding containment is one where we can conceive of a transition from περιέχειν to παράθεσις – from being contained to being juxtaposed – a transition that is impossible for the other sort of containing that Zeno has in mind. The way the Cosmos projects the seed of a rational animal is neither like grapes on a vine nor like the frothy emission of intercourse which nonetheless both contain the seed of life inside when transferred away from the man or the vine.[61] No,

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[59] For the frothy emission of man as being 'a part and fragment derived from the soul' cf. *SVF* 1.128 «ψυχῆς μέρος καὶ ἀπόσπασμα»

[60] For more on the Stoic usage of κατὰ περιγραφήν compare e.g. D.L. 7.151, Sextus *M* 7.277; 8.161; 8.387

[61] Verbeke, *L'évolution de La Doctrine Du Pneuma*, 35 quotes only the first section of this passage and seems to ignore the rest for he mistakenly concludes that the causality exercised by the world over the living beings it contains is the same as the causality of the parents towards their children. This can only be half right as it fails to take into account the distinction that Zeno made between the seminal reason

the parts of the cosmos cannot be separated off in the same way.[62] After projecting outwards the Cosmos contains its parts completely. No part is separate from or juxtaposed to the Cosmos; it contains, surrounds, embraces all the parts which are formed out of it. If we read that the seminal reasons of the Cosmos are contained within the cosmos as an isolated fragment we may be persuaded that the way the seminal reasons are contained in the cosmos is the way that a cistern containing water defines the boundaries of what is contained. Instead, if taken as a whole, we understand that what Zeno meant is that the Cosmos emits its seed and acts as a fluid medium permeating all of the parts. It thus contains its parts by being contained within them but also by being the medium in which they are contained. We thus have here a dual activity of creation where it is understood that the seminal reason of god – otherwise known as the creative fire or the *hegemonikon* – both remains within bodies as their formative principle but also acts as a medium which connects the said bodies.

Here we have the remains of a very rare argument in early Stoicism. For whilst the commonly found arguments with respect to the rationality of the cosmos are made by analogy and expounded from the bottom up – that is from the part to the whole, as e.g. with reason existing in humans and consequently to a greater degree in the cosmos or else with the reason that is manifest in the patterns of nature like the seasons being applied to the cosmos as a whole – the argument that Zeno is making here is notably from the top down, or more precisely from the whole to the part. This is a rare insight into original doctrine which shows that from the earliest stages of the Stoic

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of the cosmos and the sperm of man; the material causal connection of the former is continuous whilst that of the latter is only initiatory.

[62] Cf. Sextus *M* 9.352-354 "Such being the difficulties raised about this topic, 352 the Dogmatists—by way of providing themselves with a little breathing-space—are accustomed to argue that the external real and sensible object is neither whole nor part, but it is we who apply to it the terms " whole " and " part." For "whole" is a relative term, since a whole is conceived in relation to its parts. And again, "parts" are relative, for the parts are conceived in relation to the whole. And relatives are in our consciousness, and our consciousness is in us; so the whole and the part are in us. And the external real and sensible object is neither a whole nor a part but a thing of which we predicate our own consciousness."

school there existed strong views regarding how the cosmic soul and the individual soul interact, which in turn reveals to us that Zeno himself laid down the foundations for how the mechanisms of the all-pervasive *pneuma* are to function guiding the developments later on in the school. First, Zeno must have had a clear idea that the cosmos and its parts must be distinguished and in what ways this distinction should be made. Moreover it is not clear that, as previously assumed,[63] he argues only from the bottom up (from part to whole) to decide that the cosmos is rational but it seems as though he also decided on this *a priori* for he has a clear distinction between the way in which seminal reason is passed from part to part and the way it is passed from whole to part. This shows us clearly that Zeno himself was developing a way in which to connect the cosmic and the individual, a view which has up until recently only been ascribed to Cleanthes as the earliest exponent.

Moreover, although the evidence from Alexander of Lycopolis and Diogenes Laertius shows us that the sun is the *hegemonikon* of the cosmos for the earliest heads of the school there is evidence that Zeno and Cleanthes had views regarding the aether also. In Cicero *ND* 1.36-7 we hear that although Zeno regards the divine law of nature as alive, he makes the aether divine, yet lifeless. Whilst this passage as a whole suggests that Zeno had not fully worked out a cosmobiological system, it is likely also that by 'lifeless' in this context is meant natural mechanisms which are devoid of sensation (as Cicero indeed mentions) but nevertheless pervaded by reason and that Cicero here is conflating sensation with vitality.[64] What should be extracted in any case is that the aether is divine for Zeno. For Cleanthes also the aether is divine. This may not seem significant at first, for the Stoics are known to have made the moon divine and deify the other elements also by allegorising air as Hera, Sea as Poseidon etc.. Nevertheless,

[63] Verbeke, *L'évolution de La Doctrine Du Pneuma*, 39.

[64] This is also done by Seneca in his disagreement with the Stoics regarding the vitality of the virtues *Epistle* 113 (cf. esp. 17-20) where he claims that sensation and impulse are required for things to be alive; justice or bravery do not have these in themselves but acquire them from the soul and therefore cannot be alive *contra* standard Stoic doctrine. Plutarch *De Stoic. Repug.* 1053 C is also confused into conflating vitality with sensibility.

Cleanthes is said to have claimed that the aether is the most unquestionable deity (Cicero *ND* 1.37). So, whilst Chrysippus is the first to specify the aether as the ruling part, both Zeno and Cleanthes deify the aether and moreover Cleanthes sets the groundwork for Chrysippus to make the doctrinal switch to aether from the sun as the ruling part by claiming it is the *most* divine of the elements from which all others derive. Indeed, it is granted as general Stoic theory that whilst the *hegemonikon* is said to be the highest (ἀνώτατον) part of the soul (Aetius 4. 21, 1-4; = *SVF* 2.836 = *LS* 53 H) the aether is said to be the highest (ἀνώτατον) part of the cosmos (D.L. 7.137). This may ultimately be Chrysippean doctrine but there are clear lines which suggest that it emerged as a development of, rather than as a fracture from, original Stoic doctrine.

Thus, having seen that there is doctrinal continuity in the school in relation to the *hegemonikon* of the cosmos, the question emerges as to why the shift from sun to aether occurred in the first place. There are various clues which lead us to the solution of this problem but the main one seems to be that over and above doctrinal continuity the Stoics insisted on doctrinal integrity and coherence. Aristarchus' polemic and criticism of Cleanthes heliocentrist views along with Cleanthes' response would no doubt have brought into question the necessity of viewing the sun as the *hegemonikon* of the cosmos. This may have been defended as Bénatouïl says,[65] by claiming geocentric heliocracy but no doubt damage had been done to the reputation of the system, despite or perhaps even because of Cleanthes dedicating a whole work to respond to Aristarchus' critique. In addition to this and certainly more importantly there was a glaring weakness in the sun's capacity to fulfil the mechanisms of pervasion that are outlined in the Zeno source (Sextus *M* 9, 101-3) above, for, as Cleomedes tells us, "If the substance of the whole were not naturally suffused throughout the whole, neither would the universe be able to be held together (συνέχεσθαι) and governed (διοικεῖσθαι) by nature (ὑπὸ φύσεως), nor would there be any sympathy

[65] Cf. p. 72-3 above

(συμπάθεια) among its parts."[66] The problem is empirical, for how can the sun's light and heat be said to pervade the darkest and coldest corners of the cosmos? When the Stoics in Heraclitean fashion equated fire with *logos* but added also a few extra capacities such as vitality, this was done through quotidian observations that all life has some form of heat inside it.[67] From the cosmogonical perspective the vitalising, creative, principle requires a source from which it derives its power, the most observable great source of heat and fire in the universe is the sun and so making the sun the source of this fire was easily justifiable for the earlier Stoics. Yet, although we might say the heat of the sun is invisible it is in many senses also visible in the form of light and tangible in the form of warmth. The light and heat of the sun are capacities that are required to penetrate the material world or the parts of the cosmos, from an external source (the sun) and on a continuous basis. That this does not fully accommodate the Stoic criteria of total pervasion is empirically obvious. There are numerous instances when we can intensely experience the absence of both heat and light from the sun, such as in a pitch black cave or in the freezing Hyperborean mountain wind in dark winter. A later source even has the sun's incapacity for full penetration or diffusion as standard part of Stoic doctrine.[68] The diverse roles that Stoic fire needs to fulfil demand a more flexible concept of fire than the one offered by the sun. The aether is the perfect candidate. By establishing this as the *hegemonikon* of the universe Chrysippus makes the concept altogether more abstract. Moreover, aether was traditionally, that is to say in Aristotelian physics, considered to be the πεμτουσία, the quintessential, divine element,[69] and being equivocal it fulfils diverse

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[66] Cleomedes, *Caelestia* 1. 1. 69–71 (trans. Todd) (= SVF 2. 546) cf. also Epictetus, *Diss*. 1. 14. 1–2, where the question of whether the whole is a unity (ἡνῶσθαι τὰ πάντα) is accompanied by the question of whether terrestrial things are in sympathy with the heavens.

[67] Verbeke, *L'évolution de La Doctrine Du Pneuma*, 15, takes it that Zeno was influenced in this doctrine by medical schools esp. Sicilian rather than the Hippocratic tradition and indeed he rejects the Heraclitean influence altogether. Though there may well be some truth in the medical influence it would be mistaken to reject the Stoic assimilation of Heraclitus for their *pneumatic* theory.

[68] Cleomedes *Caelestia* 1.4. 113-130

[69] Aristotle *Cael.* 1.3.270b20-24 and *Meteor.* 1.3.339b21-27 cf. also D. E. Hahm, "The Fifth Element in Aristotle's De Philosophia," in *Essays in Ancient Greek Philosophy, II*, ed. J. P. Anton and Anthony Preus (Albany (N.Y.): State University of New York Press, 1983), 404–28.

roles connected as it is to both light and burning, whilst having no visible or tangible source, as it were, for its effects cannot be empirically observed. This invisible and intangible character of aether offers itself perfectly for the type of active role that the Stoics want the *hegemonikon* and the *pneuma* to play in their physics, that is, as an all-pervasive substance which permeates all bodies and contains them in the fashion which Zeno describes. After all this discussion it is possible to decide with some confidence that, although our sources have preserved differences between the heads of the early school regarding the *hegemonikon* of the cosmos, we are able to discern clear lines of development which lead to these changes as a way to preserve one of Zeno's more prevalent doctrines: the coherency of the cosmos.

4. *Pneuma* and Nourishment

Introduction

In the previous chapter we encountered a difficulty in the extant evidence with regards to the supposed *increase* of fire during the world cycle. An increase in fire may be understood as implying that there is a corresponding increase in the rationality of the cosmos. The notion of a fire which grows but does not increase appears to be contradictory. In order to remove these contradictions, a study of Stoic views regarding growth and nourishment is necessary. In this chapter, after a few introductory remarks, I examine two of our best extant references to nourishment in Stoic theory, one in Plutarch which refers to the nourishment of Zeus and the other in Sextus which refers to nourishment in individual bodies. Examining these two sources in light of each other I attempt a reconstruction of a differentiation in process between the nourishment of the whole and the part, which helps to resolve some of the apparent contradictions in Stoic theory. I then chart the evidence related to ἀναθυμίασις in Zeno and Cleanthes and argue that the balance of the evidence guides us towards reading this doctrine of theirs in relation to aspects of their cognitive theory.

The Stoic cosmos is a living organism. This thesis was probably forged out of Stoic corporealist beliefs,[1] for basic sensory experience of the natural world reveals to us that all things in the natural world have a beginning and an end. Physical entities, regardless of whether they are animals or gods, being corporeal, have a life span and expiration date. Whilst this need not necessarily result in the belief of the cosmos as a living organism, for it could reasonably be said that something generated and destroyed could also be inanimate, the Stoics, like Plato, were under the impression that the universe was self-moving, which, in the Greek tradition, is a precondition for

[11] For the similarities with Plato's *Timaeus* see esp. 34ff. and cf. Betegh, "Cosmological Ethics in the « Timaeus » and Early Stoicism"; Gourinat, "The Stoics on Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's Timaeus."

vitality. The conclusion the Stoics draw from this, however, starkly contrasts with Plato who considered that whatever has the power of self-motion is immortal.[2] It is significant to note that the different metaphysical approach determines each conclusion, with the Stoics proceeding from observation of the world around us and Plato proceeding with the use of dialectic. An interesting consequence of the Stoic position is that we are left unable to point at things and say they are eternal, like Aristotle proudly pointing at the celestial spheres which were, innovatively, eternal on both ends – not only had they no end but they also had no beginning.[3] What sets the Stoic theory apart is that despite being corporealist it does not seek the eternal in some exemplary physical entity from which to deduce conclusions about our own experience and understanding, but rather the eternal emerges out of the interactions between the matrix of bodies. In this way we are left with something like repeating processes and the Stoics put a significant amount of energy into explaining and integrating these processes into their system. A corollary of this approach was that it laid especial emphasis on the notion that we could look at the world around us and apply our observations to the world above us (the heavens) and this ruffled feathers in the intellectual community, in particular for those in the Platonic tradition. Many truculent criticisms ensued with commentators accusing the Stoics of turning things upside-down on the grounds that we should understand the world with the highest part of ourselves (the intellect) and not the lowest (the senses). The Stoics, faithful to common experience, however, did not let go of this thesis[4] and it is a well-integrated part of the Stoic matrix of doctrines.

[2] Plato *Phaedrus* 245 C-D

[3] Cf. for instance *Phsyics* 4. 223b21–3 where Aristotle chooses the celestial sphere as the absolute measure of time due to its eternal motion.

[4] Discounting Panaetius and Boethus of Sidon who seemed to be more concerned with ethics than physics and wanted to avoid any confusion that the theory of eternal recurrence kindled in people's minds when it came to everyday moral considerations.

Chrysippus on Nourishment: the evidence of Plutarch and Sextus

It is a worthy endeavour to work at elucidating some of the processes which act as examples of this integration. With regards to the living cosmos doctrine particularly fertile ground for this topic is to be found in attaining a better understanding of the process of nourishment.[5] Whilst we may seek the origins of this doctrine in many places including medical theories and even myth,[6] my main concern lies with how this theory is integrated in Stoicism. It is well known that the cosmos is vitalised by the permeating *pneuma*. Seneca, in a passage which discusses what the earth has which allows it to nourish other things, presents two types – or functions – of *pneuma*: "I do not mean just the breath that makes it cohere and keep its parts united, which is found even in rocks and dead bodies, but I mean the life-giving breath that is vigorous and sustains everything."[7] This distinction is interesting because it reveals to us that although the cosmos is alive this does not imply that all the things in the cosmos are alive also. The Stoics are not animists in this sense. Indeed despite *pneuma* often being synonymous with vitality it does not confer vitality on everything it touches. It is a life giving force but only for bodies which have the capacity for nourishment and growth; whilst this position can be extrapolated from the standard *scala naturae*,[8] the Seneca passage is the only place I know of where it is said explicitly.[9] In this instance the

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[5] In the modern scholarship surprisingly little has been done regarding how the Stoics conceived of nourishment in individual bodies and in the cosmos cf. in particular Hahm, *The Origins of Stoic Cosmology*, 146–48, who emphasises the Aristotelian influences. For theory of noursihment in later Peripatetic philosophy with possible Stoic influences see Victor Miles Caston, *Alexander of Aphrodisias on the Soul. Part I Soul as Form of the Body, Parts of the Soul, Nourishment, and Perception* (London: Bristol Classical Press, 2012), 59–63, with accompanying commentary also by Caston.

[6] In the golden age fire was celestial and required no fuel. When this celestial fire was taken away because of Prometheus' deception of Zeus Prometheus stole a seed of fire from Olympus, with the planting of this seed of fire it meant that, henceforth fire was born and so could also die out, unless constantly fuelled. For the medical origins see Verbeke, *L'évolution de La Doctrine Du Pneuma*, 15.

[7] *Nat. Quaest.* 6.16.1 (trans. Hine)

[8] For a detailed discussion of the Stoic *scala naturae*, see Inwood 1985, 21-7

[9] The significance of this point can easily be overlooked, yet even recently (Francesco Ademollo *Symposium Hellenisticum*, Utrecht 2016; also presented at Oxford a few months later) obfuscation has arisen with the claim that the Stoic cosmos is not truly unified because of the type of *pneuma* that is found in rocks and bones which are dead, this can alternatively, and persuasively, be expressed as follows: if all the parts of the cosmos are not animate how can the cosmos be said to be animate. If we take into account Seneca's distinction between life-giving *pneuma* and cohering *pneuma* then this thesis

position is a natural extrapolation from the standard doctrine of the *scala naturae* where *hexis* is seen as the cohesive force of inanimate bodies like rocks. In addition to this there is a high probability that Seneca was using Chrysippus' work *On Providence* when writing this section, for we know from Plutarch that nourishment was a theme present in the work and a few lines later Seneca states a theory that we know appeared in Book 1 of that same work by Chrysippus, namely that the universe receives its nourishment by the interchange of its parts.

The Plutarch passage in question (*Stoic Repug.* 1052 B-E) is our most complete source on the Stoic theory of nourishment and we must rely on it to fill out our account as far as possible:

> Moreover, in the third book on the Gods Chrysippus makes the following statement about the nourishment of the rest of the gods: "Nourishment is used in a similar way by the rest of the gods – it is through it that they are sustained (συνεχόμενοι), but Zeus and the universe <sustain themselves> in a different way <from those that periodically> are absorbed <into fire> and arise out of fire." Here, then, he declares that there is nourishment of all the gods except the universe and Zeus, but in the first book on Providence he says that Zeus goes on growing (αὔξεσθαι) until all things have been consumed in his growth: "For, since death is the separation of soul from body and the soul of the universe is not separated but goes on growing (αὔξεται) continually until it has completely absorbed its matter, the universe must not be said to die." Now who could more plainly contradict himself than the man who says of one and the same god now that he grows (αὔξεσθαι) and again that he does not take nourishment? And inference is not needed to reach this conclusion, for in the same book he has himself clearly written: "The universe alone is said to be self-sufficient because it alone has within itself everything

is a lot less troubling; for the question is reframed and cohesion thus does not need to derive from vitality within individual bodies but from the vitalising force which is also naturally cohesive. It may be noted that this confusion is probably also due to a recidivism for generalising Stoic doctrine and not distinguishing the differences between heads as here with Zeno's fire being contained within individual bodies and the Chrysippean development which elaborates on the notion of the cohesive *pneuma*.

> it needs, and it gets from itself its nourishment and growth (αὔξεται) by the interchange of its different parts into one another." So he is in conflict with himself not only because in the former passages he declares that except for the universe and Zeus there is nourishment of the rest of the gods and in the latter he states that there is nourishment of the universe also but even more because he says that the universe grows (αὔξεσθαι) by getting nourishment from itself. The likelihood was just the contrary, that this alone does not grow, since it has its own decay for nourishment whereas the rest of the gods, since they get nourishment from without, do have increase and growth (αὔξησιν) and that it is rather the universe that is consumed in their growth if it is a fact that, while it is its own source, they are always drawing upon it for their nourishment.

