

NOTE ON THE EIGHT BOOKS OF NATURAL HEARING

Importance of understanding the eight books of *Natural Hearing*

The eight books of *Natural Hearing* (the so called *Physics*) by Aristotle are about change and changing, or changeable, things in general.

There are reasons why change and changing things should be what are first considered by our reason.

Our knowledge starts with our senses and as the Poet says:

Things in motion sooner catch the eye than what not stirs

Hence, we think first about change or changing things.

But as Aristotle shows in the first reading of the first Book of *Natural Hearing*, we know things in general before in particular. Therefore, our thinking begins with the consideration of changing things in general. And this is what the eight books of *Natural Hearing* are about.

The above helps us to begin to see the fundamental place of the eight books of *Natural Hearing* in our thinking.

And it seems that if we do not understand change, we do not understand anything. If we do not understand change, we do not understand changing things. And if we do not understand changing things, we do not understand unchanging things. For unchanging things are understood in part at least by the negation of changing things, as the word *unchanging* suggests. And if we do not understand changing or unchanging things, we do not understand anything.

And we must understand change and changing things in general before in particular for the reasons Aristotle gives in the proemium to the eight books of *Natural Hearing*. We must understand what a number is before we can understand what a prime number is or what a perfect number is. But we can understand what is a number without understanding what is a prime number or

what is a perfect number. We can understand what is a four footed animal without understanding what is a horse, but the reverse is not possible.

Thus it seems that we must understand change and changing things in general before we can understand anything else. And thus the eight books of *Natural Hearing* would seem to be a foundation of all our thinking.

Heraclitus is reported to have said that all things flow, nothing abides. He has many followers in the history of human thought. If what he says is true, than all things are changing things. And there is nothing else to understand but changing things. And we must begin to understand them in general before we can understand them in particular. Thus the eight books of *Natural Hearing* are about what must be understood before anything else can be understood.

And if those who have sought to find some unchanging things, or who think there are unchanging things, have reasoned to their existence from changing things and to how they are by negating what is found in changing things as such, even for them the consideration of changing things in general must come before trying to understand anything else.

Not only do we learn what is the beginning of reasoning to the unchanging in the eight books of *Natural Hearing*, but to some extent we reason to the unchanging. In the end of the first book of *Natural Hearing* we learn in what way the first matter remains through all change, as Anaximander had already pointed out. And in the seventh and eighth books of *Natural Hearing*, we learn that motion or change depends upon a mover and moved movers upon an unmoved mover. And in these ways, we come to the unchanging from a study of change and changing things. We reason that the changing depends upon the unchanging and thus we reason from effects to causes.

There are other ways in which the eight books of *Natural Hearing* enable us to know by negation unchanging things. The definition of eternity, for example, (which belongs to a consideration of the unchanging since only the unchanging is eternal) involves a number of negations of what is found in time and in things measured by time and also negations of what belongs to the now of time and what is in the now of time.

There are other ways in which the eight books of *Natural Hearing* are a foundation of all our thinking.

Since we consider motion and the thing in motion, we also consider place and time since motion takes time and the thing in motion is somewhere or in some place. But motion (especially change of place), the body in motion, place and time are all continuous. Therefore, it is clear that we cannot fully understand motion, what is in motion, place and time without understanding the continuous. Hence, in the sixth book of *Natural Hearing*, Aristotle thinks out the philosophy of the continuous. The philosophy of the continuous not only helps us to understand motion, the thing in motion, place and time, but also geometry and numbers.

An understanding of the continuous is a foundation of geometry because geometry is about continuous quantity. And number arises from the division of the continuous. Hence, because the continuous is divisible forever, number can get larger forever.

And knowledge of the continuous is presupposed to seeing that thinking is not continuous, as Aristotle reasons in the first book *About the Soul*. And we can reason out that our universal reason is not a body when we reason out that it is not continuous since every body is continuous.

And one must understand the continuous before one can understand why in material and mathematical things there can be many individuals of the same kind, but not in immaterial things.

Indeed all our thinking involves the continuous and time (either affirmatively or negatively) for we do not think without images, which are continuous, and in time. Indeed the first philosophers thought that everything must be somewhere or in some place. And both place and what is in place (a body) are continuous. They could not imagine what is not continuous. If our reason thinks about something that is not continuous, it must negate the continuous and, hence, even there the continuous is found in our thinking.

Thus that part of the eight books of *Natural Hearing* which is the philosophy of the continuous is a foundation of all our thinking.

