The distinction of form and matter stands at the center of Aristotle’s metaphysics. Aristotle took it that the account we give of the substance or being of a thing ought to have explanatory value, to explain why the thing has the attributes that it does and why it does what it does. Aristotle saw himself as combining two kinds of explanation that had been given by his predecessors. Such thinkers as Thales, Anaximander, Anaximenes, and Heraclitus gave what Aristotle understands to be a material account of things, an explanation that is in terms of matter or more specifically the “elements” of a thing. The Pythagoreans and Plato give what Aristotle understands to be a formal account of things: Plato in terms of the Ideas and the Pythagoreans through their theory of the numerical construction of the universe: For reasons detailed throughout his writings, Aristotle finds that neither account is satisfactory by itself. Very roughly, we can say that the trouble with the material account is its failure to deal with the plurality and manifoldness of things and particularly its failure to account for the special phenomena of life and motion. The primary trouble with the formal account is the doctrine that the Ideas are separate from material things, which renders them gratuitous and robs them of their explanatory value. In making “love” or “reason” a force working on the elements, Empedocles and Anaxagoras had attempted a combination of the two sorts of account, but not quite successfully. What was needed was a way of making the greater explanatory value of a formal account apply to material things. For this, in turn, what was needed was the right account of the relation of form and matter.

In Metaphysics VII-IX, in the course of the investigation of substance, Aristotle explores the relation of form and matter. As the discussion proceeds, the fairly simple notion of form as shape
and matter as the material in which the shape is wrought gives way first to the more complex notion of form as the actuality or *entelechia* of which matter is the potentiality, and finally to the notion of form as an *energeia* or activity. This in turn leads to the startling notion of God as a pure unenmattered activity, a thinking on thinking, in Book XII. As the account of the relation between the two reciprocal terms changes, the concepts of form and matter themselves of course change also. The simpler accounts are not given up, but are re-interpreted in terms of the later, more complex ones.

In this paper my aim is to trace the development of the form and matter relation through this discussion. In particular, I want to focus on the question how the rather different notions of form as shape or construction, actuality, and activity are related to one another - that is, to find a perspective from which the identity of these notions is apparent. I argue that this perspective can be achieved if we distinguish two kinds of matter in Aristotle’s metaphysics.

**Form as Construction: Some Preliminary Candidates for the Form/Matter Distinction**

What will have a form and a matter is usually a material substance; it is important to start by considering what sorts of things are involved. Aristotle’s favorite cases are of course plants and animals. The elements: earth, air, fire, and water, are also material substances. So are the other sorts of things, characterized by mass nouns, that are most immediately composed of them: iron, bronze, wood, flesh. These are often listed as matter, but for all that, they themselves must have a form and a matter, as we will see. The parts of animals and plants are also sometimes classed as substances, although Aristotle will in the end dispute that view. A related and important case are the things into which a substance dissolves: a corpse or a skeleton, for example, or the bricks and timbers of a fallen house. And finally there are artifacts: a hammer, a house, and so forth.

These are the main cases. But it is important to note that the distinction applies to quite
different sorts of things as well. Two additional cases are important.

First, Aristotle says that mathematical objects, such as the circle or the plane, also have a form and a matter: he will in these cases remind us that there are two sorts of matter, perceptible and intelligible. (M VIII.6 1045a34) Perceptible matter is the matter of the material substances mentioned above; intelligible matter is the matter of mathematical objects. Intelligible matter seems to be a sort of bare extension, the extension we must think of when we think of any mathematical thing. Second, Aristotle will very occasionally say that since any change must be accounted for in terms of the three basic principles of form, matter, and privation, we must posit a form and a matter even for qualitative change, accidental change. In such a case, the matter is the concrete material substance, already a form-in-a-matter, and the form is that of the quality itself. Thus, for instance, in the case of an accidental change like tanning, the person is the matter or substratum of the change, and the form is the form of the dark color acquired (not the form of the person, who of course remains a person).

In picking out what is the form in these cases, we must keep in mind the constraints on the notion of form. These follow from the fact that, according to Aristotle, the form is the essence and the essence is the indwelling substance of the thing. Since substance is thought to be a substratum, separable, and a “this,” we should look for something that meets these criteria, or some of them. The essence is thought to be the same as the thing and to know the thing is to know the essence or form. This places a most important additional constraint. Demonstrations, which yield scientific knowledge, start from the essence. So the form should be something in terms of which we can explain the properties and actions of the thing. Explanation proceeds in terms of the four causes, so the form, at least in the best cases, should be the key to all these. These points will be made clearer in what follows.
Considering first, the things to which the distinction applies; second, the constraints on the notion of form; and third, the things that Aristotle himself proposes as examples of the distinction, we can generate these examples and cases of the distinction.