This problem recorded by Plutarch has been explored in the past and has caused much consternation, largely being accepted as simply contradictory. In the main scholars have utilised the distinction between the non-creative and creative fire to make the distinction between a fire that requires fuel and one which is self-sufficient *i.e.* one which requires nourishment and one which does not. With the sun explicitly being said by Zeno to consist of creative fire, which unlike the non-creative/terrestrial fire is productive and preservative,[10] the statement that the sun is said to "consume" the moisture in the universe is viewed by Lapidge to be a "patent contradiction" for which he sees no resolution.[11] Mansfeld, also utilising the distinction between the two fires, whilst recording other literature that has likewise done so, offers no solution either. His approach to the problem is somewhat different, however, in that he prefers to see the paradoxical nature of the account as part of general Stoic practice and his riposte to Lapidge is simply to ask the question whether "the palpable paradox is less palatable than other *Stoicorum Repugnantia*".[12] Nevertheless, as we have already seen,[13]

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[10] SVF 1. 120

[11] M. Lapidge, "Stoic Cosmology," in *The Stoics* (Univ. of California Pr., 1978), 181 cf. also "glaring contradiction" Lapidge, "Ἀρχαί and Στοιχεῖα," 273.

[12] Mansfeld, "Providence and the Destruction of the Universe in Early Stoic Thought, with Some Remarks on the Mysteries of Philosophy," 152–54 n. 70.

[13] See p. 74-77 in ch.3

there are instances when the whole-part analogy breaks down as a natural consequence of their inherent differences. We should not expect that god and individual bodies are both spoken of in the same way and it is possible for this reason to simply view Plutarch's cavil as innocuous. In doing so, however, we must also be committed to elicit as much information as we can from the evidence he does give us.

The verbatim quote that Plutarch initially gives us does not include the immediately preceding passage from Chrysippus' work *On the Gods* but what we discover is that the gods are nourished in a similar way to something else in the Stoic cosmos. It is reasonable to assume that the "something else" is all other bodies in the cosmos that have the capacity for nourishment like plants and animals, for these, like the gods, are absorbed into fire at conflagration. The nourishment that Chrysippus is describing here has to do with bodies that undergo generation and destruction, whilst Zeus and the universe do not have the same sort of process of sustenance. Now, Plutarch is not concerned here with the actual process of nourishment and a description of this is absent in the passages he quotes from Chrysippus. If we wish to understand something of the processes from the information available to us here, it is useful to note which works are being cited along with which doctrines. It is clear that Plutarch is pushing his agenda of contradiction-mongering when he makes a jump from "Zeus and the universe sustain themselves in a different way" to his own comment that this must mean that everything is nourished "except Zeus and the universe". From the passages he has quoted this conclusion cannot be drawn; what we can gain from this instead is that we may distinguish between two types of nourishment. The type of nourishment that takes place for Zeus or the universe was discussed by Chrysippus in the work *On Providence* and this process is described as an interchange of parts into one another. We have noted in the previous chapter[14] that being a closed system the substance of the universe cannot be said to increase[15] and yet here Plutarch seems to

[14] See p.77-84

[15] It seems Plutarch overlooked this even though he quotes a passage from Chrysippus which is suggestive of how this process unfolded via "the interchange of its different parts into one another".

be applying the same process of nutrition which is described in the work *On the Gods*, which has to do with destructible bodies, to the type of nourishment that takes place in the case of Zeus or the universe. Thus he is able to find a powerful argument against the Stoics, that if the universe is self-sustaining (a closed system) its basic material should not be able to increase for the reason he gives but also for the reasons enumerated in the previous chapter of this thesis. With this background in mind the contradiction Plutarch presents in fact gives us two useful pieces of information regarding the Stoic theory of nutrition as well as one useful insight into how the Stoics (or at least Chrysippus) used terms. First, then, it reveals to us that if we are to make a distinction between the type of nutrition that takes place in bodies which undergo generation and destruction (like gods and animals) and that which takes place in bodies which are ungenerated and indestructible (i.e. Zeus), then we can say Plutarch's contradiction would only stand if it meant that when he was referring to the increase of Zeus he had in mind an increase "by addition". We can, however, conceive of a spatial increase which does not necessarily imply a quantitative one and we know that the Stoics themselves did indeed distinguish three different types of growth: addition, extension and comparison.[16] This gives us our first useful point: the nourishment of Zeus involves a type of growth which is spatial, or, in Stoic terms, an extension or expansion. Secondly, extrapolating from the above it would necessarily imply that the nourishment of bodies which are destroyed at conflagration involves a growth which increases their matter by addition, which is to say when a plant, an animal or a god grows, their growth is not necessarily spatial but quantitative. So we can easily speak of nutrition and growth throughout an individual's life even if they

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On this idea Sambursky says: "Here the Stoics hit upon an important physical law which applies to closed systems that are not subject to any interference" *Physics of the Stoics*, 114. However, the notion is already present in Plato: cf. *Timaeus* 33 C 8 – D 3.

[16] Cicero *De Fin.* 3. 34 where it is explained that the value (ἀξία) of virtue is a matter of kind, not degree. The distinction arises in ethical theory which supports the premise that the different parts of philosophy elucidate and inform each other. Cf. also Heracleitus DK (Freeman trans.) 126b. "One thing increases in one way, another in another, in relation to what it lacks." (though Zeus increases not because he lacks anything)

shrink in size as they grow older.[17] The same cannot be said of Zeus, for any nourishment he receives is accompanied by a proportionate increase in size. Further to this, we see that Chrysippus is not consistent with his terminology, at least this is the case when describing processes from different perspectives (or works), for his use of αὔξεται is clearly inconsistent from one case (quantitative increase) to the other (spatial increase). Finally, it is significant to note that destructible bodies receive their nutrition from outside of themselves whilst the type of nourishment applicable to Zeus is received from within. This cleanly explains why we can speak of a genuine addition to the former but not to the latter.

With this distinction in mind we can now turn to our other major source for the nourishment of bodies, namely Sextus (*M* 7. 236-241). The passage in question requires a more complex analysis but provides us with greater insight into the actual processes involved for nourishment in relation to the activities of *pneuma*. In this passage Sextus is describing the Stoic epistemological theory of presentation

> But they do not seem even in this way to have escaped the charge. For when the leading part is nourished and grows, for God's sake, it is altered by way of being affected (κατὰ πεῖσιν). But that kind of alteration in it, although it is by way of being affected, or a condition (διάθεσιν), is not appearance – unless they were in turn to say that the appearance is a peculiar way of being affected, which is different from conditions of that kind, or they were to say this: that since appearance comes about either from external things or from effects in us (τῶν ἐν ἡμῖν παθῶν) (and this is more properly called by them "empty attraction"), in the account of appearance there is absolutely implied at the same time the fact that the process of being affected (πεῖσιν) occurs either by way of impact from outside (τὴν ἐκτὸς προσβολὴν) or by way of effects in us (τὰ ἐν ἡμῖν πάθη) –and in the case of alterations that take the form of growth or nourishment, this can no longer be understood as included.[18]

[17] This example is also noted by Alexander *de anima* 35. 12-13

[18] Trans. Bett

At the outset it becomes evident that we must make a distinction between alteration and growth, which seems also to be a distinction which Chrysippus held by implication when discussing growth (or increase) in his different usages of the term noted above. We may note here that Chrysippus does indeed make the distinction explicit to some extent when discussing the growth argument propounded by Epicharmus, as he applies growth and diminution to modifications of the substrate of individual bodies whereas he claims that others have mistakenly termed these modifications generation and destruction.[19] Sextus, however, uses the absence of this specificity on Chrysippus' behalf (in the particular work that Sextus is referring to) to equate the alteration that takes place inside the soul (or *hegemonikon*) during the process of presentation and impression with the alteration that takes place during the process of nourishment and growth. Since both types of alterations happen by way of passivity (κατὰ πεῖσιν), Sextus takes the Stoic position to be incoherent because, as his reasoning goes, if the process is the same so too must be the result. Instead what we have here is an indication of the unitary structure of Stoic thought which endeavours to explain all processes in accordance with the physical principles of the active and the passive.

As with impressions the focus of attention for nutrition here is on particular bodies and not on the universe or Zeus. So the type of growth spoken of here involves an increase by addition and not an increase of size or extension. Whilst the passivity of an impression involves either an impact from the outside or else via an internal passion, Sextus concludes that nutrition, despite being passive, does not receive its alteration by means of impact. According to this passage, then, nourishment of particular bodies is not achieved by means of tensional motion, which is a prerequisite for any striking and impact to take place in bodies. If tensional motion is not involved in the initial reception of nourishment then assimilation must take place via some other type of passivity. We can therefore exclude the inward-outward motion of

[19] Plutarch *De comm. not.* 1083 B-C

pneuma, which creates tensional motion, as being responsible for the absorption of nourishment. There is no obvious solution readily at hand as to what aspect of *pneuma* is involved in the nourishment of bodies, yet we can be certain that *pneuma* has some crucial role to play as it is described in numerous sources as the vitalising, nourishing and preservative force of bodies.

Zeno's integration of Presentations with Soul as a Vaporous Exhalation

Although we have seen that the analogy between whole and part breaks down when it comes to the kind of increase (spatial or numerical) that results from nutrition, this need not mean that the process of nutrition itself differs from whole to part. This is especially the case if we accept the supposition that passivity and not activity is to be involved for the nourishment of both the universe and the particular contained by it. If Sextus' cavil against the theory holds some persuasive sway with us we may simply recognise that the different result occurs because of the difference in the natures receiving the nourishment. Furthermore, whilst we may find fault with the fragmentary evidence for obscuring much of Stoic theory, we can to a large extent avoid such captious conclusions by relying instead on the concinnity of process that pervades the system. I will attempt now to bring into relief the attention that the Stoics gave to weaving integrity into their system and moreover to show that this project was well-established practice since Zeno.

The Stoics are well known for having described the nature of psychic *pneuma*, *i.e.* soul, as a vaporous exhalation (ἀναθυμίασις). This definition goes as far back as Zeno[20] and this is significant as the notion of ἀναθυμίασις is crucial for divulging the

[20] See: Eusebius *Praep.* 15.20-21 (=SVF 1. 139). We are fortunate that Eusebius preserves the usage of ἀναθυμίασις by Zeno as this attribution is not made explicit in any other extant evidence. It is more than likely that Eusebius had access to original works of Zeno's at the library of Caesarea, probably deposited there by Origen who held many original works of the Stoics (Eusebius *Historia Ecclesiastica* VI.19.8) cf. A. J. Carriker, *The Library of Eusebius of Caesarea* (Leiden: Brill, 2003), 9 & 126–28. On the general reliability of Eusebius cf. Algra, "Zeno of Citium and Stoic Cosmology". Further, in Nemesius *de Nat. Hom.* 2. 19. 10-13 we also find a possible attribution to Zeno though it is not said explicitly; the argument for this attribution based on context can be found at Verbeke, *L'évolution de La Doctrine Du Pneuma*, 20 n.35.

physical connections between whole and part, which in turn show that Zeno placed a large emphasis on the integration of his theories and the development not only of systematic thinking but also of a system of thought. Whilst it may sound like an odd description for soul, it is one which pays particular attention to the soul's physical, or material, attributes which is at the heart of Stoic metaphysical beliefs. Zeno, no doubt, very consciously chose such a description not only for the metaphysical reasons of emphasising the soul's corporeal nature but further to show that the underlying processes of the cosmos and those of individual living organisms are naturally harmonious. We have here an indication of Zeno's systematising which became the inheritance of Stoicism in general and is usually credited to Chrysippus. The notion of ἀναθυμίασις is not only a significant aspect of Stoic embryology and the genesis of the soul as indicated by the etymology of soul being derived from the chilling of the first inhalation,[21] it is also essential for understanding that the Stoic soul is not just brought into existence but it also needs to be sustained. The means of the soul's nourishment by ἀναθυμίασις is closely tied to Stoic elemental theory in cosmology for just as Zeus is nourished via the terrestrial vaporous exhalations so too do vaporous exhalations nourish animal souls. In the process we can discern three components: liquid, air and fire. The two former are explicit in the evidence the latter is implied.

> It is necessary that this *pneuma*, that is the psychic kind, be nourished. From where else then, they claim, will it have its nourishment except from the air that is drawn in by inhalation? And yet also it is not unreasonable that this be nourished from the vaporous exhalation of the blood. (SVF 2. 783; cf. also SVF 2. 782 (= LS 53 E)

The evidence presents us with some sort of equivocation, for ἀναθυμίασις is used to describe both the nature of soul and its nourishment, but this should not come as a surprise to us since the Stoics are used to describing things according to what they are composed out of, for example Zeus and fire being one and the same. It is an indication

[21] Cf. SVF 2. 806

that the soul is indeed a physical thing and as such there is a physical process that underlies it and which needs to be explained. There is also possibly a discrepancy regarding the reliability of the sources here. The sources which say the soul *is* a vaporous exhalation may be seen as a reduction of the more specific theory that the vaporous exhalation is the nourishment for the soul,[22] which would indicate that fire is the key component of the soul in a similar way as the fiery aether is nourished by vaporous exhalations from the sea. If indeed there is congruity of process with Stoic elemental theory then we can certainly show both that the soul is founded in the material world and that its existence relies on an underlying physical process. It is worth understanding as much as we can of this materiality of the soul for it is, invariably, foundational for describing many other aspects of the Stoic system including epistemology, theory of action and ethics.

Now the passage quoted from Sextus above utilised the theory of growth and nourishment to show that there was some discrepancy in the coherence of the Stoic system with regard to how impressions are taken in by our *hegemonikon*. Sextus' attack presupposes an underlying belief that the Stoics would have felt threatened by a doctrine in the logical part of philosophy being found to be inconsistent with a doctrine in the physical part. The effectiveness of this approach would only be successful if the Stoics did indeed have the conviction that their system was integrated in such a way as to require that something apparently quite independent, like the soul's nourishment, be found to fit in with the process of receiving impressions from our sensory organs. Moreover, the attack is not focused on some metaphysical notion that the soul is nourished and survives because of our sensory experiences but rather the point is that the physical processes underlying the soul's reception of nourishment on the one hand and impressions on the other are considered to be the same. If this

[22] Harold Fredrik Cherniss, *Plutarch Moralia. Vol. 13 Part 2* (Cambridge (Mass.): Harvard University Press, 1976), 861 note g.

were an isolated instance we could simply put the issue to rest by arguing that this is just a part of Sextus' Sceptical methodology – but it is not.

In the contemporary literature, as far as I know, only Tieleman has shown interest in the wider scope of nourishment in Stoicism and he has uncovered the connection between nourishment and voluntary movements in the soul, which is to be seen as a later development by Diogenes of Babylon. Diogenes is conceived of as a renegade partly because of his position but, as Tieleman argues, this is probably down to Galen's polemic.[23] This indicates the possibility that in the early Stoa their theory of nourishment implies far more than is at first evident. Indeed, from the sources presented here it seems as though Diogenes of Babylon was building on what had come before. There are numerous sources attributed to earlier (as also to later) Stoics, which speak of nourishment and growth in the same passage as sensory impressions and in fact it seems as though the majority of sources in speaking of nourishment refer in some way to impressions or cognitive process. Moreover, whilst some of these sources are attacking the Stoic theory others are rather using the two theories together for exposition purposes.[24] It is worth quoting Plutarch's critique:

> And in what they suppose to be the essence and genesis of conception itself are they not at odds with the common conceptions? For conception is a kind of mental image, and a mental image is an impression in the soul; but the nature of soul is vaporous exhalation,

[23] Tieleman, *Galen and Chrysippus on the Soul*, 90–95.

[24] In addition to Sextus *M* 7. 236-241 there is M. Aurel. V. 33 (ἀναθυμίασις), VI. 16 (Marcus refers to the changing nature of the result of the soul's nourishment (exhalation) and of the result of impressions (appearances); Epictetus *Dis.* 2. 22,5 (suitable nourishment and impressions are ready to hand but not received well by dull souls). More elaborately physical accounts are to be found at Plutarch *De comm. not.* 1084F – 1085B and Eusebius *Praep.* 15.20-21 (quoting Zeno and Cleanthes' views from Arius Didymus [20] and Longinus attack [21]) parts of which I quote here. In addition to this there is also the evidence which describes the soul not as an exhalation from the blood but rather as an exhalation endowed with sensation (Eusebius *Praep.* 15. 20 & *SVF* 2.778). In Cicero too nourishment and the breathing of air are directly correlated with sensory stimuli and experience (*ND* 2.83). Finally, we have a wonderful source which expresses this connection explicitly for Chrysippus, Galen *PHP* III 1.25 (= SVF 2. 886): "for impressions (ἐμφάσεις) arise in us as if it were vaporised (ἀναθυμιωμένου) from the heart and were pushing out against certain parts and were blowing (ἐμφυσῶντος) into the face and hands." For a discussion of this passage in relation to the passions see Tieleman, 237–38.

> on which it is difficult to make an impression on account of its subtility (μανότητα) and for which to receive and retain an impression is impossible. Liquids being the source of its nourishment, i.e. of its genesis, this is in process of continual accretion (συνεχῆ ἐπιφορὰν) and consumption (ἀνάλωσιν); and its mixture with the air of respiration is for ever making a new thing of the vaporous exhalation as this is altered and transformed by the current which rushes in from without (θύραθεν) and withdraws again. For one could more easily suppose shapes and imprints and forms being kept by a stream of running water than by a moving breath which is perpetually being blended with vapours and moistures within and with another, an inert and alien breath as it were, from without. The Stoics, however, are so heedless of themselves as to define conceptions as a kind of conserved notions and memories as abiding and stable impressions and to fix absolutely firm the forms of knowledge as being unalterable and steadfast and then to place beneath these things as base and foundation a substance that slides and scatters and is always in motion and flux.[25]

Plutarch's objection is obvious. How can we speak of a unified consciousness if that consciousness is based on something that is ever-changing? Is the permanence of the self not necessarily vanishing in the perpetual flux of ever new exhalations? But it seems to me that this is indeed the point that the Stoics and Zeno wish to make. The soul is not eternal but is for ever changing not only due to its nature but also due to the fact that it is receiving impressions constantly. Indeed because the foundation is made up of physically alterable stuff it is no easy task to have a unified consciousness as this necessarily involves being able to understand the diversity of these alterations as some collective whole, which is simply not possible until the individual has some experience or power of the mind to do so. Of necessity then one needs to receive a multitude of information before one is able to see any coherence between the individual pieces. It is for this reason that despite a baby having an awareness of self

[25] Plutarch *De comm. not.* 1084F – 1085B

in terms of its own survival it has no awareness of its self as a unified individual. And, whilst sensation is available from birth once the newly born has taken its first breath, it is said that the mind and the greatest powers of the soul are not implanted as reason directly at birth. Reason is that which unifies the ever-changing nature of our soul via the impressions we receive from the outside.[26] And so the stability of the soul is secured by a gradual accretion of impressions. The passivity of process involved in the growth of the soul via inhalation and nourishment conforms to the passivity involved in the soul which is altered by the impressions it receives.

