University of Alberta

Matter, Extension and Intellect in Aristotle

by

Matthew Small

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Master of Arts

Department of Philosophy

Fall 2012
Edmonton, Alberta

Abstract

In this paper, I shall stress the importance of discussing Aristotle's theory of matter in light of his theory of intellect. I shall focus upon a division of the prime matter debate, whose advocates reject prime matter on the grounds that the common matter of the elements is essentially extended, and thus, not a pure potentiality. Failing to acknowledge that the human intellect as described in the *De Anima* is a material substratum, advocates of this position typically defend their view by ascribing to Aristotle the Cartesian principle that all matter is essentially extended. But the materiality of the intellect, combined with Aristotle's doctrine of the incorporeality of *nous*, entails that Aristotle believed in an essentially (and necessarily) unextended species of matter.

Table of Contents

Introduction

In an article entitled *Aristotle on Thinking* (1992), Charles H. Kahn remarks that the doctrine of the incorporeality of the intellect is very often neglected by modern Aristotelian scholars. He then suggests, by way of an explanation, that, "The claim that *nous* has no bodily organ and hence that the faculty of intellect (*to noetikon*) is not only logically distinct but essentially separable from the body and from the rest of the *psuche*, is an embarrassment to many of Aristotle's modern admirers, who fear that it commits him to some form of Cartesian dualism." (Nussbaum and Rorty, pg. 360) Kahn responds by arguing that the Aristotelian and Cartesian theories of the mind are in fact radically distinct, and that it is, furthermore, a mistake to impose upon Aristotle the terminology of dualism and anti-dualism, since he stands so far outside of the post-Cartesian tradition.

It seems to me that Kahn is correct to remark that the doctrine of the incorporeality of *nous* is typically neglected by modern scholars.[1] But rather than commenting on the accuracy of Kahn's explanation of this neglectful tendency (i.e. as being the result of a perceived connection to Cartesian dualism, coupled with a general distaste for this theory), I should like to focus instead upon the dangers of excluding the doctrine of the incorporeality of *nous* from the broader discussion of Aristotle. The purpose of the forthcoming discourse shall be to emphasize that the incorporeality of *nous* has implications which extend even beyond the immediate concerns of the *De Anima*, and that therefore, to dismiss the doctrine as being unworthy of serious consideration could affect our understanding of Aristotle's views on a variety of other topics. In particular, I hope to demonstrate that the neglect of the doctrine of the incorporeality of *nous* has been a source of confusion among commentators engaged in the discussion of Aristotle's theory of matter.

In order to illustrate this point, I shall concentrate on a certain interpretive line which has developed in the wake of Hugh King's influential attack on the doctrine of *prima materia*. This resulting position

[1] Recent commentaries on the *De Anima* do seem to have given it very little attention, and those few which have addressed it at all have tended to portray it as a blunder on Aristotle's part, which ought not to be taken seriously. For example, in an article entitled "Aristotle on Sense-Perception," Thomas J. Slakey argues that the doctrine of the incorporeality of *nous* is the consequence of a flaw in Aristotle's theory of sense-perception.

states, essentially, that the doctrine of prime matter is only partially correct. Advocates of this position affirm that there is indeed a material substratum which is more basic than elemental matter, and which does in fact underlie the four elements, thus mediating (and allowing us to explain) their transformations into and from one another. They also maintain that this most basic of material substrata cannot be utterly lacking in positive character (or a pure potentiality), as the *prima materia* theory states. Rather, they assert that the matter which underlies the four elements must be in itself (that is, *per se* rather than *per accidens*) spatially extended. Under this view, the fact of spatial extension becomes not just one of the many complex properties which arise as a result of the underlying matter's acquisition of the basic contraries (in various combinations and ratios), but rather the very condition upon which the matter's capacity for acquiring those basic contraries rests.

My discussion shall focus on two formulations of this position; one by Sheldon Cohen, and another by Robert Sokolowski. I shall demonstrate that the arguments employed by these two philosophers are undermined by their mutual disregard for the doctrine of the incorporeality of *nous*—Sokolowski's because his case is founded upon the assertion that matter for Aristotle is by its very definition spatially extended,[2] and Cohen's because his is so heavily influenced by the intuition that the capacity for motion and rest can be possessed only by spatially extended things. The pivotal claim of my argument shall be that these two commentaries overlook a significant counter-example, found in Aristotle's account of the intellect between the second and third books of the *De Anima*. I shall defend this assertion by appealing to the principle, presented by Aristotle in *Metaphysics* 7.17, that the existence of matter is a requisite condition for the occurrence and explicability of phenomena (i.e. instances in which a material substratum has become—or is becoming—some definite thing by virtue of the presence of some formal essence). Aristotle's description of the process of intellection seems to be an account of exactly this sort of occurrence, with the intellect itself serving as the material substratum which is actualized by the presence of a particular formal essence. Considered alongside the doctrine of the incorporeality of nous, this seems to imply that Aristotle believed in an unextended species of matter.

[2]Or in other words, that the notion of unextended matter is a contradiction for Aristotle

Following this primary critique, I shall point out that because Cohen is at least receptive to the notion of a plurality of distinct species of matter, we need only to make a slight modification to his method of argumentation, in order to square his position with the implications of Aristotle's characterization of the mind. That is to say if we wish to remain committed to the view that the common matter of the elements is essentially extended, then we need only to broaden our conception of motion (i.e. to beyond the sphere of spatially extended things), in order to accommodate the notion of an unextended intellectual matter.

Unless such a modification is made, then Cohen's position is essentially no different from Sokolowski's, which imposes a Cartesian conception of matter upon Aristotle, according to which all matter is recognizable as such only by virtue of being extended. But if matter is to be given a broad, all-encompassing definition, then this definition must only refer to what the various species of matter all share in common. And even if Sokolowski and Cohen are correct about there being an essentially extended species of matter underlying the four elements, Aristotle's affirmation of the existence of an unextended material substratum (i.e. the passive intellect) illustrates that spatial extension is not an appropriate term for use within an all-encompassing definition of Aristotelian matter.

Chapter One: The Prime Matter Debate

Before going on to summarize the respective arguments of Cohen and Sokolowski, I will first need to give some explanation of the broader debate to which their mutual position is intended to contribute. That is to say that I shall have to explain what the prime matter theory is, what sorts of arguments are usually employed in its defence, what sorts of arguments have typically been levelled against it, and what reasons we might have for being dissatisfied with some of the early arguments against prime matter.

(1)Traditional prime matter

It is quite difficult to give an accurate account of the prime matter theory without expounding the arguments of the theory's supporters, and thereby involving oneself directly in the *prima materia* debate. I shall therefore begin my discussion of prime matter simply by presenting the affirmative case for the theory. As is noted by Hugh R. King (one of the leading opponents of the traditional prime matter theory), the historical list of prime matter-supporters is an extensive one, and so any attempt to trace the

theory back to a single point of origin is likely to be unfruitful. Thus, for the purpose of introducing the topic of prime matter in as straightforward a manner as possible, I shall focus on a pair of comparatively recent commentaries, rather than attempting to provide anything like an exhaustive historical survey of the subject. Russell Dancy's 1978 article "On Some of Aristotle's Second Thoughts about Substances: Matter" includes an impressively concise derivation of the *prima materia* theory, which is (I think) a fairly good exemplar of the sort of argumentation to be expected from most of the theory's supporters. Dancy, who regards *prima materia* as presenting "no special trouble," begins by attributing to Aristotle the principle that, "...the elements [that is, the four elements: earth, water, air, and fire] change into each other."[3] (Dancy, p. 389) This principle is generally accepted by Aristotelian commentators, and is substantiated (as Dancy points out) by various passages from both the *De caelo* and *De Generatione Et Corruptione*. Dancy then argues that from this principle (that the four elements come to be from one another), it follows that, "There is some single matter, or subject, common to the four primary qualities (hot, cold, wet and dry) or to the four elements; it is one in number, [but] not one in form." (Dancy, p. 389) He adds that this prior substratum is imperceptible, that it is, "...not a body; it is, perhaps, "formless and shapeless."" (Dancy, p. 390) Thus, the prime matter theory can be summarized using the following two tenets:

PM-1: *that there is some common matter or substratum prior to (or underlying) the four elements, by which we can account for their coming to be from one another.*
PM-2: *that the common matter of the elements is essentially formless; bearing, in itself (per se), no positive or discernable characteristics.*

The second tenet is motivated by the consideration that the four elements are, for Aristotle, the most basic perceptible bodies in existence, since the formal attributes which make them perceptible (i.e. hot,

[3]This is likely meant to signify a sort of reciprocal generation—as, for example, when Heraclitus states that, "...for water it is death to become earth; from earth water comes-to-be, and from water, soul [soul presumably being identified as something airy or fiery]."

cold, moist, and dry)are the most basic of perceptible attributes. As Dancy points out, "...by the definition of "element" (or "simple body," which Aristotle often uses instead), none can be analyzed into a further body, and there is, Aristotle argues and reiterates, nothing perceptible, no body, prior to his favoured four." (Dancy, p. 389) Thus, since to imagine any substance more basic than the four elements would have to involve a sort of mental cleavage of these attributes from the elements (or a stripping off of the most basic perceptible qualities from the elements), it follows that the remaining subject could have no perceptible attributes assigned to its own essential nature; hence the claim that the underlying substance is formless or shapeless.

Although this not emphasized by Dancy, the formlessness or shapelessness which he ascribes to prime matter is often expressed as a capacity for acquiring any of the formal attributes whose addition would result in a perceptible body. For example, in the introduction to his 1974 defense of "Prime Matter in Aristotle" (which includes a weighty summary of the *prima materia* theory) H. M. Robinson says that, "This prime matter is [in its essential nature] nothing but a potentiality, which can exist only as actualized in some determinate matter—i.e. in one of the elements—and which is what persists when one contrariety is replaced by another and the identity of an element changes." (Robinson, p. 168) What Robinson means by saying that prime matter is nothing but a potentiality is that it is in itself not actually any perceptible body; it merely possesses a capacity for becoming any perceptible body, via the acquisition of the appropriate perceptible qualities—hence, we say that it is potentially any perceptible body[4]. His remark about prime matter existing only as actualized in one of the elements is another way of stressing that it is inseparable from the elements; that this is not an observable entity we're dealing with but rather one which can only be grasped intellectually by a sort of inference from our observations concerning perceptible bodies. The sort of observation which would be relevant in an inference to prime matter is detailed in Robinson's reference to the persistence of prime matter through a process of elemental transformation (i.e. when the identity of an element changes).

[4]Or rather, that it is potentially any element, since it would have to become an element before being incorporated into any of the more complex types of bodies; at any rate, the state described by Robinson is also sometimes described as one of *pure potentiality*.

This brings us back to the first tenet of the prime matter theory, **PM-1**. Why is it that commentators believe that the existence of a prior, sub-elemental matter follows from Aristotle's claim that the elements come to be from one another? Dancy seems to regard it this being a simple textual fact. He cites a passage from *De Caelo* 4.5 in which Aristotle says that, "...it is necessary that there be just as many matters as these...namely, four, but four in such a way that there is one common matter for them all, especially so if they come to be out of each other, but their being is different." (Dancy, pg. 389)[5] Others, however, do not alight upon this passage, but regard the existence of a sub-elemental substratum as being entailed by Aristotle's general theory of substantial transformation. That is to say, they believe that the existence of a persisting substratum (i.e. implied by the explanatory divisibility of generative processes into the terms 'subject' and opposing 'contrarieties') applies, without exception, to all instances of substantial alteration in Aristotle.

This latter path to prime matter appears to be the one chosen by Robinson. He begins his summary of the *prima materia* theory by stressing that for Aristotle, "...*every change* has something which underlies it.[6]" (Robinson, pg. 168) If this is indeed the case, then the inference from the fact of elemental transformation to the first tenet of the *prima materia* theory could be regarded as being implicitly justified (if not necessitated). But in order to provide a truly fair account of this method of deriving prime matter, it will be necessary to give a more thorough summary of Aristotle's theory of substantial transformation. What does it mean to say that Aristotle explains substantial transformation in terms of subjects and contrarieties? What exactly does Aristotle think is happening when one substance changes into another? Responses to these questions can be found in *Physics* 1.7.

In this text, Aristotle assigns himself the task of enumerating the various principles which are involved in a process of generation. His discussion focuses on two exemplar processes of generation, (a) the coming to be of a musical man (from an unmusical man), and (b) the coming to be of a bronze statue

[5] But the meaning of this passage is actually not as straightforward as it may first appear. As we shall see in the following chapter, this same passage may also be interpreted in such a way as to undermine the first tenet of the prime matter theory, rather than supporting it.
[6] Meaning the *matter* for that change

(from an unshaped mass of bronze). He begins by classifying each term as being either simple or complex. The terms 'man,' 'unmusical,' 'musical,' 'bronze,' 'shaped,' and 'unshaped' are each simple, whereas any combination of these terms, such as 'musical man' or 'unshaped bronze,' is complex. Notice that each simple term is either a noun or an adjective, and that each complex term is a compound of a noun and an adjective. The noun terms ('man' and 'bronze') correspond to concrete things, whereas the adjective terms ('musical,' 'unshaped'...etc) represent characteristics which those things might have, or states in which those things might exist. Aristotle refers to these states of being as *opposites* or *contraries*.[7]

We might therefore explain the coming to be of one complex term from another (i.e. 'musical man' from 'unmusical man' or 'shaped bronze' from 'unshaped bronze') as a situation in which a concrete object exchanges one state of being for another conflicting (or opposite) state. When the prior state is replaced by the successive one, it ceases to exist in relation to that particular object. And when this happens, the adjective corresponding to the prior state ceases to be applicable to the noun corresponding to the object—so we say that that adjective (meaning its corresponding state) has not survived. Thus, Aristotle explains that when one compound changes into another, "One part survives, the other does not: what is not an opposite survives (for 'man' survives), but 'not-musical' or 'unmusical' does not survive, nor does the compound of the two, namely 'unmusical man.'" (*Physics* 1.7, 190a19-20) Similarly, in the transition from unshaped bronze to shaped bronze, neither 'unshaped' nor 'unshaped bronze' survive the alteration, but 'bronze' does.

These surviving (or persisting) parts are referred to by Aristotle as *subjects* (as opposed to *predicates*, which would be more appropriate to the non-persisting opposites), and are said to "underlie" the processes through which composites come to be from one another. Inasmuch as they underlie such processes, these subjects are also referred to as the *substrata* (or *matter*) for those changes. Aristotle elaborates on the essential nature of these material substrata by saying that in generative processes such as

[7] Nouns tend not to admit of opposites, but adjectives do. Other examples might be 'hot' and 'cold,' 'moist' and 'dry,'…etc.

the coming into being of a musical man or a shaped bronze statue, "...there must always be an underlying something, namely that which becomes, and that this, *though always one numerically, in form at least is not one*."[8] (*Physic*s 1.7, 190a14-15)

The qualification of being formally many seems open to at least two possible interpretations. It may either refer to (a) the subject's capacity for shifting between the members of a single pair of opposites (in which case what Aristotle means to say is that the subject does not remain one in form *over successive temporal moments*), or else to (b) the fact that a given subject may at a given moment possess a multitude of contraries which together do not form pairs of opposites (meaning that it possesses only one member of each pair, and thus that it can, without contradiction, be said to be formally many during a single temporal moment).

As it turns out, these two interpretations are actually quite compatible, and so we really are under no obligation to choose between them. We might say that, with respect to a single pair of opposites (i.e. if we consider only 'unmusical' and 'musical'), a given subject is *potentially* many in form (since, at a given moment it possesses only one member, but may come to possess the other member at a subsequent moment). And on the other hand, with respect to pairs of opposites more generally (i.e. if we consider 'hot' and 'cold,' 'dry' and 'moist,' 'shaped' and 'unshaped'...etc) we might say that the subject is *actually* many in form (since under this broader analytical spectrum, the subject appears to possess many members from various pairs simultaneously). But although there is no contradiction between these two interpretations of "formally many," I think that Aristotle probably had the former interpretation in mind when he made the statement. At any rate, it becomes somewhat easier, if we reflect on the matter's relationship to a single pair of contraries, to make sense of his claim that the matter is numerically one. The contradiction (alluded to above) of the matter possessing both contraries in a pair simultaneously is the key to understanding this claim. That the matter is "numerically one" may simply refer to the fact that the matter can possess only one member of a pair of contrary properties–that is, *that it can only exist as one definite thing*–at one time.

[8] Notice that this is the exact same phrase used by Dancy to describe prime matter

Now, it is very important to note that because each of the contrary attributes that the matter can possess (i.e. each of the formal qualities which make it possible to say either that the matter is potentially or actually formally many) are exchangeable, none can be regarded as belonging to that matter's essential nature. Thus, we can summarize Aristotle's theory of substantial transformation in the following manner: when one substance changes into a different one, this can be explained as the substitution of one formal attribute for a conflicting one, by a substratum which has the capacity for acquiring either constitution, but whose essential nature involves the actual possession of neither.

Returning now to **PM-1**, the question upon which (for many of its supporters) the plausibility of this tenet rests is whether the account of substantial transformation detailed above is intended by Aristotle to be regarded as universally applicable. Are there exceptions to the rule, or are we to interpret Aristotle as having meant that for *any conceivable instance* of substantial transformation (i.e. including instances of *elemental* transformation in particular) there is an essentially neutral subject that undergoes a transition from one set of perceptible attributes to its opposite set? *Physics* 1.7 provides us with considerable justification for believing that there are no exceptions to Aristotle's explanation of generative processes.

Following his initial explanation of transformative change (as involving a shift of formal properties in an underlying subject or substratum) Aristotle makes a series of claims which could be taken to suggest the universal applicability of this explanation to all transformations (and to all subjects). For instance, he says that, "...substances too, and anything else that can be said 'to be' without qualification, come to be from some substratum," and that, "...we find *in every case* something that underlies from which proceeds that which comes to be; *for instance, animals and plants from seed*." (*Physics* 1.7, 190b2-5) This passage seems to indicate a shift in Aristotle's perspective, from viewing the term 'man' as a simple component of the compound 'musical man' to representing it as being, in itself, a similar sort of compound. Since we know that the species 'man' is included within the genera of 'animals,' we ought to be able to recognize in the example of animals coming to be from seed, the implication that just as 'musical man' has come to be from two simpler terms, so too has 'man' come to be in this way.

To be more precise, the implication seems to be that a simpler subject (i.e. 'seed') has come, via *some sort of generative process* (or combination of processes), to possess the range of formal attributes by which we are able to identify the animal 'man.' That is to say that (just as, in the previous example, the unmusical man has become musical), in this case, the seed has become 'manlike.' It has, if you prefer, gone from being an 'unmanlike seed' to being (in a manner of speaking) a 'manlike seed.' Thus, neither the compound 'unmanlike seed' nor the simple term 'unmanlike' can be said to have survived the generative process, although we are forced to admit that (by analogy to the previous example) the term 'seed' has survived. It is, after all, not an opposite, and it is the subject from which proceeds the object which has come into being (i.e. 'man'). It is, in a word, the substratum (or matter) out of which 'man' has come into being.

But, in precisely what sense can it be said that 'seed' survives the process by which 'man' is generated? It certainly has not retained the specific set of properties which would make it identifiable as a seed, for it is no longer identifiable as such.[9] It seems to me that the best way of explaining the seed's persistence might therefore be to express it as a function of the seed's own composite nature. That the seed is itself a composite does seem to be suggested by the fact that the definitive quality of the seed is lost during its transformation into man.[10] This loss proves that the quality of 'seedness' is in fact separable from the seed, and that therefore the seed itself must be built upon some simpler material foundation. And it is, I think, on account of the numerical oneness of this simpler subject (i.e. the fact that it can exist as either a seed or as a man, but not as both simultaneously) that the seed can be said to survive. That is to say that the seed survives, not qua seed, but as something simpler (i.e. namely, its underlying material constitution).