Sometimes, form is shape. This is a very standard example for Aristotle, and is almost always used when he is introducing the distinction. Thus he mentions a bronze cube, of which the bronze is the matter and the form is the “characteristic angle” (M.V.25 1023b20-25) and the bronze statue, of which the bronze is the matter and the shape is the pattern of its form (M.VII 1029a1-5) and a brazen sphere made out of brass and the sphere (M.VII 1033b 10ff). He also mentions clay and wood as materials out of which various things are made.

There are things, however, for which shape in the sense of contour has little or no explanatory values. This is true for instance of things characterized by mass-nouns, such as the materials themselves that are the matter in the above cases. These are said to be characterized by the “ratio” or, one might put it, the recipe. For instance when criticizing the Pythagorean view that forms are numbers, Aristotle remarks that “the essence of flesh or bone is number only in this way, ‘three parts of fire and two of earth’.” (M XIV.5 1092Bl5-20) and says of “the things formed by blending, such as honey-water” that they are characterized by “the mode of composition of their matter.” (M VIII 2 1042b15-20) And we would similarly give the form of bronze as copper+tin in a certain ratio, and the form of dough as flour, eggs, and milk in a certain ratio, and so forth.

In the case of plants and animals neither of these things can be right: the contour is the same, perhaps, in a statue or a corpse, yet these are a different kind of substance, and they are not mere mixtures. Aristotle will sometimes mention as matter for living things the parts: flesh, bone, and so forth. In this case it is tempting to identify the form as the structural arrangement: it is when the flesh, bones, and organs are constructed together in a certain way that they become a human being or
a tiger or a sparrow. A similar point could be made about a more complicated artifact, say a machine, which actually is made what it is in this fashion: it is made, say, of coils, wheels, cogs, springs, nuts, bolts, and so forth; when these are organized in a certain way, it becomes a clock or a vacuum cleaner or a drill.

This interpretation generates certain problems having to do with the fact that things with quite different structural arrangements are of the same type. For example, an Indian’s teepee, a Victorian house, and a medieval castle are all houses, even leaving aside the further range of nests, burrows, and so forth, yet they bear little structural similarity. An abacus, and an electronic computer-calculator are both calculators, though they do not work the same way. It is perhaps possible to treat these things as species of a genus. But it is not possible to treat human beings as species of a genus, yet a giant and a pygmy, a man and a woman, an adult and a child exhibit notable structural differences. These kinds of cases, together with another important consideration, give rise to the idea that the form is the functional organization.

The other important consideration I have in mind is the explanatory use of “form.” One might get a quite complete notion of the structural arrangement of a thing, say by taking it part or dissecting it, without the faintest idea what it does or what it is for. And in that case one could hardly be said to know what the thing was, and therefore could not be said to know what its form was. The person who knows what a thing does knows more about what it is than a person who has minutely examined its structural arrangements but has not got a clue what it is for. These difficulties are often taken to suggest that the proper account of form is a functional one.

There are, however, two senses of function, both of which might be taken to be candidates for “form.” In many cases it is quite natural to identify a thing’s function with its purpose, with what it does or what it is for. Some of what Aristotle says about form favors this account. For instance,
and, importantly, Aristotle believes that the soul is the form of a body potentially having life, and he identifies as living anything that thinks, perceives, grows, or moves of its own accord. If the eye were the body, sight would be its soul. This suggests that being able to do these things is the form of a living thing. He also in one place gives an example of a definition (statement of essence = indwelling form) of an artifact which is straightforwardly functional: a house is “a receptacle to shelter chattels and living beings.” These are clearly functional and not structural accounts, and they seem to refer straightforwardly to the purpose of a thing.

There is, however, another way of understanding the idea of a thing’s function that is a little different. We can use the word “function” to refer to the way a thing functions or how it works. That is to say, we can distinguish “how a thing does what it does” from “what it does.” In this sense, function can diverge slightly from purpose.