If we return to the aporia presented by Sextus that the *hegemonikon* is affected in such a way as to increase both when receiving nourishment and when receiving impressions, we begin to have an inkling as to why we attain different results when the *hegemonikon* is increased by way of impression and by way of nourishment. Whilst both have to do with the introduction of air from the outside the character of the air is different and so too is the way that it is received. For the *hegemonikon* passively assimilates the circumambient air for nourishment whereas it is passively struck by the aeriform impressions from the outside in presentations. So whilst the processes may seem similar in that they are both passive (as Sextus notes), the passivity has two forms, which are not always so easy to discern from the evidence. The result is that our *hegemonikon* grows and is sustained and preserved by inhalation securing its survival, and it is altered and strengthened by being struck continuously by impressions that ultimately secure the soul's awareness of identity. Both processes appear to be automatic and both occur by means of passivity (κατὰ πεῖσιν). That these processes are indeed intimately bound to each other should become further evident by the fact that the way the *hegemonikon* is altered by impressions ultimately leads to its ability to take in more refined forms of nourishment that do not rely on respiration and on blood but rather on the more refined aether and in so doing provide the soul

[26] Cf. e.g. D.L. 7.55-56

with an existence that extends beyond a life of flesh and bone.[27] In this way we far more easily make sense of the standard Stoic doctrine that reason (*logos*) is attained only after a period of constant accretion of impressions assembled up to the age of fourteen.[28] It is safe to assume that it is this which also secures an awareness of a unified consciousness and the arrival of thought which includes such things as living according to nature and living virtuously. The soul, or rather the *hegemonikon*, requires a period of incubation in which it is forged from the continuous blows of impressions. The physicality of the process is brought into stark relief. Likewise we can understand why Cleanthes is said to have held that the mind comes in from the outside (θύραθεν εἰσκρίνεσθαι τὸν νοῦν), and how this is indeed in harmony with the fundamentally physical account of the soul developed by Zeno.[29]

So how does this all fit in with the problem which we set out to elucidate at the beginning of this chapter regarding the increase of fire during the cosmic cycle? Our analysis of the texts has shown that impressions have the power of altering our soul by way of passivity. The alteration of our soul by our impressions may be directed either towards virtue or vice and if to the former our soul will invariably become more rational. On a physical level this means that our souls become more fiery. The alteration can thus be perceived in relation to the substance of the universe and is best described as an elemental transmutation in individual bodies from denser to more rarefied states. A passage from Arius Didymus, preserved in Eusebius, shows us that the world soul and the individual soul are bound together in this way.

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[27] Plutarch *de facie luna* 943 D-E: "When souls become firm (σταθερά) and translucent (διαυγές), because of being close to the moon, then they are also nourished easily by any type of exhalation that reaches them."

[28]Stobaeus I, 48. 8 Πάλιν τοίνυν περὶ τοῦ νοῦ καὶ πασῶν τῶν κρειττόνων δυνάμεων τῆς ψυχῆς οἱ μὲν Στωικοὶ λέγουσι μὴ εὐθὺς ἐμφύεσθαι ταὸν λὸγον, ὕστερον δὲ συναθροίζεσθαι ἀπὸ τῶν αἰσθήσεων καὶ φαντασιῶν περὶ δεκατέσσερα ἔτη.

[29] Stob. I, 48. 7. Verbeke sees Cleanthes as generally faithful to the fundamental principles of the psychology of his master, but on this point of the mind entering from the outside he mistakenly sees Platonic influences and a divergence from Zeno: Verbeke, *L'évolution de La Doctrine Du Pneuma*, 47.

> And they say [Zeno and Cleanthes] that there is a soul in the universe, which they call aether, and air surrounding the land and sea, and exhalations from them; and that to this soul are attached (προσπεφυκέναι) all the other souls, both those in animals, and those in the surrounding air; for the souls of the dead still continue.[30]

This passage does not qualify the type of animal here. It may be that irrational animals are referred to as well but this seems unlikely, given the general attitude of the Stoics towards animals, and also because a further comment refers to the souls in the surrounding air, which can only be the gods and thus an appropriate contrast is provided between rational gods and rational humans. It is however not impossible that irrational animal souls would also continue after death. This would contribute to speeding up the gradual dessication of the universe but it would not cohere so well with Zeno and Cleanthes' theories of nutrition and the forging of the soul via impressions. Moreover, Arius Didymus in the same passage further on provides a more specific account by saying that the souls of the foolish and irrational animals only last for certain periods of time.[31] In physical terms the souls of irrational animals are presumably not fiery enough to reach the aether and are as such reabsorbed back into the cosmic cycle rather than assimilated into Zeus.

Thus, an integrated picture begins to emerge. The sources referring to the continuous growth of the substance of the universe up to conflagration may be seen as describing a gradual transmutation from the denser elements to the more rarefied. This transmutation invariably corresponds to an expansion of the substance. The

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[30] Eusebius *Praep.* 15.20

[31] In general the Eusebius (Arius Didymus) passage provides us with more details than the oft cited Diogenes Laertius 7.157. Diogenes records a difference between Cleanthes and Chrysippus: "Cleanthes indeed holds that all souls continue to exist until the general conflagration; but Chrysippus says that only the souls of the wise do so." Arius Didymus is more precise with the idea, if not with the attribution, in recording that some Stoics have the "souls of the foolish and of irrational animals perish together with their bodies" and for other Stoics that "the soul is created and perishable, but does not perish immediately when freed from the body, but abides for some time by itself; the soul of the good until the resolution of all things into fire, but the soul of the foolish for certain periods of time." So it would seem as though the length of time a soul survives for is graded according to how good or irrational it is and so its fieriness is directly related to its temporal duration.

expansion is not perceived as a quantitative increase because the same quantity of substance was always present simply in a denser form and as it becomes fiery it naturally grows in size. The most interesting aspect of the process, however, is the inventive way in which the early Stoics wove their system together and how their physical explanation of the conflagration was intimately bound up with their psychological theories. The role of rational beings in the ultimate conflagration of the cosmos is decisive and reflects a greater connection with god, for without rational beings there would be no conversion of the denser substance back into its fiery state. By our own sensory natures we interact with the physical world and in this interactive process with our environment we assimilate the physical matter of aeriform impressions into ourselves and through our own rationality transmute this into more refined and coherent matter. Without the rational transmutation of matter the universe – as it gradually becomes more and more dense – would, eventually, die. By observing the integration of their doctrines in this way we may gain a glimpse into what the Stoics considered the paedagogical necessity of studying physics before theology, for in this way it may be said that our καθῆκον extends beyond our selves and our world to the whole cosmos.

5. Pneumatic Texture and the Cognitive Process

Introduction

We have seen in the previous chapter that Stoic ideas about the growth and nutrition of the cosmos were bound up with views about psychology and epistemology at the individual level. In this chapter I turn to a fuller examination of the physical activities that underlie the processes of attaining knowledge. It is no easy task to discover these. Anna-Maria Ioppolo, in an erudite paper, established that when we speak of thought processes in early Stoic philosophy we must take these to be mechanical and physical rather than psychological.[1] It is well understood that physics is important for Stoic epistemology. In his excellent and concise monograph *On the Stoic Theory of Knowledge* Gerard Watson acknowledges this significance of physics for an understanding of the Stoic theory of knowledge by initiating his study with an examination of physics. In due course he assigns some of the basic qualities of *pneuma's* motion to the acceptance and retention of knowledge. He designates expansion to the outward movement and contraction to the inward motion of *pneuma* and claims that the former corresponds to the acceptance and the latter to the retention of knowledge.[2] This very brief description is the extent to which he explores the pneumatic aspects of attaining knowledge[3] and he unfortunately does not explain the underlying physical processes involved any further. Later on we will see that his assumption here is mistaken.

Watson's account is one of the more philosophically aware of the involvement of *pneuma* in knowledge reception and accretion. More recently Gourinat has given perhaps the fullest account of the physical processes involved in cognition which he accompanies with ample use of the sources related to the cognitive process.[4] Whilst

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[1] Anna Maria Ioppolo, "Presentation and Assent : A Physical and Cognitive Problem in Early Stoicism," *Classical Quarterly* 40 (1990): 433–49.

[2] Gerard Watson, *The Stoic Theory of Knowledge* (Belfast: Queen's Univ., 1966), 22. On an interesting account of the role of contraction in δόξα cf. Margaret E. Reesor, *The Nature of Man in Early Stoic Philosophy* (London: Duckworth, 1989), 131–33.

[3] I exclude his account of sensation on p.28 which is simply a description of what is in the source text (D.L. 7 158).

[4] Gourinat, *Οι Στωϊκοί για την ψυχή [Les stoiciens et l'ame]*, 51–109.

informative his description is confined to sources which are well-known. Similarly, other studies involve physics in their accounts to the extent that they refer for instance to the much used sources which refer to the extension (συνέντασις) of the soul from the hegmonikon to the senses[5] or speak of an assent as being firm and steady or weak and changeable[6] or refer to the passivity of an impression and the active nature of an assent.[7] Whilst these physical aspects are referred to, acknowledged and accepted as the fundamental framework on which the Stoic theory of knowledge is based, there is scant discussion of the actual mechanical processes that are taking place. This sorry state of affairs is due to the problem of our extant evidence. Our only evidence that comes close to describing the underlying physical processes of *pneuma* in the attainment of knowledge is that which has to do with impressions that arrive to us via sensory perception[8] but we have no direct evidence of what is going on in the *pneuma* when for instance we assent or yield to that impression, let alone what is going on when the impression is a cognitive one (καταληπτική). In order to get any idea of what the Stoics might have been thinking in this regard we will have to use material from other contexts which will mainly be part of the physical philosophy of the Stoics. It is not my aim, when discussing the physical texts, to disentangle which doctrines were held by individual heads of the school but I will be focusing on Zeno's theory of knowledge.[9] This chapter should be understood in relation to much of what is said in

[5] Cf. e.g. *SVF* 2. 879, 864, 866

[6] Cf. e.g. Stob. *Ecl.* II, 7. 11ιβ (= p. 111, 18 – 112, 8); Sextus *M* 7.151–52

[7] In addition to Gourinat referred to in n. 4 above, on the extension of soul cf. especially Gould, *The Philosophy of Chrysippus*, 51–66; Todd, "Συνέντασις and the Stoic Theory of Perception". On the firmness and weakness of assent cf. esp.Annas, "Stoic Epistemology," 186–87; Katja Maria Vogt, *Belief and Truth : A Skeptic Reading of Plato* (Oxford ; New York: Oxford University Pr., 2012) Ch. 7 "Why Beliefs Are Never True: A Reconstruction of Stoic Epistemology". On the passive and active nature of impression and assent respectively cf. Michael Frede, "Stoic Epistemology," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe A. Algra et al. (Cambridge ; New York: Cambridge University Pr., 1999), 300–301 & 306–7; Ioppolo, "Presentation and Assent," 435–36.

[8] See n.5 above

[9] I am not concerned here with the debate between Academic Sceptics and Stoics which involved later members of the school and which has been studied extensively with particular emphasis on what is the object of our assent is it a real object or a proposition or an assertible? I touch upon this only briefly below in relation to the difference between cognition and science. For exemplary studies on the debate with Academics see in particular: Annas, "Stoic Epistemology"; Frede, "Stoic Epistemology".

the rest of the thesis and in this way it should be possible to at least discern that much of what is reconstructed here has its origins in specific aspects of the pneumatic theories of individual Stoics.

I shall here approach a reconstruction of the underlying physical processes of perception by sustaining the underlying methodological principle that there is coherence between the general and the particular in Stoic physics. I shall first present Zeno's analogy describing the acquisition of knowledge which graphically presents the basic stages of the Stoic theory of knowledge acquisition. I shall then chart the evidence related to a missing part of the process in the analogy and link it to the usage of the Stoic terminology related to *pneuma's* activity, focusing primarily on two attacks on the Stoic doctrine: a critique of the relation of strength to the tensility of a body in Alexander of Aphrodisias, and an attack on the relation of the coherence of a body to its rarity and density in Galen. I shall argue first that when taken together these sources reveal to us that Stoic terminology was not always understood with fidelity to the original ideas, and then that by tracing the confused use of these terms across the arguments of commentators we have access to some of the underlying physical processes in the Stoic theory.

Zeno on the Acquisition of Knowledge; Yielding and Assent

In a passage found in Cicero Zeno offers a visual depiction with his hands of how the cognitive process takes place. This graphic depiction is very helpful with imagining what goes on.[10]

1. An open palm ➔ we receive a presentation (φαντασία) from the phenomenal world
2. Fingers closing to touch the tip of the thumb ➔ we assent (συγκατάθεσις) to that impression
3. A clenched fist ➔ we gain a stronger grasp once we have assented (κατάληψις)
4. Our other hand grasps the clenched fist ➔ knowledge is secured. (ἐπιστήμη)

[10] Cicero *Academica* 2.145 (=SVF 1.66 = LS 41 A)

The analogy describes a temporal sequence in the acquisition of knowledge which is not exactly accurate regarding the specifics of the Stoic theory. Firstly, the temporal location of assent is misrepresented as our evidence shows that assent can occur simultaneously with *phantasia*, following swiftly after it, simultaneously with *katalêpsis* or even after it. In addition to this, an aspect of the process is missing. The absence is most likely due to it being both didactically unhelpful for newcomers to the Stoic school and also less concise and less easily represented. In our evidence we encounter a term that is often paired with assent: yielding (εἶξις). Yielding is often confused or conflated with giving hasty assent or weak assent, that is an assent to a non-cognitive impression, in other words to an impression which is either deceptive or false and one which cannot lead to knowledge but only to opinion. At other times it is equated with the type of assent that occurs with sensory perception. In his seminal book on impulse in Stoicism Inwood distinguished between assent and yielding; the latter, he argued, was the primary means towards impulse and action in animals since it involves an automatic response to stimuli, whereas rational beings have greater control and responsibility over their actions and therefore their activity is dominated primarily by assent and not by yielding.[11]

The passive and active qualities of assent and yielding are not definitive, for they both contain both passive and active elements. Yet, treating this moment in the process as solely weak, negative and passive is something that opponents of Stoicism often do. More than this it often emerges as negative in Stoic texts as can be seen for example in Galen's description of a Chrysippean account of shameful action: "One person desists when dangers arise, another became limp and gave in when a reward or penalty was brought, another on encountering other such things, which are not few in number. Every such situation defeats and enslaves us, so that by yielding to it we betray friends and cities and offer ourselves up to many shameful acts after our former impetus has

[11] Inwood, *Ethics and Human Action in Early Stoicism*, 75–88. Inwood's discussion here is excellent but invariably his account on yielding is incomplete due to the fact that he does not take into account all the sources and thus neglects to recognise the active aspect to yielding.

gone slack."[12] Our response to difficult situations is negative when the tensional motion in our soul is slack and we are said to yield to the temptation of responding in a way that is not in our best interest or in that of others around us. On this account yielding can be understood to be the opposite of assent, it is a non-rational, passive way of responding to life and our environment and in this way we act in a non-voluntary way – as slaves. Contrariwise assent is seen to be our way to freedom. It is the rational part of our soul at work and is seen to belong only to rational animals. Epictetus would later on describe this in his incisively didactic way to show that it is our judgment which is the only thing that is completely within our control and it is this which sets us free from the enslavement of our passions; his description has become a very compelling idea in the *askêsis* of Stoicism.[13]

Assent is as such given pride of place in Stoic theory for not only is it that which enables us to attain the criterion of knowledge but it is also the source of our very freedom. Despite the elegant simplicity of this account it is clear that the majority of our evidence for it is rather late, *viz.* Chrysippean, or even later if we include Epictetus. This is not necessarily a problem since much of our understanding of Stoic theory is derived from Chrysippean accounts or at least attributed to him. Nevertheless, with regard to yielding and assent we encounter discrepancies in the evidence relative to this standard narrative. Whilst the evidence that can be adduced is rather cursory, it is worth bringing together as it provides us both with an insight into the origins and development of the theory of yielding and assent but also with a stepping stone to further understanding the complex terminological usages considered above. In

[12] Galen *PHP* IV 6. 7-8

[13] For an excellent discussion of assent as an expression of our free will see M. Frede, *A Free Will : Origins of the Notion in Ancient Thought / Ed. by Anthony A. Long ; with a Foreword by David N. Sedley* [*A Free Will*] (Berkeley (Calif.), 2011), 31–48. On the active nature of assent cf. Gourinat, *Οι Στωϊκοί για την ψυχή [Les stoiciens et l'ame]*, 88–90 who quotes Sextus *M* 7.237 to show that assent is purely active; also Ioppolo, 'Presentation and Assent', 435–436 and Teun Tieleman, *Chrysippus' « On Affections » : Reconstruction and Interpretation* (Leiden: Brill, 2003), 38–39, who connects this with the tension of the *pneuma*.

combination the sources provide an upside down perspective of the one considered so far *i.e.* that yielding is active and assent passive.

So for instance, a weak assent or a hasty assent or an assent to a false impression are also described as yieldings.[14] The overall picture that emerges of yielding is that it is entirely passive and irrational but it is also the source of all our wrong assents. This seems to be a natural way of understanding yielding for it is in a sense a giving up or a giving in, an incapacity to resist, involuntarily and unconsciously accepting whatever is thrown at us. Even an appropriate assent can on occasion be viewed as involuntary and passive for as Cicero tells us:

> But those who refuse sense-perception and assent are virtually robbed of their minds. For just as a scale must sink when weights are placed in the balance, so the mind must give way to what is self-evident. It is no more possible for a living creature to refrain from assenting to something self-evident than for it to fail to pursue what appears appropriate to its nature.[15]

The analogy of the scales and weights was used by Chrysippus[16] but derives from Zeno.[17] And that this is not an isolated example is further confirmed by Sextus who quotes a more graphic example which the Stoics liked to use:

> Hence the apprehensive appearance becomes the criterion of truth not without qualification, but when it has no obstacle. For this one [the apprehensive presentation (*kataleptike phantasia*)], they say, being plain and striking, all but grabs us by the hair, and draws us into assent, needing nothing else to strike us in this way or to suggest its difference from the others.[18]

In these descriptions assent occurs involuntarily because we are unable to resist what is striking and evident. Indeed, with the analogies the Stoics use it is almost as though

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[14] The evidence must be seen in combination e.g. Plutarch *Stoic. Repug.* 1056 E-F; SVF 2.131 (=LS 41 D); Cicero *Acad.* 1.41-2; Sextus *M* 7.151

[15] *Academica* 2.37-8 (= LS40 O)

[16] Plutarch *Stoic. Repug.* 1045 C

[17] See Ioppolo, "Presentation and Assent," 437 n.36.

[18] Sextus *M* 7.257 (Trans. Bett [modified])

we are yielding to these impressions. But these are specific types of impressions. All the evidence which refers to this type of assent is related in one way or another to sense perception from which we receive cognition of surface qualities like white and black, or rough and smooth.[19] I have been unable to discover anything extant which refers this type of passive assent to a cognition that is reached through demonstration. This suggests that the type of assent involved in reaching cognitive conclusions on the existence of god or harmony between parts, for example, can only be active. Yet, this evidence, on its own, brings us no closer to understanding the underlying physical processes in the *pneuma* which are involved in assent to an impression. What we can gain from this, however, is the recognition that there is a passive type of assent, which – at least in the way it is described by Zeno – acts in a similar way to yielding in that assent is achieved by a sort of giving way. This type of assent is often described as yielding in the modern literature[20] and the balance of the evidence shows that, in specific circumstances, yielding and assent are used interchangeably. In light of the evidence we can easily arrive at several different interpretations.

