

ARISTOTLE AND THE TWO TYPES OF FORM

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The word 'form'¹ used in several passages of Aristotelian works has variety of meanings². Mostly he used the two puzzling expressions for the form of the thing³, the one is the essence of the particular thing (the what it was to be),⁴ and the other is logos, formula or definition. The well known Aristotelian terms, "morphe" and "Eidos", are used for the form. In Ross's opinion, "Eidos" is the main element in Aristotle's notion of form⁵. Thus logos (i.e. morphe) (formula or definition) and "the what it was to be so and so", i.e. essence, are constantly used as synonymous for Eidos,⁶ that indicates the real formal cause⁷ of things. Defining the essence, Aristotle argues that

"In one of these we mean the substance, i.e. the essence (for the way is reducible to the definition) and the ultimate why is a cause and principle."⁸

The substance in the sense of the essence⁹ is the primary element in the things that is always spoken without matter¹⁰. There are some passages in which he explicitly calls form 'a this logos (morphe)'¹¹ (i.e. formula or definition) and this "a this" in primary meaning of the expression is something indivisible or one in number¹². According to Aristotle the substance in its second sense, is "that which" being 'a this' is also separable and of this nature is the shape or form of each thing¹³. As we stated above that the essence, formula or definition is synonymous and the essence of a thing is always given in a definition or

formula and it can only be expressed in thought. Therefore the form is an object of thought as well as the object of sense and it is not always related to the matter concepts. In Aristotle's philosophy the form apart from matter is included only the shape expressions, such as concave is an expression that is distinctly exist from snubnosed, concavity is the concept of definite thing or shape, while snubnosed not, it indicates two things, nose and snubness:¹³ For the expression of ratios, generally number two to one, 2: (1) requires the formula or pattern (that what it is to be) i.e. the formal cause of octave.¹⁴ The two expressions of word "form" i.e. formula (morphy) and essence (Eidos) can be distinguished very clearly in the case of artificial and natural objects: (i) We find tht some times the word expression indicates the case of form for the composition e.g. a house is a word for the covering consisting of bricks and stones composed for the shelter in a certain way ¹⁵. (ii) Soul is the form or essence of the natural bodies that has the faculty of perception that is the reception of sensible forms without matter of the object perceived¹⁶. so there are some psychological terms i.e. only for formal expression, such as a man who perceives, thinks, desires, gets angry as conscious being only due to his soul that is the form or essence of his body.¹⁷ Therefore Aristotle gives the psychological definition of anger that leads towards a formal description rather than a material one that "defines it as boiling of the blood or warm substance surrounding the heat."¹⁸ The psychological description of anger is the desire of retaliation that is a purely formal state. Thus soul as the form or essence of animal body we will discuss in the second type of forms, i.e. forms of natural animated beings.

TWO TYPES OF FORMS

1. **The Mathematical Forms:** In our analysis of form

we find that Aristotle distinguishes in two types of forms i.e. (a) the mathematical forms, (b) the forms of natural objects, animate or inanimate or artificial objects. The mathematical forms are distinct from the natural or artificial forms, for the latter are always found with the conjunction of matter of planes. While the mathematical forms due to the division in geometry and arithmetics are only found in figures and numbers. All these forms are related in intelligible matter that is completely different from the sensible matter ¹⁹ of natural and artificial objects such as bronze and wood and all movable matter. For this reason he distinguishes between the subject-matter of mathematician and physicist. Certainly the mathematician does not deal with the things in this world because these objects are different from the subject-matter of physical sciences.

In Physics 11-2 he begins to define the mathematician's activity by contrasting it with the study of Nature. (i) Physical bodies actually contain surfaces, volumes, lines and points and these are the subject-matter of Physics ²⁰. (ii) The mathematician deals with the surfaces, volumes, lengths and points of physical bodies. For this reason he separates the surfaces, volumes, lengths and points from their physical objects. This separation occurs only in thought, the mathematical objects never change like physical objects. And no falsity results from this separation in the case of those things which can be separated legitimately. Here Aristotle criticizes Platonists who believed in the theory of forms and in their unawareness they made the same mistake and separated the things in thought, but unfortunately they chose for this separation the physical objects which are less separable than those of mathematics.