At this point, one might begin to suspect that subject-contrariety divisibility is intended by Aristotle to be applicable to any conceivable subject whatsoever (i.e. not only to such adjective-noun compounds as 'musical man' but to any of the simple components of such expressions which are themselves expressible

[9] Rather, it is identifiable as 'man.'
[10] The quality of being 'seed-like' seems to be displaced by that of 'manlike', and thus, apparently, can be regarded as being synonymous with (or at least as being bound to) its opposite quality, 'unmanlike.'

using nouns). As has been demonstrated above, this does appear (given Aristotle's explanation of the origin of animals as having been derived from seed) to be the case with the subject 'man.' But, as has also been noted above, the failure of the seed to retain its definitive 'seed-like' qualities during its transformation into man does seem to imply that it too is a hylomorphic composite, and thus, divisible into formal and material aspects. And if this is correct, then it seems reasonable to expect that the seed has come into being through a process analogous to that which gave rise to the man (that is, from a simpler material component clothed in a conflicting set of formal attributes). And since the thing from which the seed came into being no longer possesses its definitive qualities at the end of its transformation into seed, it seems to follow that it too was a composite, and that it too might have come to be in the same way that the seed and the man and the musical man did.

It should not be difficult to predict where this line of thought is heading. If the subject from which 'seed' proceeded was itself divisible into formal and material aspects, then there should be no difficulty in assuming that the material cause of this prior subject (i.e. the subject out of which proceeded the subject out of which the seed proceeded) was also divisible in this way, and that it might also have come into being as a result of some formal alteration in an even simpler subject. Thus, we can imagine a sort of "subjecthood hierarchy" such that (when this hierarchy is descended) for every new subject which is uncovered, there exists a further level of divisibility (into an even simpler subject and simpler—or fewer—formal attributes) and that corresponding with each division, there has been a prior generative process by which we can account for that new subject's being.

Now, if the descent of the subjecthood hierarchy is carried out, it seems reasonable to expect that at some level of removal from the subject 'seed' (perhaps not even a particularly distant one), our descent of the chain of subjecthood will eventually uncover an instance of substantial transformation in which it is elemental matter (i.e. one or more of the four elements) which plays the role of substratum.[11] It should, however, also seem intuitively obvious to us that there must eventually be a terminus to this chain of

[11] The generation of 'seed' might involve nothing more than a precise admixture of elemental matter; likewise with the generation of the shapeless mass of bronze out of which the state is eventually created.

subjecthood; that we shall eventually uncover a subject which is not itself divisible into material and formal aspects (i.e. which is not a compound).[12] The first tenet of the prime matter theory, **PM-1**, expresses the conviction that this terminal point is not elemental matter; that an element is not the simplest possible subject. To suggest otherwise would be to designate elemental transformation (i.e. the transformation of one element into another) as an exception to the trends exhibited by the transformations (outlined above) involving more complex subjects like man or seed. The position of many prime matter theorists (or at least of Robinson) seems to be that Aristotle has not given us any grounds for believing that the transformation of one element into another element is essentially any different from the transformation of elemental matter into some more complex body like 'seed' or the growth of that seed into an even more complex body like 'man.'

This position is, I think, easily derivable from Aristotle's claim that, "Generally, things which come to be, come to be in different ways: (1) by change of shape, as a statue; (2) by addition, as things which grow; (3) by taking away, as Hermes from the stone; (4) by putting together, as a house; (5) by alteration, as things which 'turn' in respect of their material substance." (*Physics* 1.7, 190b5-8) It is unclear whether Aristotle intends for this to be an exhaustive account of the various modes by which things can come into being, but his point seems to be that any possible mode which could be added to this list would have something in common with the rest: as he goes on to argue, they (i.e. all the modes of generation which appear on this list), "...are all cases of coming to be *from a substratum*." (*Physics* 1.7, 190b9) Thus, it appears to be the case that, regardless of possible variations in the precise mechanics of the process through which a given substance comes into being, Aristotle believes that this will always involve the same basic principles (namely, formal[13] and material components). Consequently, it appears that whichever type of generation we consider, it will always turn out to be expressible as the undergoing of a substitution of formal constitution, by some persisting matter or substratum.

[12] All the more so given our familiarity with Aristotle's unmoved mover argument, since, although this deals with the opposite pole of Aristotle's metaphysical system, it still shows that Aristotle is uncomfortable with infinite regressions.

[13] i.e. opposites; a given form and its privation

So it seems that even if some unique property could be attributed to the phenomenon of elemental transformation which might distinguish it from the more complex types of transformation (such as gave rise to subjects like 'seed' or 'man'), it appears as though we would nevertheless be forced to acknowledge that the process is, in its basic structure, just like any of these higher processes. Having thus universalized his account of substantial transformation, Aristotle sets it down as a rule that, "...whatever comes to be is always complex" (*Physics* 1.7, 190b10-11), and that therefore,"...*everything* [that comes to be] comes to be from both subject [i.e. substratum] and form." (Physics 1.7, 190b19-20) So it appears that Robinson's justification for holding to **PM-1**, that for Aristotle, "...*every change* has something which underlies it," is textually sound (and with this conclusion in mind, we need only consider the fact that each of the four elements admits of having come into being in order to be certain that each is a complex entity, divisible, at least conceptually, into both material and formal aspects).

But although Robinson's justification for accepting **PM-1** is textually sound, it is in itself not quite enough to really verify **PM-1**. It does not show that the substratum implied by the process of elemental transformation must be simpler (or other than) any instance of elemental matter, it merely shows that there must be a substratum. In other words, it shows only what we already knew; namely, that each element must have come into being from some matter other than itself. In order for **PM-1** to really be affirmed, it must first be shown that it would be problematic to identify this "other matter" as one of the other three elements. It must be shown that it is problematic to identify an instance of elemental matter as the *ultimate* substratum for the coming into being of another instance of elemental matter—that elemental matter cannot be its own substratum (and that therefore, the matter from which each element ultimately comes into being must itself be simpler—or other—than any of the elements). If this can be affirmed, then the first tenet of the prime matter theory will be adequately justified. Next, if this can be shown, then in order for *prima materia* to be affirmed, it must also be shown that **PM-2** (that the sub-elemental matter is totally formless; a pure potentiality) can withstand close scrutiny.

Now, the proposition that each of the four elements ultimately comes into being from one of the other elements—that elemental matter can serve as its own substratum—and that there is no simpler substratum than elemental matter (and that therefore, **PM-1** is false) has been defended by critics of the traditional prime matter theory. But since the primary concern of this paper shall be to discuss the arguments leveled against the *second* tenet of the prime matter theory (which are relevant only if we assume the correctness of the first tenet),[14] I shall not dwell on the debate concerning the accuracy of **PM-1**. I shall simply present an exemplar of the sort of argumentation used to justify the view that there is no simpler material substratum than elemental matter, and show that there are compelling reasons for rejecting this interpretation of Aristotle.

(2) King's Argument against prima materia

In an Article entitled "Aristotle without Prima Materia" (1956), Hugh R. King argues against the proposition that, "...there is indeed in the philosophy of Aristotle a matter more primitive than the elements." (King, pg. 371) In other words, he rejects the first (and pivotal) tenet of the traditional *prima materia* theory.[15] Now, because King cites and analyzes such a large number passages (and from such a wide variety of Aristotelian texts), it would be beyond the scope of this discussion to attempt to treat all or even the majority of his comments. I shall therefore restrict myself to a discussion of only those arguments which relate directly to a passage already mentioned in the preceding summary of the *prima materia* theory. In particular, I shall focus on King's alternative reading of the passage, cited by Dancy in support of the prime matter theory, which states that, "...it is necessary that there be just as many matters as these...namely, four, but four in such a way that there is one common matter for them all, especially so if they come to be out of each other, but their being is different." (*De caelo*, 4.5, 312a30-34)

[14] This is because the second tenet of the prime matter theory is predicated upon the first. If there is in fact no common matter underlying the four elements which is itself distinct from each of those elements, then there can be no question at all as to whether this substratum is utterly formless (and it will be of no use to us at all to examine the arguments of Cohen or Sokolowski).

[15] This position is shared by commentators like W. Charlton and Barrington Jones. Since my intention is to focus on rejections of the second tenet of the prime matter theory rather than of the first, I shall not dwell upon the work of these commentators. I mention King's article only for the sake of establishing a context for the arguments of Cohen and Sokolowski.

King hypothesizes that this passage's apparent advocacy of the existence of an underlying, sub-elemental matter is really illusory, and in fact due to a mistranslation of the passage. He suggests an alternative translation of the passage, which states that, "...it is necessary that there be the same number of [elemental] matters as these [classifications of matter according to gravitational pulls], four; and the four [elements] are as one, the common matter of all things, especially since they are generated from one another, but each is different in nature." (King, pg. 384) Notice that rather than saying that there must be a single common matter underlying the four elements, the passage now states that the four elements together form the common matter which underlies all other (composite) things. What King has suggested here is that according to a correct translation of the passage, the four elements collectively serve as the bottom rung on the hierarchy of subjecthood. Having made this assertion, King is still required to account for the fact that each of the four elements admits of a becoming (from one of the other elements). He explains this fact by arguing that, "...this first matter [i.e. elemental matter, regarded collectively] is differentiated into four elements, each different in nature, but each sharing a contrariety in common with another and [thus] each capable of generation from the others." (King, pg. 384) He adds that, "...it is just because these elements are "simple," having no composite nature of their own, that Aristotle can make them receptive of any and all form." (King, pg. 385)

There are a number of reasons for being dissatisfied with King's reading.[16] The first has to do not so much with King's specific comments, but rather, with the broader notion which he is advocating (namely, that there is no sub-elemental matter, and that the four elements simply come to be from one another). If we adhere to this view, then we commit ourselves both to (a) the notion that elemental matter is the bottom rung on the hierarchy of subjecthood (since it is not reducible into any simpler subject), and to (b) the notion that elemental matter is its own generative principle (since, if we broaden the claim that each element comes to be from another element, we arrive at the conclusion that elemental matter comes to be from itself). But, given what we know about the opposite pole of Aristotle's metaphysical system (i.e. the

[16] Thanks to John Harris for pointing out that in addition to resulting in the forthcoming philosophical problems, King's rendering of *De caelo*, 4.5, 312a is also less faithful to the original Greek than Dancy's translation.

unmoved mover), to claim that this lower pole is self-generating may seem out of step with the Aristotle's mode of thought. That is to say that, for the sake of consistency, we might reasonably expect the bottom rung of Aristotle's metaphysical system to be *ungenerated* (rather than *self-generating*) just as the opposite pole is said to be *unmoved* rather than *self-moving*. A common, sub-elemental matter could meet this criterion.

Proceeding now to King's more specific comments, the primary difficulty has to do with his claim that the elements are not composites. For starters, this view is flatly incompatible with the principle (derived above from *Physics* 1.7), that anything which comes into being must be complex, admitting of both material and formal aspects. Secondly, to claim that elemental matter admits of no simpler material component commits King to what Robinson refers to as the mistake of "substantiating the contrarieties."[17]

What Robinson means is this: without some simpler material component to prop up the contrarieties which characterize each of the elements, we are forced to regard each element as being a foundationless bundle of formal attributes. Or if there is any foundation to be acknowledged, then this is itself nothing but a single one of those formal attributes (i.e. whichever contrariety all the elements have in common). In either case, matter has ultimately been reduced to form. A formal attribute has been designated as the foundation for the host of all the other formal attributes (and ultimately, as the foundation for all manner of composites). This should seem counterintuitive to us, since formal attributes, for Aristotle, require something other than themselves or one another to inform. A single formal attribute cannot be instantiated in isolation from any non-formal foundation. And formal attributes do not inform one another. Coldness, for example, does not inform hardness (nor vice versa). Solidity does not inform dryness (nor vice versa). Rather, these formal attributes together inform (or are mutually predicated of) something other than themselves.

In addition to generating the problem of substantiating the contraries, King's denial of the composite nature of the elements brings him into conflict with Aristotle's principle (described in *Physics* 1.7) that any instance of transformation involves some substratum which persists or survives through that process.

[17] Robinson, pg. 183

If, as King argues, a given element is not a composite (that is, if it is not divisible into material and formal aspects), then we are faced with a rather serious problem: how is it that an instance of elemental transformation can be said to involve a persisting substratum? Earlier, when we were faced with a transformation in which it seemed counterintuitive to suggest that the substratum really persisted through the change (i.e. the seed, in the transformation of an unmanlike into man-like seed) we still retained the option of interpreting the survival of the underlying subject in a non-literal way. This is because the seed was itself a composite, and therefore capable of being analyzed into a simpler material subject (and certain formal attributes). It was therefore permissible to understand seed as surviving, not qua seed, but by virtue of the continuity of its simpler material component (i.e. perhaps some quantity of elemental matter). But when we analyze an instance of elemental transformation (i.e. say, the transformation of air into fire) we are forced, given King's denial of any simpler material subject than elemental matter, to regard the persisting substratum as the initial element in the transformation. That is to say that in the case of air's transformation into fire, we are forced to regard the persisting substratum as the air itself (qua air), since there is nothing simpler into which the air could be reduced. But this conception of elemental transformation is precluded by Aristotle's own arguments.

In section 2.5 of *De Generatione Et Corruptione*, Aristotle disputes the proposition that one of the four types of elemental matter could act as the substratum for the generation of the other three. While this is not quite the same as the position advocated by King, it is similar in that both entail the persistence of a given element (literally, qua that element) through the processes of elemental transformation. [18] And it is precisely this point of contact which Aristotle finds to be problematic. According to the view in question, Aristotle says, the foundational element functions, "...as the basis for all, in such a way that it is water as well as air (or any other 'element') *at the same time*." (*De gen et Cor,* 2.5, 332a9-10) Thus, according to this view of elemental transformation (and King's too, since he is also committed to the view that an element can persist as itself through its transformation into another element) the coming to be of one

[18]Thus, we can see that both of these positions are variations on the view that elemental matter is the most primitive kind of material substratum.

element from another might simply involve the accumulation of an additional formal attribute into the prior element. So, for example, we might explain the coming to be of fire from air as the addition of heat or 'hotness' to the air, with the implication that fire is nothing but air plus heat. Thus, fire could be defined simply as 'hot air.'

Aristotle argues that this explanation of elemental transformation fails because it overlooks the fact that "Change is into contraries." (*De gen et. Cor,* 2.5, 332a6-8) For Aristotle, air and fire are differentiated by the contraries 'hot' and 'cold'; air is definitively cold, and fire is definitively hot. Insofar as they are what they are (i.e. air and fire, respectively), the properties of coldness and hotness are inseparable from them. And since contraries such as hot and cold cannot coexist (i.e. at the same time and place, with respect to the same subject), Aristotle argues that the conversion of one element into the other must involve the replacement of the former element's definitive quality with that of the resulting element. So if air were to become fire, the cold of the air would be lost or overcome by the heat of the fire. But since the quality of coldness is essentially inseparable from the element 'air' (qua air), we are forced to admit that the air itself is overcome along with that coldness; it's no longer air that we are dealing with by the end of the transformation, it is fire (instead of air). The mistake that the definition of fire as 'hot air' makes[19] by overlooking the inseparability of the properties of 'hotness' and 'coldness' from those elements by which they are born (as well as the mutual exclusivity of these properties) is to allow (implicitly) that the property of coldness persists through the transformation of air into fire. This is tantamount to defining fire as a "hot-cold" substance, which is clearly a logical contradiction.[20] Hence, Aristotle concludes, "...it is impossible for fire to be 'hot air,' since in that case the same thing will be simultaneously hot and cold." (*De gen et. Cor,* 2.5, 332a16-18)

What Aristotle has essentially accomplished here is a *reductio ad absurdum* of the idea that elemental matter is unified in such a way that each of the four elements is reducible to just one of the elements (or in other words, that one element underlies the others). In place of this theory (and apparently in the absence

[19] Along with the conception of elemental transformation which supports this definition
[20] Just like the proposition {X, ~X}

of any other plausible way of formulating the hypothesis that elemental matter might serve as its own substratum[21]) he suggests a conception of elemental transformation according to which it is something *other than* any of the four elements—i.e. a 'common matter'—which, by its shuffling of the basic opposite qualities such as hot, cold, dry, and moist, underlies their transformations into one another. He argues that both fire and air, "... will be something else which is the same; i.e. there will be some 'matter,' other than either, [which is] common to both." (*De gen et Cor*, 2.5, 332a18-20) This replacement of the unified picture of elemental matter (according to which each element is reducible to some other element with the addition of one or another of the basic properties) with the composite view (according to which each element is reducible to the *common sub-elemental matter* with the addition of particular properties), avoids the pileup of incompatible formal traits by designating, as the substratum for elemental transformation, a matter whose essential nature is to be separable from each of the basic qualities. So, whereas under the model of elemental unity we were lead into contradiction by our designation of air as the substratum for the generation of fire (insofar as coldness was regarded as being inseparable from air, and since coldness lacks the ability to persist in the presence of its opposite, which is introduced during the generation of fire), we are now enabled to assert the separability of the property 'coldness' from our chosen substratum (i.e. common matter). By so doing, we are enabled to replace the former definition of fire as 'hot air' with the definition of fire as 'hot (common) matter.' Since nothing in the term 'common matter' is suggestive of the property 'coldness,' there is no contradiction in combining it with the term 'hotness.'

Now, because King's theory of elemental transformation shares the premise which Aristotle has refuted in this argument, it too is susceptible to Aristotle's reductio. In order to avoid this contradiction (and the other two difficulties associated with King's claim, mentioned above), it seems to me that we would be perfectly well justified in accepting **PM-1** (that the reciprocal transformations of the four elements are mediated by a more basic, sub-elemental matter, which operates by exercising its capacity

[21] And that therefore, there is no need to posit any substratum more primitive than elemental matter in order to explain elemental transformation

for adopting and relinquishing formal attributes).[22] Having done so, we are now free to address the debate concerning the accuracy of **PM-2** (which states that the common, sub-elemental matter is essentially formless).

Chapter Two: Extended primary matter

As I have explained in the first section of this discussion, the traditional theory of prime matter consists of two tenets: **PM-1** (that there exists a kind of matter or substratum which is more primitive than elemental matter) and **PM-2** (that this prior substratum is totally indeterminate, lacking all identifying characteristics, and that therefore it can only be apprehended by inference from the observation of elemental transformation). As we have seen in the section immediately preceding this one, the strategy of prime matter opponents (starting with King) has typically been to reject **PM-1** (by arguing that for Aristotle, there can be no matter more primitive than the four elements). We have also seen that there is considerable textual justification for resisting this form of argumentation. The present section of this discussion shall focus on another school of prime matter opponents who are willing to concede the accuracy of **PM-1**, but who are unwilling to accept **PM-2**. They argue that there is indeed a common, sub-elemental matter, but that it is not completely indeterminate.

(1) Cohen

In an article on "Aristotle's Doctrine of the Material Substrate" (1984), Sheldon Cohen argues that in the debate between advocates of traditional prime matter (such as Robinson and Dancy) and what he calls the 'revisionist' school (beginning with King), who deny that there can be any more primitive matter than elemental matter for Aristotle, "...each side is half right and half wrong: Aristotle does posit a common matter for the four elements but this does not commit him to prime matter." (Cohen, p. 172) Cohen's motivation for making this claim is that he believes, "The common matter of the four elements is not prime—that is, it is not bare or characterless." (Cohen, p. 172) Thus, Cohen's position essentially boils down to the acceptance of the first tenet of prime matter theory, coupled with the rejection of the second

[22] This seems to have been explicitly recommended by Aristotle in *De gen et. Cor,* 2.5, as an alternative to the view which he refutes, anyway.

tenet. In what follows, I shall summarize the reasoning behind Cohen's responses to each of these tenets, with particular emphasis on the specific type of character (or form) which Cohen believes to be essential to the nature of Aristotle's first (i.e. common) matter.