We can argue (i) that yielding is simply a form of involuntary, passive assent; (ii) in favour of maintaining a clear distinction regarding the voluntariness of assent and the involuntariness of yielding, i.e. we could say that weak, hasty and deceptive assents are, properly speaking, yieldings, for they are passive; (iii) that yielding and assent are two distinct aspects of the same process and that yielding is always accompanied by assent. Of these three interpretations, the first two should be rejected because the first fails to explain why assent should be used at all in describing what is clearly yielding and the second fails to explain why the terms are used interchangeably in different contexts. In my view we should accept the third interpretation which necessarily excludes (ii) and in some way assimilates (i). Following the vulgate narrative which

[19] D.L. 7. 52

[20] See Inwood, *Ethics and Human Action in Early Stoicism*, 77–88 and the evidence he adduces there.

describes assents as purely active and yieldings as purely passive is not helpful in explaining the balance of the evidence.

Whilst we have seen that assents are described as both passive and active we also have evidence which describes yielding as active, which as far as I know has been largely overlooked in the modern literature.[21] One source even states explicitly that the Stoics categorised yielding as an ἐνέργεια τοῦ ἡγεμονικοῦ.[22] It is likely that despite our (and the commentators') predispositions for conceiving yielding as passive, εἶξις was a precise philosophical term for the Stoics, whilst those who preserved their theories showed a relative disdain for Stoic insistence on their idiosyncratic and precise terminology. Cicero tells us as much in another context, that the Stoics cling "doggedly to their own terminology".[23] In a passage of Alexander's *de fato*, the Stoics are accused of treating yielding as if it were voluntary.[24] And in Diogenes Laertius Zeno is said to have distinguished between those impressions that are from real objects and those that are not: when from a real object the impression is καταληπτική, when not from a real object it is ἀκατάληπτος. He then goes on to say that an impression from a real object is followed by both yielding and assent, indicating that these are two distinct things which are both required for a κατάληψις.[25] In light of this evidence, yielding needs to be rehabilitated back into the Stoic theory. Thus, we must reject interpretations (i) and (ii) above since neither of them treats yielding as distinct from assent but rather subjects it to being a weaker form of assent which cannot be the case when it is also involved in the acquisition of cognitive impressions (καταληπτικαί φαντασίαι) and also volition. I will in what follows attempt to show that interpretation (iii) explains the available evidence more completely and also offers us a deeper understanding of Stoic theory.

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[21] Cherniss has noticed that yielding was promoted as passive by opponents of Stoicism see *Stoic. Repug.* [1057 A] p.600-601 n. *a*

[22] Plutarch *De Virtute Morale* 447 A

[23] Cicero *De fin.* 4.78 cf. also Simplicius *In Arist. Cat.* 7. 166, 30-33 where he shows a disdain for the "fine distinctions" of the Stoics.

[24] Alex Aphr. *De fato* 183.21-30 (= SVF 2. 981)

[25] D.L. 7. 46-51

Let us return to the stages which Zeno describes in his hand analogy. It would seem as though there is a temporal sequence to the process of cognition. This sequence, though is not as clear-cut as the analogy represents. To recapitulate, according to the analogy, (first stage) we receive an impression; (second stage) we assent to it; (third stage) we grasp it cognitively; (final stage) we collect all our cognitions together and have science. Zeno's theory has an elegant simplicity to it. The first three stages are based on sense-perception and are the means for our acquisition of knowledge. As we have seen a sense-perception is so striking that essentially we have no option but to assent to it; once we assent we have a cognitive grasp of it which is retained in our memory. What we are assenting to is the real object and not simply an image of it. This makes it possible for all people to recognise, for example, that rain is wet, mountains are big and jasmine smells sweet at night-time. Impression, assent and cognition all occur virtually simultaneously. There is no deliberation involved in the realisation of the above examples and one can note that the cognitive process is, up to this point, neutral.[26] That is to say, that knowledge comes to us in a pure form, unadulterated by things like deception or value judgment. Our interaction with the environment is seemingly one sided. We are receivers passively absorbing the sensory stimuli that come our way. In this way knowledge is readily accessible to all, sages and fools alike, and is not the sole property of a few trained minds. Since knowledge belongs to all, this gives a very strong foundation to make the argument that everyone is responsible for their beliefs, for they cannot easily fall back on the excuse of ignorance or being deceived by their senses. Whilst in many ways the Stoic theory is a response to previous models of cognition, it is not primarily a result of their reaction to others but rather a natural consequence of their physics. The soul is a physical entity which interacts with the environment. That this is the case is also evident from the criticisms levelled against the Stoics. Plutarch for instance, in an attempt to destroy the Stoic

[26] Alex. Aphr. *De fato* 184. 20-22 cf. Inwood, *Ethics and Human Action in Early Stoicism*, 44.

theory by appealing to common sense, reveals to us that the Stoics viewed the transfer of impressions from the real objects of our environment to the mind of our soul as being the transfer of the moving *pneuma* (πνεῦμα φερόμενον) from within with another inert and alien *pneuma* from without.[27] The difference is that the *pneuma* which is internal to us is also vital and sensory while that which is external to us is the *hexis* type devoid of self-motion and sensation. Nevertheless, the cognitive process is clearly an interaction of *pneumata*. Plutarch's qualm is that *pneumata* are unable to imprint or retain any type of shape or form: "for one could more easily suppose shapes and imprints and forms being kept by a stream of running water than by a moving breath".[28] He continues by complaining that the Stoics make the result of these interactions to be stable and firm even though they have the most slippery foundation.[29] Plutarch is not the only commentator who complained in this way and there are numerous examples of criticisms which follow the same theme. Moreover, these criticisms further help to establish the underlying physical process at play during cognition and thus also help us clarify the role of yielding.

Attacks on Stoic Theory by Alexander of Aphrodisias and Galen

Both Alexander of Aphrodisias and Galen arraign the Stoics for their recalcitrant theory of what constitutes a body. These types of polemics promulgate common misconceptions about Stoic thought and moreover make it difficult to make sense of how to pair Stoic theory with Stoic nomenclature. This problem is pronounced for the Stoic theory of *pneuma* since there is much technical terminology regarding the condition and texture of the *pneuma* and, worse, it is not at all clear what is meant by each of these terms as it seems they were often used in contradiction to entrenched assumptions. Further to this, some of these terms appear only in the works of one commentator and so cannot be collated with other evidence and the confusion between terms also arises in modern translations which often conflate terms which

[27] Plutarch *De comm. not.* 1085 A
[28] It should be noted that this passage is pervaded by indirect references to the nourishment of the soul.
[29] Plutarch *De comm. not.* 1085 B

should be understood as distinct. For intstance it is very common practice to translate the terms 'ἄτονος' and 'εὔτονος' with the terms 'soft' and 'firm' respectively; yet this seems to assume too much and a more precise translation would be 'toneless' or 'slack' and 'well-tensioned' or 'elastic'. This lack of precision is problematic when 'soft' is used for something like μανός and 'hard' is used to translate παχυμερής because if we do not distinguish between terms then we do not distinguish between ideas and we lose out on the realisation that in Stoic theory μανότης in physical process is opposite to ἀτονία. Terms such as these would seem to be used in a technical way and further than this some, which we would ordinarily think go together – such as density and stability or high tensility – do not. It is for this reason that we need to disentangle some of this terminology from confused commentaries which impugn any clear understanding of the original theory. It is significant to note that whilst the main sources adduced in what follows are arguing primarily from a physical perspective and for this reason (probably) have, as far as I know, not been used in analyses of the Stoic theory of knowledge, they explicitly refer in the former case to αἴσθησις and in the latter to φαντασία.

The following passage from Alexander challenges the Stoics for their incapacity to be common-sensical:[30]

> Another point: for what reason can things which are in the dark not be perceived from the light, whereas those that are in the light *can* be seen from the dark? To say that illuminated air has in its capacity of distinguishing (or perhaps: by being split up [viz. by light]) greater strength and is capable of moving sensation via pressure, whereas unilluminated air is, due to its slackening, unable to tighten under the

[30]Alexander Aphrod. *de anima libri mant*. p. 131, 30 Bruns (= SVF 2.868): ἔτι διὰ τι ἐκ μὲν φωτὸς τὰ ἐν σκότῳ ὄντα οὐχ ὁρᾶται, ἐκ δὲ σκότους τὰ ἐν τῷ φωτί; τὸ γὰρ λέγειν, τὸν μὲν πεφωτισμένον ἀέρα τῷ διακεκρίσθαι μᾶλλον ἔχειν ἰσχὺν καὶ δύνασθαι τῇ ἐπερείσει τὴν αἴσθησιν κινεῖν, τὸν δὲ ἀφώτιστον τῷ κεχαλᾶσθαι μὴ δύνασθαι ὑπὸ τῆς ὄψεως συνεντείνεσθαι, καίτοι πυκνότερον ὄντα τοῦ πεφωτισμένου, πῶς πιθανόν;

> pressure of vision even if it is more dense than illuminated air - how is this credible?[31]

Alexander here considers that something that is denser should also be stronger and have a greater tensile capacity. I would say that Alexander's complaint is legitimate: after all which is softer, an airy foam bed or a dense bed of rock? If something is not dense (πυκνόν) it is more rare or fine and so it is also looser and more relaxed (κεχαλᾶσθαι). But here we see that Alexander is thrown off course by the fact that the Stoics, in contradistinction to the vulgate view, would have rarity be both tighter (συνεντείνω) and firmer than something which is denser. Moreover, this account is extracted from wider Stoic theory and thus segregates the terms from their proper context.[32]

Alexander is not the only one to complain about this. In a separate context Galen takes on the Stoics for similar reasons:[33]

> For with regard to the *easy-to-hand phantasia*, it could be said that the hard and resistant-to-touch and the dense holds itself together. But on the other hand, the fine[34] and the soft and the compliant need

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[31] The issue is a familiar one in *problêmata* contexts: how is it that when we are in the light we cannot see what is in the dark (e.g. inside a dark house), whereas from the dark we *can* see what is in the light (e.g. if we look from a dark room into the light outside). I have Keimpe Algra to thank for the above comment and help with the translation of this text. The Stoics claimed that darkness was visible due to the fiery rays that are sent out from the eyes cf. Calcidius *in Tim.* 237 and SVF 2.864. See also Gourinat, *Οι Στωϊκοί για την ψυχή [Les stoiciens et l'ame]*, 62.

[32] On the context (or lack thereof) see Mansfeld and Runia, *« Aëtiana » : The Method and Intellectual Context of a Doxographer. 2, The Compendium*, 146.

[33] Galenus *Περὶ πλήθους* 3 Vol. VII p. 526 K. (= SVF 2.440): ὅσον μὲν γὰρ ἐπὶ τῇ προχείρῳ φαντασίᾳ τὸ μὲν σκληρὸν καὶ ἀντίτυπον καὶ πυκνὸν ἑαυτὸ συνέχειν <ἂν> λέγοιτο, τὸ δ'ἀριόν τε καὶ μαλακὸν καὶ ὑπεῖκον ἑτέρου δεῖσθαι τοῦ συνέξοντος. οὐ μόνον δὲ ουδεμίαν ἀπόδειξιν εἰπόντες οἱ ἄνδρες ἀξιοῦσι πιστεύεσθαι τὴν ὑπόθεσιν αὐτῶν, ἀλλὰ καὶ πρὸς ἑαυτὴν ὑποτιθέμενοι μαχομένην οὐκ ἔτι αἰσθάνονται. τὰ γὰρ ἁπάντων λεπτομερέστερα καὶ μαλακώτερα καὶ εἰκτικώτερα, τὸ πῦρ καὶ <τὸν> ἀέρα, ταῦτ'αἴτια τῇ γῇ τῆς σκληρότητός τε καὶ ἀντιτυπίας εἶναί φασιν, ὡς ἐνδεχόμενον ἕτερον ἑτέρῳ τινὶ μεταδοῦναι δυνάμεως ἢ φύσεως ἢ ἐνεργείας ἢ ποιότητος, ἧς οὐ μετείληφεν αὐτό. καὶ γὰρ αὖ καὶ φαίνεται σαφῶς οὐ μόνον οὐδὲν ὑπὸ τοῦ πυρὸς συνεχόμενον, ἀλλὰ αἰ διαλυόμενα πάντα. πρὸς μὲν δὴ τὴν τῶν Στωϊκῶν ὑπόθεσιν ἑτέρωθι λέλεκται διὰ πλειόνων.

[34] The Stoics seem to have their own unique way of understanding this term (ἀραιός). The *LSJ* definitions do not account for this usage. I translate it as 'fine', in the sense of rare or subtle, to contrast appropriately with Stoic usages of πυκνός and παχυμερής. If we follow *LSJ* however we would use terms like 'loose' or 'thin' or 'intermittent' which can easily be confused with a slack or weak tension

> something else for coherence. Thus not only do the men presume their own hypothesis even though they have no proof for this, but also they do not even perceive that they are making a hypothesis which contradicts itself.
>
> For they claim that the more refined and the softer and the more readily yielding fire and air are the cause for hardness and resistance in earth and that supposedly it is possible for one to impart to another power or nature or energy or quality of which it had no share in itself since again it appears clearly that not only is nothing held together by fire but (contrariwise) all is dissolved in it, and regarding this hypothesis of the Stoics it has been discussed elsewhere by many others.[35]

According to the Galen passage, for the Stoics, that which is more refined (λεπτομερέστερα), softer (μαλακώτερα) and yielding (εἰκτικώτερα) (i.e. a fiery, airy nature) also possessess those properties which are the cause for hardness (σκληρότης) and resistance to touch (ἀντιτυπία). He inveighs against the Stoic theory in a similar fashion to Alexander, yet there appears to be a contradiction between the two sources for Alexander complained that the dense was more relaxed and that the light was harder but although Galen substantiates Alexander's complaint about fire and air (i.e. the fine) being the cause of hardness he also claims, apparently in contradiction with Alexander, that it is also softer, more refined and more yielding. And here is the first clue that we are dealing with specific terminology which is being misused by the commentators.[36] For one is talking of the tension and the other is talking of the texture

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in the *pneuma* whilst also perhaps suggesting that there are interstices in the texture of the *pneuma*, which would be irreconcilable with the Stoics' belief in the cosmos as a plenum with no void inside of it.

[35] This passage has been almost entirely neglected, the only other scholar I have been able to unearth who makes use of it is Sambursky, *Physics of the Stoics*, 35. He also finds that Alexander of Aphrodisias is familiar with this theory of the Stoics but refers to another passage which lacks much of the corresponding terminology *De mixt.* 223, 36 ff.

[36] In criticising the Stoic theory they could also fall back on the theories prevalent in many other philosophers regarding the hardness of dense bodies and the softness of rare ones such as the Epicurean atomists (see Sextus *M* 10. 43-44) who perceive softness (τὸ μαλακόν) as arising from the dilation or expansion (διάτασις) of atoms and hardness (τὸ σκληρόν) from their coming together or contraction (συνέλευσις).

of the *pneuma*. It would appear that these are two distinct things for the Stoics. Texture is characterised by density (πυκνότης) or rarity (μανότης), whilst tension is characterised by tightness (συνεντείνεσθαι) and slackness (κεχαλᾶσθαι). By recognising this distinction between tension and texture we are able to better understand the distinction and relation between yielding and assent.

Yielding is a process which can and should be understood on the physical level. It is dependent on the density or rarity of *pneuma*. Yielding is often understood as forced assent but we can also see it as assent due to pre-determined physical necessity. As with many ideas in Stoicism there is an ambiguity in yielding which may appear contradictory. So it is that if we look at this from a psychological perspective, yielding can be seen as a giving in after an attempt at resistance. For example I don't want to drink alcohol but then I go to a nice dinner, all my friends are drinking and I give in to the pressure of the social norm as well as to the desire for drink, against my initial wishes or regard for good health. Yet, there is another way to understand yielding and that is not as part of the process of resistance but as part of the process of assimilation or absorption of physical reality. A *pneuma* that is more yielding is also less dense, in other words it is more fiery and less watery. And if yielding is always accompanied by assent, be it forced or otherwise, the assent is bound to come once the soul has yielded as far as it can go, in other words once there is no space for it to yield any further. The capacity for either the assimilation of a presentation – where one becomes familiar with all its characteristics – or for the absorption of an affection – where one can suffer greater impacts because there is still space in the soul – is what marks out the strong (*i.e.* fiery) *pneuma*. Invariably the opponents of Stoicism jump on these apparent contradictions of Stoic equivocation which leads to paradoxical pairings such as giving in being coupled with strength, flexibility with stability, softness with high tension.

The Distinction between Tension and Texture

When Alexander and Galen complain about these contradictory pairings we gain an indirect insight into the original theory. A narrative on aspects of Stoic cosmogony found in Dio Chrysostom, which unlike the previous sources is not describing the cognitive process or sensation, nevertheless sheds further light on this idea.[37]

> For indeed, when the mind alone had been left and had filled with itself immeasurable space, since it had poured itself evenly in all directions and nothing in it remained dense but complete rarity prevailed — at which time it becomes most beautiful — having obtained the purest nature of unadulterated light, it immediately longed for the existence that it had at first…
>
> … And having made fluid all his essence, one seed for the entire world, he himself moving about in it like a spirit that moulds and fashions in generation, then indeed most closely resembling the composition of the other creatures, inasmuch as he might with reason be said to consist of soul and body, he now with ease moulds and fashions all the rest, pouring about him his essence smooth and soft and easily yielding in every part.

This text divulges something that was already implied in Galen and Alexander that 'thinness', or rarity, is a characteristic of the most refined *pneuma* and consequently of the *pneuma* which has the highest tension and greatest coherence and stability. Further than this, though, it reveals to us the congruous relationship between rarity and

[37] Dio Chrysostom *Or.* XXXVI § 55 (II p. 15, 8 Arn.) (= SVF 2.622): λειφθεὶς δὴ μόνος ὁ νοῦς καὶ τόπον ἀμήχανον ἐμπλήσας αὑτοῦ ἅτ' ἐπ' ἴσης πανταχῇ κεχυμένος, οὐδενὸς ἐν αὐτῷ πυκνοῦ λειφθέντος, ἀλλὰ πάσης ἐπικρατούσης μανότητος, ὅτε κάλλιστος γίγνεται, τὴν καθαρωτάτην λαβὼν αὐγῆς ἀκηράτου φύσιν, εὐθὺς ἐπόθησε τὸν ἐξ ἀρχῆς βίον … ὑγρὰν δὲ ποιήσας τὴν ὅλην οὐσίαν, ἓν σπέρμα τοῦ παντός, αὐτὸς ἐν τούτῳ διαθέων, καθάπερ ἐν γονῇ πνεῦμα τὸ πλάττον καὶ δημιουργοῦν, τότε δὴ μάλιστα προσεοικὼς τῇ τῶν ἄλλων συστάσει ᾧων, καθ' ὅσον ἐκ ψυχῆς καὶ σώματος συνεστάναι λέγοιτ' ἂν οὐκ ἄπο τρόπου, τὰ λοιπὰ ἤδη ῥᾳδίως πλάττει καὶ τυποῖ, λείαν καὶ μαλακὴν αὑτῷ περιχέας τὴν οὐσίαν καὶ πᾶσαν εἴκουσαν εὐπετῶς. Dio's poetic inclinations and golden mouthed rhetoric may put his reliability into question with regards to his use of technical Stoic terminology but regardless of the terminology the main ideas of the subtlety, softness and receptivity of the Stoic god remain. On the relative reliability of this passage see Mansfeld, "Providence and the Destruction of the Universe in Early Stoic Thought, with Some Remarks on the Mysteries of Philosophy," 181–82.

yielding, that is to say, that not only is rarity necessary for yielding but, contra some scholars and commentators, who would make yielding paradigmatic of animal natures and weak souls, both yielding and rarity are physical signs of a strong rather than of a weak soul, that is to say, one more capable of perceiving incisively.