In answer he argues that it is evident from the character of objects that they have different definites and attributes from each other. The mathematical objects odd, even, straight, curved, line and figure do not involve change while the physical objects flesh, bone and human being involve. He contrasts between mathematical and physical objects through his famous paradigm of snub nose and curved. The snubness is not merely a shape but it is a shape embodied in nose. Snub thing can not be conceived as separated of physical change as a curved. The similar example can be found in physical branches of mathematics, such as optics, harmonic, astronomy. These are the converse of geometry while geometry investigates physical lengths but not as physical optics investigates mathematical length but as physical not as mathematical ²¹.

Aristotle's difference between the physicist and mathematician makes this clear that there exist separate forms differently from the Platonist's separation of forms.

We have already seen in the definition of word 'form' that the first sense in which word 'form' is used for the external figure or form of a thing. And according to Aristotle the figure and shape is a fourth kind of quality that is found in every thing such as straightness, curvedness. And to define thing in triangle or square is to assert a certain quality existing in it ²². Therefore all the mathematical objects have a certain kind of quality existing in them that is their specific shape and figure e.g. every plane figure is either rectilinear or curvilinear. The rectilinear is bounded by more than one line while the curvilinear is bounded by only one and the circle is bounded by one line, while in the case of natural objects the sphere is bounded by one surface e.g. the square is a rectilinear figure which is bounded by several lines. ²³ Therefore in

mathematical figures the circle is a complete figure while the surface is among the solids. ²⁴

Once we find that Aristotle defines the mathematical objects separated from matter as intelligibles but on the other hand he says that these objects must not to be considered mere abstractions far from reality, the mathematical forms or plane figures such as straight, curved, circular, triangular are represented by observation in different materials but are always conceived in abstractions. For instance, we can get the definition of circle or triangle by abstracting it from its material in thought as well as with its material. The angles of a brazen isosceles triangle are equal to two right angles but if we eliminate brazen and isosceles there remain the attributes, that is a three-sided figure only. ²⁵

Therefore it means that the mathematical objects are the abstractions of natural entities because there can be found a primary similarity between the plane mathematical and solid figures. So the subject-matter of mathematics as we understand is neither to deal with sensible things nor with separate non-sensible things, but with the attributes that belong to the sensible things qua involving lines and planes, these are intelligibles. ²⁶

In our analysis of form through the distinction of the subject-matter of the physicist and mathematician it becomes clear that if we want to know the nature of form evidently then it is necessary to know the natures of form and matter separately because if it is not evident that what sorts of arts are of the nature of matter and what are not, the formula or form of a thing cannot be known evidently. Therefore to know the things evidently is to know their matter and form separately. And it is only possible through

the definitions of mathematical objects as we find that circle is found in bronze, stone and wood but the bronze, stone and wood are not the essential substance of the circle, the circle can exist separate from this material. ²⁷ But in physical sciences the form and matter cannot exist separately from one another e.g. the form of man is always manifested in flesh and bones and sometimes it is difficult to decide whether they are actually parts of form and formula or they are his matter. ²⁸ Lets decide them under the second type of forms.

2.1 The Form of Artificial or Natural Objects:

The second kind of form is divided into two classes (i) as we see that in artificial objects the form is an essential attribute for determining the nature of these objects e.g. the saw is made of iron but has a special form in virtue of which it can be called a saw, i.e. a certain sort of teeth made of iron ²⁹. In the same way in animals the configuration, color and the parts constitute their body as their form. But these attributes can exist in artificial objects, hence the natural objects are some thing different from the artificial and must be different from them in having form too. Therefore it is inadequate to say that the shape and colour constitute the animal and it is similar to the case of wood carver who cuts out a wooden hand and insists that it is a real hand ³⁰. If there is some thing that constitutes the form of living beings it is their soul or a part of soul in virtue of which the animal bodies are called animated and in the absence of which they are not living bodies ³¹. So only the soul in the real sense is the form of the animal body that distinguishes him from inanimate material objects. For instance the dead body of an animal is similar to a bronze statue and any part of this dead body such as eye or hand cannot be called a real eye or hand³². When some one speaks about different parts

of body as physiologist he is not giving a good account of the formal cause, with this account the physiologist seems very near to a craftsman who cuts the same parts in stone or statue³³. Therefore we find the real definition of the formal cause of animate bodies not in the biology of Aristotle, where it is defined in very simple way, but more accurately it is found in his psychological analysis of animal body where the soul is the formal cause of natural living bodies. Therefore he regards it obligatory for the physiologist to treat soul as the essential character of the animal body and to discuss the attributes that attach to this essential character³⁴.

Besides this he must also keep in mind the two senses of nature, one of which is the form or essence the other is matter; and the soul in the sense of essence is the nature of animal.