Cohen begins his defense of the first tenet of the prime matter theory (or of the existence of a common, sub-elemental matter) by citing Aristotle's argument (mentioned in the previous section) from *De Generatione Et Corruptione 2.5,* which rules out the possibility of elemental matter serving as its own substratum. He also cites the very same passage (from *De Caelo*) upon which Dancy bases his case for Aristotle's endorsement of a common matter (and which King reinterpreted in an attempt to refute **PM-1**). This is, to reiterate, Aristotle's claim that, "...it is necessary that there be just as many matters as these...namely, four, but four in such a way that there is one common matter for them all, especially so if they come to be out of each other, but their being is different." (*De caelo*, 4.5, 312a30-34) Cohen's treatment of this passage involves the defence of its conclusion (i.e. the conclusion drawn by Dancy, not by King) against that of a subsequent passage, in which Aristotle appears to have retracted his assertion of the existence of a common matter. In this apparently conflicting passage, Aristotle says, "It is plain that one must suppose as many distinct species of matter as there are bodies [i.e. elements]. (*De Caelo*, 4.5, 312b19-20) This claim is justified via the consideration that if, "...there is a single matter of all things, as, for instance, the void or the plenum or extension or the triangles, either all things will move upward or all things will move downward, and the second motion will be abolished." (*De Caelo*, 4.5, 312b20-23) This, Aristotle claims, is contrary to what we observe to be the case, as there clearly are instances of movement in both the upward and downward directions.

Cohen claims that this latter passage can (and probably should be) read in such a way as to harmonize with the existence of a common matter. For example, if we examine the earlier passage from 312a, we find that although Aristotle admits the existence of a common matter which underlies the elements, he still maintains that, "...their being is different." (*De caelo*, 4.5, 312a30-34) This qualification is, I think, the key to understanding Cohen's point, which appears to be this: when Aristotle later claims that there

must be as many different species of matter as there are (differences between) bodies—i.e. elements—he isn't necessarily suggesting that these different species of matter represent four fundamentally different bottom rungs on the hierarchy of subjecthood. Rather, he may be suggesting that there is a singular bottom rung (i.e. a common matter) which has the capacity to assume either of four fundamentally different forms. In other words, what Aristotle may be saying is that this single matter can *be* in either of four different ways (or states).

Cohen argues that we ought to identify the different species of matter (which Aristotle believes must be posited in light of the differences between bodies) with the different forms or ways in which the common matter has the capacity to *be* (or perhaps, with the composites themselves, which become instantiated when the common matter actually assumes one or another of those forms). If we adopt his interpretation, and take the differences between the various species of matter, "...to be differences *in the being* (*to einai*) of matter, [then, Cohen argues,] the two passages are compatible." (Cohen, p. 175) He concludes by arguing that it is Aristotle's intention in 312b only to point out that, "...we get into trouble if we posit one matter "such as the void," without different specific forms." (Cohen, p. 175) By this, he seems to mean that according to Aristotle, we get into trouble if we try to ignore the differences between the elements while discussing the existence of a common matter. Having reconciled Aristotle's assertion of a common matter in 312a with his apparent retraction of this assertion in 312b, Cohen makes it clear that he accepts **PM-1**, that there is, for Aristotle, a common matter underlying all four of the elements.

This much should suffice to illustrate the details of Cohen's defence of the first tenet of the prime matter theory. As to his insistence on the falsity of the second tenet (i.e. that the common matter of the four elements must be absolutely characterless), this is based largely upon the principle, stressed even by advocates of the traditional prime matter theory, that the common matter must be inseparable from its elemental instantiations. Recall, for example, Robinson's claim that prime matter (although it is in itself nothing but a potentiality), "...can exist only as actualized in some determinate matter—i.e. in one of the elements." (Robinson, p. 168) What this means is that the essential nature of the common matter (i.e.

supposedly a state of utter potentiality) is ascertainable but not observable as such, because the common matter is incapable of existing in total isolation from the perceptible contrarieties (i.e. hot, cold, moist, dry, fluid, solid, light, heavy). So we will only ever be able to observe the common matter *as one or another of the elements*. This prompts Cohen to inquire as to why we should, "...accuse Aristotle of holding to a bare stuff if he insists that the stuff is always clothed?" (Cohen, p. 176)

Cohen's point appears to be that one is caught up in a sort of contradiction if he or she insists both that (a) the common matter of the four elements is inseparable from the class of perceptible contrarieties and that (b) the common matter is *in itself* characterless.[23] This might appear to be the same as claiming that the common matter is at once characterized and uncharacterized. Cohen attempts to alleviate the tension between these two claims by adopting (what he believes to be) a less literal account of the purported characterlessness of the common matter than is generally accepted by the supporters of prime matter theory. He begins by ruling out the suggestion that the common matter actually *is*, apart from its characteristics, characterless. This, he argues, is exactly the point which is contested by Aristotle's claim that the common matter is inseparable from the class of contrarieties. If the common matter can only exist in conjunction with perceptible attributes, then it makes no sense to speak of the common matter as being divorced, in reality, from those attributes. Cohen also discourages the more nuanced view which qualifies the characterlessness of the common matter as being, not an actualisable fact about a thing in the world, but rather a sort of underlying truth about the common matter, which is apprehensible only through abstract thinking. The claim would be that the common matter, *merely considered* apart from its characteristics, is characterless. This too, Cohen argues, is problematic given Aristotle's denial that the common matter can ever exist apart from the totality of perceptible attributes. After all, he says, considering something to be a certain way does not make it so. "You, considered without your clothes,

[23] This is, I think, the major point of disagreement between Cohen and the traditional prime matter theorists. Both agree that the common matter of the elements is incapable of actually existing in isolation from any of the contraries (and that the common matter is always clothed). But whereas Cohen believes that the coherence of this position requires our ascription of some essential characteristic to the common matter, the prime matter theorists have given no indication that they also believe this to be the case.

are not nude; you are only considered to be nude, and nothing much will follow from that." (Cohen, p. 176)

In place of the two accounts mentioned above, Cohen suggests an alternative view of the essential characterlessness of the common matter, which, rather than being opposed to Aristotle's assertion of the inseparability of the common matter from perceptible contrariety, is actually informed by it. What he suggests is that we should think of the common matter not as essentially lacking all possible characteristics, but rather, as failing to possess any one characteristic essentially. That is to say that each individual perceptible quality (i.e. hot, cold, moist, dry) is separable from the common matter (insofar as each is replaceable by its opposite), and hence, can only be regarded as an accidental attribute of that matter (not as a *per se* attribute). This account of the sense in which the common matter can be said to be characterless is perfectly compatible with the claim that it is inseparable from the host of perceptible contrarieties, since, although no particular perceptible attribute will be essentially bound up with the common matter, it remains implicit that at any given moment, the common matter will still be possessed of at least one perceptible characteristic. As Cohen says, the common matter," ...is *per se* neither hot nor cold, fluid nor solid, light nor heavy, but [it is] capable of becoming any of these (*and never without some of them*). (Cohen, p. 178)

So, it looks as though we can take it that the fact of possessing at least some degree of perceptible contrariety at any given moment (or, if you prefer, the fact of being one or another of the four elements at any given moment) is, in a manner of speaking, inseparable from the common matter. But does this mean that we should regard that fact as being, in itself, an essential (i.e. *per se*) characteristic of the common matter? The answer, for Cohen, would appear to be that this is almost correct. As he later says, the fact that the common matter "...is potentially light and heavy, and [the fact] that at any given time it will be either light or heavy, can themselves be taken to specify a *per se* characteristic. (Cohen, p. 178) One should pay close attention to Cohen's wording here and note that, rather than saying that these facts *are themselves* essential characteristics of the common matter, he says that they merely *specify* or point to an

essential characteristic. I think what Cohen is getting at here is that the facts of potentially having any of the perceptible attributes and necessarily having at least some of them at any given moment are indicative of some (as yet unidentified) essential characteristic, which explains (or makes possible) those facts about the common matter.

Thus, Cohen's critique of the prime matter theory seems to boil down to this: The prime matter theorists (such as Robinson), by failing to refine their description of the common matter any further than to say that it is nothing but a potentiality, have satisfied themselves with an incomplete account of the common matter. This condition of potentiality itself requires an explanation, and Cohen seems to believe that this can only be accomplished by the appeal to some essential characteristic *other than* the familiar list of perceptible contrarieties which includes hot, cold, heavy, light...etc.

Cohen's attempt to identify this inseparable, *per se* characteristic is built upon the concept of movement. He describes the tendency of the common matter to continually shed and acquire new perceptible characteristics as a condition of being,"...locked in the cycle of rise and fall, generation and decay, warmth and cold, growth and diminution." (Cohen, p. 178) It is important to appreciate that each of the individual aspects of this cycle (i.e. the cycling from hot to cold, or the related processes of generation and decay) is a form of motion. The actualization of the common matter's capacity for switching from the property of being hot to the property of being cold (or for switching between any of the other pairs of opposite qualities) must therefore be regarded as the actualization of that matter's capacity for movement.

Admittedly, the motion undergone by the common matter when it changes from hot to cold, or in any of the other ways listed above, must be a peculiar type of motion, distinct from other peculiar types. Cohen communicates this by contrasting the common matter of the four elements with another species of matter referenced by Aristotle in the *De Caelo*, which composes, "...the stars, celestial spheres, the sun, and the moon." (Cohen, p. 178) He refers to this second species of matter as the fifth element, *aither*. This fifth element is said to be essentially detached from the matter of the four terrestrial elements insofar

as none of these four elements can be generated from aither and as aither cannot be generated from any of the four terrestrial elements. The fifth element is therefore excluded from the process of reciprocal generation, out of which the four terrestrial elements are said by Aristotle to come into being.[24] This exclusion is said to be manifest as an incongruity in the respective capacities of the two species of matter. Cohen notes that according to Aristotle, "...the matter of the fifth element does not possess a potentiality for natural *rectilinear* motion, and is neither potentially hot nor potentially cold, while the common matter of the four [terrestrial] elements does not possess a potentiality for natural *circular* motion, and is potentially hot and cold." (Cohen, p. 178) The implication here seems to be that the motion of the common terrestrial matter must be restricted to the natural rectilinear sort. Consequently, it appears as though we should also have to view the common matter's *capacity* for motion as being restricted in this way. That is to say that we should regard the common matter of the four elements has having the capacity only for natural rectilinear motion, of which it appears that warming and cooling, growth and diminution, generation and decay, and rise and fall are all examples.

Now, at this point, Cohen pauses to reiterate his earlier suggestion of the possibility that the common matter might possess at least one *per se* attribute. He reasons that because the common matter of the four terrestrial elements is cut off from that of the fifth element, it (the common matter) cannot be, as the prime matter theorists maintain, the matter of all the things in the universe.[25] Clearly, it cannot potentially be the matter of the stars and heavenly bodies, if these things are made of aither and if aither is cut off from the common matter. And if the common matter does not have to be potentially everything, then it may not have to be essentially characterless.[26] After all, he argues, "In designing a common matter along traditional lines we need only divest it of any *per se* properties that would prevent it from doing what we

[24] In fact, Cohen notes that the fifth element must therefore be completely, "…ungenerated and indestructible." (Cohen, p. 178)
[25] That is to say that it is not *potentially all* the things in the universe.
[26] Cohen also doubts whether the common matter can really function as the matter of all the things in the terrestrial sphere. There are many things in this (i.e. the terrestrial universe) besides the four elements themselves, such as, "...people and eyes, flesh and bones, milk and blood, houses and bricks, bronze and pitch, and many, many other things, and it is not clear that common matter is potentially the matter of all or any of these." (Cohen, p. 179) This may help to explain the difficulty we experienced in attempting to visualize the coming to be of man from seed.

want it to do." (Cohen, p. 179) This statement forms the basis of Cohen's argument against the characterlessness of the common matter based on movement. The argument concludes that we should think of the property of spatial magnitude or *extension* as being an inseparable (or per se) property of the common matter. The argument reads as follows:

"In designing a common matter along traditional lines we need only divest it of any *per se* properties that would prevent it from doing what we want it to do. If we want it to be the common matter of the terrestrial elements it cannot be per se hot, cold, fluid, solid, light, or heavy, but it must be capable of becoming any of these. If we want it to be the common matter of the stars as well (on Aristotle's astrophysics) we would have to add that it cannot be determined to a rectilinear natural motion. But we could still allow it [i.e. the common matter] to be essentially spatially extended and [thus] capable of motion and rest, for it will never be asked to become something that is not spatially extended or that is not capable either of moving or of being at rest. So even embracing the fifth element, it could at least have as much per se character as Descartes allowed to matter." (Cohen, p. 180)[27]

Now, in this argument, Cohen imagines a hypothetical scenario in which the common matter of the four terrestrial elements is in fact also the matter of the stars and the heavenly bodies. He has, of course, already acknowledged that this view is incompatible with Aristotle's texts, but to temporarily ignore this fact allows him to entertain the notion that the common matter might undergo a shift from natural rectilinear motion to natural circular motion. That is to say that if the matter of the stars were involved in the reciprocal process of generation out of which the four terrestrial elements come into being, and if it were therefore possible for the common matter to undergo a change wherein it relinquished the properties of fire and acquired the properties of aither, it would, under these circumstances, cease to move in the manner of terrestrial matter and begin to move in the manner of the non-terrestrial matter. And if the common matter were to have this capacity for alternation between natural rectilinear and natural circular motion, then neither of these particular types of motion could be regarded as an essential property of the

[27] Cohen seems to have in mind the passage from Descartes' sixth meditation, in which he distinguishes himself, as a thinking, non-extended thing, from his body (or the material, non-essential aspect of himself; his *matter*), "…insofar as this is simply an extended, non-thinking thing."

common matter. Each would have to be separable from the common matter in the same way that the contrary properties of hot and cold, moist and dry, and heavy and light are separable.

But even if the common matter possessed the capacity to cease rectilinear motion and commence circular motion, and if each of these particular types of motion was therefore only an accidental property of that matter, it would still be the case that the common matter is possessed of the more generalized capacity for alternating between motion and rest. Now, of course, the more generalized properties of 'being in motion' and 'being at rest' must be equally separable from the common matter if it is to shift between them, and thus cannot themselves be regarded as essential properties of the common matter. However (and this is the pivotal move in Cohen's argument), these respective capacities (i.e. for undergoing motion or rest) seem to necessitate the ascription of at least one essential characteristic to the common matter: namely, that of spatial extension.

The crux of Cohen's argument appears to be that the properties of motion and rest are exclusive to spatially extended things; that the capacity for motion and rest entails or implies a thing's essential extendedness. Under this assumption, the property of motion might be defined as an alteration of an object's position in space, and the property of rest might be defined as the maintenance of an objects position in space. So in order for the common matter to have the capacity for undergoing motion (of any kind) or rest, it must be a spatially extended entity, and thus (contrary to the second tenet of the prime matter theory) not completely lacking in positive characteristics. This much should suffice to illustrate Cohen's position on the topic of prime matter.

(2) Sokolowski

In an article concerning "Matter, Elements and Substance in Aristotle" (1970), Sokolowski draws upon a passage from *Metaphysics* 7.3, in order to demonstrate how a position like Cohen's (according to which extension is a *per se* property or attribute of the common matter) might be derived from Aristotle's

texts.[28] He then argues that although the basic premise of this position is correct (i.e. although extension is indeed essential to the nature of the common matter), it should nevertheless be replaced by the modified view that matter and extension are, for Aristotle, identical. Sokolowski defends this correction, first, by demonstrating that his modified view is also directly supported by a section of text (from *Physics* 4.2), and second, by arguing that the prior unmodified version leads to a contradiction. To explain extension as a predicate of matter (even an inseparable one), Sokolowski argues, is really to assume that extension is inessential to the nature of matter, and thus, that matter is in itself unextended. Such a notion as this, he argues, is nonsensical for Aristotle and should be discarded.

Insofar as he agrees that extension is essential to the nature of the common matter, Sokolowski's position constitutes a rejection of the second tenet of the prime matter theory, by the same token that Cohen's does. But by grounding his own version of this position on the principle that there can be no such thing as an unextended material substratum for Aristotle, he has delivered a much more forceful dismissal of *prima materia* than Cohen has. Whereas Cohen's position (at its very strongest) amounts merely to the assertion that "the common matter *is not* unextended,"[29] Sokolowski's states (much more confidently) that the common matter *could not be* unextended.

It is also important to note that Sokolowski's claim that there is no such thing as an unextended material substratum for Aristotle brings him into conflict with Cohen's suggestion that the common matter of the elements may not have to be the matter of all the things in Aristotle's universe. By arguing not only that *all* matter for Aristotle is essentially extended but that is in fact *identical* with extension, Sokolowski has unified the concept of Aristotelian matter. That is to say that he has trivialized the various instances within the texts, in which Aristotle appears to be drawing distinctions between this or that particular type of matter. A good example is Aristotle's distinction between perceptible matter and

[28] Sokolowski is not responding specifically to Cohen's paper, but the position he addresses is essentially the same as the one endorsed by Cohen.
[29] At its weakest, it amounts to the more modest hypothesis that, "There is nothing in the primary text to prevent us from interpreting the common matter as being a kind of stuff which is essentially extended." He's not claiming that the common *must be* regarded as being essentially extended; only that it is useful to do so.

intelligible matter.[30] If any and all instances of material substratum in Aristotle are simply identical with extension, as Sokolowski says, then this implies that the two species of perceptible and intelligible matter are really one and the same thing.[31] And in fact, Sokolowski does explicitly address the relation between perceptible and intelligible matter, toward the end of his discussion. He argues, essentially, that the terms 'perceptible matter' and 'intelligible matter' are just two different ways of speaking about the same stuff. And if, as this example suggests, there is really only one species of matter in Aristotle, then this species (call it the common matter) must be the matter of all the things in Aristotle's universe, not merely of the four elements (and things derived directly from them).

Now, as I have already mentioned, Sokolowski begins his argument by citing a passage from *Metaphysics* 7.3 which implies not (necessarily) that matter is utterly identical with extension, but simply that it is in itself extended. The passage states that if, "...length and breadth and depth are taken away [from a particular piece of matter] we see nothing left unless there is something that is bounded by these; so that to those who consider the question thus matter alone must seem to be substance." (*Metaphysics*, 7.3, 1029a16-19) The connection drawn by Sokolowski between this passage and the notion that matter is essentially extended seems to involve the following logic: In order for length, breadth and depth to be meaningfully classified as boundaries or limits of matter's *spatial* magnitude (as Aristotle appears to have done) there must be something prior to or more fundamental than them, which is susceptible to spatial limitation. In other words, there must be something which is possessed of a sort of primary, indeterminate (or unbounded) extension.