If it is starting to make sense to accept that the *pneuma* has a texture then how is this to be distinguished from its tension? The tension can be described as the tone or frequency at which the texture of the soul vibrates. The tension is in a mutually interactive relation with the texture of the *pneuma* and both of them are intimately bound to the inward-outward motions that have their common source in the *hegemonikon*. If the inward-outward motion is a type of expansion and contraction, then, following Stoic elemental theory, we can say that an expansive *pneuma* is one that is more fiery and rarefied whilst a contracted one is more dense and consequently airy. A *tonos* is the result of this interaction between air and fire, expansion and contraction. The texture cannot be seen as the inward-outward motion itself but should rather be seen as the rarity or density of their combination. So, if we were to imagine a trampoline, the tension would be how tightly or loosely stretched the material is whilst the texture would be the material. And if we were to imagine a trampoline the size of a football pitch, then we would also probably need a special type of material that is more suited to functioning at tension over larger spaces. Just so, for a soul to have the capacity to expand to the greatest degree it requires an especially rare *pneuma*. On the other hand if the *pneuma* does not have the requisite rarity, i.e. it is too dense, then if the soul happens to stretch beyond the limit of its textural capacity it is liable to snap.

Whilst there are implications here for ethical theory at this stage it should be noted we can and should avoid the notion that sensation happens by an inward-outward motion of the *pneuma*. That is to say, that we should scrap the idea that the *pneuma* stretches out from the sensory organs, touches the object of sense and the stimulus returns by means of the inward motion of *pneuma*. Whilst this palindromic motion is

commonly understood to be the way the sentient individual interacts with the world around oneself, the underlying process is easily confused as being one whereby the *pneuma* reaches out from the *hegemonikon* to the object, touches it and then returns. But in light of the above examination this view appears to be far more primitive then it originally seems. For it implies a process that involves temporally distinct moments of sensation so that for example we send out a pneumatic current from our ear as an outward motion, then this current is hit by a sound wave and then the pneumatic current turns back again to relay that impact back to the *hegemonikon*. This makes for a remarkably clumsy account of sensation which fails to describe the simultaneity of perception. The evidence gathered suggests that the theories of both tension and texture exist so as to avoid such scissions in the process. Aside from this, the inward-outward motion is not described as being the means by which sensation takes place; it is rather described as that which sustains the body and makes it cohere with itself. It is not so much that the *pneuma* reaches outward through its expansive motion to touch things, but rather it is a matter of two *pneumata* touching each other: our own *pneuma* coming into contact with the *pneuma* of an external object. This is why sensation is described as a striking; it is as it were the impact when the two *pneumata* meet. The strike leads to an impact which invariably causes a vibration in the *pneuma*. This vibration travels through the *pneuma* to the *hegemonikon*. If the *pneuma* is dense the vibration does not travel smoothly and so the impression is not received in a clear and distinct way.

Now we can understand statements which are otherwise easily overlooked like the following from Sextus; "we find that the bodies of things apparent which are composed of far denser parts than is breath are unable to retain any impression at all that is made upon them"[38]. Their density rather than their tension is that which prevents them from retaining any impression. So in forming an opinion which is described as ἀσθενῆς and ψευδῆς we may imagine that this is due not only to a poor

[38] Sextus *M* 7. 374

tension in the *pneuma* which receives the impact of the impression but also to the fact that the *pneuma* is not open enough to retain it. In fact we are encouraged further to interpret the process in this way when we see a descriptive report from Calcidius explaining what goes on in the *pneuma*:

> And they think that the mind senses in response to the stimulus of the breath, which transmits its own experience of the aggregation of visible forms to the innermost parts of the mind: when extended straight [tension] and, we might say, opened up [texture] it reports the visible objects as being bright, but when confused and muddied it indicates them as dark and shadowy.[39]

We may also pay attention to the fact that a φαντασία was considered by the Stoics to be a type of illumination, related as it allegedly is to light (φῶς)[40] and light is well understood as being like fire of a rare or fine character.[41] In the fourfold categorisation of presentations (φαντασίαι) a convincing presentation is one that produces a smooth motion in the soul.[42] The same term is used in the Dio Chrysostom text above (λεία). That this smoothness characterises the vibration (or texture) of the tension seems plausible when we see the Stoics explicitly referring to vibratory waves in the context of the *pneuma*:[43]

> So the Stoics claim that air is not comprised of tiny fragments but is continuous and wholly without void. When it is struck by pneuma, *it develops waves in straight circles ad infinitum*, until it fills the air which is found there, in the exact same way as a swimming-bath which is struck by a stone: the bath itself moves in a circular fashion and the air spherically.[44]

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[39] Calcidius *in Tim.* 237

[40] SVF 2. 54; Sextus *M* 7. 163, & 442 (light reveals not only other things but also itself)

[41] SVF 2. 432

[42] Sextus *M* 7. 241ff.

[43] Pseudo-Plutarchus, *Placita philosophorum* 902 E

[44] Οἱ δὲ Στωικοί φασι τὸν ἀέρα μὴ συγκεῖσθαι ἐκ θραυσμάτων, ἀλλὰ συνεχῆ <εἶναι>, δι' ὅλου μηδὲν κενὸν ἔχοντα· ἐπειδὰν δὲ πληγῇ πνεύματι, ***κυματοῦται κατὰ κύκλους ὀρθοὺς*** εἰς ἄπειρον, ἕως

These vibratory waves are not applied solely to the elements to describe how, for instance, sound travels. But these vibratory waves are directly linked to our own apprehension via *pneuma* as this passage from Sextus shows:

> For just as air, when many people are speaking, receives an untold number of different impacts (πληγάς) at once, and right away the alterations that it takes on are also many, so too the leading part, when it has a variety of appearances, will experience something analogous to this.[45]

Not only is a convincing presentation smooth but ignorance itself is described as a fluttering.[46] It is not unreasonable at this stage to understand fluttering to mean more than just a mental or psychological vacillation but that it corresponds to physical reality also.

Now although we have seen that the rarity of the *pneuma* plays a role in both the reception and retention of an impression it is as of yet still only inchoately understood how yielding is related to assent on the physical level. We are said to assent automatically once we have yielded. Having established that yielding is necessary for assent in that it plays a role in transferring impressions to the *hegemonikon* and in retaining those impressions, it follows that yielding also plays a role in assents which are not simply down to passions, weakness or deception but which have to do with volition, clarity and knowledge. Yet an assent of the latter kind is not automatic. How then do the mechanics of *pneuma* allow for one to be automatic and the other not? It seems to me that an automatic assent is more readily explained than a voluntary one in relation to the yielding *pneuma*. We can say that the rarer a *pneuma* is, the more receptive and flexible it is also. However, yielding when assent is automatic must be the yielding of a dense soul. Being dense it consequently yields very little. In some ways yielding can be understood also as a completion; this is partly the source of the

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πληρώση τὸν περικείμενον ἀέρα, ὡς ἐπὶ τῆς κολυμβήθρας τῆς πληγείσης λίθῳ· καὶ αὕτη μὲν κυκλικῶς κινεῖται ὁ δ' ἀὴρ σφαιρικῶς.

[45] Sextus *M* 7.231

[46] Stobaeus II, 7. 5β (= SVF 3.663 [repeated in SVF 1.563])

confusion that a soul yields in the completed sense of giving up, rather than flexibly or malleably giving in or giving way for an impression to be received and retained. If the texture of the *pneuma* is dense then its capacity for yielding is limited and so when it "fills up", as it were, it is forced into assent. To express it in pneumatological terms; assent is our fire (*hegemonikon*) striking the *pneuma* and a yielding is the process by which additions occur to the soul and indeed this being the process it also plays an important role before assent for it is the way that an impression is incorporated into the *hegemonikon*.

The amount of capacity for yielding determines also our capacity to withhold assent. If we have a soul which does not yield easily then assent occurs too soon for our soul has in a sense been filled and confuses something which is incomplete, an opinion, with something which is complete i.e. a cognition. We are thus impelled to assent. So whilst it may seem that we are wholly responsible for each of our beliefs and consequent impulses and actions, the physical dimension describes a situation where we actually have no choice in the matter.[47] This is why the stringent criterion held by Epictetus that in each situation it is our assent and only our assent that is responsible for our beliefs and actions is a rather hard-core Stoicism. Whilst emancipating us in the sense that it offers us a conviction in our own power over how we respond to our everyday interactions, it also opens us up to feelings of guilt and shame if we do not or sometimes cannot live up to those standards because the only one to blame is our self. The early Stoic understanding, however, seems to account for this as it can be understood through the physical dimension which allows for the possibility that our beliefs and actions are in some way physically determined such that we do not have control over them in the very specific sense which is incipiently evident in Epictetus' Stoicism. After all even cognitive impressions are sometimes so clear and distinct as to make our assent automatic in the same way as a complete yielding does such that

[47] Stevens has gathered together the evidence for this though he argues that the impulse comes before the assent rather than us being impelled to assent, "Preliminary Impulse in Stoic Psychology," *Ancient Philosophy* 20, no. 1 (2000): 139–68.

it grabs us by the hair and forces us to assent. This should indicate that yielding is part of the process and that since the impression is so powerful the *pneuma* yields as far as it can go and so assents. When we say that we hold opinions there is a strong physical foundation for showing that an opinion is not simply a weak state of mind. Perhaps the opinion will not stand the test of time but in the present the individual who holds an opinion is utterly convinced of their own point of view. On a physical level we are convinced of our opinions because our *pneuma* does not have the capacity (it is not capacious enough) to contain anything more than what it does and our *hegemonikon* necessarily thinks that what it does contain corresponds with what is.

This is also why an impulse is seen to be excessive (πλεονασμός) when it is a passion; physically speaking it is more than what the *pneuma* can handle in its current state.[48] Nevertheless, whilst it may be physically determined that we are subject to certain passions and convinced by certain opinions these are ways in which our pneumatic condition is naturally altered for when we discover that our opinion or passion was wrong or harmful then the condition of our *pneuma* is also altered. In a recent paper, Irene Liu has argued that it is a mistake to conceive of Stoic wisdom as consisting in an unshakeable grasp of the fundamental principles of nature. She refers to this as the "dominant view among modern scholars" and rightly claims that this view mistakenly focuses on the content of the Sage's knowledge.[49] Her chief aim in this paper is to crush this "dominant view" and her arguments are both persuasive and insightful. Ultimately, she argues that it is the disposition of the Sage that determines his or her wisdom, not *whether* one has grasped the truths of nature but *how* one grasps them. A consequence of this is that a fool may equally have knowledge of the same things as a sage, yet still remain a fool. Whilst Liu's thesis is attractive, she mentions at the end of her paper that there is more of the story to tell. As far as I know there has not been much follow up on this, excepting a few comments on the "ordinariness" of

[48] Galen *PHP* IV 6. 35ff; Stob. II, 7. 5β (=SVF 1. 563)
[49] Irene Liu, "Nature and Knowledge in Stoicism: On the Ordinariness of the Stoic Sage," *Apeiron* 41, no. 4 (2008): 247–76.

the sage by Brouwer in his recent monograph.[50] One deficiency in Liu's paper is that she makes no clear connection with Stoic texts regarding what is meant by disposition; it sometimes appears that she would equate disposition with ἕξις.[51] This omission leaves her position up for attack.[52] Whilst Liu recognises that dispositional wisdom is a physical state she does not venture further into an examination of this. In what follows I argue that the disposition of the sage has to do with the rarity and density of the *pneuma*.

Condition (διάθεσις), Disposition (σχέσις) and State (ἕξις)

The Stoics in their own terms offer a clearly physical definition of knowledge as a type of *pneuma*, the ἑκτική type, which has a certain tension *and* a certain power that makes it receptive of presentations (φαντασίαι).[53] We have seen that there are active and passive senses of yielding or an incomplete and a complete sense. The incomplete sense of yielding is to be understood as the διάθεσις or 'condition' of the soul.[54] Indeed, our discussion of nourishment included a consideration of this passivity in the passage by Sextus.[55] In this text there is a confusion between the passivity of nourishment and of presentation which as we saw are intimately connected and are both seen to be a condition of the soul. What is meant by the διάθεσις of the soul when receiving presentations however is not entirely clear, but it is crucial in our understanding of yielding. The condition (διάθεσις) of our *pneuma* is that which, on a physical level, I have described as an incomplete yielding which makes us able to assent freely. In the modern literature and in translations, the term is not always rendered as 'condition' and it sometimes appears as 'state' or 'disposition'. This invariably may lead to confusion since the early Stoics had a threefold categorisation

[50] Brouwer, *The Stoic Sage*, 85 & 178.
[51] Liu, "Nature and Knowledge in Stoicism: On the Ordinariness of the Stoic Sage," 263.
[52] cf. Brouwer, *The Stoic Sage*, 33 n. 96.
[53] Stobaeus II, 7. 5ια (= SVF 3. 112, LS 41 H)
[54] Cf. the interesting passage at Simplicius *In Arist. Cat.* 8. 333-334 (= SVF 2. 185) where it is said that the passive is referred to in two ways: in relation to the active and in relation to the condition (διάθεσις).
[55] Sextus *M* 7.239-241 cf. also 237

which distinguished between condition (διάθεσις), disposition (σχέσις) and state (ἕξις). This distinction is preserved in a helpful passage from Simplicius[56].

> It is also worth knowing what the Stoics have to say about these terms. For some people believe that they hold an opinion which is the converse of Aristotle's, that condition (διάθεσις) is more stable than state (ἕξις). There is some basis for this belief, not because the difference between the two terms lies in being more or less stable, as the Stoics say, but because conditions differ; for they say that states are liable to intension and remission, but that conditions are not. That is why they say that the straightness of a rod, even if it is variable so that it can be bent, is a condition; for the straightness could not undergo remission or intension, nor could it admit the more or the less, so it is therefore a condition. In this way the virtues too are conditions, not because of some particular stable feature, but because they cannot be intensified and cannot admit the more; but the arts, although not easily changed, are not conditions.
>
> The Stoics appear to consider state (ἕξιν) as belonging to the latitude of the form, and condition (διάθεσιν) to the completion and consummation of the form, whether there is change and alteration, as in the case of the rod and its straightness, or whether there is none. We should rather consider whether the Stoic term 'disposition' is the same as Aristotle's 'condition', being distinct from 'state' in so far as it is easy or hard to remove. But they do not agree even to this. For Aristotle says that unreliable health is a condition, while the Stoics do not agree that health of any kind is a disposition (σχέσις); for it has the particular feature of a state; for dispositions are characterised by acquired circumstances, while states are characterised by activities stemming from within themselves. So the Stoics do not think that states get their specific features from length of time or strength, but by some particular feature and characteristic; just as plants with roots are rooted to a greater or lesser degree but have one single common particular feature – a grip on the soil – so state is viewed as being the same in things that are hard or easy to change. Broadly speaking, many things which are generically qualified have the particular

[56] Simplicius *In Arist. Cat.* 8. 237-8

feature according to which they are specified in an attenuated (ἀνειμένως) state (sour wine, bitter almonds, and Molossian and Maltese hounds, for example – all of which share in the generic character, but in a limited degree and weakly). The state remains consistently one as far as its actual account is concerned, but it is often easily changed for some other reason. (20)

That is why the Stoics commonly extend the term 'states' to things that are easily changed, whereas Aristotle calls these 'conditions', and they think that these differ greatly from dispositions. For the state of someone who regains his health is altogether different from being seated, from being on one's guard and other such dispositions. For the latter have no firm roots or structures, while they say that the former exist in such a way that even when they undergo remission they endure as far as is possible for them, providing that something from themselves and their particular account lasts. That is why no disposition, not even one that is in some way hard to remove, is a state according to them. For it has from outside itself the feature of being hard to remove, like a thumb in a thumb screw, it would not be in a state resulting from such circumstances. But if it provides the actuality of being such from within itself, then it would be in a state, like clay which is transformed into pottery; it itself becomes pottery from within itself. So much for that.[57]

Prima facie this passage seems quite complicated and it is not clear what the significance or value of the differences between διάθεσις, σχέσις and ἕξις is.[58] Yet, the

[57] Barrie Fleet's translation does us the service of providing a corresponding distinction in English, which I follow: διάθεσις = condition; σχέσις = disposition; ἕξις = state. However, despite being clear with the distinction in this passage Fleet is not consistent throughout his translation see e.g. 212, 12-20. Long and Sedley in their collection use διάθεσις = character; σχέσις = state; ἕξις = tenor for their translation of this passage (47 S) but they do not maintain a consistent rendering for in other places they translate both διάθεσις and σχέσις as disposition (rather than as 'character' or ('state') e.g. 29 C & E, 39 G, 41 D & G etc.. They also use disposition and state in relation to the so called 'categories' cf. their notes to 30 G where they point out a disposition and a state derive from the active and passive forms of the verb ἔχειν and claim that the Stoics themselves were not clear as to the difference between ποιόν and πῶς ἔχον.

[58] Long in his commentary on this passage is dismissive of the Stoic account A. A. Long and D. N. Sedley, eds., *The Hellenistic Philosophers. Vol. 1 Translations of the Principal Sources with Philosophical Commentary* (Cambridge: Cambridge University Press, 1987), 289: "There is clearly a measure of linguistic arbitrariness in these distinctions." And Simplicius is also not so keen on (what he views to be) the overly assiduous distinctions of the Stoics in general *In Arist. Cat.* 7. 166, 30-33

Stoics had good reason to make the distinctions in this way as becomes evident if we simply look at the underlying physical structures involved in each one.