The best case for seeing the distinction between these two notions is the case of a more complicated machine. Such a thing might have many purposes but it has only one function. For instance, in the case of a computer we might list among the purposes it serves a great variety of things, things as different as sending out bills, solving mathematical problems, writing music, and playing chess. But to describe its function, in this separate sense, is to describe how it works - how it does all these things. Superficially speaking, we might say it does it by the electronic storage and retrieval of information according to a program, or some such thing. But actually, the function could only be properly understood and described by someone who understands about computers, someone who knows how they work. Or again, you could say of a radio that among its purposes is to broadcast music, provide a medium for advertisement, keep people up to date on the news and serve as an early warning system in an emergency. These are “what it does.” But if we wanted to talk about “how it does what it does” we would have to talk about transmitting electromagnetic waves
of certain frequencies and rendering them audible, and about how that is done. In both cases, the first set of various things that the device does are purposes; the second thing, how it does these things, is in a different way the function.

These two notions are of course very closely related. For one thing, the notion of purpose is embedded in the notion of function, the “what it does” in the “how it does what it does.” More importantly, there will be cases in which the function and the purpose would be virtually the same. For instance, in the case of a very simple device we would describe them in the same way: think for example of a fork or a shelf; in these cases to say what the thing does and how it does what it does are very close. Another case where function and purpose would coincide would be a case where the function itself was a purpose, was itself an end. I believe that this is how Aristotle thinks of the functions of those things which he regards as “natural purposes.”

The main argument for taking this to be the correct notion of form comes from the role of form as the object of knowledge. In Book II of the Physics, Aristotle considers the question whether the student of nature should study form or matter of natural things, and he defends the idea that the object of study should be the form. This reinforces the view put forward in the Posterior Analytics, where knowledge is derived from the specific essence (form) of a thing. In the Physics, part of Aristotle’s argument for the identification of form as the object of knowledge springs from the incorporation of the remaining two of the four causes - efficient and final - into the formal cause. This incorporation, in turn, is partly based on Aristotle’s notion of what it is to be a natural substance, especially a living being. The basic idea is that a living being has what might be called a self-maintaining form: it is so organized that it is able to maintain its own organization, and its activities can be explained accordingly. This means that efficient cause explanations and final cause explanations, as well as formal cause explanations, will ultimately appeal to the form of a
thing. The efficient cause explanation, which has the form “that from this, that will necessarily result” (II.198b5ff), will evidently appeal to some feature of the structure of the animal or plant in virtue of which it necessarily results that the animal does what it does. The final cause explanation, which has the form, “because it is better thus (not without qualification, but with reference to the essential nature in each case)” will be concerned with how the activity contributes to the self-maintenance of the form of the thing. If efficient causes must appeal to structure and final to purpose, and these are identified with the form, then the form must include both: the form must be the structural organization as tending to its end, the how it does what it does.

In general this makes more sense of Aristotle’s thesis that to know a thing is to know its form. As noted earlier, the person who minutely observed the structural arrangements of a thing but did not know what it was for could not be said to know its nature. But all of us know, for example, what the heart is for, and this does not make us all cardiologists. But the person who understands both what the heart is for and also both the structural arrangements of the heart and how those arrangements enable it to perform its function can truly be said to understand its nature. A similar point can be made about artifacts For instance, Aristotle says that the art of building is the form of a house. But knowing what a house is for does not make us all architects. The architect must know both structure and function, and how the structure makes the functioning possible. Thus, the function in the sense of how a thing does what it does, of structure as tending to purpose, is from the point of view of knowledge the best candidate for form. This account also allows for varying structures, since various structural arrangements could tend to the same end, and the expert would know how each does so.

The notions of shape, recipe, structural arrangement, purpose, and functional arrangement all seem to be candidates for the notion of form. Different ones work better in
different cases. The bronze sphere or mathematical circle do not exactly have a purpose or do anything, so the shape seems to suit them. Recipe suits only things whose contours are not so much of the essence as the ratio of their mixture. More complex things seem to be characterized by structural or functional arrangements, although in the case of a tool the purpose alone might seem to be the really defining thing.

As it turns out, there are other candidates as well. In Book VIII, Aristotle undertakes to show that items from almost any of the categories can serve as the essence of a thing.

But evidently there are many differences; for instance, some things are characterized by the mode of composition of their matter e.g. the things formed by blending, such as honey-water and others by being bound together, e.g. a bundle; and others by being glued together, e.g. a book; and others by being nailed together, e.g. a casket; and others in more than one of these ways; and others by position, e.g. threshold and lintel (for these differ by being placed in a certain way); and others by time e.g. dinner and breakfast; and others by place, e.g. the winds; and others by the affections proper to sensible things… (p. 813)

These accounts differ, but nearly all share a certain basic feature. For the most part, they can be understood in these terms: the matter is organized or constructed, so that it has certain defining properties, whatever these may be, and this organization or construction is called the form. Usually the construction is an internal one, but as the cases of the lintel and the winds show, this need not be so.