A key word in all our thinking is the preposition *in*. When we think out anything, we are thinking it *out* in a sense corresponding to one of the meanings of *in*. And since the word *in*, or *to be in*, is equivocal by reason of a likeness of ratios, *thinking out* is also equivocal by reason. In the fourth book of *Natural Hearing*, Aristotle thinks out the central senses of *in* or *being in* which Thomas orders in the way which Aristotle teaches us in the fifth book of *Wisdom* (the *Metaphysics*). Since philosophy is result of thinking out things, Aristotle is helping us to see how all philosophy is acquired when he thinks out the senses of *in* or *being in*.

The reason why the senses of *in* or *being in* are distinguished in the fourth book of *Natural Hearing* is that the word is equivocal by reason and its first meaning (by greater or lesser likeness to which the other meanings arise and are ordered) is that of being in a place. And the consideration of place belongs to the consideration of change which is the subject of the eight books of *Natural Hearing*. And place as such is considered in the first part of the fourth book of *Natural Hearing*.

An understanding of the distinction and order of the senses of *in* or *being in* is important, of course, for many other things besides being necessary to understand what it is to think out something. For example, the distinction between the senses of *in* is necessary to understand the distinction between substance and accident and their definitions for these involve *in*. And thinkers are always confusing the way things are in the ability of matter, or in the ability of the maker, with the senses in which something is actually in another. (Here we see how often reason is mistaken by mixing up the senses of a word equivocal by reason.)

Two of the highest genera in the *Categories* are a result of one kind of denomination from place. And place itself appears as a species in the genus of quantity. And here we see again how important is an understanding of place.

It is very difficult for us to know and understand that there are things which are not in place. The natural philosophers before Plato and Aristotle thought that everything must be in place; and if something is not in place, it does not exist. If it were true that everything that exists must be in some place, an understanding of place would be relevant to understanding all things. To be in place would be a property of being as being. And even if we can come to know that some things are not in place, we must know what place is before we can even know what it means not to be in place.

We can begin to see a little from the foresaid that the consideration of place in the first part of the fourth book of *Natural Hearing* is a contribution, not only to our knowledge of change and changing things, but also to almost all our knowledge.

Since reason as reason is nothing other than the ability for large discourse, looking before and after (as Shakespeare teaches us in his *Exhortation to Use Reason*), understanding the use of reason requires us to understand the words *before* and *after*. The word *before*, like the word *in*, is equivocal by reason of a likeness of ratios. The first meaning, or the first central sense of the word, is in time. And the other meanings arise and are ordered by their greater or lesser likeness to the sense in time. Thus the consideration of time in the second part of the fourth book of *Natural Hearing* is important for the whole use of reason. However, Aristotle distinguishes and orders the central senses of this word in the *Categories*. But he says in the third book *About the Soul* that man is the animal which has the sense of time. Indeed our life is very much in time. Man begins to rise above the other animals when he does not merely live in the here and now. One of the ten highest genera in the *Categories* is by one kind of denomination from time. And time itself is a species of continuous quantity in the *Categories*. We have spoken before of the need to understand time before one can understand eternity. The definition of eternity, which comes from Boethius, presupposes both an understanding of time and the now of time, both of which are thought out in this second part of the fourth book of *Natural Hearing*.

A sign of the universal and fundamental place of the continuous in our knowledge is many of the most universal words which are found in the axioms And to some extent everywhere. These words are all equivocal by reason. And in most of them, our reason begins with the sense of meaning that is continuous or in the continuous. This is true of the words *beginning* and *end* or *limit* as can be seen from the fifth book of *Wisdom* and of the words *before* and *after* as can be seen in the *Categories*. It is also true of the words *in* and *out* as we learn from the fourth book of *Natural Hearing* and Thomas's commentary thereon. This is also true of the words *whole* and *part* as can be seen also from the fifth book of *Wisdom* or *First Philosophy*. And the first meaning of *per se one* given is that of the continuous and then the indivisible in the continuous, as the point. The word *form*, so important and key in philosophy, seems to have

come from the shape of the continuous. A *road* in our knowledge or a *line* of reasoning or a *line* of poetry are not continuous, but they are named from carrying over a word placed upon something continuous. Yet other words point to the continuous as at the beginning of our thinking, and thus to the fundamental importance of the philosophy of the continuous in the sixth book of *Natural Hearing*. It is difficult to rise above the continuous in our thinking; and often when we are trying to think of something not continuous, we fall back upon the more known continuous. Thus we imagine our soul to be an air-like body in the shape of a man or to be indivisible like the point which has a place in the continuous.