Thus, what Sokolowski takes Aristotle to be saying in this passage is that the removal of length, breadth and depth would amount merely to the dissolution of the *specificity* of matter's extension (but not of the general extendedness of matter). In other words, he takes Aristotle to be saying that a given piece of matter, in the absence of length breadth and depth, would not be extended in any particular way but would nonetheless have the capacity for becoming extended in some specific way. As Sokolowski puts

[30] From *Metaphysics* 7.3
[31] Namely, extension

it, what remains (following the removal of length breadth and depth) would have no specific dimensions, but would be, "...capable of receiving them, i.e. capable of being marked off into determinate sizes." (O' Hara, pg. 105) He then speculates that the class of contrarieties are responsible for the actualization of this capacity, insofar as they modify the matter's state and, "...determine the firmness of its presence in a given place." (O'Hara, pg. 105)[32] He cautions, however, that these effects are merely *alterations* of the matter's *pre-existing* extension, and that the contraries, "...do not give it its primary extension." (O'Hara, pg. 105)

This position that Sokolowski has derived from Aristotle's comment in *Metaphysics* 7.3 is very similar to the one presented by Cohen in his own article. Both positions seek to establish that the common matter is essentially extended, as a means of explaining its capacity for undergoing qualitative alteration. It is also worth noting that nothing said by either Cohen or by Aristotle (at least not in *Metaphysics* 7.3) seems to indicate that matter and extension are to be thought of as being identical. Thus, if we adopt either of these positions, then the only available means of explaining just how it is that the common matter might be thought of as essentially extended is to regard extension as an indispensible property of the common matter.[33] The point that Sokolowski is trying to make here is that if we restrict our reading to *Metaphysics* 7.3 while attempting to understand Aristotle's views concerning the relation of extension to the common matter, we will arrive at the conclusion—similar to Cohen's—that extension (although it is indispensible to the nature of the common matter) may not in itself constitute an exhaustive account of the common matter.

Sokolowski then argues that positions such as these are problematic, since to maintain that matter is in itself (i.e. essentially) extended, while simultaneously regarding extension as a predicate of matter, would be a violation of Aristotle's claim, "...that matter receives [or possesses] no predicates in itself." (O'Hara,

[32] Sokolowski elaborates on this point by explaining that the rotation of contrarieties can be made to account for the chemical changes by which a given mass of matter is compressed or expanded so as to occupy smaller or larger regions of space. This means that the rotation of contraries is what determines the length, breadth and depth of a given instance of matter (or in other words, the specificity of that matter's extension). He denies only that the contraries can ever cause matter to become it can ever be compressed into an utterly unextended point.
[33] This seems to be what Cohen has in mind when he speaks of a *per se* attribute.

pg. 106) What Aristotle means to say here is that predicates are by nature separable from whatever matter it is that they are predicates of (remember, this is why we say that matter has the capacity for alternating between various different predicates or contraries; because each is merely a separable, accidental property, and inessential to the matter's nature). Thus, nothing can be both *essential to* and *a predicate of* matter, as to make such an assertion would be tantamount to claiming that the same thing is both separable from and inseparable from matter. This, of course, is a logical contradiction.[34]

Were one to insist that extension is a predicate of matter, then the only alternative means of avoiding this contradiction would be to abandon the view that extension is essential to the nature of matter. This, of course, would be to abandon the very project in which Cohen and even Sokolowski himself are principally engaged (i.e. namely, to demonstrate that the common matter is essentially extended). Even more importantly, Sokolowski warns, it leads to yet another contradiction. He argues that if extension were an attribute or predicate of matter (and hence, conceptually distinguishable or *separable* from matter), "...then it would have to be a predicate of nonextended matter, but *nonextended matter is a contradiction*."[35] (O' Hara, pg. 106)

This is easily the boldest of Sokolowski's claims, and it does have some very serious implications. Before going on to discuss these implications, however, I'd like to pause and examine Sokolowski's solution to the problem of treating extension as a predicate, along with the textual justification that he provides for this alternative view. As we have already seen, Sokolowski takes issue with any view that treats extension as a predicate or an attribute of the common matter. Such a view implicitly distinguishes extension from the fundamental nature of the common matter, leading to the contradictions detailed above. In response to this problem, Sokolowski cites a passage from *Physics* 4.2, which, according to his interpretation, "...indicates that Aristotle felt matter and extension were indistinguishable." (O'Hara, pg.

[34] It seems probable that if Sokolowski were to read Cohen's argument, he would accuse him of having fallen victim to this contradiction (since, by claiming that extension is essential to the common matter without adding that the two are in fact identical, he seems to have attempted to make an inseparable predicate out of extension).
[35] He elaborates on this point by asserting that the notion of unextended material substratum arose much later in the history of ancient thought, out of the Neo-Platonist school.

105) One should pay close attention to Sokolowski's language here. He says that for Aristotle, matter and extension are *indistinguishable*. If this is indeed the case, then the principle of the Identity of Indiscernibles dictates that matter and extension are, for Aristotle, one and the same; that the two are simply identical. So, rather than treating extension as an attribute of the common matter, Sokolowski has identified it as the foundation upon which all of the common matter's attributes must rest. This allows him to avoid the contradictions associated with the view which makes a predicate out of extension, since there is no longer any distinction to be made between the matter itself and the fact of its being extended. As Sokolowski says, matter's extension, "…is as primary as matter itself." (O'Hara, pg. 107)

In the section of text that Sokolowski cites in defense of this alternative position, Aristotle is attempting to determine whether *place* is better characterized as matter or as form. He (Aristotle) considers the issue from both sides, claiming that space will appear to be form if we consider it as the limit or boundary which determines the magnitude (i.e. the size and shape) of a body, and that it will appear to be matter if we consider it as the extension or stuff (of the body) whose magnitude is determined by the boundary. Of the former scenario, he says that, "...if place is what primarily contains each body, it would be a limit, so that each place would be the form or shape of each body by which the magnitude or the matter of the magnitude is defined; for this is the limit of each body. If, then, we look at the question in this way the place of a thing is its form." (Physics 4.2, 209b1-5) Of the latter scenario, Aristotle says that, "...if we regard the place as the extension of the magnitude, it is the matter. For this is different from the magnitude: it is what is contained and defined by the form, as by a bounding plane." (Physics 4.2, 209b6-8)

Now, for Sokolowski's purposes, Aristotle's conclusion as to which is the correct characterization of place (i.e. either form or matter) is insignificant. What is important here is the set of assumptions employed by Aristotle in his investigation into the nature of place. By saying that "if place is a limit then it is form," Aristotle has implied that form is identical with the limit of a body's magnitude, and by saying that "if place is extension then it is matter," he has implied that he views matter as being identical with

extension (i.e. the stuff whose magnitude is susceptible to spatial restriction). This latter implication seems to be the primary textual motivation behind Sokolowski's claim that, "...Aristotle felt matter and extension were indistinguishable." (O'Hara, pg. 105)

Having sketched Sokolowski's revised approach to explaining the common matter's essential extendedness (as well as his textual support for this position) it is important now to focus on the consequences of his claim that the notion of an unextended material substratum is, for Aristotle, nonsensical. First, it should be noted that this statement constitutes an outright rejection of the second tenet of the traditional *prima materia* theory. Recall that in the preface to this claim, Sokolowski argues that if extension were a predicate of matter then it would have to be a predicate of unextended matter. This hypothetical unextended matter is the "prime matter" that commentators such as Dancy and Robinson (and many prior to them) have posited. So, by claiming that unextended matter is a contradiction for Aristotle, Sokolowski has ruled out the possibility of prime matter, and has designated extended matter (or rather extension itself, since he identifies matter with extension) as the bottom rung on the hierarchy of subjecthood.

Second (and more importantly), the claim that there can be no such thing as an unextended material substratum for Aristotle, when combined with Sokolowski's earlier claim that matter and extension are indistinguishable, seems to undermine numerous textual indications that the Aristotelian concept of matter is divisible into a variety of distinct species. The reason for this is that when the two claims come together, they form the statement that *whatever matter there is, is itself nothing but extension*. This implies that the essence of Aristotelian matter (taken in its broadest sense now, as there is no longer any possibility that Sokolowski is referring exclusively to the common matter of the elements) admits of no variation; *that what it means to be* matter is one thing and one thing only (i.e. namely, to be extension itself). Thus, if Sokolowski is correct, then it would appear that we have no justification for claiming that one species of matter is *essentially* any different from any other species of matter. This would mean that

the apparent distinctions made by Aristotle between, for example, elemental matter and aether[36] or between elemental matter and what Aristotle calls *intelligible matter*, are at best superficial (i.e. accidental).

The remainder of Sokolowski's discussion is devoted to explaining precisely why it is that Aristotle's distinction between perceptible matter and intelligible matter (otherwise known as mathematical matter) ought to be regarded as a superficial distinction. He begins this line of argumentation by giving a rough (functional) description of what Aristotle is referring to when he speaks of *intelligible matter*. What this refers to, Sokolowski says, is the foundation (i.e. in other words, the substratum), "…which supports mathematical entities like circles, cubes, squares, or lines." (O'Hara, pg. 107)[37] Such entities as these are typically regarded as ideas or abstract concepts, and so it is tempting to view them as having only a mental or intellectual existence. And if they themselves have only an intellectual existence, then it follows that whatever foundation they share must also have a purely intellectual existence. Thus, upon hearing the words *intelligible matter*, common sense would seem to dictate that we visualize a foundation or substratum which is of the very same substance as the intellect itself; perhaps as a component of intellect, or as being identical with intellect.

In spite of all this, Sokolowski cautions that, "...mathematical matter is not something that belongs to our concepts or exists only in our mental power of imagination; it is not a part of mind; it is matter, stuff, but taken in abstraction from any perceptible qualities." (O' Hara, pg. 107) He defends the first of the two assertions contained within this passage (i.e. that intelligible matter is not a part of mind, but rather, the external, perceptible matter)[38] by drawing an analogy between geometrical entities and time (which, in Aristotelian terms, is simply a measure of motion). In the case of time, Sokolowski says, "… the motion

[36] i.e. the matter of the stars, which Cohen acknowledges as being divorced from the common matter of the four elements

[37] Sokolowski acknowledges that *intelligible matter* can also be understood to signify a genus (i.e. "A genus is said to be the intelligible matter for its species"), but specifies that what he is addressing is intelligible matter, "…taken as the foundation for geometrical realities." (O'Hara, pg. 107)

[38] The second assertion, that intelligible matter is the perceptible matter, *but taken in abstraction from any perceptible qualities*, is intended to address a problem which arises from the first assertion: namely, the problem of how to explain Aristotle's differentiation between perceptible matter and intelligible matter, given that the two are really one and the same substance. This shall be discussed in more detail below.

that is counted is real for Aristotle, and our counting or measuring is an operation that we perform upon this reality." (O'Hara, pg. 107) Similarly, he adds, "…in geometry cubes and circles are actualized by thought upon the foundation of matter." (O'Hara, pg. 107) What Sokolowski is attempting to emphasize here is that the entities which come into being when we measure time or practice geometry arise as a result of our reflection upon external (or perceptible) objects. It follows that such entities as 'time' or 'cube' or 'circle' depend as much for their existence upon the reality of perceptible objects as they do upon the performance of the intellect. Therefore, the being of mathematical entities cannot be described as purely intellectual (hence, Sokolowski's assertion that intelligible matter is not just a part of the mind). Moreover, since the intellect would be unable to actualize mathematical entities if it did not have perceptible objects to reflect upon, it seems that the external objects (which are themselves built upon a foundation of perceptible matter) have a greater claim to being the foundation of mathematical entities than does the intellect itself.[39]

But if the foundation of mathematical entities is really the same as the foundation for perceptible entities, then why does Aristotle draw any distinction at all between perceptible and intelligible matter? Sokolowski's response to this problem begins with the observation that, "... everything that has to be said about circles and cubes can be stated with no mention of perceptible qualities." (O' Hara, pg. 107) What he means to say here is that an appeal to tactile opposites (such as hot, cold, solid, or fluid) cannot provide any real insight into the essential characteristics of geometrical entities; in other words, that questions such as "what does it mean to be a cube" or "what are the necessary and sufficient conditions for circularity" cannot be resolved through our consideration of the contraries. According to Sokolowski, perceptible qualities are simply not relevant to a discussion of mathematical entities. If this is correct, then we cannot reasonably expect such qualities to be instrumental (or necessary) to our derivation of geometrical entities. Cubes and circles and the like may come into being as a result of our reflection upon perceptible bodies, but not upon those qualities in particular which account for their perceptibility.

[39] Similarly, Sokolowski argues, "Moving things are the foundation for time." (O'Hara, pg. 107)

Rather, it is by our reflection upon the limits or boundaries of these objects that mathematical entities are called into being; these limits are not expressible in terms of opposites.[40]

The fact that perceptible qualities are themselves neither relied upon, nor even referenced during the process by which the intellect creates geometrical entities (on a foundation of perceptible matter) is taken by Sokolowski as a clear indication that, "...the matter that serves as the foundation for geometrical "bodies" [i.e. perceptible matter] can be considered apart from its function of supporting the tactual qualities and their derivations." (O'Hara, pg. 107)[41] One might suggest instead that when we create mathematical entities, we are considering the perceptible matter in its function of supporting strictly intelligible qualities. And to restrict our view of the perceptible matter in this way is to take an abstracted view of the perceptible matter. Hence, we have Sokolowski's claim that intelligible matter is the perceptible matter, *but taken in abstraction from any perceptible qualities*. This principle, according to Sokolowski, is what accounts for Aristotle's distinction between perceptible matter and intelligible matter. Since the sum total of the perceptible matter's perceptible qualities is disregarded under our abstracted view, Sokolowski reasons that,"...the perceptibility of this matter is [for as long as we are engaged in reflection upon the perceptible body's geometrical limits] not mentionable; hence Aristotle calls it intelligible matter and explicitly contrasts it to perceptible matter." (O'Hara, pg. 107)

Sokolowski summarizes his position regarding Aristotle's doctrine of intelligible matter (or the foundation of mathematical entities) by identifying it as, "...the same thing [or the same *stuff*] as the matter that underlies the contraries, but considered in a different function." (O'Hara, pg. 108) He then supplements his earlier explanation as to why Aristotle would cleave this single foundation into two apparently distinguishable entities (i.e. perceptible and intelligible matter) by telling us why he thinks Aristotle refers to it, in its function of supporting mathematical bodies, as being specifically *intelligible*.

[40]Sokolowski does admit that the contraries may play a role in determining the particulars of an objects extension, but this does not imply that the boundaries of that extension are themselves reducible to perceptible contraries. When we reflect on an object's boundaries, we are reflecting on something other than the contraries.

[41]Here, then, we have a loose sense in which perceptibility (i.e. not just one or another particular perceptible quality, but the much broader fact of being perceptible) is separable from the perceptible matter.

Aristotle does this, Sokolowski says, because the mathematical bodies that it supports are *actualized by our thought or intellectual activity* (directed at the foundation).[42]

And because intelligible matter is, for Sokolowski, essentially identical with perceptible matter, differing only insofar as its function as a substratum for tactile qualities is temporarily disregarded by our intellectual activity (which focuses instead on, "the geometrical limits that can be conceived upon it"), it appears as though his position concerning the relation between intelligible and perceptible matter is really just a claim of reducibility. That is to say that intelligible matter is, for Sokolowski, reducible to perceptible matter. And since (as has been demonstrated in the above explication) Sokolowski regards the perceptible matter as being identical with extension, it follows that intelligible matter is reducible one step further to extension itself. One might even say that it is an abstracted description of extension; the product of one's intellectual activity directed at the geometrical limits which can be conceived upon extension itself.

Sokolowski's reduction of intelligible matter to the common perceptible matter (or more precisely to extension) coheres with, and should be regarded as an affirmation of, his earlier implication that any matter that exists is nothing but extension. [43] And if all instances of matter are nothing more than extension, then it follows that there is really, in the meaningful sense, only one species of matter in Aristotle. Thus, one might reasonably suggest that Sokolowski has expanded the notion of a "common matter" in such a way as to make it serve as the explanatory principle (or foundation) not only of the four elements and their derivations but, contrary to what Cohen tells us, of *all* the material things in Aristotle's universe.

Chapter Three: Disentangling matter from extension

In the previous chapter, we surveyed the arguments put forth by two philosophers who oppose the traditional prime matter theory by claiming (in defiance of **PM-2**) that the common matter which

[42] This can also be explained by appeal to the fact that the qualities which are referenced by the intellect during its creation of mathematical entities are themselves purely intelligible (i.e. not perceptible).
[43] Recall that this seems to follow from Sokolowski's combined claims that (a) matter is identical with (or indistinguishable from) extension, and that (b) unextended matter is a contradiction for Aristotle.

mediates the reciprocal generation of the four elements is essentially extended, and thus, not entirely indeterminate. It is important to emphasize here that the dispute between Cohen and Sokolowski and the traditional prime matter theorists is not a dispute about whether the common matter of the elements is necessarily extended; about this, they are in agreement. Traditional prime matter theorists acknowledge that the common matter, if it exists, must always exist as one or another of the four elements, and the elements are undeniably extended.[44] The issue at hand is whether this extension belongs to the common matter itself, or whether it is merely a byproduct or a consequence of the common matter's necessary association with one or more of the quality pairs.

Cohen seems to have understood the prime matter theorists as holding that extension comes along with the opposite-pairs (or that the common matter, if one were to consider it in isolation from any of its accidental characteristics, would not be extended).[45] He objects that the capacity for alternating between pairs of opposite qualities (and for undergoing motion and rest more generally) can only be properly accounted for if we ascribe some per-se character to the common matter (i.e. extension). Sokolowski takes a similar stance, arguing that extension is as primary as the common matter itself, and that the very notion of unextended matter would be non-sensical in an Aristotelian context.

In the following chapter, I shall employ principles from Aristotle's *Metaphysics* and from his philosophy of mind (as presented in the *De Anima*), in order to demonstrate that (contrary to what Cohen and Sokolowski tell us) the sort of motion and rest undergone by material substrata in their function as substrates for formal qualities does not require extension as its pre-condition, and that the notion of an unextended material substratum is not a contradiction for Aristotle. Aristotle gives us, in his characterization of the human intellect, an example of a functioning material substratum which is neither essentially nor even necessarily extended.

---

[44] Recall Robinson's remark that the common matter can *only exist as actualized in one of the elements*, and Cohen's claim that the common matter has the capacity to acquire any of the contrarieties and that it is *never without some of them*.

[45] This strikes me as a reasonable interpretation of prime matter theory, as advocates of the theory tend not to pay special attention to the property of extension; I therefore see no reason to assume that they regard extension as having a special status, or as being an exception to the rule that the common matter can have no essential character of its own.

(1) Matter and Explicable Phenomena

In *Metaphysics* 7.17, Aristotle explores the structure and mechanics of the why-question, and seeks to identify the purpose or intent of such a question. In other words, he seeks to identify that which is being sought whenever we ask a why-question. He proceeds by conducting an analysis of the exemplar question "Why is the musical man a musical man?" One interpretation that Aristotle considers is the straightforward, literal interpretation. According to the literal reading of the question, what is being sought is an explanation as to why a thing (i.e. the musical man) is itself.[46] He rejects this interpretation, however, on the grounds that any inquiry as to why a thing is itself is really a meaningless inquiry, or an inquiry into nothing. In order for a why-question to have meaning, he says,

"... the fact or existence of the thing [about which the why-question is being asked] must already be evident—e.g. that the moon is eclipsed—but the fact that a thing is itself is the single reason and the single cause to be given in answer to all such questions as 'why the man is man, or the musical musical,' unless one were to answer 'because each thing is inseparable from itself, and its being one just meant this'; this, however, is common to all things and is a short and easy way with the question." (*Metaphysics* 7.17, 1041a15-20)

Having dismissed it as nonsensical to inquire why a thing is itself, Aristotle concludes that when we ask "why the musical man is a musical man," we must rather be inquiring as to why some one thing is predicated of some other thing. One might be tempted, therefore, to express the question as an inquiry as to why the term (or formal attribute) 'musical' is predicated of the term (or substratum) 'man.' This, however, is also problematic for Aristotle, as it is essentially the same as asking why the man is a *man* of a particular kind (that is, of the musical sort). Expressed in this form, the question still contains an inquiry as to why a thing is itself (i.e. namely, as to why the man is man); it is thus, in Aristotle's language, an inquiry into nothing. Aristotle's solution is to rephrase the question in a manner which avoids the repeated use of the simple term 'man.' Although we cannot inquire why he who is a man is a

[46] This might be regarded as a simultaneous inquiry as to why he who is a man is a man, and as to why that which is musical is musical.

man, he says,"…we *can* inquire why man is an animal of such and such a nature." (*Metaphysics* 7.17, 1041a20-21)

In this revised form, the extraneous occurrence of the term 'man' has been replaced with that of a simpler material element (i.e. animal), and the question now asks why "such and such a nature" is predicated of that animal. This "such and such a nature" is, presumably, what accounts for both the manhood and the musicality of that animal. So, it seems that the correct, meaningful interpretation of our original question must ask:"Why is that animal a musical man?"