Form as Actuality and Matter as Potentiality

As the discussion proceeds, Aristotle begins to say things that do not fit very well with this
relatively simple picture of form as the functional construction of the material. For instance, he says that matter is unknowable in itself; but the things mentioned above, bronze and clay and flesh and bones and cogs and springs, are certainly not unknowable in themselves. And he says that matter does not exist in actuality, but only in potency (M XI.2 1060a20) and that things that have matter exist only potentially (M XII.10 1075b23) and he begins to oppose matter to “complete reality” or entelechia. We are also told that “the proximate matter and the form are one and the same thing, the one potentially, and the other actually.” (M.VIII.6 1045b18) But bronze and a sphere are not the same thing, nor is bronze a bare potentiality for a sphere.

These problems, however, give way fairly easily when Aristotle’s intention is understood. When Aristotle says that matter is unknowable in itself, for example, he does not mean that we are mysteriously barred from comprehension either of such “stuffs” as fire, water, gold, clay or of such parts as hearts, hands, cogs and wheels. He means that since form is the object of knowledge, what we know about these materials is their form. In the case of the elements for example, to know fire and water is to know that the one is hot+dry and the other is cold+wet, and, if we insist on the functional account, perhaps also to understand why hot+dry gives rise to a substance that flickers upward and cold+wet gives rise to a substance that flows downward (for these natural movements are what characterize these elements). And to know gold would be to know, for example, that it is say, so many parts earth+so many parts fire, and perhaps also why this ratio gives rise to a gleaming, hard, flexible metal. To know the parts, the hearts and the eyes and the springs and the cogs, is to know the structural organization of these things and how that structural organization enables them to serve their specific functions. Thus, in each case, to know a material is to know the form of that material (to be carefully distinguished from the form of the thing whose material it is). Aristotle will sometimes say that matter is a relative term; meaning that what is matter and what is
form is relative to the substance in question. If we talk about the statue, the shape is the form and the bronze is the matter; but if we talk about the bronze, the form is copper+tin in a certain ratio; and if we talk about the copper, the form is say, earth+fire in a certain ratio, and if we talk about the earth, the form is cold+dry. In the case of the bronze, the matter is the copper and tin; in the case of the copper, the matter is the earth and fire.

Earth and fire are elements; they cannot be divided further. Thus in one sense it seems natural to think of them as matter in a non-relative sense. But this is problematic. For one thing, matter is supposed to be unknowable, but we do know these things; and as in the other cases, what we know is the form, in these cases the very most basic forms of hot; cold, wet, and dry. Furthermore, Aristotle standardly lists the elements among his best examples of substances. But in these cases, what is the matter? The answer is that the matter of these things is absolute, unformed, “prime” or pure matter; that is why they are elements. And it is of this that Aristotle says that it is unknowable.

This so called prime matter, however, is never found apart; in reality, we can not divide further than the four (or five) elements. Matter always has some form or other. In a serious sense, therefore, prime matter does not exist. Thus this sort of matter is a bare potentiality available only to thought. In one sense it seems to be the potentiality for being in general, for being anything whatever. But Aristotle does not like that way of talking; he says in several places that when we speak of the matter of each thing we should speak of the “last” or “relative” matter; it is this that has the relevant potentiality. It is the bronze that is the matter and potential for the statue; not the copper of which the bronze is composed or the earth of which the copper is composed; you cannot make a statue out of earth. More crucially it is the living eyes, hands, and heart that are matter for the human being; you cannot make a human being of fire and earth. Thus, each kind of matter is relative to the thing of which it is the matter and is potential for that thing; and primary matter, which is the bare potential
for the most basic movements of up and down and around, is nothing but the potential for the elements. It is never found apart, but has only a relative and potential existence; in these senses, it is unknowable except as the potential for these movements.

There is, however, a deeper sense in which matter is relative and potential. In order to bring this sense out, we need to have before us two more of Aristotle’s doctrines: his views on movement and change and his views on life.

First, we must keep in mind that there is an important reason why unformed matter is not found. This is that the privation of form is itself, in a sort of degenerate sense, a form. This can easily be seen if one thinks for a moment of the simple case of form as shape or contour. Think of a bronze statue, and then take a hammer to it and break it to pieces. What you get is what Aristotle calls a mere heap. Yet this heap itself has some shape or contour. Since the precise particular contour (imagine drawing a line around it or making another heap exactly like it) has absolutely no functional properties, it is sufficient to say that its form is that of a heap. That is a form of sorts; the smashed statue does not become literally shapeless, nor could it. Now this may seem a trivial point, but when we put it in conjunction with Aristotle’s doctrine of change, it is not.