2. Soul as the form of natural living body:

In order to present a more precise definition of formal cause in animate beings he gives a more general definition of soul in the sense of form. For this purpose first he contrasts the three senses in which the term substance is used.

- a) Matter which in itself is not 'a this'.
- b) Form or essence in virtue of which matter is called 'a this'.
- c) The composite of matter and form.³³

And secondly he explains matter and form in the sense of potentiality and actuality³⁶ and claims that it is an alternative formula to solve the problem of distinction

between matter and form.³⁷ Now we are concerned only with actuality.

Act or Actuality: In metaphysics 9-6 first the gives a general explanation of the notion of *energia* as opposed to *dunamis* according to which the actuality is the existence of a thing oposed to the way in which the potentiality exists, e.g. if the capability of studying, building or unwrought material is potentiality then studying, building and statue is the actuality of this potentiality³⁸. Here actuality in connection with change means exercise and actualization of a power or *dunamis* it is its original meanings and the term orignally signifies movement while the other meanings are derviative; satatic that shows the end of this movement e.g. the work is act or *energia* but in the same time it reaches to its end or it is *enthelecia*³⁹. The term *Enthelecia* we find in the following passages of Aristotelian corpus i.e. De Anima 11.5 417 b 6-7 where he states (being in reality a development in to its true self or actuality) and the physics 8-3. 257 b 7-8 (but the potential is in process to actuality). Here the use of term signifies the static meaning in which the process terminates i.e. the state of having arrived at the end⁴⁰. Now we are concerned with the static meaning of term *Energia* i.e. *Enthelecia* and used by Aristotle in application to form and soul. And *enthelecia*. In *Metaphysics* 9-8 can notes as it were both *ergo* and *telos* it is a *exis* which is at the same time *energien*⁴¹. The term *energiea* is used by Aristotle in two senses.

Energiea

Kinetic Sense.

Static Sense.

Static sense

In application to form

Entheletia

In application to soul.

As we understand by term enthelecia it is a complete reality. Now we will see how it is used in the case of the definition of form and soul.

Form as Enthelectia : In Metaphysics, H, Aristotle gives two ways, in which the form as actuality could be defined by some one. In first way it is composition of matter in a certain order e.g. the threshold means wood or stone in such and such a position. Further for defining a house we say that bricks and timbers in such and such position make a house. In the same way ice is the frozen water in certain way and harmony is blending of high and low. In all such cases actuality is used in its full sense i.e. composite or mixture which changes by the change of matter. In the second way the form or actuality indicates the attributes of something e.g. in this case the house does not mean only the arrangement of certain material in a certain position (it is a potential house) while the actual house means a shelter for cattles and individual beings and that is the purpose or end for which it is built. Therefore the form and actuality means the formula of something⁴².

Composite or mixture

Form = actuality

formula

SOUL AS ACTUALITY

In Metaphysics he defines animals as the composite of soul and body, his soul is the substance and actuality of his body⁴³. Thus in general we can define soul as the formal

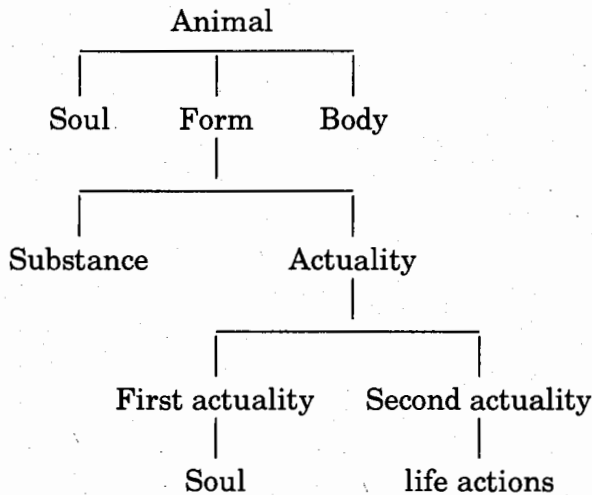
cause of the body because the substance in a sense corresponds to the definitive formula or essence of a thing⁴⁴. And the soul in the sense of form is a substance of a natural living body that has life in potentiality within it. Further the substance in the sense of form is actuality, therefore the soul is actuality of a body.