According to this passage an ἕξις has the following character: (i) it is real. That is to say that honey is sweet regardless of any relation to other sweet or bitter things. It is not sweet only when compared to the bitterness of a lemon and the fact that it is less sweet than sugar does not make it any less reasonable to predicate sweetness of it. It is inherently sweet. (ii) Whatever we do to honey it will always be inherently sweet; if we at some point manage to make honey bitter the Stoics will say that it has been altered and has a different tension such that it is no longer honey. (iii) The same applies to something like health, which is not seen as health by virtue of being compared to disease and if all disease is eradicated, health will still be health and is essentially *different* to disease and not dependent on comparison with it. (iv) This is not to say that there are not grades of sweetness or health, for honey from flowers may be sweeter than honey from pine and this corresponds with the fact that on a physical level an ἕξις admits intensification and remission. A σχέσις on the other hand can (i) be altered far more easily with the passage of time and external circumstances.[59] (ii) It is acquired from being in relation to other external circumstances, that is to say that a woman *becomes* a mother when she has a child and if that child dies she is no longer a mother. The woman remains though, which is why motherhood cannot be seen to be an ἕξις for if it were the woman would also perish when she stops being a mother just like a clay pot which is a clay pot but when smashed is no longer one. (iii) When speaking of σχέσις we say that it shows that there is *no real difference*, that is to say no difference that is fixed throughout time, between a mother and a daughter for when the daughter has a child she also becomes a mother *in relation* to her own daughter. (iv) A σχέσις is not easy or hard to remove. This is because it has no internal tension to characterise it. Consequently also there are no grades to, for example, being a

[59] Cf. Simplicius' critique of the Stoic account by accusing them of making it (in correspondence with the προος τι πῶς ἔχοντα) insubstantial thus contrasting with the 'realness' of an ἕξις *In Arist. Cat.* 8. 172, 1-10 and 173, 20-32

mother or sitting down; two mothers are equally mothers and equally sitting down, one is not more or less of a mother than another nor is she sitting down more or less than the other. There are no degrees of intensification or remission in a σχέσις because there is no internal tension to characterise it, instead it receives its character from outside.[60]

Having more or less clarified the distinction between σχέσις and ἕξις we can better understand διάθεσις for which less information is offered. The most significant point to note is that it is specifically said of διάθεσις that it does not admit of intension and remission. We have seen also that σχέσις is not intensified or relaxed in tension, though this is not said explicitly of it but is rather extrapolated from the account. Whilst both a διάθεσις and a σχέσις are not relaxed or intensified there is a basic difference. A σχέσις does not alter in tension because it has no inherent tension and thus no inherent pneumatic motion. Conversely, a διάθεσις is said explicitly to not admit intension and remission and this is because the Stoics see a διάθεσις as having an inherent tension and consequently a pneumatic motion.[61] However, the tension of a διάθεσις is peculiar in that it differs from all other tensions in the Stoic cosmos as being constantly at its maximal tensility. It is thus called the completion and consummation of the form and for this reason also virtues are described as διαθέσεις. Yet, whilst the tension is stable this does not mean that the features or physical expression of a διάθεσις remain stable. A διάθεσις can undergo alteration and change in a different way to an ἕξις for whilst the latter admits of more or less and intensification and remission a διάθεσις can undergo a different type of alteration. This alteration, whilst not related to tension, seems to correspond with the rarity and density (or texture) of the *pneuma* for in another passage Simplicius tells us that whilst virtue is stable it has within itself an infinite capacity for expansion (χύσις) and

[60] This account can also be corroborated by what is said at Simplicius *In Arist. Cat*. 7. 165, 32 – 166, 29
[61] See also Porphyry *In Arist. Cat.* 137. 29 - 138. 5 (= SVF 3. 525); D. L. 7. 101; Plutarch *De comm. not.* 1076 C

contraction (συστολή).[62] So when we speak of the rarity and density of the soul we are speaking of its condition and since, as Sextus notes, a presentation is "a passivity of ours and a condition"[63] we can safely say that an impression occurs by means of the yielding capacity of the soul. This also gives us some clarification regarding what little is known about the λόγος ἐνδιάθετος, which is described as that which is involved in choosing what is akin to us and avoiding what is alien.[64] This capacity is an internal condition of the soul which comes into play once the tension of the *pneuma* has been struck.[65] It is also that which makes us differ from animals and why we have the capacity for virtue,[66] which as we've seen involves pneumatic contractions and expansions. In this way we have a deeper insight into why it is the case that a contraction of the *pneuma* that accompanies a passion like sadness or anger will affect the way that we perceive and make judgments. Clearly, a denser and more contracted *pneuma* will invariably prevent us from both perceiving clearly and acting appropriately.

However plausible this account may seem thus far we encounter perceptible difficulties. We hear that there was a difference in doctrine between Chrysippus and

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[62] The distinction also helps us clarify one of the confusions in reports of Stoic theory that a virtue was seen to be a state (ἕξις) because it is considered to be an art. In fact there are the intermediate arts which are states and so admit intension and remission and then there are arts like virtues which are διαθέσεις and do not. Simplicius, whilst being aware of the distinction (as he is the one who records it), nevertheless conflates the two later on by saying that both the virtues and the intermediate arts are states and then claiming the Stoics are confused in that some states admit intension and remission and others do not (Simplicius *In Arist. Cat.* 8. 284-285) cf. also Sextus *M* 9. 88

[63] Sextus *M* 7.237

[64] Sextus *PH* 1.65 The phrase is often rendered and interpreted as "internal speech" see Teun Tieleman, "The Spirit of Stoicism," in *The Holy Spirit, Inspiration, and the Cultures of Antiquity: Multidisciplinary Perspectives*, ed. Jörg Frey and John R. Levison, Ekstasis : Religious Experience from Antiquity to the Middle Ages, volume 5 (Berlin ; Boston: De Gruyter, 2014), 52 n.44; Gerard Watson, "Discovering the Imagination : Platonists and Stoics on Phantasia," in *The Question of Eclectism. Studies in Later Greek Philosophy*, ed. John M. Dillon and Anthony A. Long (Berkeley: Univ. of California Pr., 1988), 215. Cf. Reesor, *The Nature of Man in Early Stoic Philosophy*, 57, who gives a brief summary of the history of its discussion as both passive and active.

[65] Inwood observed that these powers of choosing, were possibly described by Zeno as dispositions (Inwood's term for διάθεσις). He also posits another possibility: that for Zeno the powers of choosing were modifications of the *pneuma* but Inwood ventures no further than this statement. Cf. also n.117 in the same work, *Ethics and Human Action in Early Stoicism*, 40.

[66] Sextus *M* 8. 275-276

Zeno. "Well, Chrysippus, in *On Emotions*, Bk 1, tries to prove that emotions are judgements of a kind of the rational, while Zeno thought that the emotions are not the actual judgements, but the contractions and expansions, risings and fallings of the *pneuma* that supervene on judgements."[67] If for Zeno the judgment comes before the contraction or expansion of the *pneuma* then it would seem that for Zeno the emotion itself does not affect the judgment but the judgment creates the emotion. Chrysippus, as is well known, considers the *hegemonikon* and the extension of the *pneuma* to be one and the same and thus his account could in some way accommodate our interpretation more readily for the judgment and the emotion are more intimately bound together. For Zeno there is a temporal succession from judgment to emotion.

Here we may observe the gradual emergence of the idea in Stoicism that judgments are completely within our control, an idea which as we considered above culminates in the practical philosophy of Epictetus. By bringing them closer together Chrysippus removes the distinction between the two, thus making it harder to say that a judgment arises on its own or that an emotion has a life of its own. For Zeno, however there is greater interaction between emotions and judgments and this is because they are two distinct processes which as such can exist in relation to each other. We may imagine then that for Zeno whilst a judgment is what creates an emotion it is also plausible that the emotion then continues to have a life of its own as a contraction or expansion which invariably will affect a later judgment which in turn will lead to another emotion. In light of this it becomes relatively easy to see that one contraction of the *pneuma* will lead to further contractions and expansions will lead to further expansions which in a way train or temper the *pneuma* and determine its διάθεσις. So we can see that whilst judgment and assent play a dominant role in Stoicism, in the earliest stages of the school, yielding provided the substratum which determined how these played out. Philosophically speaking, the greatest consequence of this is that culpability and

[67] Galen *PHP* V 1. 4-5 (=SVF 3. 461 (repeated in SVF 1.209) = Ian G. Kidd, ed., *Posidonius. 3, The Translation of the Fragments* (Cambridge ; New York: Cambridge University Pr., 1999) f. 152).

responsibility played less of a role in individual actions. That is to say, that there is invariably a process of progress involved with the expansions and contractions of the soul and that these affect the διάθεσις of the *pneuma*. An individual judgment, whilst being solely our responsibility in one respect, is also a consequence of our previous actions and thoughts and so each individual assent is in some way physically predetermined absolving us to some extent of complete responsibility in individual cases. For Zeno it would seem that there is a physical integration of the notion of προκοπή which fails to emerge in the Chrysippean account.

6. Pneumatic *Tonos*

Introduction

The theory of *tonos* is largely absent in Zeno and appears only in a limited sense in Cleanthes. Whilst previous chapters have shown how the functions and mechanics of *pneuma* are well-determined from the time of Zeno, the theory of *tonos* stands apart as largely a Chrysippean development.[1] This is not to imply that tension is contrary to Stoic doctrine for as we shall see it was developed to support the physical doctrine. Yet, it is perhaps this idea which, more than anything else, altered the face of Stoic physics and marked a shift away from original doctrine.[2] In rehabilitating texture back into the system, the role of tension, as commonly conceived, has been reduced regarding the traditional functions of *pneuma*; a good tension is not seen as the only, nor even necessarily as the main factor, in virtuous thought and action, at least in so far as the earliest stages of the Stoa are concerned. This is largely due to the fact that quite simply, for Zeno, *tonos* was not involved in the process for it had not been conceived and yet he still needed to account for the physical dimension of ethics in just the same way as he needed to account for the ethical dimension of physics. It seems, however, as though Zeno had, intentionally or unintentionally, given a rather general account of the 'physicality' or solidity of bodies. This left the Stoics up for attack.

In what follows I will briefly consider the development of the Stoic definition of body and how this is directly related to the notion of *tonos*. I will then chart the evidence available for the notion of *tonos* in the early Stoics (Zeno, Cleanthes and Sphaerus) considering the origins and emergence of the idea in Stoic physics. Finally, I will

[1] See the excellent study of the development in Hahm, *The Origins of Stoic Cosmology*, 153–74; cf. also Sambursky, *Physics of the Stoics*, 28–40; Gould, *The Philosophy of Chrysippus*, 99–102; Scade, "Stoic Cosmological Limits and Their Platonic Background."

[2] Lapidge, "Ἀρχαί and Στοιχεῖα," 273, recognises this shift and attributes it instead to the inception of *pneuma* as a cosmic force. The cosmic operations, however, were well established in Zeno via his theory of rarefaction and densification and his description of god as being contained in the world. Rather, and as we shall see, the emergence of this shift is to be attributed to the introduction of the theory of tension.

consider what appear to be the most significant of the Chrysippean additions to the theory.

Modern scholarship has generally conceived of tension being extended to the cosmic sphere as one of the most significant developments of Chrysippean physics. What has rarely been questioned is how strongly established the theory of tension was prior to Chrysippus, not simply regarding the cosmic level but also in relation to the parts. Stoic philosophy as it has come down to us is full of references to tension. However, it is not always clear what role tension plays in Stoic theory, probably because its usages are so flexible, appearing in Stoic theories of perception and theory of action, as well as being conceived of as present within all bodies of the Stoic cosmos. It is on this final point that we find previous aspects of Stoic theory, in particular rarefaction and densification, being incorporated into a new conception of the Stoic cosmos and the bodies within it. There is a definite shift present in the understanding of the Stoic system, yet it seems as though this shift was brought about in congruity with an aspiration for continuity and coherence. The evidence which was preserved in commentaries on Stoicism is often fraught with difficulties where two very different conceptions are conflated in terms of both explanation and technical terminology, incorporating tensional theory with the previous physical conceptions. This is evident throughout the extant sources, as we partly saw in the previous chapter. To elucidate with a further example, we see that the standard *scala naturae*, which was present in Zeno,[3] is concerned with the different 'grades' of existence (inanimate, animate, rational). With the introduction of tension we also encounter a more explicit description of different degrees of tension within these grades. Whilst a higher tension in rational beings is conceived of as being conducive to rational and virtuous action and a slack tension to foolish and vicious action, there is no clear indication that non-rational animals have a more slack tension than rational animals nor that things like

[3] Themistius *In de An.* 35, 30-35 (411a11-13) (= Pearson fr. 43 = SVF 1.158) cf. also Stob. *Ecl.* I, 19. 4 (= Pearson fr. 67 = SVF 1.99) where the notion of ἕξις is seen by Zeno as belonging to all bodies in the cosmos.

rocks and sticks have the slackest tension. Quite the contrary in fact, an ἕξις which belongs to things like rocks is described as "the strongest bond".[4] These confusing distinctions however are not present in an account which simply conceives of the *scala naturae* as grades of rarefaction and densification. If we say that a rock is more dense then, on the Stoic account, we would automatically think that its tension is also more slack and indeed numerous commentators use this confusion to level attacks on Stoic theory.

Definitions of body

This confusion is also present in the Stoic definitions of body. There are two basic definitions which have been passed down to us. The first is that a body is that which is capable of acting or being acted upon.[5] The second is that a body is that which is spatially extended in three dimensions and has resistance.[6] In the modern literature the former definition is often considered as more fundamental. This is argued for very strongly by M. E. Reesor who goes so far as to deny that the second definition belongs to the Stoics.[7] In this early paper Reesor did not take into account some sources which explicitly attribute the second definition to the Stoics.[8] Some scholars rightly point out that three-dimensionality is also predicated of some of the incorporeals, *viz*. void and space, and thus argue that three-dimensionality should not be taken as a proper definition of bodies.[9] Indeed, from the second definition that which should be taken as primary is solidity and resistance rather than three-dimensionality.[10] In his study

[4] Philo, *God's immutability* 35-6 (= SVF 2.458, part). In Book 1 of his *On Providence* Chrysippus is also said to have stated that god pervades the cosmos by way of ἕξις D.L. 7.139. This may indicate that ἕξις is spoken of, broadly, as the foundational inward-outward motion of all bodies (belonging even to rational animals and god), and, exactly, as that motion which, when we introduce the notion of grades, is specifically of the kind that belongs to inanimate bodies like rocks and sticks.

[5] *SVF* 1.90, 146b, 518; 2.140, 363, 387; 3.8

[6] *SVF* 2.315, 319, 357, 381; 3.Apollod.6 (p.259); cf. 2.501, 502

[7] Margaret E. Reesor, "The Stoic Concept of Quality," *American Journal of Philology* 75 (1954): 57.

[8] For a response to Reesor and the relevant evidence see Hahm, *The Origins of Stoic Cosmology*, 21 n.1.

[9] Gourinat, "The Stoics on Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's Timaeus," 55–57, where he also notes "This is why one perhaps has to assume that this definition of body is misplaced in the context of the principles."

[10] See Sextus *M* 10. 12 (= SVF 2.501); cf. the full argument with sources in J. Mansfeld, "Zeno of Citium. Critical Observations on a Recent Study," *Mnemosyne* 31 (1978): 163–65.

on the *Origins of Stoic Cosmology* Hahm, whilst agreeing that the definition of body as capable of ποιεῖν and πάσχειν is of far greater significance to Stoic theory, states that it is not preserved in the form of a definition for body but is always attached to an argument as a "mark of a body".[11] The fact that only the latter claim, that a body is that which is spatially extended and has resistance, appears as a formal definition has led some scholars to believe that the active and passive character of bodies is an indication that this describes only their capacity for being active and passive (a property of bodies rather than a general definition) whilst the formal definition of body for the Stoics would be the more specific three-dimensionality and resistance.[12] However, we may adduce another two sources, neither of which are to be found in *SVF,* that present the first definition alongside the second as a theoretical definition.[13]

Regardless of these technicalities, we are obliged to question what the significance of the two separate definitions is and if there is some sort of explanation for the Stoics having two very different definitions of body. It is often argued that the definition in terms of ποιεῖν and πάσχειν has its roots in Plato's *Sophist*,[14] though it is never easy to speak of influences with much certainty and more recently Sellars has argued that the connection is not as close as we might think.[15] It has been aptly shown by Mansfeld in an excellent study with a treasure trove of information, which sadly does not seem to receive much attention, that there were probably two schools of thought in Stoicism regarding the definition of body. He also notes that we have no evidence that Zeno used the definition of body that involves three-dimensionality and resistance, though

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[11] Hahm, *The Origins of Stoic Cosmology*, 3.

[12] See e.g. Sedley, "Hellenistic Physics and Metaphysics," 383; cf. also Sambursky, *Physics of the Stoics*, 29–44; A. A. Long, *Hellenistic Philosophy. Stoics, Epicureans, Sceptics* (London: Duckworth, 1974), 152–58.

[13] Ps. Galen *Hist. phil*. ch. 23 and Sextus *PH* 3. 38-39

[14] Cf. e.g. David N. Sedley, "The Stoic Theory of Universals," *Southern Journal of Philosophy* 23, no. S1 (1985): 87–92; Jacques Brunschwig, "La Théorie Stoïcienne Du Genre Suprême et l'ontologie Platonicienne," in *Matter and Metaphysics. Fourth Symposium Hellenisticum* (Bibliopolis, 1988), 19–127 (an English translation is to be found in); Jacques Brunschwig, *Papers in Hellenistic Philosophy* (Cambridge ; New York: Cambridge University Pr., 1994); Victor Caston, "Something and Nothing : The Stoics on Concepts and Universals," in *Oxford Studies in Ancient Philosophy (OSAP)*, ed. David N. Sedley, vol. 17 (Oxford: Oxford University Press, 1999), 145–213.

[15] Sellars, "Stoic Ontology and Plato's Sophist," 197–203.

he does not exclude the possibility that he might have done so. However, the scope of his study does not include the possibility that the second definition developed alongside developments in tensional theory.[16] In my view, the definition of body as three-dimensional with resistance is directly correlated with the introduction of the theory of tension into the Stoic system. The evidence also supports this claim in revealing that it was the preferred definition in later stages of the school's lifetime, being attributed explicitly to both Apollodorus of Seleucia and Posidonius who, along with three-dimensionality, are said to have paid particular attention to the solidity of body in their definitions. In Posidonius this even advanced to accepting that limits are corporeal, contrary to all previous Stoics who viewed them as incorporeal.[17] There is moreover no indication in the extant evidence that this definition existed for Zeno, who elaborated his ontological and physical theory based on the ποιεῖν-πάσχειν definition; it is more than probable that the second definition was introduced at a later date along with the introduction of a more elaborate use of the notion of tension and in order to strengthen Zeno's ποιεῖν and πάσχειν.

Zeno on tension

Indeed, this view seems to be corroborated if we turn to Zeno's usage of tension in his theory. The only sources that can be adduced which show that Zeno held some notion of tension are all rather flimsy. First there is a passage in Stobaeus[18] in which the elements of fire and air are said to somehow "be extended" (τείνεσθαι) towards the centre. The use of the term in this context can equally be interpreted as "inclining" or "tending" towards the centre and is no guarantee of a formal tensional theory. Moreover, the term does not come down to us directly through the manuscript tradition but appears as γίνεσθαι in Stobaeus, which does not make much sense and was probably some scribal error. It was later altered by Diels as a correction that, no doubt, is more attractive than Meineke's κινεῖσθαι in that it seems to be fitting for

[16] Mansfeld, "Zeno of Citium. Critical Observations on a Recent Study," 160–63.
[17] D.L. 7. 135
[18] Stob. *Ecl.* I, 19. 4 (= Pearson fr. 67 = SVF 1.99)

Stoic theory. For want of a better correction, then this is the passage which constitutes one of the strongest attributions of a tensional theory to Zeno. Lapidge also finds that that this use of τείνεσθαι in Zeno "manifestly has nothing to do with the tension (*tonos*) created by an all-pervading cosmic *pneuma*". Nevertheless, he does not want to apply the same stringent criteria to *bodily* tension in Zeno, claiming that like Cleanthes he "clearly taught a theory of bodily tension". The only source he adduces in support of this claim is our second source, the well-known SVF 1.150 which records that the theory of speech consisted in *pneuma* stretching (διατείνον) between the *hegemonikon* and the pharynx and tongue. Lapidge himself acknowledges that the source is "not beyond suspicion" but he nevertheless concludes that Zeno held a theory of bodily tension, presumably because it seems reasonable to suppose that such a fundamental theory in Stoicism dates back to its founder.[19] However in this passage Zeno only refers to the voice as being the *pneuma* stretching from the *hegemonikon* to the mouth, whilst later Stoics apply tensional theory fully to all senses.[20]

Our only other source which may refer to a Zenonian origin for Stoic tensional theory is to be found in Philo. This lengthy text records Theophrastus taking issue with certain views regarding the creation and destruction of the world where pneumatic *tonos* is mentioned as being hard to dissolve but not unbreakable.[21] The passage has been the topic of an interesting debate in the modern literature starting with Zeller who argues that it preserves a genuine argument between Theophrastus and Zeno and hence the possible attribution of a pneumatic *tonos* in cosmology to Zeno. The early dispute between Zeller and Diels regarding this claim is well summarised by Pearson[22] and such a remarkable discovery as a debate between Zeno and Theophrastus is certainly worth further examination. However, more recent scholarship has convincingly shown that the source should be seen as criticising some

[19]Michael Lapidge, "Stoic Cosmology," in *The Stoics*, ed. John M. Rist (California: University of California Press, 1978), 172–73.
[20] Ps. Plut. *Placita* 903 B-C (= Ps. Galen *de hist. philos.* 102)
[21] Philo *de Aet. Mund.* 23. 117 – 24. 129
[22] Pearson, *The Fragments of Zeno and Cleanthes*, 110–14, who is inclined to side with Zeller's hypothesis.