According to Aristotle, there are three principles involved in every movement or change that takes place: the form, the privation of the form, and the matter which serves as the substrate and is what underlies the change. Change can be in quantity, quality, place, or substance. In the first three cases the matter is the substance (the thing) that changes; the latter is the coming to be and passing away of substances themselves, and the matter is the material of which the substance is made or the elements into which it is resolved. Aristotle is concerned to assimilate substantial change to the other sorts of change, and in particular to show that such change takes place in a material substrate, for it is this that will solve the problem about how things can come to be (that
they cannot come out of nothing). Now in the case of qualitative change the privation of form is itself a form: that is to say, it is a quality itself. The privation of light, for instance, is dark; the light thing and the dark thing both have a definite quality. There may be intermediates (as on the color scale extending between white and black), but since there is no possibility outside of having the form, having the form to some extent, and not having the form at all, a thing that is liable to being colored at all will always have some color or other. In the same way, the privation of a substantial form is a sort of form, although in this case it may be a degenerate sort of form, a mere heap.

This shows up most interestingly in the case of the four sublunar elements, whose forms (hot, cold, wet, dry) are differentiating qualities. Each element is characterized by these; the earth is cold and dry; water is cold and wet; air is hot and wet; fire is hot and dry. But these pairs, being contraries, have the form-privation relation: cold is the privation of hot; dry is the privation of wet. This explains why primary matter does not exist apart; matter that is not hot is cold, matter that is not wet is dry. Thus, the closest thing we find to unformed matter would be earth (which is cold and dry). Yet, since this has definite qualities, it is not unformed matter. The material feature of earth, the feature that makes it a substratum for change, is its capacity to be either hot or cold, either wet or dry. Qua cold and dry it is formed, qua potentially any of these it is material. This brings into sharp focus Aristotle’s reason for claiming that matter is potential, that it is indeed potentiality itself. It also makes it clear how it makes sense to say that it is unknowable. And that it is relative follows from the fact that the potentialities of anything we call matter are relative to the form of the matter.

The second thing that shows that matter is relative and potential is Aristotle’s theory of what it is to be alive. According to Aristotle, a living thing is a thing that has a self-maintaining form. It is organized in a way that enables it to maintain that very organization over time. This is done through
the processes of nutrition and reproduction. The fact that a plant or animal can reproduce means that it is so organized as to be able to impose that very organization on another “unit” of matter. The fact that a living thing can engage in nutrition means that it is so organized that it is enabled to transform matter into matter-for-its-form. The matter of a living thing is flesh, bones, tissues, organs; what the nutritive processes make possible is the transformation of other sorts of matter into flesh, bones, tissues and organs. This enables the animal or plant to maintain itself (its own form) in spite of the great delicacy of the materials of which it is made. An animate thing can be usefully contrasted, in these respects, to an artifact. Obviously, an artifact does not reproduce itself: a hammer cannot make a hammer, and so on (not that a multipurpose artifact one of whose purposes was to make others couldn’t in principle be made - but then we would begin to philosophize about whether it were alive).

Plant a bed, Aristotle reminds us, and you might get wood, but not a bed. More important here is the fact that an artifact cannot maintain its own form, in the face of changes that occur in its matter. If the wood of the bed rots or is petrified, the bed rots or is petrified. But a living thing, though generally made of parts and materials more delicate and less durable than those of which we make artifacts, ceaselessly replaces these materials through the nutritive process.

Now the matter of say, an animal, is flesh, bone, tissue, and parts like head, hand, and eye. These things are functionally defined, but they only function when actually part of the living creature: a dead hand, we are told, is a hand in name only. The same is presumably true of organs and tissues; it is living organs and tissues that are the matter of animals. This gives us the important result that the matter of an animate thing - the proximate or last matter that has the potential to be that thing, that is - does not exist apart from the animate thing itself (the way the bronze does exist apart from the statue). Of course, animals are not constructed in the way artifacts are: they make their own last matter. The animal, for example, eats something: something we would call organic matter, because of
its potentiality for life, and transforms that into its parts. But that is the point: in the case of an animate thing, the form of the matter depends upon the form of the thing of which it is the matter. Hence in this case the matter is relative to the form in the clear sense that it does not exist without the form or outside of the formed thing. As Aristotle says in his discussion of nutrition: “Food is essentially related to what has soul in it... it is only so far as what has soul in it is a ‘this-somewhat’ or substance that food acts as food; in that case it maintains the being of what is fed, and that continues to be what it is so long as the process of nutrition continues.” (OS 2.4 416a8-14)

In this case, the being of the matter, and so the form of the matter, depends upon the being of the thing of which it is the matter. Here, matter is explicitly relative to form; it does not exist apart. Now we can see in a clear way why Aristotle would say that the form and the matter are one and the same thing, the one potentially and the other actually. The animal and its animate parts are form and matter, respectively: they are not separable except in thought.