The distinction between ability and act is most universal and foundational for the whole of philosophy, as we see in the fifth and ninth books of *Wisdom*. But we first use this distinction in the first book of *Natural Hearing* when trying to understand what is found in everything that changes. And this distinction is before understanding the definition of motion or change in the third book of *Natural Hearing*. And even the more universal consideration of act and ability in the ninth book of *Wisdom* (the *Metaphysics*) begins from the consideration of act and ability in change.

And the definition of motion or change in the third book of *Natural Hearing* is a beginning for seeing the dependence of motion upon a mover and eventually the existence of the unmoved mover.

And the distinction of matter and form as the inward beginnings of movable things or beings is a stepping stone for seeing act and ability as the intrinsic beginnings of being as being in the twelfth book of *Wisdom*.

And in seeing the distinction of matter, form and lack of form at the end of the first book of *Wisdom*, we also can begin to understand good and bad universally.

The second book of *Natural Hearing* is essential

The distinction of the natural and the artificial is basic to all our thinking and this is treated in the second book of *Natural Hearing*.

The definition of nature brings out why the consideration of the natural philosopher should be about motion or change and therefore why the eight books of *Natural Hearing* are about motion or change in general. For nature is defined as a beginning of motion and rest in that in which it is.

The word *nature* is of such universal importance that it appears again in the fifth book of *Wisdom* or *First Philosophy*. Like every key and universal word in philosophy, *nature* is equivocal by reason. But although a full consideration of the distinction and order of its senses is made in the fifth book of *Wisdom*, we meet a number of those senses here and thus make an important beginning. And since wisdom is to speak the truth and to act in accord with nature (as the central thinker in human thought, Heraclitus, teaches us), we must understand what is meant by *nature* in this ruling statement so we may be directed by its truth.

And when Socrates is pressured by Cebes to come up with a necessary argument for the immortality of the soul, to give a reason why it must be immortal, he returns to his experience of natural philosophy for an understanding of causes. For it is the natural philosophers who first sought the kinds of cause there are in things. Hence, when Aristotle is seeking confirmation that there are just four kinds of cause in things, he turns back to the natural philosophers. Although it belongs more to the wise man to determine how many kind of cause there are, we first see the kinds of cause there can be in the study of natural things. Thus, the second book of *Natural Hearing*, where the kinds of cause are distinguished, is essential to all of philosophy where causes are looked for.

And the obscure causes called luck and chance receive their fundamental consideration here.

And the whole of practical philosophy depends upon the answer to the question discussed in the second book of *Natural Hearing*, whether nature acts for an end. If nature makes things for an end, man (and his parts) may have an end by nature. And a knowledge of this end will be the beginning for thinking of what to do or not do in this life.

In the fifth book of *Natural Hearing*, we learn the original reason for the distinction of the particular sciences of nature into physics, chemistry and biology. After this distinction had become customary, men no longer learned

the reason for it, and then they begin to make mistakes in dividing, as Heisenberg points out.

From scratching the surface of the eight books of *Natural Hearing* above, we can begin to see how important it is to understand them. But as we enter into the depths of these books, this will become even more manifest. Indeed it is hardly an exaggeration to say that ignorance of the eight books of *Natural Hearing* is ignorance of philosophy.

The name *Natural Hearing* rather than *the Physics*

The word *physics* is a poor translation of the title of Aristotle's work in that one does not see the word *nature* in it. The word *nature* in English keeps something of a connection with the original meaning of *natura* in Latin or *phusis* in Greek which is that of birth. (Consider the words *pre-natal*, *post-natal*, *nativity*, *native* etc.) But the word *physics* today more calls to mind the mathematical experimental science developed by Galileo, Kepler, Newton and their successors.

The two words in the Greek title of the work can be carried over into English as *Natural Hearing*, or more fully, the eight books of *Natural Hearing*. Although some see this title as indicating only that they were delivered as lectures rather than something published, to the close reader of them the title is very illuminating. This hearing is *natural* for three reasons.

First, of course, we are hearing about natural things. These eight books are about things that are by the cause called *nature* which cause is defined in the second book and distinguished especially from the cause called *art*, the other main cause of the things around us.

Second, we are learning from nature as a teacher. Kant said that we learn from nature in the physical sciences as the judge learns from the witness, not as the student learns from his teacher. But in the eight books of *Natural Hearing*, we are learning from nature as from a teacher. Since hearing is the sense of learning from another, it is significant that the eight books are called *Natural Hearing*. Heraclitus also emphasizes the sense of hearing in the Royal Fragment:

Wisdom is to speak the truth and to act, according to nature,
giving ear thereto.

The third reason why this can be called *Natural Hearing* is that it is close to what we naturally understand, as is seen especially in the first book of *Natural Hearing*.

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