This revised question is compared by Aristotle to another why-question exemplar, of the same structure,[47] which asks, "Why are these things, i.e. bricks and stones, a house?" What the two questions have in common (and, as Aristotle seems to be implying, what all meaningful why-questions have in common) is that they inquire—without the redundancy of asking why a thing is itself—as to why a certain matter is some definite thing.[48] Aristotle emphasizes that in either case what we are seeking is a *cause* (i.e. the cause of the matter being some definite thing), and although he does acknowledge that it would be (at least partially) correct to invoke an efficient or final cause as the solution, he seems to give priority to the formal cause as being the most appropriate (or the most immediately applicable) answer. In response to the question inquiring why the bricks and stones are a house, he answers, "Because that which was the essence of a house is present." (*Metaphysics* 7.17, 1041b4-5) A similar response directed at the question asking why the animal is a musical man would answer, *because that which was the essence of a musical man is present*. With respect to meaningful why-questions, Aristotle argues,"…what we seek is the cause, i.e. *the form*, by reason of which the matter is some definite thing; and this is the substance [i.e. the essence] of the thing." (*Metaphysics* 7.17, 1041b6-9)

Having established that meaningful why-questions always inquire as to why a certain matter is some definite thing, and having cited the presence of a certain formal essence (in or to that matter) as the best

[47] Because this question implies no inquiry as to why a thing is itself, it requires no translation such as the one performed above, on the inquiry as to why the musical man is a musical man.

[48] In a commentary on this section of the *Metaphysics* (which I shall discuss shortly), Sokolowski refers to the fact that a certain matter is some definite thing (i.e. a fact which is expressible as a "that-statement," and addressable by a why-question) as a "phenomenon." Henceforth, I shall adopt this terminology.

possible explanation, Aristotle concludes that why-questions can only be meaningfully posed in reference to complex terms (that is, hylomorphic compounds; composites of matter and form). In the case of simple terms, he says, "…no inquiry or teaching is possible; our attitude towards such things is other than that of inquiry." (*Metaphysics* 7.17, 1041b9-10) This is because a simple term does not admit of both a material and a formal aspect; rather it is itself one or another of these things. Thus, for a simple term, it cannot be the case that a material foundation is some definite thing by reason of the presence of some formal essence; in other words, a simple term cannot itself constitute a phenomenon (i.e. it cannot form a that-statement, which is susceptible to why-inquiry).[49] We are therefore unable to pose or to answer meaningful why-questions in reference to simple terms; hence, Aristotle's claim that no inquiry or teaching is possible with respect to such things.

Of course, most material terms are only simple in accordance with the context of their usage (that is, they are not simple in a strict or absolute sense). For example, the term 'man' is simple when it appears in the phrase "musical man," but it may also be expressed as the composite of some simpler material element (i.e. animal) and a certain formal element (i.e. that which was the essence of man). And in fact, it was precisely by utilizing this divisibility that Aristotle was able to translate a series of problematic why-questions (i.e. "Why is the musical man a musical man," or "Why is the man a man of the musical sort?") into a meaningful why-question (i.e. 'why is that animal a musical man?"). The major fault of the former two inquiries is, according to Aristotle, that they ask a question about the man *qua man* (or, more generally, that they inquire as to why a thing is itself), and this is the result of treating the term 'man' as if it were an indivisible, strictly material term. In the case of the latter (meaningful) why-question, the term

[49] Remember that the purpose of a why-question is to explain the presence of a phenomenon. Aristotle's point seems to be that why-questions can only be asked in reference to composites because there are no phenomena to be addressed (i.e. no facts to provoke a why-question) when and where there are no composites. Furthermore, in light of this, it seems to me that we are free to regard either (a) the presence of a given composite, or (b) the transformative process (that is, the change itself) which gave rise to that composite, as a phenomenon. As we have seen in *Physics* 1.7, whatever comes into being (as the result of some change or transformation) is always hylomorphic. But the occurrence of a transformative change also presupposes the presence of some prior hylomorphic compound, as transformations for Aristotle are always changes from one thing to another (with a persisting substratum). Hence, both the transformation and its product depend upon the presence of composites. Sokolowski also seems to view changes or actions (and not just their end-results) as phenomena; he identifies locomotion, eating and growth as such.

'man' has been cleaved into its material and formal aspects (the latter of which has been modified slightly, so as to encompass musicality in addition to manhood). It is through this cleavage that the existence of the musical man becomes expressible as the fact of one thing being predicated of another (other than itself), and through which the problem of self-referential redundancy is resolved.

In a commentary on this section of Aristotle's *Metaphysics*,[50] Sokolowski extracts two major implications for emphasis: (a) that, according to Aristotle, our ability to ask why-questions depends upon the existence of matter in its function as a substrate for formal qualities (that is, as a component of hylomorphic compounds), and (b) that the existence of matter is itself inexplicable. Both of these strike me as accurate derivations from the text. However, the former of the two seems to me to undermine Sokolowski's earlier claim (expounded in the previous chapter) that matter and extension are identical. This shall be given a more thorough explanation in the forthcoming section of my discussion. In the meantime, I shall simply sketch and defend Sokolowski's case for the dependence of human inquiry upon the existence of material substrata.

In what seems to me to be a derivation from Aristotle's claim (in *Metaphysics* 7.17) that the function of a why-question is to inquire as to why a certain matter is some definite thing, Sokolowski argues that interrogation (that is, the investigation of phenomena, through the use of why-questions) is possible only when the object of inquiry is a materially composed thing (that is, a thing with a material component). "Only such beings," Sokolowski says, "call for an explanation of how they appear." (O'Hara, pg. 56) Now, it might seem peculiar that Sokolowski should place so much emphasis on the material component of a given phenomenon, whereas Aristotle seems to have given priority to the formal essence as being the most informative cause. Furthermore, one might wonder about the explanatory value of efficient and final causes. Have these not been overlooked? The first thing to note here is that Aristotle's claim, that the role of a why-question is to seek the cause of a particular matter being some definite thing, does seem to imply that why-questions are questions about particular instances of matter. And a question about the

[50] From an article entitled "Scientific and Hermeneutic Questions in Aristotle" (1971)

state of a particular instance of matter can neither be legitimately asked nor plausibly answered without reference to some material cause. This alone seems to me to be an adequate justification of Sokolowski's emphasis on the material cause, but there are other means of supporting it.

For example, we might consider that the explanatory value of the formal cause, which Aristotle emphasizes, is dependent upon that of the material cause. Considered independently, a particular formal essence (or a set of formal attributes) does not constitute an adequate explanation for the existence of a definite thing, because the definite thing in question (i.e. the phenomenon) exists only by virtue of the fact that the formal attributes are supported by a certain material substratum (or, if you like, by the fact that these formal attributes inform the material substratum). Consequently, an appeal to the formal cause can really only account for the existence of the definite thing in question if this appeal is made alongside a simultaneous appeal to the material cause. Of course, the reverse is also true. The material cause also depends upon the formal cause for its explanatory value, as without the presence of any formal attributes, the matter would be in no particular condition, and there would be no definite thing (or phenomenon) for us to inquire about. As explanations of the existence of some definite thing, the two causes are co-dependent. For this reason, I think it is fair to assume that when Aristotle emphasizes the formal cause as the primary explanation for a given phenomenon, he is also, implicitly, emphasizing the material cause.[51] Conversely, Sokolowski, when he emphasizes the material cause of a given phenomenon, is by no means de-emphasizing the formal cause.[52]

As to the other two types of cause (i.e. the efficient and the final causes), these do have a degree of explanatory value, but only by virtue of their reference to the material and formal causes. That is to say that the efficient and final causes each employ the material and formal causes as terms in their respective accounts of a given phenomenon; the efficient cause explains how the matter came to be endowed with a

[51] This is, I think, reflected in Aristotle's claim (mentioned earlier) that what we seek, when we ask a why-question, is the form, by reason of which *the matter* is some definite thing.

[52]This seems to me to be reflected in Sokolowski's emphasis on the "matter and form dichotomy" as a necessary condition for our ability to conduct scientific investigation (or for the existence of intelligible phenomena)—by which he means that our capacity for engaging in why-inquiries is made possible by the existence of matter, *in its capacity as a substrate for formal predicates*. (O'Hara, pg. 56)

particular formal essence, and the final cause explains the purpose for which this was carried out. And since the efficient and formal causes rely on our prior understanding of what the formal and material causes are, in order to function as explanations, neither could be fruitfully employed if the material cause (or the formal cause; remember that the two are co-dependent) were to be excluded from consideration.

The reverse is, however, not true. The material and formal causes do not rely upon a prior understanding of the efficient and final causes for their explanatory value. One can see this by analyzing a concrete example. To the question "why are those materials a house," Aristotle answers, "Because that which was the essence of a house is present [to those materials]." One could certainly expand upon this explanation by referencing the labour of the builder or the blueprint from which he derives his aspirations, but the explanatory value possessed by the formal and material causes is itself not derived from the labour or from the blueprint. The existence of the materials and the presence of "that which was the essence of a house" can be accepted as given, and will still account for the existence of the house. Hence, Aristotle's response remains cogent, even when the efficient and final causes are omitted.

So, to summarize, we have seen in *Metaphysics* 7.17 that Aristotle regarded meaningful why-questions as seeking after the cause of a certain matter being some (other) definite thing. We have seen also that Aristotle seems to regard the presence of a particular formal essence (or formal cause) as being the most appropriate solution to a given why-question. But since the formal essence relies upon the material cause for its explanatory value (and indeed, for the very existence of the phenomenon in question), and since neither of the other two types of cause can be informatively cited without reference to the pairing of formal and material aspects, it seems to me that Sokolowski is justified in placing emphasis on the material cause, and in his conclusion that the existence of explicable phenomena is due to the existence (and function, as a substrate for formal attributes) of matter.

In the following section, I shall demonstrate that this principle, and Sokolowski's earlier claim that matter is identical with extension, cannot be held simultaneously. The former in fact necessitates the rejection of the latter. I shall establish this by pointing out that between books two and three of the *De*

Anima, we are presented with a perfectly legitimate example of an explicable phenomenon, whose being and explicability are both guaranteed by its material (and formal) composition, and which is nevertheless entirely unextended.

(2) Intellectual matter in the De Anima

Even on an intuitive level, it seems correct to characterize human intellection as being, for Aristotle, a legitimate, questionable phenomenon (after all, Aristotle saw fit to devote several chapters of his work on the soul to explaining the activity of the intellect; it seems unlikely that he would have done this, had he not regarded thought as being an explicable phenomenon). And if we examine Aristotle's account of the human intellect in *De Anima* 3.4, we find that the process of intellection (as Aristotle describes it) does satisfy the conditions, extracted by Sokolowski from *Metaphysics* 7.17, for being a phenomenon. That is to say that (according to Aristotle's description of the process of thinking) when an idea is formed by the human intellect (or when an individual develops an understanding of some intelligible object), it is the case that—internally to the inquisitor—*a material substratum has become some definite thing, by virtue of the presence of some specific formal essence*.

This picture of idea-formation is necessitated by Aristotle's description of intellect, in *De Anima* 3.4, as being analogous (in function) to that of perception. In order to understand why this is the case, it will be necessary to review Aristotle's theory of perception. It should be sufficient if we restrict our discussion to Aristotle's more general comments on perception in *De Anima* 2.5, rather than focusing on his lengthy treatments of the individual senses; our intention here is to discern what Aristotle believes to be common to all five of the senses.

Aristotle's treatment of the faculty of sense-perception in *De Anima* 2.5 opens with the claim that sensation depends, "...on a process of movement or affection from without, for it is held to be some sort of change of quality." (*De Anima* 2.5, 416b33-35) He elaborates by likening the process of sense-perception to that of combustion. In the case of a combustion reaction, he says, what is combustible cannot bring about its own ignition. Instead, it must come into contact with actual fire (i.e. that which has

already been ignited and which therefore already possesses the attribute which the combustible object only has potentially). Similarly, he says, that which perceives must have contact with an external and perceptible object in order to function itself. This contact must furthermore involve the exchange of some attribute (to which the perceiver is receptive, or which it potentially has) from the external object to the perceiver. Aristotle summarizes this change of quality by saying that, "...what has the power of sensation is potentially like what the perceived object is actually; that is, while at the beginning of the process of its being acted upon the two interacting factors are dissimilar, at the end the one acted upon is assimilated to the other and is identical in quality with it." (*De Anima* 2.5, 418a3-7)

Of course, it would be a mistake to interpret this as meaning that the one acted upon has become unqualifiedly identical with its object. Aristotle clarifies the intended connotation of *being identical in quality with* in the closing section of his discussion of perception (in *De Anima* 2.12), when he differentiates between a sense (itself) and an organ of sense. He says that, "By a 'sense' is meant what has the power of receiving into itself the sensible forms of things *without their matter*" (*De Anima* 2.12, 424a17-18), whereas, "By 'an organ of sense' is meant that in which ultimately such a power is seated." (*De Anima* 2.12, 424a24-25) This description of what a sense is indicates that what is acted upon by the sensible object does not literally become (identical with) the object, but rather that it becomes like that object by a process akin to imprinting. Aristotle explains this by drawing an analogy to a scenario in which a mass of malleable wax is imprinted with the shape of a signet ring. In such a case, he says, the wax takes on an image (i.e. the form) of the ring, while remaining constitutionally distinct from the matter of the ring. The matter of the ring is, in a way, rather inessential to the process (which is to say that so long as it possesses that particular form, it could be made up almost any kind of material stuff). As Aristotle says, "...its particular metallic constitution makes no difference." (*De Anima* 2.12, 424a21-22)

So just as the wax takes on the form of the object which affects it without becoming essentially bound with the matter of that object, so too is the sense imprinted with the forms of its objects, without taking on their material constitution. This imprinting of an object's form in isolation from its matter is the process

of movement or affection from without, upon which Aristotle claims that perception is dependent. And now if we consider Aristotle's suggestion (from *De Anima* 3.4, 429a13-15) that, "If thinking is like perceiving, it must be either a process in which the soul is acted on by what is capable of being thought, or a process which is different from but analogous to that," it seems to follow –provided that there is indeed a resemblance between thinking and perceiving—that the activity of the intellect is also based upon a sort of imprinting process. That is to say that if the faculty of intellect is related to what is intelligible in the same way that the faculty of perception is related to what is perceptible, then the intellect must be (like each of the senses) capable of adopting the forms of its objects without becoming permanently entangled with the matter of those objects. Or in other words, "The thinking part of the soul must therefore be, while impassible, capable of receiving the [intelligible] form of an object [without its matter]; that is, must be potentially identical in character with its object without being the object." (*De Anima* 3.4 429a15-18)[53]

Now, by suggesting that the intellect operates by adopting the intelligible forms of its objects *in isolation from their matter*, Aristotle seems to have implied that the (intelligible) form of a given intelligible object is in some sense capable of becoming disengaged from its material foundation. But, since it is unfeasible to suggest that a thing's form should continue to exist independently[54] after becoming disengaged from its original foundation, it seems as though the intellect, when it *receives* the disengaged forms of its objects, must be serving as a sort of auxiliary foundation to those forms; or as a kind of secondary matter. This characterization of the mind (as a sort of matter) helps to maintain the consistency of Aristotle's use of analogy in his treatments of intellection and of perception[55] and is supported by more explicit comments in a subsequent chapter. Aristotle argues, in *De Anima* 3.5, that, "Since in every class of things, as in nature as a whole, we find two factors involved, (1) *a matter* which

[53] Just as the wax is potentially identical in character with the signet ring, without being the ring.
[54] After all, Aristotle is no Platonist
[55] Both the intellectual and sensitive faculties are treated as analogues to a mass of wax which receives the form of a signet ring. Wax is undeniably material, and does serve as an alternative foundation for the form of the ring. Thus, if the analogy holds, we are bound to regard the intellectual and sensitive faculties as being (or containing) material factors.

is potentially all the particulars included in the class, [and] (2) a cause which is productive in the sense that it makes them all (the latter standing to the former, as e.g. an art to its material), these distinct elements must likewise be found within the soul." (*De Anima* 3.5, 430a10-14) He adds that, "...mind as we have described it [in *De Anima* 3.4] is what it is by virtue of becoming all things" (*De Anima* 3.5, 430a15), thereby confirming that it was intellect which he intended to signify when he spoke of a material factor in the soul which is potentially all particulars.

Aristotle's account of the human intellect as being a material substratum with the capacity for adopting the intelligible forms of its objects[56] serves at once as the explanation for the existence of ideas, and as the very ground upon which the explicability of idea-formation rests. When posed with the question as to why an individual possesses an idea (or an understanding) of a particular intelligible object, the correct answer would be, for Aristotle, *because a certain matter (i.e. the intellect itself) has become that idea, through its acquisition of the intelligible form (or the essence) of that object*. And when asked why it is that the existence of ideas admits of any explanation at all, the answer would be *because ideas are composites of form and matter (or because the intellect is itself a sort of matter, which has the capacity for adopting intelligible forms).*

Having established that the phenomenon of idea-formation owes both its existence and its intelligibility to the fact of the mind's materiality, I shall now discuss a peculiarity of this material substratum which, it seems to me, refutes Sokolowski's claim that all material substrata must be indistinguishable from extension. This abnormality is called to our attention by Charles Kahn, in an article entitled "Aristotle on Thinking" (1992). In this article, Kahn argues (quite persuasively, I think) that for Aristotle,"...*nous* has no bodily organ, and hence that the faculty of intellect (*to noetikon*) is not only logically distinct but essentially separable from the body and from the rest of the *psuche*." (Nussbaum and Rorty, p.360) For the sake of clarity, I shall outline Kahn's derivation of this position before commenting on its ramifications, or their significance as a refutation of Sokolowski's position.

[56] Developed implicitly through the analogy to the mass of wax, and then again more explicitly in his comments from *De Anima* 3.5

Kahn's primary method of defending the claim that *nous* has no bodily organ is to argue that Aristotle excludes *nous* from his hylomorphic definition of *psuche*. In order to properly understand this argument, an explanation of the hylomorphic definition shall be required. Aristotle's derivation of the hylomorphic definition begins with his enumeration of the three senses of substance in *De Anima* 2.1. Of these three types of substance (form, matter and compounds of the two[57]), Aristotle gives preference to the compounds as being the best exemplars of substantiality. Within this preferred class of substances, he includes the subclass of natural bodies. And within the subclass of natural bodies, a further subclass is added whose nature is the primary concern of the *De Anima*: i.e. namely, those bodies which possess the attribute of life. By life, Aristotle says, "…we mean self-nutrition and growth (with its correlative decay)." (*De Anima* 2.1, 412a14-15) Now, insofar as life is only an attribute of a natural body, and not something essential to it[58], Aristotle argues that neither life nor that on account of which the body possesses life (i.e. *psuche* or soul) can be identical with the body itself. Rather, he designates *psuche* as being, "…substance in the sense of the *form* of a natural body having life potentially within it." (*De Anima* 2.1, 412a20-21) In other words, soul is the formal aspect (i.e. the formal cause, if you prefer), of a potentially living natural body. By contrast, the bodily organs together constitute the material cause of the potentially living natural body. So, what Aristotle is saying here is that the soul informs the matter of a natural body, in such a way as to provide it with the capacity for possessing the attribute of life.