This seems at first sight to mark a difference between living things and artifacts. But Aristotle can reinterpret and revise his account of artifacts in light of this point. We might think that the bronze exists apart from the statue, unlike the animate parts that exist only in the animate creature: But insofar as bronze is matter-for-a-statue, proximate matter relative to a statue, it exists only within a statue, for: only that realizes the potential-to-be-a-statue in the bronze. Perhaps this will be clearer in the case of a tool, which does something. Iron is appropriate matter for a hammer, because it has the potential for pounding. But this potential is only realized, and in one way only exists, when the iron is part of a hammer. You cannot pound with an iron pebble or with liquid iron, so in a way these things do not have the potential for pounding. To pound, iron must exist in a block of a certain size, with a flat surface - in short, as at least a primitive hammer. In this sense even iron, like living tissue, only gets its potential when the potential has been actualized to “the first
grade of actuality."

This term comes from *On the Soul*, where Aristotle says that the soul is the first grade of actuality of a body having the potentiality for life. A sleeping animal may not be engaged in many of the activities that characterize a thing as alive (it may not now be digesting or reproducing or thinking, for instance) but it is formed, and has the potential for those activities. Similarly, the iron does not actually have to be engaged in pounding in order to have the potential to pound. But it does have to be in a shape sufficiently like a hammerhead; it cannot be ground up or melted. Thus, the matter only has the potentialities we assign to it when it is in the form, even in the case of an artifact. Aristotle says:

As for that out of which as matter they are produced, some things are said, when they have been produced, to be not that but ‘thaten’; e.g. the statue is not gold but golden. And a healthy man is not said to be that from which he has come. The reason is that though a thing comes both from its privation and from its substratum, which we call its matter - for example what becomes healthy is both a man and an invalid), it is said to come rather from its privation (e.g. it is from an invalid rather than from a man that a healthy subject is produced); And so the healthy subject is not said to be an invalid, but to be a man, and the man is said to be healthy. But as for the things whose privation is obscure and nameless, e.g. in brass the privation of a particular shape or in bricks and timber the privation of arrangement as a house, the thing is thought to be produced from these materials, as in the former case the healthy man is produced from an invalid.

In other words, Aristotle here claims that we use terms like brass, bricks, and timber a bit ambiguously: we use them to name both the matter for a house and the privation of a house,
because we lack a term for this latter. He continues:

And so, as there also a thing is not said to be that from which it comes, here the statue is not said to be wood but is said by a verbal change to be wooden, not brass but brazen, not gold but golden, and the house is said to be not brick but bricken (though we should not say without qualification, if we looked at the matter carefully, even that a statue is produced from wood or a house from bricks, because coming to be implies change in that from which a thing comes to be not permanence). It is for this reason, then, that we use this way of speaking. (M VII.7 1033a16)

If we use brass to name the privation of the shape that makes for a statue, then we must find another name for the matter (which strictly speaking has change); the matter for the bed is “wooden” rather than “wood” and unlike just any piece of wood the wooden of the bed has the potentiality to serve as a sleeping place. Matter is potentiality; it is relative to form.

Form as Activity

In On the Soul, as mentioned above, Aristotle makes a useful distinction between the first grade of actuality and the second. The soul itself is the first. It works this way: a living thing is characterized in terms of certain activities (energeia); anything that can do those is said to be alive. Aristotle mentions thinking, perceiving, and growing as among them. But a thing does not have to be engaging in those activities to be alive; in any case not all of them; it only has to be capable of them. Aristotle compares it to knowing: in one sense we say someone knows something if they could apply the knowledge if called upon; in another, only if they are actually exercising the knowledge. Form in this sense of the functional arrangement or construction is the first grade of
actuality; it makes the activity possible; the activity itself is the complete reality: the potential is fully realized, and so the thing is fully actual. The first grade of actuality is achieved by a genesis or a change or a *kinesis*; the second, usually, is achieved by the exercise, or activity, the *energeia*. For instance, growing up (to maturity) is a *kinesis*, and it is through this process that we achieve the full complement of capacities that characterize an (unmutilated) adult human being. Exercising those capacities is the *energeia* or activity that constitutes the living of the life of a human being. In between is the possession of the form of an adult human being, the thing that gives us these capacities.