Epicurean or Sceptic and not Zeno and so we should not hasten to attribute the usage of the term *tonos* here to Zeno.[23]

This is the sum of our evidence for Zeno's usage of the notion of *tonos* in his philosophy. Now, an absence of evidence is not a proof that he had no theory of tension. However, to my mind it seems likely that a notion which became so significant in the brand of Stoicism that succeeded him would certainly be commented upon in our evidence had he held such a theory. Discounting the lack of evidence as insufficient for a proof either way, with what we have argued so far concerning the significance of rarefaction and densification in earlier Stoicism (in the previous chapter) along with the stark absence of reference to resistance in his definition of a body, the balance of evidence shows that it is extremely unlikely that Zeno incorporated tension into the mechanics of his system. If this fails to convince us then other avenues are available to test the hypothesis and that is to refer to specific theories which were held by both Zeno and his successors. The difference between Zeno's account of sleep and that offered by his successors offers a clear example. Zeno's description of sleep is preserved by Cicero: "But Zeno thinks that sleep is nothing more than a contraction – a slipping and a collapse, as it were – of the human soul."[24] Clearly Zeno is using the textural account, in terms of expansion and contraction, to refer to the underlying physical process of sleep and it is reasonable to suppose that wakefulness is characterised by a corresponding expansion. However, when we turn to the more well-known account of the cause of sleep in Stoicism it is recorded as follows: "sleep is caused, they say, by the slackening of the tension in our senses, which affects the *hegemonikon*."[25] This 'new' account of sleeping corresponds to the

[23] D.N. Sedley, 'Theophrastus and Epicurean Physics', in ed. J.M. van Ophuijsen and M. van Raalte, *Theophrastus: Reappraising the Sources*, 1998, 331–354 and, in the same edition, A.A. Long, 'Theophrastus and the Stoa', 377–379. However, see A. A. Long and D.N. Sedley, *The Hellenistic Philosophers. Vol. 2 Greek and Latin Texts with Notes and Bibliography* (Cambridge, 1987), 275 46 J for Long and Sedley's initial agreement with Zeller's hypothesis.

[24] Cicero *de Divin.* 2.119 *contrahi autem animum Zeno et quasi labi putat atque concidere et ipsum esse dormire*.

[25] D.L. 7.158 τὸν δὲ ὕπνον γίνεσθαι ἐκλυομένου τοῦ αἰσθητικοῦ τόνου περὶ τὸ ἡγεμονικόν.

changes in the physical doctrine of the Stoics, which began to show a preference for tensional rather than textural explanations with regards to general physical process.

Even though, as it seems, Zeno had no theory of tension himself to speak of, it is clear that he nevertheless had elaborated a physical theory which had some strong explanatory force for both individual bodies and the cosmos. Indeed, traces of the underlying physical processes developed by Zeno were evidently appropriated into the general theory of tension, especially with its inward-outward motion, and clearly also in aspects of the Stoic theory of emotion, with the expansions and contractions of the soul. It is generally assumed that Zeno was primarily concerned with ethics and as such had no developed theory of physics and this is often explained by the fact that tension, which is so important in the Stoic system of thought only appears in "embryonic" form in Zeno, awaiting the advances of Cleanthes and Chrysippus in the development of Stoic physics. Yet, the notion of philosophical system was present since the start and Zeno had accounted for physical integration in his own way.

Cleanthes and Sphaerus on tension

From the extant evidence we realise that it is with the immediate disciples of Zeno that the notion of tension begins to emerge. We may adduce a total of two sources which explicitly attribute the concept of *tonos* to Cleanthes and one more source may be adduced for Sphaerus. From a consideration of these sources it becomes clear that *tonos* has a very specific role to play for these early Stoics and it appears that the notion was introduced in order to explain a physical process which was absent in Zeno. At Plutarch *Stoic. Repug*. 1034 D we are told that in his *Physical Treatises* Cleanthes says that tension is impact of fire (πληγὴ πυρὸς ὁ τόνος ἐστί):

> Cleanthes in his *Physical Treatises*, after saying that tension is impact of fire and that if in the soul it becomes adequate for the accomplishment of what belongs to us (τα ἐπιβάλλοντα), it is called strength and power, continues in so many words: "This strength and power, when present in the case of things manifestly to be adhered to, is continence and, when in the case of things that are to be endured, is courage;

> concerned with deserts it is justice, and concerned with choices and avoidances it is temperance."

This brief passage tells us a lot about Cleanthes' theory. Firstly it tells us that *tonos* in Cleanthes is caused by fire striking something. We are not told what it is striking but since this precedes a discussion on the strength or power of the soul we may reasonably suppose that the fire in this instance is the *hegemonikon* of the soul and that it is consequently striking the soul or the soul's substance (οὐσία). We know also that Cleanthes, unlike Chrysippus, conceived all action as an interaction between *hegemonikon* and soul, as Seneca informs us.[26] The passage from Plutarch reveals to us that if the tension created from an impact of fire is strong enough it gives us the capacity to be virtuous. It seems reasonable to assume that the strength of the tension derives from the strength of the strike, which depends on the quantity of fire doing the striking. So, in a very real sense, virtue is a type of tension and implied within this account is the idea that there are degrees of tension which are strong or weak dependent on the fieriness of the *hegemonikon*.

Moreover, from our second source we may observe that Cleanthes establishes physical tension also on a cosmic level:

> Cleanthes says something like the following. When the universe has been totally inflamed, the middle of it subsides first, and successive parts are quenched throughout the whole. When the universe has become thoroughly liquefied, the last of the fire, when the middle clashes with it (ἀντιτυπήσαντος), <causes it to>[27] turn[s] again into its opposite. When this turning takes place, he says it grows upwards, and begins to set the whole in order (διακοσμεῖν). During the operation of this everlasting cosmic cycle, the tension in the substance of the whole does not cease.[28]

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[26] Cf. p.92-3 and n. 54 in ch.3

[27] The interpolation of ποιεῖν here is von Arnim's emendation cf. note SVF 1. 497 so as to emphasise the subject *i.e.* the turning again of the liquid into its opposite does not happen on its own but it is the fire that makes it happen.

[28] Ar. Did. fr. 38 ap. Stob. *Ecl*. I, 17.3 (= SVF 1.497): Κλεάνθης δὲ οὕτω πώς φησιν· ἐκφλογισθέντος τοῦ παντὸς συνίζειν τὸ μέσον αὐτοῦ πρῶτον, εἶτα <κατὰ> τὰ ἐχόμενα ἀποσβέννυσθαι δι' ὅλου. τοῦ δὲ

Here again we may presuppose that fire is doing the striking and that this results in the clash with the centre, in the same way as a swiping sword strikes a stationary shield. We may assume that the centre is liquefied along with the whole. The striking of the last of the fire is the cause of a clash with the liquefied centre that leads to a renewal of the cosmic cycle.[29] The word Cleanthes uses is a cognate of ἀντιτυπία which is part of the definition of body in the later school and it may be that here we have our first glimpse of the notion of resistance, which would later become part of the Stoic definition of body. The passage brings into relief the interactive and not simply passive character of the notion. Cleanthes goes on to say that the tension does not cease throughout the whole process, so if this text is consistent with what Plutarch records this must mean that fire is constantly striking the substance so as to ensure the continual tension of the cosmos. Whether the cosmos undergoes alterations in its tension in the same way as its parts do is not clear but I think it is safe to assume that its tension remains constant; just as virtue can expand and contract but does not admit of tightening and slackening it is plausible that the cosmos has a stable tension whilst contracting and expanding.

Lapidge who briefly considers this reference concludes that "cosmic tension did *not* result from the agency of an all-pervading cosmic *pneuma*".[30] Unfortunately he offers no further explanation for this conclusion and so it is not clear what he had in mind, though, as he emphasises Cleanthes' theory of a "bodily" tension in contrast to a "cosmic" one, he does seem to suggest that Cleanthes had no elaborate theory of a cosmic tension. However, whilst tension in Cleanthes had perhaps not yet been linked

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παντὸς ἐξυγρανθέντος, τὸ ἔσχατον τοῦ πυρός, ἀντιτυπήσαντος αὐτῷ τοῦ μέσου, τρέπεσθαι πάλιν <ποιεῖν> εἰς τοὐναντίον, εἶθ' οὕτω τρεπομένου ἄνωθέν φησιν αὔξεσθαι καὶ ἄρχεσθαι διακοσμεῖν τὸ ὅλον· καὶ τοιαύτην περίοδον αἰεὶ καὶ διακόσμησιν ποιουμένου τὸν ἐν τῇ τῶν ὅλων οὐσίᾳ τόνον μὴ παύεσθαι. The passage is very dense. I follow Furley's translation (with a minor modification) in Furley, "Cosmology," 436–37. For a rather different translation see Ricardo Salles, "Two Early Stoic Theories of Cosmogony," in *Causation and Creation in Late Antiquity*, ed. Anna Marmodoro and Brian D. Prince (Cambridge: Cambridge University Pr., 2015), 14–15.

[29] Perhaps this passage can elucidate aspects of the location of the hegemonikon in Cleanthes or else it may just be an extension of the confusion we saw in our earlier chapter.

[30] Lapidge, "Stoic Cosmology," 1978, 173.

with the rarefaction and densification of the *hegemonikon*-soul in Zenonian terms (or in Chrysippean terms: the simultaneous inward-outward motion of *pneuma*), Cleanthes does seem to have had a more elaborate theory of cosmic tension than is commonly assumed. This can be deduced from a largely overlooked passage in Clement of Alexandria[31]:

> And plectrum (πλῆκτρον), according to some, is the sky (πόλος), according to others, it is the air, which strikes (πλήσσοντα) and moves to nature and increase, and which fills all things. But these have not read Cleanthes the philosopher, who expressly calls the sun plectrum; for darting his beams (τὰς αὐγᾶς) in the east, as if striking the world he leads the light (το φῶς) to its harmonious course.[32]

In this passage air striking and moving toward nature and increase does sound suspiciously like a later Stoic conception of *pneuma* (specifically a Senecan conception; Seneca is perhaps one of the philosophers whom Clement refers to as not having read Cleanthes[33]) but we have no attribution and it does not concern us here. Our interest lies with the reference to Cleanthes for whom we are told that the light is led to its harmonious course from the striking of the world by the beams of the sun. There is some terminological confusion here which requires a digression in order to clarify Cleanthes' theory.

This is the only extant reference to Cleanthes' use of αύγή, a term which is usually connected with the light of the sun but also refers to an extremely bright light.

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[31] Not in SVF. It should be noted that Clement may be considered as a fairly reliable source on Stoic doctrine not only because of his own knowledge of Stoicism but also because his teacher, who was much admired by Clement and formative for his intellectual development, was Saint Pantaenus the philosopher. Prior to converting to the Christian faith, Pantaenus was a Stoic and later was known to have blended his philosophical speculations and Stoic leanings with his faith see Ilaria L.E. Ramelli, "The Mysteries of Scripture: Allegorical Exegesis and the Heritage of Stoicism, Philo, and Pantaenus," in *Clement's Biblical Exegesis: Proceedings of the Second Colloquium on Clement Of Alexandria (Olomouc, May 29-31, 2014)*, ed. Veronika Cernuskova, Supplements to Vigiliae Christianae, 0920-623X, VOLUME 139 (Leiden : Boston: Brill, 2017), 107.

[32] Clement *Strom.* 5. 8, 48 (= Pearson Cl. 31)

[33] Seneca often alternates between the terms for air (*aer*) and *pneuma* (*spiritus*) in his works see e.g. Seneca *Nat. Quaest.* 2.6-11; 6.21-1 etc.

However, αὐγή appears to be a term that was preferred by Chrysippus in general and in Philo we hear that there was a difference between Cleanthes and Chrysippus regarding this. Cleanthes describes the world at conflagration dissolving into flame (φλόξ) whereas Chrysippus sees it as dissolving into bright light (αὐγή).[34] The choice appears to be odd, for as Lapidge notes we would expect Cleanthes, who conceives of the sun as *hegemonikon*, to prefer the term αὐγή.[35] The reasoning behind Chrysippus' use of αὐγή has been considered by a handful of scholars with some arguing for the αὐγή as a type of fire (rightly in my view).[36] However, not much consideration has been given to the distinction between the two heads and how this may be connected to the general development or changes from Cleanthes' physical theory and it seems that Cleanthes' usage of αὐγή in the above passage has not been noticed.

[34] Philo *On the Eternity of the World* (Περὶ ἀφθαρσίας κόσμου) 90 (= SVF 1. 511 = LS 46 M)

[35] See Lapidge, "Ἀρχαί and Στοιχεῖα," 273, who observes that this distinction between the two heads causes confusion; cf. Mansfeld, "Providence and the Destruction of the Universe in Early Stoic Thought, with Some Remarks on the Mysteries of Philosophy," 153 n. 70, in which he provides some historical background to the distinction.

[36] Mansfeld, "Providence and the Destruction of the Universe in Early Stoic Thought, with Some Remarks on the Mysteries of Philosophy," 176–77. He focuses solely on the coherence within Chrysippus' own views without including the juxtaposition of the Chrysippean doctrine alongside that of Cleanthes. Gourinat also recognises Chrysippus' need to distinguish between the fire of conflagration and that of diakomesis: "it may be the case that Chrysippus defined the final and primitive state of substance as 'light' or 'flash' [αὐγή] not to distinguish it from fire, but to explain in what sense of fire it was a fire" "The Stoics on Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's Timaeus," 60–62; see also n. 70 for parallel sources. For a more laboured account see Cooper, "Chrysippus on the Physical Elements," 103–5. He conceives of the αὐγή as a 'flash', a product of the fire of conflagration and presumably the only thing present (i.e. the flash which temporally would come after the fire) between cosmic cycles. Cooper's explanation seems to describe Chrysippus' 'flash' as being philosophically more developed than the accounts of Cleanthes and Zeno because it is closer to contemporary astronomical theory whereby we still see light from dead stars. In the same way a flash exists on its own after conflagration has occurred. This retrospective analysis introduces several problems for Stoic theories of time and what happens to time during conflagration, which Cooper does not address. Moreover he uses this account as proof that cosmogony according to Chrysippus' elemental theory involves three very distinct stages with 'flash' at the first stage; the second stage involves some kind of proto-elements of fire, air and moisture and only at the third stage are the four elements generated out of proto-moisture. Whilst the sources for elemental theory are supremely difficult for early Stoicism, in using the 'flash' to claim the great advancements Chrysippus made in Stoic cosmogony Cooper fails to account both for continuity between Stoic heads and coherency within Chrysippus' cosmic theory, fitting the evidence to the account rather than the other way round.

The distinction we observe between Cleanthes' usage of αὐγή and φῶς in relation to his tensional theory is that he must have considered αὐγή to be fiery, for it is this and not the φῶς which does the striking and as we know from Plutarch, tension, for Cleanthes, is the impact of fire and not of light. Further to this there are several attributes of fire which are absent from light and which help us to understand the location of these terms in wider Stoic theory. Many of these attributes are observed by Alexander of Aphrodisias in criticising Stoic theory and are pertinent to Cleanthes' distinctions.[37] Alexander is one of our more useful sources for observing problems in Stoic physics, and his criticisms are often philosophically informative. In this passage he seems to be of the view that the Stoics equate fire with light. As we have just seen, the Stoics might do this terminologically but not conceptually, for they consider the bright light of αὐγή to be fiery.

Of the observations that Alexander makes, two of them are pertinent to Cleanthes' distinction. The first is that light can be more or less but fire is not more or less and the second that light can travel downwards from above but that such motion is contrary to fire's nature. On the first point we have already shown that a pre-requisite of Stoic physics is that fire does not increase or decrease in substance despite having the capacity for a particular type of expansive growth. Thus, if we observe the immediately preceding context of the Clement passage above (where it is said that the plectrum moves to nature and increase) we may note that, for Cleanthes, αὐγή is viewed as the fiery beams of the sun which leads to nature and increase after it strikes the world. In other words fiery αὐγή does not itself increase but it is the source of increase, creation and διακόσμησις or nature. The second point that Alexander makes is significant, for it relates to an established Stoic distinction between two types of basic motions (πρῶται κινήσεις), from which, according to Chrysippus and

[37] Alex. Aphr. *Mantissa* 138.3 ff. The whole passage is very informative concerning some very specific problems in Stoic physics but it would require extensive examination in order to extract them from Alexander's critical account.

Apollodorus, all other motions derive.[38] These two basic motions are described as being straight or curved, however, our sources for these two heads of the school do not explain how they intended these motions to be understood in cosmology. Alexander must have known more about this, since he is criticising the Stoics for predicating rectilinear motion on the basis of fire's motion. In fact one source attributes just such a doctrine to Zeno.[39] It seems, however, as though Zeno was the only Stoic to have held such a view regarding the motion of fire since we know that other Stoics describe light as having a rectilinear motion and aether as having a peripheral type of motion.[40]

By collating this evidence we have an indication not only of why Zeno's original position of fire moving in straight lines was altered but also that the likely agent of this alteration was Cleanthes and his tensional theory. Cleanthes altered Zeno's original theory probably because of the problem that Alexander also observed in conceiving fire's motion as rectilinear. In fact Cleanthes' view is directly contrasted with that of Zeno's and is preserved in Aëtius just before Zeno's position, suggesting that this was a theory of his master which he altered. Cleanthes is said to have conceived of the shape of fire not as moving in straight lines but as cone-like.[41] He wanted to distinguish between the fiery light (αὐγή) of the sun or *hegemonikon* and the light (φῶς) which travels in straight lines. The latter light is the expression of the creative force of the former fire, that is to say the creative tension formed by the impact of the sun's fiery beams. In Chrysippus who prefers to view the *pneuma* as the

[38] Stobaeus (Ar. Did.) I, 19.3 (= SVF 2. 492) [Chrysippus]; Stobaeus (Ar.Did.) I, 19.5 [Apollodorus]
[39] Aëtius 1. 14, 6 (= DDG p. 313 1 = SVF 1.101)
[40] Aëtius 1. 12, 4 (= DDG p. 311 7-10 = SVF 1. 101). For an intuitive account of rectilinear and curvilinear motion being connected to contraction and expansion cf. Johnny Christensen, *An Essay on the Unity of Stoic Philosophy* (Copenhagen: Museum Tusculanum Pr., 1962), 32 and Watson, *The Stoic Theory of Knowledge*, 16, who follows him. I say 'intuitive' because they assume that the motion of light is rectilinear and contractive, the contraction element being assumed because light travels towards the earth which is both the centre and the lowest point. However, appealing though this connection is, it fails to explain the possibility of light travelling upwards as also how it is that expansion should be seen as travelling upwards in curves.
[41] Aëtius 1. 14, 4 (= DDG p. 312 22)

extension of the *hegemonikon*, the activity of αὐγή was invariably extended to that of the light,[42] replacing this somewhat unclear account of creation offered by Cleanthes but also causing many problems in equating light and fire that Alexander criticises the Stoics for. Despite this somewhat convoluted analysis we may observe from our sources on Cleanthes' use of the notion of tension that he not only developed a theory which involved varying degrees of tensility and was on a bodily level involved in the fulfilment of virtuous action, but also conceived of tension on a cosmic level as being involved in the ordering of the world and that these were direct additions to Zeno's physics.