But *how* does the soul inform a natural body so as to provide it with the capacity for life? The answer lies in Aristotle's subsequent restatement of the hylomorphic definition. Here, he elaborates on what is meant by *the form* of a potentially living natural body, by redefining *psuche* as, "…substance in the sense that corresponds to the *definitive formula of a thing's essence*." (*De Anima* 2.1, 412b11-12) In order to understand what is meant by this, one must remember that the thing in question (i.e. a potentially living natural body) is necessarily an organized one; its capacity for engaging in life processes, such as growth and self-nutrition, depends upon a precise arrangement of its organs. If this arrangement is significantly

[57] i.e. hylomorphic compounds
[58] i.e. the life of a natural body can be lost, and it will still be a natural body

disrupted, then the body's capacity for engaging in life processes is lost. Thus, it seems as though the essence (i.e. the "what it is to be") of a potentially living natural body is to be a body whose organs are arranged or organized in a particular way. So, by associating *psuche* with the definitive formula for the essence of a potentially living body, Aristotle has characterized the soul as the organizing principle for a particular system of organs. The soul, according to Aristotle's hylomorphic definition, is the organization (or the order) on account of which a natural body is also (more definitely) a *potentially living* natural body.

And if the soul is simply the organization of the bodily organs, then we are faced with the question of whether or not the soul might outlast, or exist independently of, the body. Of course, we already know that Aristotle did not, strictly speaking, equate the soul with the body; thus, we are bound to admit that the dissolution of the bodily organs and the dissolution of the soul are not totally identical processes.[59] However, we do have good reason for believing that the dissolution of the soul must always accompany the dissolution of the body. Consider, for example, whether the *organization* of my bodily organs (taken as an abstracted entity) might be said to literally persist beyond the dissolution of those organs. Unless one is motivated by Platonist inclinations, such a proposition will likely appear unreasonable (after all, if the bodily organs no longer exist, then there does not appear to be anything left to be the organization of). Aristotle answers in a similar vein, claiming that, "…the soul is inseparable from the body, or at any rate that certain parts of it are (if it has parts)—for the actuality of some of them is nothing but the actualities of their bodily parts." (*De Anima* 2.1, 413a4-6) By claiming that the parts of the soul (if it has parts) are simply the actualities of certain bodily organs, [60]Aristotle has suggested that the soul, if it admits of any divisibility at all, must be divisible into the bodily organs themselves. This would mean that the excision of a single organ (or a particular set of organs) is tantamount to the excision of a part of the soul. And if this removal of bodily organs were to be repeated systematically, there would have to come a point at

[59] For example, the bodily organs themselves may persist for a time after the correct order or arrangement for the body's engagement in life processes (i.e. the soul) has been disrupted.

[60] This would entail, presumably, that the soul, taken in its entirety, is just the actuality of the entire body. This would be coherent with Aristotle's identification of *psuche* as the form of a potentially living natural body, and with the opening maxim of *De Anima* 2.1, which states that matter is potentiality, and that form is actuality.

which the precise arrangement of bodily organs required to sustain the capacity for engagement in life processes (i.e. the soul itself) is no longer present. To put it as succinctly as possible, any organization or arrangement is itself composed from (and thus, is also divisible into) the particular things or items which have been organized or arranged. Thus, it appears as though the soul, as an organization, is quite reliant upon the presence of the bodily organs for its own existence, since, according to the hylomorphic definition, it is basically divisible into those organs.

Now, given the soul's basic divisibility into the individual bodily organs, one might expect the part of the soul which is responsible for thinking (i.e. intellect, or *nous*)—if *nous* is indeed a part of the soul—to be, like each of the other parts of the soul, simply the actuality of some bodily organ. But Kahn argues, to the contrary, that *nous* is an exception to this rule. His defence of this claim begins with the observation that,"...when the hylomorphic definition of *psuche* is introduced in 2.1-2 it is immediately accompanied by qualifications on the status of *nous,"* which (he thinks) render it exempt from the terms of the hylomorphic definition. (Nussbaum and Rorty, p.361) The first of these qualifications does not actually address *nous* explicitly, but it does establish the possibility of there being at least one exception to the principle that each of the soul's constituent parts must correspond to the actuality of some bodily organ. What Kahn is referring to here is the flexibility implicit in Aristotle's language when he first asserts that the soul is inseparable from the body. Notice that, rather than maintaining that the soul is inseparable *in its entirety*, Aristotle only claims that *certain parts of it* are inseparable, and that *certain parts of it* are just the actualities of bodily organs. Given the indefinite nature of Aristotle's assertion, we should not be surprised to find him positing the existence of at least one part of *psuche*, which does not correspond to the actuality of any bodily organ, and which is therefore separable from the body (and the rest of *psuche*, supposing the rest of its parts to be the actualities of certain bodily organs).

The second qualification cited by Kahn is Aristotle's claim that *nous*,"...seems to be a widely different kind of soul, differing as what is eternal from what is perishable; it alone is capable of existence in isolation from all the other psychic powers." (*De Anima* 2.2, 413b25-27) Combined with this claim is the

additional remark that, "All the other parts of soul...are...incapable of separate existence though, [are] of course, distinguishable by definition." (*De Anima* 2.2, 413b27-29) Together, these two passages cover a lot of ground. First, they establish that the psychic powers are parts of the soul (or, in other words, that the soul is divisible into psychic powers). Second, they imply (by distinguishing *nous* from all *the other* psychic powers) that *nous* is to be regarded as one of the psychic powers (and hence, also, as a part of the soul). Finally, by claiming that *nous* alone is capable of existing in isolation from all the other psychic powers, these passages indicate that *nous* is the only part of the soul which does not correspond to the actuality of some bodily organ. After all, the soul (broadly speaking) was characterized by Aristotle as being inseparable from the body, on account of the fact that its individual components are just the actualizations of specific body parts. Hence, the separability of any one of the soul's parts from the rest would basically amount to the separability of that part from the sum total of the bodily organs (or from the body, regarded as a whole). And if a part of the soul were to be separable from the entire body, this could only be because it does not have (or does not correspond to) a bodily organ.

Aside from Kahn's argument concerning the intellect's exclusion from the hylomorphic definition of *psuche,* there are other avenues through which one might arrive at the conclusion that *nous* lacks a bodily organ. For example, one might focus on Aristotle's account of the process of intellection. Recall that the faculty of intellect was described by Aristotle as being analogous in function to the faculty of sense-perception, which itself was said to work by adopting the forms of its perceptible objects. An important condition of this conception of the sensitive faculty's activity (which I omitted from my earlier explication, for the sake of brevity) is that, in order for the sensitive faculty to have the capacity for adopting the sensible forms of its objects, it must possess none of those forms essentially. The rationale behind this statement seems to be simply that one cannot acquire what one already has. Thus, Aristotle maintains that, prior to perceiving, the sensitive faculty cannot be like any of its perceptible objects.[61] Similarly, if the intellect is to have the capacity for becoming like its intelligible objects (and if the

[61] This is why, at various places in his discussion of the individual senses (between *De Anima* 2.7 and 2.11), Aristotle characterizes a given sensitive faculty as being a mean between two contrary perceptible qualities.

analogy between the sensitive and intellectual faculties holds), then it cannot possess the forms of any of its objects essentially either. Now, although the sensitive and intellectual faculties have this restriction in common, it is important to note that *having none of their potential forms essentially* entails very different things for the two faculties. In the case of the intellect, Aristotle says, it means that it,"...can have no nature of its own [whatsoever] other than that of having a certain capacity." (*De Anima* 3.4, 429a21-23)[62] And since it has no nature of its own (or is not actually any real thing), Aristotle concludes that the intellect, "...cannot reasonably be regarded as blended with the body." (*De Anima* 3.4, 429a24-25) The rationale here is that if the faculty of intellect were somehow blended with the body (that is, if it corresponded to some bodily organ), then this would lend it some essential quality, which would undermine its capacity for becoming like its intelligible objects (or in other words, for performing its very function: to think). Curiously, Aristotle does not seem to think that the same is true of the faculty of perception. He maintains that, "...while the faculty of sensation is dependent upon the body, mind is separable from it." (*De Anima* 3.4, 429b4-5) This clearly implies that the faculty of sensation is blended with the body.[63]

This raises a problem which requires explanation. Why is it that, based upon the exact same rationale (i.e. that a psychic power must not possess the forms of any of its objects essentially), Aristotle denies the existence of an organ of intellect while at the same time affirming the existence of sense-organs? In other words, why is the presence of a bodily organ seen by Aristotle as being a hindrance to the activity of the intellectual faculty, but not of the sensitive faculty? This issue can, I think, be resolved quite easily if we consider the relative scopes of the two faculties. For the intellect, Aristotle says, absolutely everything (even the intellect itself) is a possible object of thought (*De Anima* 3.4, 429a18-20). And this is why Aristotle concludes that the intellect can have absolutely no character of its own prior to thinking;

[62] This would mean that as far as intellectual entities go, the human intellect is completely simple or primary. Thus, according to the principles derived by Sokolowski from *Metaphysics* 7.17, it would seem that although the activity of the human intellect is certainly explicable, its sheer existence is not.

[63] This would likely have appeared self-evident to Aristotle. Cover one eye, and the power to see is inhibited. Plug the nose, and the power to smell is inhibited. That each sense corresponds to a particular bodily organ can be empirically verified with very little difficulty. It would have seemed much less obvious that the power to think is connected with any particular bodily organ.

because it must be able to think (or to acquire the form of) absolutely anything. But for the sensitive faculty, not everything is a possible object. There are, for example, certain intelligible objects which are by their very nature imperceptible.[64] And because there are at least a few objects which are naturally inaccessible to the faculty of perception, it follows that there are at least a few formal qualities which it is not required to lack. Thus, the sensitive faculty is, unlike the intellectual faculty, not required to be characterized only by potentiality. It is allowed to have at least some actual character. This is why it may be reasonably regarded as being blended with the body, or as corresponding to particular bodily organs.

The two preceding arguments should constitute a sufficient textual justification for the claim that Aristotle regarded the intellect as the only part of the soul which does not correspond to the actuality of some bodily organ. However, we have yet to explain the significance of this principle to the broader discussion of (Aristotle's views concerning) the relation between matter and extension. In order to accomplish this, it will first be necessary to clarify the distinction (or relation) between "the actuality of a bodily organ" and a "psychic power." Recall (from Kahn's argument for Aristotle's exclusion of *nous* from the hylomorphic definition of *psuche*) that Aristotle describes the rest of the soul as being at once divisible into "the actualities of certain bodily organs," and into "psychic powers." Thus, it seems that each of the individual parts of the soul (with the exception of the intellect) has received a dual characterization; each part is both (a) the actuality of a bodily organ (or set of bodily organs), and (b) a psychic power. But how are bodily organs and psychic powers related? Are they identical?

In exploring this issue, I shall focus on a single exemplar of the ordinary, inseparable parts of the soul. The part of the soul which perceives seems to be the most appropriate exemplar, since this is the part which is compared most closely by Aristotle to the part of the soul that thinks (our ultimate purpose is, after all, to clarify the distinction between regular parts of the soul, and *the intellect*). Having chosen this exemplar, it is now possible to rephrase the former query as to how a given psychic power is related to its

[64] Think, for example, of geometrical objects like "a perfect triangle" or "a perfect circle." One can certainly understand what is meant by either of these phrases, but nobody will ever see, or clearly imagine either of these things. By contrast, all perceptible objects are also intelligible.

bodily organ, with greater specificity. The question now asks how it is that the *power of perception* (or any one of the five senses) is related to its proper sense-organ.

As we have already seen (in *De Anima* 2.12, 424a), a 'sense' is defined by Aristotle as the (psychic) power or ability to receive into itself[65] the forms of its objects in isolation from their matter, and an organ of sense is defined as that within which such a power is seated. Following this explication of terms, Aristotle elaborates on the precise nature of the relation between a sense and its organ, arguing that, "The sense and its organ are the same in fact, but their essence is not the same. What perceives is, of course, a spatial magnitude, but we must not admit that either the having the power to perceive or the sense itself is a magnitude; what they are is a certain ratio or power in a magnitude [i.e. in an organ]." (*De Anima* 2.12, 424a25-28) Now, this should immediately dispel any notion we might have had, of a sense and its organ being totally identical. If their essences are different (that is, if they are essentially distinguishable), then they cannot be, strictly speaking, one and the same thing.

Still, Aristotle admits that while a sense and its organ are not essentially identical, they are "the same *in fact*." What could he possibly mean by this? The answer lies, I think, in Aristotle's emphasis on the notion of spatial magnitude, or extension. Aristotle characterizes the sense itself (or the power to perceive) as being essentially unextended, and he characterizes the organ as being essentially extended. Furthermore, he describes the sense as being housed or contained within the magnitude of the organ. This implies, of course, that the sense, which itself is essentially unextended, is nevertheless susceptible to spatial restriction. And if the power to perceive is restricted to within the spatial limits of its respective organ, then it follows that it is, for all intents and purposes, the organ which does the perceiving. That is to say that when the sense carries out its function (which is to draw the perceptible forms of its objects into itself), it is drawing the forms of its objects into the space which is occupied by the organ. It is in this sense that the power of perception can be regarded as being the same as its organ; because during

[65] Here, one might be legitimately concerned that the nature or identity of this "itself" has been left mostly unexplained.

perception, the uptake of perceptible forms by the sense is practically indistinguishable from the uptake of perceptible forms by the organ of sense.

But can Aristotle legitimately characterize the power of perception as being essentially unextended, if it is in fact restricted to existing within a spatial magnitude? Does its susceptibility to spatial restriction not imply that the sense itself takes up space? The key to understanding the compatibility of these two claims lies in Aristotle's description of the power of sense as being *a certain ratio*. This description should call to mind his earlier definition of the soul as being the definitive formula for the essence of a potentially living natural body. Recall, what this means is that the soul is the organizing principle, or formal attribute, which, by its presence amongst the material components of the body, informs that body in such a way as to allow it to engage in life-activities. This is exactly the sort of relationship which is suggested by Aristotle's description of the power of sense as being a ratio contained within the sense-organ. By characterizing a sense in this way, Aristotle has defined it as the definitive formula for the essence of a potentially perceiving bodily organ. In other words, he has defined the power to perceive as a formal attribute possessed by the organ, which enables it to receive the forms of its perceptible objects. And, just as with any other formal attribute (i.e. coldness or dryness), Aristotle would not claim that it is itself spatially extended. Rather, he would say that it is *predicated* of that which is essentially extended (i.e. the ice-cube, or the sponge, or in this case, the sense-organ). This is why the power of sense can be said to be restricted to existing within a spatial magnitude. As a predicate, its presence depends upon that of its material foundation. Without the ice-cube there would be nothing to be the coldness of. Similarly, without the sponge, there would be nothing to be the dryness of. And finally, without the bodily organ, there would be nothing to be the enabling attribute (i.e. the sense or power) of.

In light of this description of the relation between a sense and its corresponding organ (and given Aristotle's characterisation of the power of intellection as being analogous in function to that of perception), we should expect the intellectual faculty to be, like each of the five senses, essentially unextended, and yet seated (or contained) within a spatial magnitude. That is to say that we should expect

the power of intellection to be a formal attribute which is predicated upon the existence of some (potentially thinking) bodily organ. But this is not what Aristotle is telling us. By claiming that the faculty of intellection has no bodily organ, he has ruled out any distinction between the power to think and that which possesses the power to think (or that which does the thinking). He has, in other words, eliminated the notion of *that within which the power to think is seated*. According to Aristotle, the power to think is itself what does the thinking; it is itself what has the power to think. And since this self-possessing power does not correspond to any bodily organ, it can neither be said to be a spatial magnitude nor to be contained within one. To make the former assertion would be to make the power of intellection into its own organ, which would contradict Aristotle's claim, from *De Anima* 3.4 (429b), that the intellect is separable from the body. The latter assertion would make the intellectual faculty into a predicate of an organ, which, besides also contradicting the principle of the intellect's separability from the body, is unfeasible given Aristotle's outright denial of the existence of any organ associated with the intellect. Without the organ, there is nothing for the power of intellect to be a predicate of.

Since the power of intellect is itself neither a spatial magnitude, nor even susceptible to the limitations imposed by spatial boundaries (as evidenced by the fact that its existence is not predicated upon that of any extended body), it would seem to be the case that, unlike each of the five powers of sense, the power of intellect bears no necessary connection whatsoever to spatial extension. And if, as I have argued in the preceding section, the faculty of intellect is itself a sort of material substratum, then it follows that we have, in the faculty of intellect, an example of a completely unextended material substratum. Sokolowski's universalized account of matter as being indistinguishable from extension would therefore have to be revised.

(3) Objections to Intellectual Matter

It seems to me that the only potentially fruitful method of disputing my suggestion that the intellect is for Aristotle both material and unextended is to attempt to invalidate the claim that the intellect, as Aristotle describes it, is in fact a sort of material substratum. That the intellect is unextended seems to be

a generally accepted (although little-discussed) fact of the Aristotelian philosophy of mind; the only objections I have seen raised against this principle have been ahistorical.[66] In this chapter, I shall address a number of the possible objections to my hypothesis that the intellect for Aristotle should be thought of as a sort of material substratum.

The first objection has to do with the implications of Aristotle's hylomorphic definition of *psuche* (mentioned in the previous chapter, and derived from *De Anima* 2.1-2). This objection states that because Aristotle regards the soul as form to the matter of the body (according to the hylomorphic definition), and because he identifies the intellect as a part of the soul, the intellect must therefore be a form (rather than matter or a combination of form and matter).

In response to this objection, I would point out that Aristotle's account of the process of intellection in *De Anima* 3.4 seems to complicate an application of the terms of the hylomorphic definition of *psuche* in the case of the intellect. Recall that according to the terms of the hylomorphic definition of *psuche*, the soul stands as the form (i.e. the informing or enabling principle) to the matter of the body. And, based upon Aristotle's designation of matter as potentiality and form as actuality (from *De Anima* 2.1) this relation between the soul and the body can be expressed as a relation between actuality and potentiality. This is why Aristotle also identifies the soul as being the actuality of the body (that is, as standing as actuality to the potentiality of the body), and why he imagines the various parts of the soul as being the actualities of the various bodily organs. Given this explanation of the soul and its relation to the body, we should expect the intellect, as a part of the *psuche* (and thus, presumably, as a kind of formal attribute) to correspond as actuality to the potentiality of some bodily organ.