This analysis is not extended to all substances; and the doctrine of the two grades of actuality does not appear in the *Metaphysics* at all. Yet there is a way in which it is appropriate for most cases. Consider for instance these:
Matter or Potency | Coming to be | First Grade of Actuality | Complete Reality or Activity (Function)
---|---|---|---
capacity to learn | learning | having knowledge | exercising knowledge
wood, stone, and bricks | becoming a house (being built) | being a house | being used as a house
capacity to be human (realize human essence) | growing up | being an adult human | leading a human life
capacity to cut (in iron, say) | being shaped and sharpened | being a knife | cutting

In each case, the activity that makes the thing what it is (the function) is elicited from the matter or potential by the achievement of a form (construction) which makes the matter capable of that activity. A living thing is fully realized when it performs the activities that characterize life; a house is really a house when it is in use as a residence.

As the above discussion shows, the identification of form with the activity of a thing fits best with a functional definition of form: the thing is what it is when it is engaged in the activity that makes it what it is. More particularly, the view that there are two grades of actuality fits with the more complex sort of functional definition that combines structure and purpose, the view I associated earlier with the notion of function as how a thing does what it does. The first grade of the actuality of a thing is form in the sense of construction of structure, the second is the activities engaged in by
thing of that structure; the two grades combined represent the complex notion of a thing’s “workings.” It is this notion, as argued earlier, that can most intelligibly be taken to include the efficient and final causes within the formal cause. In the preceding section I argued that one sense in which matter is relative to form is that only when it is already “in” the first grade of actuality can the matter be said to have the potential to do the things that are finally realized in activity. For example, iron has the potential for hammering only when it is in a shape that at least resembles a hammer’s head, just as tissue is only living and stomachs only digest within the living creature. The material potentiality and the first grade of actuality are indeed one; it is the constructed object that has both. This gives a clear sense in which form can be said to actualize matter.

The first and second grades of actuality, however, do not always admit of such a clear separation as they do in the cases of having vs. exercising knowledge or of being a knife vs. cutting. And in a way, the doctrine that form actualizes the matter can best be appreciated in the case of beings for which the distinction between the two grades is less clear. This is because in such cases it is clear that form actualizes matter in a quite particular sense: in those cases the form actualizes the matter in the sense that it activates it. In such cases the distinction between the two grades of actuality is obscure precisely because the thing no sooner has the form than it begins to act. This is clear, for example, in the case of the four sublunar elements. Being natural, these things are characterized by an internally produced movement, a movement that is the product of their form. Each element moves toward its natural place. The sense in which the form activates the matter in this case is that acquiring the form produces the relevant motion immediately. Chill the air until it becomes water and straightaway it flows downward: for this is what it is to be water. Impose the cold-dry form of earth on matter and it will fall to the center: that is what it is to be earth. For a natural thing to have a form is for it to be moving; the form actualizes the matter in the sense that it sets the matter in motion.
What sort of motion depends entirely on that form it is; each form has its own distinctive \textit{energeia}. This sense of actualization shows up even more vividly in the case of living things. A good example, mentioned earlier, is the nutritive process. In virtue of its form an animal transforms matter (food) into matter for that animal, last matter. Before the transformation (the digestive processes) the matter is dead; nutrition transforms it into living, breathing, pulsing tissue - tissue engaged in the constant stream of changes (“motions”) that \textit{living} tissue is. The form actualizes the matter in the sense that it makes it active.

It might seem, however, that in the cases where the two grades of actuality are strictly separable, form does not actualize matter in this particular sense. Even some of these cases, however, can be understood in terms of actualization in this sense if we are willing to grant that the form is incomplete in a certain way at the first grade of actuality. The completion is what sets it in motion. One can imagine this something like a machine that has an on/off switch: so long as it is off it is in a way only material and potential; it has the functional construction characteristic of that kind of thing with some small exception, some connection unmade. Pushing the on switch completes the form; it is putting the last piece into place, and, as in the case of the elements, the thing straight-away begins to be active, to do that which it characteristically does. On this model, when you start the ignition of your car or switch on your vacuum cleaner, you do it by completing the process of \textit{making} them: the manufacturer leaves the last step for you to do at will. These things are what they truly are only when they are running, for they are functionally defined.