We may further note that fertility and the creation of life were closely connected with straight rather than curved motions and that the Stoics described the reason why a woman only sometimes becomes pregnant after intercourse is because of the curved shape of the penis which prevents it from shooting straight.[43] So fertility derives both from the straightness of the motion and its tensility and so it is that Sphaerus who is said to have been a pupil first of Zeno and then of Cleanthes,[44] conceived of the semen being fertile due to its tensility whilst the same fertility was absent in the female (liquid?) because it lacked tension and was watery.[45] It is evident from these sources that Cleanthes and Sphaerus went to some lengths to introduce the notion of tension into the Stoic system.

However, whilst *tonos* is added to Stoic physics by Zeno's pupils there is no obvious integration of the idea into the physics of their master. At this point I would like to posit two possible reasons for this. First, the idea comes from outside the school as a genuine addition. The source of inspiration for the idea probably came from Heraclitus. In a passage from Arius Didymus (preserved by Eusebius) we are told that

[42] See also Stob., *Ecl.*, I, 17. 4 (= SVF 2. 471) where Arius Didymus has recorded Chrysippus' doctrine of the aether of the cosmic hegemonikon being equated with the *pneuma* explicitly: "*pneuma*... has become analogous to aether, so that both are used synonymously".
[43] Ps. Plut. *Plac. Philos.* 906 B
[44] Dorandi, "Chronology," 40.
[45] D.L. 7.159

Cleanthes set forth "the doctrines of Zeno for comparison with other Physicists"[46] and we may suppose that this was Cleanthes' attempt to integrate Zeno into the philosophical tradition. In the same source we are told that Zeno's definition of soul as a vaporous exhalation endowed with sensation is the same as that of Heraclitus. Moreover, Cleanthes had dedicated four books to exposition or interpretation of Heracleitus (Ἡρακλείτου Ἐξηγήσεις) and Sphaerus had dedicated five (Περὶ Ἡρακλείτου πέντε διατριβῶν).[47] It seems to me no accident that the only Stoics of this period for whom we have a theory of *tonos* also happen to be the ones who wrote on Heraclitus and who had an interest in physics. How close the Stoic conception of *tonos* is to the Heracleitan one does not concern us beyond mentioning that the Stoics appropriated it for their own purposes.

And this brings us to our second reason for the apparent lack of integration of the idea with Zenonian physics. Having recorded all the sources which explicitly mention early Stoics as holding a theory of *tonos*,[48] *viz*. Cleanthes and Sphaerus, we may observe that there is a common idea which is manifest in each usage of tension. This is that tension is fundamental in the process of creative activity, whether it be on a cosmic scale, at the psychological level or at the physiological level. The tension that the initial striking of fire creates ensures the nature of what follows in the interaction between individual bodies, whether it be the harmonious ordering of the world, the particular manifestation of virtue or vice of rational beings, or the fertility or lack thereof in animals. It is plausible to suggest that the physical mechanism for the *ordering* of the cosmos as well as the varied expressions of processes in its parts was not properly addressed in Zeno's physics. For although Zeno could effectively explain the διάθεσις of the soul, his theory was lacking when it came to explaining the ἕξις of

[46] Arius Didymus fr. 39 (= Eusebius *Praep.* 15.20,2 (= SVF I, 519)

[47] Cf. The catalogue of works for the two in Diogenes Laertius

[48] There are two other sources which are of interest but which make no direct connection to a Stoic figure. These are SVF 1. 514 (Cornutus c. 31) where Heracles is described as the *tonos* which provides strength and power and Plutarch *de Iside et Osiride* 367 C-E where Heracles is described as πληκτικὸν καὶ διαιρετικόν.

the soul. So it is that whilst Zeno's theory could describe the physical foundation for a virtuous soul he could not explain the specific manifestation of that virtue as temperate, just or courageous. We may observe that virtue does not admit more or less but it is possible for a Stoic to be more or less courageous or temperate depending on specific situations. Such that a sage when moving his little finger may do so in accordance with virtue, but nobody (including the sage) would consider him(self) courageous for doing so. The capacity to explain this physically corresponds with the distinction between an ἕξις and a διάθεσις and is introduced into Stoic theory along with the introduction of the concept of tension by Cleanthes. As such, although there is no clear integration with Zeno's theory we observe a genuine addition which acts as an extension of Zeno's conception of a fiery soul. The more rarefied a soul is, the greater striking capacity it will have for creating the appropriate tension required for a harmonious ordering in the universe and a good flow in life.

Chrysippus on tension

Turning to Chrysippus' theory of tension we see that he inherited a fairly well-integrated idea from Cleanthes and yet that the notion was not fully incorporated with Zeno's physics. Cleanthes' and Sphaerus' description of tension had explained how it emerges in individual bodies and even how it plays a role in the creation and continuity of the cosmos; however there was no clear description of how individual bodies in the world interact with each other. Whilst the definition of body as active and passive implied a fundamentally interactive reality there seemed to be very little by way of describing the solidity of bodies, with their interaction involving some form of assimilation and blending but in a very vague or fuzzy manner. Chrysippus seems to have taken it upon himself to remedy this vagueness in the physical theory and did so by elaborating on Cleanthes' theory of tension and integrating it with Zeno's active and passive activity of contraction and expansion. In this way we get a full-blown account of the inward-outward motion of the cosmos and all the individual bodies within it: the special motion of *pneuma*. It seems as though this palindromic motion was the contribution of Chrysippus, which he invented precisely to bring together the

theories of contraction and expansion in Zeno with those of tension in Cleanthes. Whilst the outward motion is connected to expansion the inward motion is attached to the contraction of the *pneuma*. The motion must be simultaneous, however, in order for tension to be created for if there were only outward motion then there would be nothing to contain it and if there were only inward motion then there would be nothing to push it outwards. This may be imagined in a similar way to an animal skin being inflated: the air inside pushes at the skin and the skin contains the air preventing it from escaping. The analogy is flawed in several respects because, in pneumatic motion, expanding outwards is the function of the fiery part and that which contains and contracts is air. Moreover, the *pneuma* is more elastic than an animal skin in that it has the capacity, with training, to expand further outwards.

We should note that it is not immediately obvious that we may equate the outward motion of *pneuma* with both the function of fire (rarefaction and expansion) nor that we may equate the inward motion with the function of air (densification and contraction). Whilst this does seem to be implied by the evidence it is always dangerous to extrapolate on specific processes without some sort of explicit testimony.[49] However, it is possible to adduce at least one piece of evidence wherein the connection is made explicitly. The reason it has been missed in the modern literature is perhaps due to the fact that very specific physical terminology rather than the more prevalent psychological terminology is used to describe the expansion and contraction. That is to say, instead of using for instance συστολή for contraction and ἔπαρσις or διάχυσις for expansion (which are the psychological terms used in the

[49] Indeed it has been noted that nowhere in the evidence is this stated explicitly: see Scade, "Stoic Cosmological Limits and Their Platonic Background," 156–57 n. 41. He makes the connection but notes that R. Sharples (in many ways rightly) cautions about the total lack of explicit evidence for it. This has not prevented scholars in the past from extrapolating this assumption, which is not as obvious as we might like to think, and take it for granted without direct evidence cf. for instance Richard Sorabji, *Matter, Space, and Motion : Theories in Antiquity and Their Sequel* (Ithaca, N.Y.: Cornell Univ. Pr., 1988), 88, who connects the inward motion with air and the outward with fire; also Todd, *Alexander of Aphrodisias on Stoic Physics. A Study of the De Mixtione with Preliminary Essays, Text, Translation and Commentary*, 38, who says that inward-outward is expansion-contraction (in particular he links this with extension); Todd is not keen on the motion being simultaneous.

Stoic theory of emotions[50]), the text describes a power or movement which is πυκνωτικήν for the inward motion and μανωτικήν for the outward motion (which are physical terms found in Stoic cosmological theory):

> The Stoics posit a rarefying and thickening power, or rather movement, the one inwards, the other outwards, and they think that the one is the cause of existence, the other of being qualified. [51]

Not only does this indicate for us that the emotional contractions and expansions of the soul are truly physical events but it also clarifies for us that we may equate the ideas of inward and outward motion with expansions and contractions, whilst also providing a clear indication of Chrysippus' efforts to incorporate Zenonian physics, which I have termed textural, into a new tensional cosmic order.

I think it is important that we take on board the significance of tension for pneumatic theory as it also helps to clarify something about the composition of *pneuma*. Whilst it is generally conceived that *pneuma* is, at least in Chrysippus, a blend of fire and air (i.e. of rarefying and densifying powers or motions), there have been some specialised studies which have claimed that sometimes *pneuma* is only air and sometimes only fire and sometimes both.[52] However, if we are to argue that tension is a fundamental

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[50] A helpful table for these terms situated in the context of ὁρμαὶ λογικαί may be found in Gourinat, *Οι Στωϊκοί για την ψυχή [Les stoiciens et l'ame]*, 121.

[51] Simplicius *In Arist. Cat.* 8. 269 (= SVF 2. 498) Οἱ δὲ Στωϊκοὶ δύναμιν ἢ μᾶλλον κίνησιν τὴν μανωτικὴν καὶ πυκνωτικὴν τίθενται, τὴν μὲν ἐπὶ τὰ ἔσω, τὴν δὲ ἐπὶ τὰ ἔξω· καὶ τὴν μὲν τοῦ εἶναι, τὴν δὲ τοῦ ποιὸν εἶναι νομίζουσιν αἰτίαν.

[52] For a comprehensive list of the more conventional interpretations see the forthcoming study on this very topic Ian Hensley, "The Function and Composition of Pneuma in Stoic Physics," Forthcoming. Hensley argues that ἕξις is composed of air, φύσις of fire and ψυχή of both air and fire. If we extrapolate on Hensley's model, presumably the *pneuma* of a rational being will be fierier than that of an animal and the cosmic *pneuma* will be aethereal. For a useful table denoting the differences between fire, air, pneuma and aether, along with references to sources see Jean-Joël Duhot, *La Conception Stoïcienne de La Causalité* (Paris: Vrin, 1988), 85. For some of the less obvious interpretations see Todd who argues that *pneuma* could not be composed of elemental fire or air as this does not explain its pervasive capabilities. He claims instead that it is constituted of aether: Todd, "Monism and Immanence: The Foundations of Stoic Physics," 149; also Sorabji, *Matter, Space, and Motion*, 85–89, who argues that *pneuma* is not so distinct from air and fire that these should not be considered ingredients of it; indeed he argues against the evidence that claims that *pneuma* is a blend of air and fire. Instead he claims that *pneuma* is either air *or* fire relative to its various functions in different contexts. Unfortunately, his account is too brief to convincingly explain what these various functions are in relation to fire or air. Sedley concedes to

aspect of pneumatic motion, be it the type that is ἑκτική, φυσική, ψυχική or λογική then we must also accept that it must be conceived of in the vulgate way as composed of both fire and air for otherwise tension would simply not be present due to the absence of the necessary physical processes. The greatest difficulty in supporting this view is that we must then also make the claim that fire exists even in inanimate objects, for even these are said to have tension, specifically the ἑκτική type. This is an especially dubious claim to make if we also add the further condition that fire derives from the *hegemonikon* for we would then have to posit that even stones, which seem to have no real need for a *hegemonikon,* do indeed have one.

As far as I know there is no source which states that an object with an ἕξις has an *hegemonikon* or that a stone or stick does and with this absence all we can do is assume and try to extrapolate. It is fairly evident that this is a Chrysippean problem which was not present in and is not applicable to early Stoics who would not have needed to posit a *hegemonikon* for stones, being content to merely say that heat or fire exists in everything including stones. This would mean that they need not necessarily posit a *hegemonikon* for stones and that neither would they have to face the problem of answering the question "from or to where?" when they speak of outward or inward motion. This question would only need answering for tensional theories from Chrysippus and onwards, since the inward-outward motion from a ruling centre is not evident in earlier scholarchs.[53] In fact it would seem as though the issue here derives precisely from the fact that Chrysippus wanted to incorporate the inward-

Sorabji that some instances may accommodate the notion that *pneuma* is composed of just air but explicitly rejects that this is the case for the type of *pneuma* in ensouled beings Sedley, "Chrysippus on Psychophysical Causality," 326 n. 44.; cf. also David N. Sedley, "Matter in Hellenistic Philosophy," in *Materia: XIII Colloquio Internazionale: Roma, 7-9 gennaio 2010*, ed. Delfina Giovannozzi and Marco Veneziani, Lessico Intellettuale Europeo 113 (Roma: L. S. Olschki, 2011), 57–58.

[53] Cf. Hahm, *The Origins of Stoic Cosmology*, 169, who also reaches the same conclusion: "This new content, including the idea of pneumatic motion, production of unity, cohesion, dimensions, and qualities, is quite foreign to Cleanthes' *tonos.* One can imagine a path from Cleanthes' idea that the *tonos* is strength to Chrysippus's notion that it produces cohesion and certain qualities, like hardness and solidity *(*SVF 2.449)"

outward motion of *pneuma* for all bodies in the cosmos so as to institute their tensional character and ensure their solidity and interactive capacities.

There is a natural progression from Cleanthes and Sphaerus to Chrysippus' theory of tension, for, as we saw, the stage before the production of tension is the striking which is creative. Whilst the notion of striking is absent from Chrysippus it is replaced by a creative aspect which is described more specifically as the outward motion of *pneuma* being productive of quantities and qualities.[54] Amongst the Chrysippean additions and elaborations that which stands out as the most significant for the development of Stoic physics is the introduction of the role of *air* in physical processes. Air for Chrysippus in many ways takes on a more significant role than fire. Air is conceived as that which creates coherency in the cosmos and in bodies, it is understood to be the inward motion of the *pneuma* and that which unifies and is productive of substance in bodies.[55] Whilst tension in Chrysippus is created by the combination of the inward-outward movement of fire and air, the air is seen as that which consolidates a body providing not only unity but also resistance. Galen describes the different activities of fire and air:

> The natural effect of air is to consolidate and thicken a substance, whereas fire naturally causes expansion, loosening and widening.[56]

Chrysippus' inspiration was to ensure the physical foundation for the solidity of bodies by counteracting the rarefaction of fire with the densification of air. With this updated theory the Stoics had a means for describing the corporeality of bodies via a theory of resistance which was absent in the earlier Stoics. This lead also to the development of the second definition of body that we considered earlier. Now the Stoics could argue for the interaction of bodies via a genuine form of touching with their new found tensional resistance. Air took on the role of that which whilst unifying

[54] Nemesius *de nat. hom.* 70.6-71.4 (= LS 47 J)
[55] *Ibid.*
[56] Galen, *On sustaining causes* 1.1—2.4 (= LS 55 F)

and consolidating a body simultaneously condenses it. The disjunction with the previous theories of fire as the unifying and rarefying force in the cosmos is brought into stark relief. In this way tension gradually began to supplant texture in physical processes and moreover led to many confusions in the recording of Stoic terminology and theory.

Conclusion

The Stoics took seriously their descriptions of the harmony and coherence between the whole and the part, the cosmos and the individual. This was no idle analogising either. Coherency in Stoic doctrine was valued for its capacity to *correspond* to the coherency in reality. Why then do we discover apparently contradictory evidence and changes in doctrine within the school? It is possible to answer such questions without casting them aside based on the justification that we cannot know more because of the lack of evidence. We have observed that these changes within the Stoic system of thought may be traced, as clear lines of development, guided by the principle of integration of theory. Zeno had not bequeathed a comprehensive nor a complete system of thought to his followers. When we see changes to doctrine these occur in such a way that they either incorporate the doctrines of Zeno or else are genuine additions to Zeno's system. These many changes were made to strengthen the Stoic system either to defend it against attacks or, primarily, to develop it into a more comprehensive system of thought capable of describing more of the fundamental processes of reality.

Whether the study of ethics, logic or physics also requires a study of their integration is not affirmed, for they can effectively be studied in isolation. What is clear is that the Stoics conceived and developed the system in an integrated way. More than this, however, for the practicing philosopher, the so-called "initiate", to study and to have an understanding of the integration of reality is necessary. The Stoics conceived of this as the study of theology or "initiation into the mysteries".[1] It is necessary for it is only in this way that, as we have seen, we become aware of our responsibility to the correct functioning of the cosmos and the cycle of recurrence with conflagration.[2] This is equivalent to a physical expansion of the self, in which the individual's affinity (or

[1] Plutarch *Stoic. Repug.* 1035 A & 1055 A-B; Etymologicum Magn. s. v. τελετή p. 750, 16 (= SVF 2.1008); Epiphanius *Panarion* (= *Adversus Haereses*) 3. 2. 9 (= SVF 1. 538).
[2] Cf. ch. 4 p. 118-9

oikeiôsis) is extended to the whole cosmos. There is an underlying sense here of how the Stoics sought to make the study of philosophy into a practice.

The analysis of the evidence has shown that there is elaborate integration of doctrine in the Stoic system and that by studying the extant sources in such a way our understanding of Stoicism is broadened and enriched. In addition by studying the integration of Stoicism we are provided with a useful methodological tool for the study of our fragmentary evidence. This allows us to look at our evidence in new and exciting ways and offers us some unexplored pathways into a partial reconstruction of the lost Stoic system. Much more is left to be done.

In relation to *pneuma* there are still many avenues to explore. In this thesis I have left Stoic ethics largely untouched and an examination of this part of philosophy in relation to *pneuma* has the potential to provide many interesting insights into human action and psychological states. Also many of the details of the theory need further consideration. This is particularly the case in relation to Stoic theories of causation as also with the different types of bodies and the interactions that take place between them. The conflation of vitality with sensation in our evidence requires further thought as also the difference between Cleanthes and Chrysippus with regards to the *hegemonikon* and *pneuma,* for which I have provided a comprehensive list of where this is examined in the contemporary literature.[3] Indeed, the theory of *pneuma* as it is developed by Chrysippus needs to be re-examined in light of its relation to and incorporation of the original theories developed by Zeno and Cleanthes. More specialised studies may be required for the *spermatikos logos* of Zeno being incorporated into Chrysippus' tensional theory as also the liquid element and its role in the coherence of the cosmos and as the medium for fire's pervasion. I have tried to offer a brief account of what direction we may look to where research into the specific evidence for these aspects will be useful for further reconstruction of Stoic theory.

[3] See Ch. 3 n. 54

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