Now, to speak first more generally of the notion that *nous* is an actuality, there does seem to me to be a considerable tension between this view and Aristotle's characterization of the intellect (from *De Anima* 3.4) as being potentially like each of its possible objects. Recall that Aristotle even goes as far as to assert that *nous* is not actually anything, but is potentially everything since everything is possible object of thought. It does not, furthermore, strike me as plausible to dismiss this language as being figurative or non-literal, since Aristotle derives from it the conclusion that the intellect lacks a bodily organ (i.e. he

[66] That is to say that the point of dispute was not whether Aristotle actually described the intellect as being unextended, but rather, whether he *ought* to have done so.

says that because the intellect cannot possess the forms of any of its objects essentially if it is to have the capacity for becoming like them, it cannot reasonably be regarded as blended with the body). Aristotle does not seem to abandon this conclusion at any point, and I think that his commitment to it is indicative of a prior commitment to his characterization of the intellect as being a potentially.[67]

Furthermore, Aristotle's denial of the existence of an intellectual organ seems to frustrate our more specific expectation that the intellect should stand as actuality to the potentiality of some bodily organ.[68] In light of this tension, we must consider the following question: *If the intellect is form and form is actuality, what is nous the actuality of? What does it inform?* Surely it must be the actuality of *something* (i.e. namely, some potentiality with the capacity for adopting qualitative attributes or for being informed).[69] But Aristotle's denial of the existence of a bodily intellectual organ seems to me to have ruled out the possibility that this receptive something might be anything other than (i.e. external to) the intellect itself. And the only remaining alternative seems to be that the intellect is its own actuality (i.e. that it is its own enabling principle). Now, to the extent that the intellect has the capacity for actualizing or informing itself, it must also be regarded as having the capacity for being actualized or informed (even if it does this to itself).[70] And, to the extent that it does possess this latter capacity, I think that we are justified in regarding the intellect as a potentiality. And again, if we apply Aristotle's designation of

[67] Moreover, to understand Aristotle's language of potentiality-actualization in the case of intellection as a mere analogy to the relationship between the material and formal components in the temporal generation of ordinary objects (that is, to view the passive intellect as a form which is spontaneously altered by the active intellect) seems to undercut the role of the external intelligible object in processes of thought. That is to say that Aristotle's remark concerning the disengageability of the intelligible forms of intelligible objects would seem to be unnecessary if thought were not a temporal process, and if the intellect contained no material element to receive those intelligible forms. It is also worth noting that even if intellection were an instantaneous change (rather than an example of temporal *kinesis*), it would still have to be predicated upon an interaction between form and matter, since generation for Aristotle is never *ex nihilo* and since change (of which intellection is indisputably an example) always implies the generation of something which did not previously exist.

[68] It is worth noting here that it was on account of this tension that Kahn regarded the intellect as being exempt from the terms of the hylomorphic definition.

[69] To suggest otherwise (i.e. that the intellect, as actuality, is not the actuality of anything) would be essentially the same as positing a free-standing attribute, or a predicate which was not predicated of anything. It would be, for example, like positing a discernible instance of coldness in which there is no particular thing which is cold, or a discernible instance of dryness in which there is no particular thing which is dry.

[70] Aristotle affirms the dual nature of the intellect in *De Anima* 3.5, when he introduces the distinction between the intellect as that which becomes all things and as that which makes all things.

matter as potentiality and form as actuality (from *De Anima* 2.1), then we can say that, to the extent that the intellect has the capacity for being informed or enabled, it is itself a material foundation.

Hence, it does not seem to me as though we are necessarily obliged, on account of Aristotle's inclusion of the intellect among the various parts of *psuche*, to understand the intellect as being exclusively (or broadly) formal in nature.[71] This may be, I think, the real significance of Kahn's suggestion that the intellect is exempt from the hylomorphic definition of *psuche*; that, rather than serving as form or actuality to the potentiality of some bodily matter as the other parts of the soul do (that is, rather than simply being a part of a compound), the intellect functions in itself as a sort of compound with both formal and material factors (that is, functioning both as potentiality and actuality). Had Aristotle described the intellect as corresponding to a bodily organ, then it would follow that the intellect is wholly formal, since the material cause of intellection would be provided by the bodily organ. But in the absence of a bodily organ, it seems to me that some corresponding matter or potentiality must still be posited in order to make sense of the assertion that *nous* is in any way formal (or an actuality), and this can only be provided by the intellect itself. And to the extent that the intellect does possess a material component, this component constitutes an example of unextended matter. It follows from this that, generally speaking, matter cannot be (for Aristotle) essentially or even necessarily extended.

Before going on to discuss the next objection to intellectual matter, it will be helpful to give a brief review of my initial argument for the materiality of the intellect (from the preceding chapter).

Recall that my argument began with the intuition that the activity of the intellect is an explicable phenomenon and that according to *Metaphysics* 7.17 (or at least according to Sokolowski's reading of this text), it must therefore admit of a material cause. Recall also that in my attempt to demonstrate that the material cause of intellection can only be the very substance of the intellect itself, I relied quite heavily upon the analogy drawn by Aristotle in *De Anima* 3.4, between intellection and perception. In addition to this analogy, I placed great emphasis upon Aristotle's claim (from his explanation of the mechanics of

[71] Were we to insist upon such a reading of the intellect, then I think that we would have a rather difficult time explaining the sense in which the intellect can be said to be an actuality, as Aristotle's comments in *De Anima* 3.4 seem to entail that the intellect is neither itself actually anything, nor the actuality of anything.

perception) that the organ of sense is what contains or possesses the capacity for, "…receiving into itself the sensible forms of things *without their matter*" (*De Anima* 2.12, 424a17-18).

In conjunction with Aristotle's comparison of the process of perception to that of the shape of a signet ring being impressed upon a wax foundation (as well as his various statements to the effect that that which perceives must be potentially as the perceived object is actually, or that that which perceives and that which is perceived are at the outset of the process dissimilar, but then identical in quality at the terminus of the process) I have interpreted this *receiving of form without matter* as meaning that the matter of the sense-organ serves as a kind of auxiliary substratum for said sensible qualities. This is, I think, very close to (if not identical with) the literalist interpretation of the phrase "receives form without matter" defended by Richard Sorabji, who argues that in perception the organ of sense itself undergoes a material alteration, whereby it actually takes on the quality being perceived (i.e. when one sees red, the eye-jelly literally takes on the form of redness; it becomes red).[72]

Now, since my position that the intellect is material relies upon an analogy between intellection and perception, which I have understood as operating according to the literal interpretation of "receiving form without matter," it would appear that my case for the materiality of the intellect depends primarily upon the correctness (or at least the defensibility) of the literal interpretation of "receiving form without matter" in the case of perception. But of course, this literal interpretation is by no means undisputed.

For example, in an article entitled "Is an Aristotelian Philosophy of Mind Still Credible?" (1992) Myles Burnyeat argues that, contrary to what Sorabji tells us, "…no physiological change is needed for the eye or the organ of touch to become aware of the appropriate perceptual objects." He adds that, "…the effect on the organ *is* the awareness, no more and no less." (Nussbaum and Rorty, pg. 22) This interpretation seems to me to strip the process of sense-perception of its status as a phenomenon, since under this interpretation, there actually is no alteration occurring, and no new compound resulting from the presence of a formal quality in a certain instance of matter. Furthermore, as Burnyeat himself concedes, this interpretation implies that, "…an animal's perceptual capacities do not require [or call for] explanation."[73] (Nussbaum and Rorty, pg. 22) And if perception is not really (an explicable)

[72] From "Intentionality and Physiological Processes: Aristotle's Theory of Sense-Perception" (1992)
[73] Recall that for Sokolowski, a thing's explicability and its status as a phenomenon are closely linked.

phenomenon, then it seems to me that it may not have to admit of any material cause. It is unclear to me, at any rate, whether Burnyeat believes there to be any material cause of perception; although he does admit that the existence of the sense-organ is necessary for perception, it does not seem quite right to regard this mere existence as a cause, since the notion of cause implies the occurrence of some alteration. But regardless of whether it would be accurate to regard the bear existence of the organs of perception as the material cause of perception, it remains true that if there is no literal material alteration involved in perception, then the hypothesis of such a change being involved in intellection cannot be supported on the grounds of Aristotle's explanation of intellection by analogy to perception.

One of Burnyeat's strategies is to argue that the model of the signet ring impressing its form onto a wax foundation—employed by Aristotle in order to illustrate the role of the sense-organ in perception—is not actually meant to suggest a material alteration (a literal taking on of forms) in the organ, but rather, a more static state of being aware of those forms. He defends this claim by pointing out the distinction between Aristotle's use of the wax-block analogy and Plato's. Burnyeat emphasizes that in the *Theaetetus*, where the analogy originally appeared, Plato is attempting to account for the formation of judgments (i.e. in particular, the judgment that one recognizes a certain perceptible object). This judgment, out of which arises one's *awareness* of the perceived object, is (for Plato) not a direct result of perception itself (which Plato regards as involving nothing but a causal interaction between the perceived object's tangible qualities and the sense-organ) but rather, the result of a mental comparison of a previously stored sensory-image—which is itself the result of bear perception combined with an act of memorization—to the repeated perception of that object. This stored image is what the mark on the wax is intended by Plato to represent. (Nussbaum and Rorty, pg. 21) So for Plato perception is not the immediate cause of one's awareness of a perceived object, but rather, the first in a series of processes (the latter two of which, it would seem, are mental processes and not physiological ones) which leads to a state of awareness; it is at best an indirect cause of awareness.

Aristotle's use of the wax-block analogy is, by contrast, not intended to provide an explanation for judgment formation or for anything which requires an active intellectual effort. It is merely intended to account for perception. Burnyeat interprets this redirection of the wax-block analogy as an attempt, by Aristotle, to resituate the emergence of awareness. He argues that, "Aristotle's applying the wax-block model directly to perception is a way of insisting, against Plato, that perception is awareness, articulate awareness, from the start." (Nussbaum and Rorty, pg. 21)

Sorabji responds to this argument by pointing out that Aristotle also makes use of the wax-block model in his treatise *On Memory*, and that a physiological interpretation is necessitated in this case by Aristotle`s explanation of the various forms of memory-failure as being due to, `…the surface imprinted being too hard, too fluid like running water, or too warn like the old parts of buildings." (Nussbaum and Rorty, pg. 221) Even Cohen weighs in on this issue,[74] arguing (in support of Sorabji's interpretation) that under Burnyeat's reading, the matter in the phrase "receives form without matter," is not that of the perceived object but rather that of the perceiver; so that what Aristotle means to say here is that the perceiver (or the organ of sense) takes on the form of the object without incurring any alteration in its own material composition. But this view, Cohen says, is incompatible with Aristotle's wax-block analogy, since the matter which is being done *without* in this illustration is so clearly that of the signet ring and not that of the wax. "In illustrating 'without matter' Aristotle says 'without the gold.' It is clearly the matter of the donor that is at issue rather than that of the recipient. The analogy would [therefore] be a poor illustration of the theory Burnyeat attributes to Aristotle." (Nussbaum and Rorty, pg. 65)

Another argument advanced by Burnyeat against the physiological view of perception seeks to diffuse Aristotle's claim that the sense-organ is potentially such as the perceived object is actually (which Sorabji regards as support for the literal interpretation of the phrase "receives form without matter"). Sorabji understands Aristotle's point to be simply that in order for the sense-organ to acquire or receive a certain form, it cannot already possess the form in actuality (rather, only in potentiality). So, for example, if the

[74] In "Hylomorphism and Functionalism" (1992)

eye-jelly is to literally go red (as is entailed by Sorabji's understanding of Aristotelian perception) it cannot already be red. Burnyeat argues that this is not the intended meaning of Aristotle's claim that the sense-organ is potentially such as its object is actually. He maintains that this phrase refers only to the sense of touch, and that, "The problem he is facing does not arise with the other sense-modalities." (Nussbaum and Rorty, pg. 20) This, he says, is because whereas the eye-jelly is colourless and the organ of hearing is soundless, the organ of touch itself is always endowed with some of the qualities which it is supposed to perceive (i.e. such as hardness or temperatures, which are possessed by all bodily things to some degree). Thus, he argues, the organ of touch must be in a mean state between hard and soft, cold and hot, if it is going to perceive such qualities. The idea, he maintains, is simply that, "…we judge or notice hot and cold, hard and soft, by the contrast between the temperature or hardness of the object and the temperature or hardness of that with which we touch it. Where there is no contrast, we do not notice these qualities." (Nussbaum and Rorty, pg. 20) So, once again, Burnyeat has reduced the notion of sensation as a material alteration to that of sensation as a mere occurrence of awareness; he regards the phrase "is potentially such as its object is actually" as merely stating the necessary conditions for the occurrence of that awareness in the organs of touch.

Cohen offers a persuasive rejoinder to this line of argumentation as well, but in order to understand why his response is effective, it will first be necessary to clarify that Burnyeat is mistaken in his suggestion that the phrase "is potentially such as its object is actually" was intended by Aristotle to refer exclusively to the organs of touch. Although the phrase does occur in a chapter of the *De Anima* which is concerned primarily with touch-perception, Aristotle makes it quite clear, when he lays out the principle, that what he is saying applies equally to the other four senses. His precise wording is as follows: "This is the part which is potentially such as its object is actually: *for all sense-perception is a process of being so affected*; so that that which makes something such as it itself actually is makes the other such because the other is already potentially such." (*De Anima* 2.11, 423b33-424a) Thus, if Burnyeat's interpretation of

the potentiality-actuality phrase as signifying nothing more than awareness by contrast is correct, then this reading must be shown to be applicable to each of the other four senses as well.

But as Cohen points out, such an interpretation is inapplicable to the sense of sight. According to Burnyeat's general thesis, he says, "…for the eye-jelly to be (actually) white is just for the perceiver to be noticing whiteness." (Nussbaum and Rorty, pg. 66) That is, it is not for the eye-jelly to be literally white, but rather simply to be in an active state. And if perceiving white is really nothing more than an activity (a being aware of white) then we have no reason to suppose that one's already being in such a state is any real impediment to one's coming to be (or being about to be) in that state. As Cohen points out, "A thing which is already [literally] red cannot be about to turn red, but one who is already playing tennis may be about to play tennis." (Nussbaum and Rorty, pg. 66)

Cohen also argues that under Burnyeat's reduction of perception to mere awareness we are left without any explanation as to why Aristotle thinks that images (of perceptible objects) persist once the perceived object is removed from contact with the sense-organ.[75] Under Sorabji's interpretation, he says, we can account for this quite easily: the sense-organ, having actually become white (during the material alteration of perception) continues to be literally white, even after the sensible object is removed (just like the impression of the signet ring remains on the wax after the ring has been removed). He also remarks that under Burnyeat's reading, Aristotle's explanation of image retention would beg the question. "For the reddening of the eye-jelly, Burnyeat tells us, is nothing more nor less than an *awareness* of redness, and

[75] This objection can also be derived from Sorabji's complaint (noted above) that the wax-block model is applied to memory-formation as well as perception, and that the former clearly involves a material alteration. Consider that the process of perception is prior to, it precedes, the process of memory formation, inasmuch as memories are retained images of external objects which have had some manner of interaction with the sense-organs (i.e. either physiological change, or innate awareness). And since memory formation (which, as we have seen, is a physiological alteration according to Aristotle) relies upon a prior perceptual occurrence, it strikes me as rather incoherent to suggest that memory formation, but not perception, involves a physiological alteration. This would be tantamount to suggesting that a perceptible form's entry into the individual causes no physiological alteration, but that its presence within the individual (of which we are assured by Aristotle's use of the wax-block analogy in describing memory-formation) does cause a physiological alteration to occur. In other words, it would be same as arguing that physiological change only begins to occur at the midpoint between perceptual processes (which Burnyeat regards and non-physiological) and noetic processes (which most commentators seem to regard as non-physiological). The physiological process of memory-formation would therefore need to be regarded as commencing, not as a result of some prior physiological change, but rather, spontaneously—and this would (I think) commit us to the view that memory-formation is, like perception under Burnyeat's reading, ultimately inexplicable.

this is precisely what Aristotle is supposed to be explaining [in accounting for images]. To ask why the impression of redness persists is just to ask why we continue to be aware of redness." (Nussbaum and Rorty, pg. 67)

Another of Sorabji's supporters, John E. Sisko,[76] bases a part of his case for the physiological view of perception upon Aristotle's discussion of intense-perceptibles (i.e. perceptible objects which, due to the severity of their perceptible qualities, cause either a temporary or a permanent impediment to the organ's capacity to perceive; a permanent cessation of this capacity would be regarded by Aristotle as the destruction of that organ). Think, for example, of a bright light which causes blindness, or a loud noise which results in hearing-loss. Sisko begins by arguing that, "The destruction of the organ clearly requires a material alteration; one of the necessary material conditions for perception must be removed, if the organ is to be destroyed." (Sisko, pg. 144) He then argues that because the temporary impediment of one's perceptive capacity has the same sort cause as the organ's destruction (i.e. differing only by virtue of the degree of intensity) it too may be plausibly regarded as requiring a material alteration. Having proposed that impediments to the sense-organ's abilities require material alteration, he suggests that, "...if you take the view that material alteration is required for perception, this makes sense. The more intense the perceptible, the more extreme is the material alteration which it causes and if the alteration is extreme enough it either impedes the organ's ability or it flat-out destroys the organ." (Sisko, pg. 145) The alternative view of perception (i.e. Burnyeat's) does not have this sort of explanatory value.

From the arguments cited above, it should be clear that Burnyeat's interpretation of Aristotle's theory of perception raises many more problems than it resolves. For starters, it demands that we take a counter-intuitive reading of the wax-block analogy, and it proposes a model of awareness-by-contrast which is not applicable to all five senses. Furthermore, it leaves us with no real explanation for perception, memory-formation, or for the effects of intense-perceptibles. Since Sorabji's literal physiological interpretation avoids all of these difficulties, I think that we have ample justification for holding to this view. And by doing so, we thereby retain the option of viewing the matter of the sense-organ as behaving as a sort of

[76] In an article entitled "Material Alteration and Cognitive Activity in Aristotle's De Anima" (1996)

auxiliary substratum for the perceptible forms of the object perceived, and of regarding the resulting sense-impression as a sort of hylomorphic compound. And having committed ourselves to this understanding of perception, it becomes possible, provided that Aristotle really intends to portray the process of intellection as an analogue to that of perception, to understand the intellect as "receiving form without matter" in a literal sense, and therefore, as behaving as a sort of auxiliary material substratum as well.

Of course, Aristotle's commitment to the analogy between the process of intellection and that of perception has also been called into question, even by those who defend the literal interpretation of "receiving form without matter" in the case of perception.

Sorabji, for example, rejects the notion that intellection involves a material alteration on the grounds that Aristotle's doctrine of the incorporeality of nous—its lack of a bodily organ—causes the analogy (to perception) to break down. He argues that, "…when Aristotle compares perception with thought, he realizes that the desired analogy is only partial," and that, "…Aristotle refrains, when he gets beyond the first tentative comparison in *DA* 3.4, from repeating the standard expressions. The stone is not described as 'matter', and its form is not spoken of as being 'received', probably because these words had expressed a doctrine about the sense-organ, and thinking does not in the same way involve an organ, in his view." (Nussbaum and Rorty, pg. 213)

To this I would respond that although the specific phrase "receives form without matter" is not repeated past the outset of *De Anima* 3.4, its companion expressions (i.e. "being potentially such," and "becoming like,"—both of which also helped to shape Sorabji's conviction that perception involves a material alteration) are applied to the intellect numerous times beyond this point. In the opening lines of *De Anima* 3.5, Aristotle remarks that, "…in every class of things, as in nature as a whole, we find two factors involved, (1) a matter[77] which is potentially all the particulars included in the class, (2) a cause which is productive in the sense that it makes them all…these distinct elements must likewise be found within the soul." (*De Anima* 3.5, 430a10-14) His next comment assures us that this first factor is not

[77] Aristotle's explicit use of the word 'matter' here serves to strengthen my hypothesis that he regarded the intellect as material.

meant to refer to any sense-organ or to the faculty of perception: "And in fact the mind as we have described it [in *De Anima* 3.4] is what it is by virtue of becoming all things." (*De Anima* 3.5, 430a15) Between these two passages, Aristotle has described the intellect both as "being potentially such," and "becoming like."