\textbf{Two Kinds of Matter}

At the beginning of this paper I said that the perspective from which the identity of the notions of form as construction, form as actuality, and form as activity is apparent would be achieved
if we distinguished two notions of matter in Aristotle's metaphysics. Having now looked at the various senses of form, we are prepared to do that. In describing Aristotle's theory of change and how it relates to substantial change, I mentioned that Aristotle always says that change involves three principles: form, matter, and privation. Furthermore, we saw how Aristotle himself points out that in the case of things whose privation is obscure and nameless, such as the pile of metal bits resulting from the smashing of a statue, we often call the matter and the privation by the same name, such as for example “brass”. I have also mentioned several times Aristotle's view that a dead finger or hand is a finger or hand in name only, since it can no longer perform its characteristic and definitive function. To arrive at the two concepts of matter, it is necessary merely to see that these cases are alike. Living fingers and hands, like other organic and mechanical parts, are matter; but they are the privation of the form called by the same name as the matter, and this is the case with the dead finger or hand.

The two notions of matter thus correspond to the processes of generation and destruction. In the sense in which matter is the matter of something that is being generated, or becoming, matter is relative to form, for in these cases the form of the matter depends upon the form of the thing of which it is the matter. This we saw to be true of living matter and, in a derived sense, of familiar materials or stuffs like brass or clay - in so far as they are matter for a particular thing and really have the potential to be that thing, they must be in a certain shape or form. This kind of matter never exists apart, as the case of the sublunary elements vividly shows. And it is the same as at least the first grade of actuality of a thing; the last matter and the form are one, the one potentially and the other actually. And it is of this sort of matter that we can intelligibly say that it is unknowable in itself.

But corresponding to the process of destruction or passing-away, the privation of form, there is matter in another sense; or rather, we call the privation of form by the same names that we
use to denominate the matter: flesh, bones, fingers, brass, gold. Only occasionally (e.g. “corpse”) do we have a separate name for the privation of form. Obviously, this is not a rival notion of matter, but a related although somewhat secondary and inaccurate one. Insofar as these things are matter, they are knowable, available for use, we find them around us, and so forth. Of these things, it would be odd to say that they were unknowable or merely relative or potential. It is because we have these in mind that what Aristotle says about matter seems at first glance so odd to us. But in fact these things are not matter; but a substance characterized the privation of form. Like all privations, they are themselves a form, but in this case a degenerate one: a mere heap, in the case of stuffs like brass or iron; and in the case of something that has been alive, a thing so unstable that even the unity of a heap is mostly quickly lost to it as it decays.

Here it is important to distinguish between stuff as matter and the stuff as a formed substance in its own right. It is in so far as a heap of brass is a heap that we are tempted to regard it as matter, and that it is matter in this secondary sense. In so far as a heap of brass is brass it is not matter at all, but a substance in its own right, whose form would be a ratio of elements. But in neither case is it matter in the first and proper sense. It is only in the sense of the brass of a brass sphere or the brass of a brass candlestick that brass is matter in the first and proper sense. In the proper sense, the sense in which matter is potential and relative, it is actualized by form, and it achieves complete reality in activity. Form sets the matter in motion, makes it do what it does.

It is form that makes matter live, and grow, and perceive; and it is form that makes matter a usable tool. Form, or substance, is the cause of being, and to be is to be functional and active, to be in motion. The material element in a thing is its potential: its capacity to be and to act but also its capacity not to be and not to act. When Aristotle claims that it is in virtue of the matter, not the form, that an animate thing dies, the remark is virtually grammatical; matter is the potentiality for
such change.

It is important to see that Aristotle thus in a sense comes to take movement and activity and even life for granted in a way that later centuries do not. Aristotle does not think of the energy that moves matter as something like a vital force or an electric current infused into an in-itself inert stuff, something without which the material world would stand still. Aristotle’s universe does contain inert heaps and stuffs and corpses that are, in a derivative sense, matter. But these things are really substances with privative forms, by-products of the continuing upward struggle of all things towards the complete reality of perfect activity. We call these “matter” because they are the elements into which a thing has resolved in losing its form; but this is really a sort of loose way of talking. It is really only within a true substance, a functioning thing, that there is matter in the proper sense. In the proper sense, matter is relative, a sort of potentiality that is actualized by form. Matter in this proper sense does not need to be set in motion; it is already in motion as soon as it is real. Actuality is activity. In the one fully actual thing, God, there is no matter at all: God is perfect and eternal activity.
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