This is repeated in *De Anima* 3.8 (Aristotle's summary of his conclusions concerning the soul), with Aristotle's claim that, "Within the soul the faculties of knowledge and sensation are potentially these objects, the one what is knowable, the other what is sensible." (*De Anima* 3.8, 431b25-27) Here we see that the intellect is once more described as "being potentially such (as its object is actually)", and what is more, that it is represented as having this in common with the faculty of perception (which suggests, contrary to what Sorabji tells us, that Aristotle's confidence in the sturdiness of his analogy between the faculties of intellection and perception is in fact unflinching). Aristotle adds, with respect to the manner in which either faculty can be said to "be" its object, that, "They must be either the things themselves or their forms. The former alternative is of course impossible: it is not the stone which is present in the soul but its form." (*De Anima* 3.8, 431b27-432a) This statement makes it clear that when the intellect follows through on its capacity for being all things, it does not do so in an unqualified sense. As Aristotle says, the result of intellection is not that the object itself now resides within the soul. Rather, he says, only the form of the object is present within the soul. In other words, the intellectual part of the soul has merely become identical *in form* or *in quality* with its knowable object. Here then, we have (at least implicitly) yet another instance of the phrase "becomes like" being applied to the intellect. And, I submit, the only way that the intellect might plausibly become *like* its object in this way (i.e. the only way for the form of an object—and not the object itself—to be present in the soul) is if the soul (or the relevant part of the soul) has received that form without its original material composition.

So to summarize, it seems to me (based on the passages cited above) that Aristotle's cessation of any explicit use of the phrase "receives form without matter" following its initial use at the outset of *De Anima* 3.4 does not indicate an abandonment of the notion that the intellect is analogous in function to the

faculty of perception; the comparison between these two faculties is explicitly reaffirmed in *De Anima* 3.8, and the idea expressed by the phrase "receives form without matter" is implicitly retained in Aristotle's continued use of the phrases "being potentially such" and "becoming like," in *De Anima* 3.5 and 3.8.

Furthermore, it does not seem to me (as it does to Sorabji) that there need be any tension between the absence of an intellectual organ and the notion that intellection involves a material alteration. There is, I think, a relevant distinction to be made between what is material and what is physiological; although 'bodily' certainly implies 'materiality,' it is by no means clear that the reverse is also true. In fact, if the intellect does function as a sort of material substratum during the process of thought (and, given Aristotle's consistent comparison of the faculty of intellection to that of perception, along with his repeated claims that it is potentially such as its objects are actually, I think that we have good reason to believe that it does) then the mind would constitute an instance in which 'materiality' implies 'non-bodily.' This, however, should not surprise us, as it is the logical consequence of *nous*' materiality considered in conjunction with Aristotle's claim that everything is a possible object of thought. Recall Aristotle's claim that the mind, being potentially such as its object is actually, is before it thinks not actually any real thing. This does not mean that the mind is absolutely nothing, but rather that it does not possess (essentially) any of the forms possessed by its objects. And since bodily objects (along with all other things) are included within the class thinkable objects, it follows that the mind cannot (essentially) possess any of the properties which are unique to bodily things. Hence, the intellect is not (and does not correspond to) a bodily organ.

Aside from the objections raised and addressed above, it seems to me that there are two alternative strategies for contesting my claim that the intellect is itself a kind of material substratum.

The first would be to cite a line of argumentation from *De Anima* 3.4, in which Aristotle appears (at least initially) to have explicitly ruled out the notion of a material intellect.

This argument occurs just after Aristotle's explanation as to why the intellect can have no bodily organ.[78] After providing this explanation, Aristotle says that, "Once the mind has become [like] each set of its possible objects...its condition is still one of potentiality, but in a different sense from the potentiality which preceded the acquisition of knowledge by learning or discovery: the mind too is then able to think *itself*." (*De Anima* 3.4, 429b5-10)[79] Shortly after this making this claim, he attempts to explain the nature of the intellect's self-directed thought (or to answer the question of *how* the intellect is thinkable to itself). He argues that, "Mind is itself thinkable in exactly the same way as its objects are." (*De Anima* 3.4, 430a1-2) Now, if we read this claim in light of Aristotle's earlier explanation of the intellect as being related to its objects in the same way that the sensitive faculty is (or at least in an analogous way), it should be clear what this means. Based upon Aristotle's analogy to the sensitive faculty, we know that intelligible objects are thinkable only insofar as their (intelligible) forms are capable of becoming disengaged from their matter and then being accepted by the intellect. Thus, if the intellect is itself thinkable in exactly the same way as any of its other objects, it seems to follow that the intellect is somehow capable of being disengaged from its own matter and then accepted back into itself.

On the surface, this would appear to be an affirmation of the materiality of intellect (or at least of the presence of a material component of intellect). However, Aristotle makes a surprising move in the subsequent passage, arguing instead that, "...in the case of objects which involve no matter, what thinks and what is thought are identical [.]" (*De Anima* 3.4, 430a2-5) When Aristotle speaks of a case in which the thinker and the object of thought are identical, he must surely be speaking of *nous* in a state of self-directed intellection. And since he links such cases with the absence of any material component, the implication seems to be that the intellect is (at least during the act of self-intellection) immaterial. Of course, one might legitimately wonder how it is that this conclusion is derivable from (or even compatible with) the expectation that the intellect, as a potential object of thought, must be disengageable from its

[78] Recall that this was based upon the notion that the intellect must be (in itself) free of any formal characteristics, if it is to have the capacity for adopting the forms of its intelligible objects. Recall also that, according to Aristotle, everything is a possible object of thought.

[79] This should come as no surprise to us, as Aristotle has been quite clear in noting that *everything* is a possible object of thought.

own matter.[80] I think what Aristotle is suggesting here is a sort of vacuous or incidental satisfaction of the condition of disengageability. The intellect, as its own potential object of thought, can be said to be disengageable (or can be regarded as being "as good as disengaged") because it has no matter to disengage from in the first place. At any rate, Aristotle's apparent denial of the involvement of matter with the intellect in these passages might easily be taken as a refutation of my suggestion (detailed in the previous section) that the intellect itself behaves as a kind of matter.

I would suggest that what this set of passages really demonstrates is just that the materiality of the intellect is contingent, or that there comes a point at which the intellect ceases to behave as a material substratum. Right at the beginning of this argumentative line, Aristotle alludes to a transition (from one state of potentiality to another) which accompanies the intellect's achievement of self-consciousness. This is picked up again in *De Anima* 3.5, when Aristotle speaks of *nous* in a disembodied state. He argues that, "When the mind is set free from its present conditions it appears as just what it is and nothing more; this alone is immortal and eternal (we do not, however, remember its former activity because, while mind in this sense is impassible, mind as passive is destructible)[.]" (*De Anima* 3.5, 430a22-25) This passage (i.e. particularly the part which says that the mind as passive is destructible) seems to me to be a clear affirmation that the materiality of the mind—or its capacity for adopting the forms of intelligible objects—is subject to dissolution. Some might view this as an affirmation of the passive mind's dependence upon the body (which would seem to suggest that the mind as material is bound up with some bodily organ, and thus, spatially extended), but I would argue that this cannot be the case. This is because Aristotle's most explicit arguments for the absence of an intellectual organ (mentioned in the previous section) occur in *De Anima* 3.4, in which he purports to have been discussing the intellect as a material substratum.[81] For this reason, I would conclude that although the materiality of the intellect is specific to

[80] That is to say that it is unclear how the intellect can be said to satisfy the condition of disengageability (from matter) if it has no material component?

[81] At the beginning of *De Anima* 3.5, Aristotle claims that there exists within the soul a material factor which is what it is by virtue of becoming all things. He then refers to the previous section, and admits that, "...mind as we have described it [i.e. in *De Anima* 3.4] is what it is by virtue of becoming all things [.]" (*De Anima* 3.5, 430a)

its embodied state, this does not commit us to holding that the intellect is, while material, bound up with any organ or subject to spatial restriction.[82]

To this one might object that I have misinterpreted Aristotle's prediction of a state of immaterial, self-referential intellectual activity as a foreshadowing of *nous* in its disembodied state. Since the notion of a shift to self-directed thought is first introduced in *De Anima* 3.4, in which Aristotle is discussing the activity of *nous* in its embodied life, one might argue that the shift to the "different sense" of potentiality proper to self-directed thought must be a change which is undergone by the intellect during its association with the body, and not at the moment of the body's dissolution. This may well be the case, but it has very little impact on the validity of my argument. If the intellect undergoes a transition from materiality to immateriality during its association with the body, then we no longer have any evidence in support of the proposition that the materiality of the intellect is caused (or explained by) its association with the body. And again, since the intellect's association with the body never implies its restriction to within the limits of a spatially extended organ, it remains true that, even if we were to assume that the materiality of the intellect is in some way dependent upon its association with the body, this does not commit us to the view that the intellect is, while material, subject to spatial restriction.

The final objection that I have anticipated being raised against my hypothesis (that the intellect is itself a sort of material substratum) is based upon Sokolowski's treatment of intelligible matter.
Recall first that according to my argument, the formation of an idea is itself the coming into being of a composite, whose material component can be none other than the intellect itself (or a phenomenon whose material cause can be none other than the intellect itself). Recall also that according to Sokolowski, intelligible matter is not a part of the mind but rather just an abstracted view or description of the extended matter of ordinary perceptible objects (i.e. objects which are reducible to elemental matter).

> Given Sokolowski's views on the topic of intelligible matter, it is conceivable that he might attempt to externalize the matter of the idea-composite, or to argue that this matter does not exist internally to the thinking agent. The matter which is involved in the process of idea formation, he might say, is simply the matter of the

[82] Though, admittedly, this does leave us with a troubling question as to how the minds capacity for adopting intelligible forms can be specific to an embodied intellect, or as to how the intellect can be embodied at all, if it does not correspond to any bodily organ.

> intelligible object, but taken in abstraction from any of its perceptible qualities (and yet retaining all of its intelligible qualities).

In other words, he might say that the idea is nothing more than an abstracted view of a composite object. As intuitively appealing as it may seem to characterize an idea as *just an abstracted view of an object*, it seems to me that in order to hold to this assertion, we would have to utterly disregard Aristotle's attempt to account for the intellect's activity by analogy to that of the faculty of perception. This would be to re-mystify the act of thought (or abstraction) and to treat it as an inexplicable non-phenomenon, despite the fact that Aristotle has provided us with a clear, demystifying explanation of thought. It would, furthermore, be especially problematic since it conflicts with Aristotle's claim that the intelligibility of an object lies in the disengageability of its intelligible forms from its matter. Recall that the reason for the requirement of disengageability is that the mind itself must be able to receive the intelligible form of its object without receiving the matter along with it. And if the matter of an idea was just the matter of the original object and not the intellect itself, then there would be no need for the mind to be able to receive the object's intelligible form. Hence, there would be no need for that form to be disengageable from its matter.

Conclusion

Having levelled the preceding critique against Sokolowski, I should make clear that this is by no means intended as a refutation of his claim that the common matter of the elements is indistinguishable from (or identical with) extension. In fact, this proposition seems to me to be a notable improvement over a formulation like Cohen's (which, by characterizing extension as a *per se* attribute of the common matter, overlooks the incompatibility of being "essential to" and being "a predicate of"). The purpose of my critique is simply to point out that Sokolowski's position cannot be reliably derived from the premise that the notion of an unextended material substratum would be a contradiction for Aristotle. This would be to impose upon Aristotle a Cartesian conception of matter which (as I hope to have demonstrated in the previous chapters) he did not hold. The Cartesian view states that, "The matter existing in the entire universe is thus one and the same, and it is always recognized as matter simply in virtue of its being

extended." (*Principles of Philosophy*, 2.23, 53) And Sokolowski's position seems to attribute both of these tenets to Aristotle. First, his claim that unextended matter is a contradiction for Aristotle (along with his claim that matter and extension are indistinguishable from one another) indicates that he thinks matter is recognizable only as extension, and second, his reduction of intelligible matter to the common elemental matter suggests that he thinks all the matter in Aristotle's universe is one and the same. But, as Aristotle's characterization of the human intellect in *De Anima* 2.1 and 3.4 illustrates, he did not think that matter could be recognized only by virtue of being extended. Aristotle has given us, in his discussion of the intellect, a clear example of a material substratum—recognizable by virtue of its capacity for facilitating (or underlying) the generation of composites—which is essentially unextended.[83] And if we suppose that Sokolowski is at least correct about the essential extendedness of the common elemental matter (i.e. supposing that this could be confirmed without appeal to any Cartesian generalizations about all matter being extended), then, given the existence of the unextended intellectual matter discussed in the *De Anima*, it seems that we would be forced to conclude that the common matter of the elements is not the matter of all the things in Aristotle's universe; there would at least have to be a dichotomy between extended and unextended species of material substrata. Hence, the Cartesian principle that all the matter in the universe is one and the same would also be incompatible with Aristotle's theory of matter.

Cohen's position is less problematic than Sokolowski's[84], in that he does not subscribe to the view that all the matter in Aristotle's universe is one and the same. And, inasmuch as he does not explicitly dispute the plausibility (for Aristotle) of the notion of an unextended material substratum, his interpretation of Aristotle's theory of matter is less obviously Cartesian than Sokolowski's. It does, however, seem to me—at least implicitly—to be making essentially the same point that Sokolowski's paper is, with respect to the relation between matter and extension. Cohen suggests that because the common matter of the elements will never be asked to become something that is unextended (or to give up the property of

[83] Sokolowski would likely have agreed that all matter could be recognized by virtue of possessing the capacity for mediating composite generation, but he would have maintained that this capacity is possessed only by extended things; that to say "x has the capacity to mediate the generation of composites" is really the same as saying that "x is extended."

[84] Aside from the above-mentioned confusion concerning predication.

extension) we can legitimately describe it as being essentially extended. And about this, he may well be correct; this is, after all, precisely the same reason why the faculty of perception can be reasonably regarded as blended with the body; because there are certain properties which it will never be required to acquire or to relinquish. Had he not also attempted to link the property of extension with the capacity for undergoing motion and rest (and in an unqualified sense), then this would have been an adequate defense of the position that the common matter of the elements is essentially extended. As it stands, however, Cohen seems to have implied that if the common matter were to give up its extension (i.e. to become something unextended) it would thereby be giving up its capacity for either being in motion or being at rest.[85]

This seems to me to be the same as saying that matter is recognizable only by virtue of its being extended, since the capacity for serving as a substrate for changes in formal quality (insofar as this is a capacity for undergoing a certain type of motion) has thereby been reduced to (or explained as a consequence of[86]) the fact of being spatially extended.

But again, as Aristotle's discussion of the intellect indicates, the capacity for serving as a substrate for formal qualities can be found apart from the fact of being spatially extended.

And since, according to Aristotle, the capacity for motion and rest (and in particular, the sort of motion and rest which characterize the activities of material substrata) does not necessarily entail spatial extension, it seems that Cohen's argument for the essential extendedness of the common matter is, like Sokolowski's, founded upon an unjustified assumption. His argument requires some modification, in order to reflect the fact that (according to Aristotle), even if the common matter were asked to become something unextended, its compliance would not necessarily result in the loss of its capacity for being in motion or at rest.

---

[85] Recall the passage stating that, "...it will never be asked to become something that is not spatially extended or that is not capable either of moving or of being at rest." (Cohen, p. 180) The idea seems to be that motion and rest are necessarily spatial terms.

[86] Recall that before Cohen names extension as the essential attribute of the common matter, he argues that the existence of some such attribute is signalled by the fact of the common matter's continual possession of at least some qualitative form.

This can be accomplished quite easily if we introduce, on Cohen's behalf, a distinction between motion (and rest) in a spatial sense, and motion (and rest) in a non-spatial sense. This will allow us to place the appropriate qualification on Cohen's suggestion of a causal (and explanatory) link between spatial extension and the capacity for undergoing qualitative change. Rather than arguing for the essential extendedness of the common matter on the grounds that, "...it will never be asked to become something that is not spatially extended or that is not capable either of moving or of being at rest" (Cohen, p. 180), we ought to defend this hypothesis on the grounds that the common matter will never be asked to become something that is not spatially extended or that is not capable of either moving or of being at rest *in the manner befitting a spatially extended thing* (i.e. of either moving *through space* or resting at its current position *in space*). We should, in other words, restrict (or specify) Cohen's suggestion of an explanatory link between extension and motion, in such a way that extension is identified not as the precondition for motion and rest in their broadest sense, but rather, only for motion and rest *as they occur in a spatial context* (i.e. only of one particular species of motion and rest). This would allow for the possibility of another type of motion (analogous to, but not identical with the motion of the common matter) which does not have spatial extension as its precondition, and which might therefore be used to characterize the activity of the human intellect.

Again, both Cohen and Sokolowski may be correct about the essential extendedness of the common elemental matter. But their mutual oversight concerning the existence of an unextended intellectual matter (discernible from Aristotle's discussion of the intellect in books 2 and 3 of the *De Anima*) has undermined their respective defenses of this position (Sokolowski's because he asserts quite explicitly that all matter must necessarily be extended, and Cohen's because he implies this by claiming that anything with the capacity for undergoing motion and rest must necessarily be extended). Regardless of whether the common matter of the elements is essentially extended, the existence of intellectual matter illustrates that Aristotelian matter, *qua matter*, cannot be indistinguishable from extension. Even if they are dissimilar with respect to extension, the common elemental matter and the passive intellect still share

the capacity for acting as receptacles or media for the traffic of formal attributes, and it is by virtue of possessing this capacity that each is recognizable as matter. It seems unlikely to me that this capacity can be accounted for by appealing to any tangible, per se quality.

Bibliography

Burnyeat, M.F., 1992. "Is an Aristotelian Philosophy of Mind Still Credible? A Draft." In Nussbaum and Rorty (eds.). 15-27

Cohen, S. "Aristotle's Doctrine of Material Substrate." *The Philosophical Review*, XCIII, No.2 (April, 1984), pp. 171-194.

Cohen, S.M., 1992. "Hylomorphism and Functionalism" In Nussbaum and Rorty (eds.). 57-75

Cottingham, J., Stoothoff, R. (translators), 1988. Descartes: Selected Philosophical Writings. Cambridge University Press

Dancy, R. "On Some of Aristotle's Second Thoughts About Substances: Matter." *The Philosophical Review*, Vol. 87, No. 3 (Jul, 1978), pp. 372-413.

Durrant, M. (Editor). 1993. Aristotle's De Anima in focus. Routledge.

Kahn, C.H., 1992. "Aristotle on Thinking." In Nussbaum and Rorty (eds.). 359-379

King, H.R. "Aristotle without Prima Materia." *Journal of the History of Ideas*, Vol. 17, No. 3 (Jun, 1956), pp. 370-389.

McKeon, R. (Editor). 1941. The Basic Works of Aristotle. Random House, INC.

Nussbaum, M.C., Rorty, A.O. (Editors). 1992. Essays on Aristotle's *De Anima*. Clarendon Press, Oxford.

O'Hara, M,L. (Editor). 1982. Substances and Things: Aristotle's Doctrine of Physical Substance in Recent Essays. University Press of America, Inc, Washington D.C.

Robinson, H.M. "Prime Matter in Aristotle." Phronesis, 19 (1974), pp. 168-188.

Sisko, J., 1996. "Material Alteration and Cognitive Activity in Aristotle's De anima" *Phronesis*, 41: 138–57.

Slakey, T.J., 1993. "Aristotle on Sense-Perception." In Durrant (ed). 75-89

Sokolowski, R., 1970. "Matter, Elements and Substance in Aristotle." In O'Hara (ed). 91-116.

Sokolowski, R., 1971. "Scientific and Hermeneutic Questions in Aristotle." In O'Hara (ed). 45-64.

Sorabji, R., 1992. "Intentionality and Physiological Processes: Aristotle's Theory of Sense-Perception" In Nussbaum and Rorty (eds.). 195-227