Two grades of actuality: Till here we have not found any difficulty in following the concept of form as actuality and then its application to soul as form and actuality. But in his further analysis he divides actuality in two grades in order to distinguish the actuality of soul from the other actualities of body. This distinction is found in De Anima 11-1 412 a 27-b5 as first actuality and second actuality which respectively correspond to the possession of knowledge and exercise of knowledge e.g. a person has actuality of knowledge even when he is not using it. Similarly the soul is called the first actuality or the perfection of the body while its exercise of function is its second or fuller actuality. A man possesses soul during the sleep though he is not fully actual except his vegetative functions which are continuous⁴⁵. In another way we can say that the first actuality and the second actuality is the distinction between *energeia* and *entelectia*. Now Aristotle maintains his famous definition of soul as first actuality of a natural body that has life in potentiality. Because he observed that natural organic body is a well-organized body. Even if we take the simplest organisms such as plants we see that they have a well-organized system of organs that functions in a systematic way e.g. the different parts of the plant exist to fulfil different purposes: the leaves serve to shelter the pericarp, the pericarp to shelter the fruit, while the roots of plants are analogous to the mouth of animals that serves for the absorption of the food⁴⁶. Therefore a simplest and complicated system of organs can only be defined through a

general formula that is their soul. Both actualities are internally related with each other if the soul as first actuality is separated from its function or second actuality, the body no longer is called an actual body. For example, if we suppose an axe as a natural body its form, essence or soul is its sharp edges in virtue of which it is called an axe. If the sharp edges are taken away that have the power of cutting as second actuality then its essence or form is taken away. Lets turn to another example of natural organism e.g. the eye of an animal is live body; its sight or the power of seeing is its essence or form. An eye which is not functioning as second actuality is an eye by name like the eye of a statue or of a painted figure. If the same example is extended to the whole parts of the living body, that body can be said to have functions only in so far as its parts do. But the body has function in virtue of the soul. Here we can understand very well the difference between the two grades of actuality. The life functions such as waking, thinking, correspond to the power of cutting and seeing, while the soul is first actuality in the sense which possesses these powers. Therefore the body corresponds to what exists in potentiality; as the pupil plus the power of sight constitutes the eye, so the soul plus the body constitutes the animal⁴⁷.

These examples clearly show that the two grades of actuality are used to distinguish the soul and the function of the soul. As we understand apart from its parts the soul in general is the form, essence of the actuality of the body and particularly every organism as an individual body of its class has the specific form i.e. its function which is the part of its soul. Thus to understand soul through its parts and powers is to define a specific form or soul of a specific body. The knowledge of soul then is completed by the knowledge of its different parts and powers namely by the three main parts, nutritive, sensitive and intellective. The

intellective part of the soul is different from all these parts; it is capable to exist in separation from all other powers of soul. All the organisms being different parts of soul as their specific form and divided in the higher and lower classes e.g. the plants share only the vegetative or nutritive part while the animals with plants share the nutritive and one more i.e. sensitive part in virtue of which they are superior to the plants. The man shares the vegetative parts with plants, the sensitive with animals, while he alone has the intellective part and only through this part he is superior to the other classes⁴³. And through the activities of these animals which occur from them as the power of the soul we know their soul. Therefore we can say that all these actions are attributed to the natural bodies because of a power and that which has this power i.e. their soul and the body. A human being is capable of living, perceiving and thinking because of the nutritive, sensitive and intellective powers of his soul. The body in any case cannot be the actuality of the soul but only the soul that is the actuality of the body, the body is in potency to the soul or the actuality⁴⁹.



From our investigation the two things are clear; first

if we know the nature of form it is necessary to study the nature of matter and form separately and the separate study of form is only possible in mathematics. Secondly, we observe that Aristotle avoids to repeat the mistake of Platonists who separated the physical forms from their objects, while on the otherhand he affirms that the mathematical objects are not only abstraction, because they can be represented by observation in different materials, but are always conceived as intelligible forms. The reason for this separation is that the mathematical objects are easily separable than the physical objects. Therefore we find that the form of a thing is definable separately only in mathematics.

REFERENCES

1. C.J.F. Williams, Aristotle's *De Generation and Corruptine*, trans: with notes by C.J.F. Williams, Oxford Clarendon, Press, 1982, P. 85, remarks that the word 'form' "refers to the way in which an explanation of a phenomenon can be given referring to its structure of definition".
2. According to H. Bonitz, index Aristotelei Akademisce Dcuck. V vetia gesaktalt Gtaz, 1995, P. 474 the word form has three senses in different passages of Aristotelian works: (a) As an eternal figure (aeternal figura) states the external shape, of a thing (b) as a formal principle form which originates the names of similar things (principum formale quod peculiar nomine) or eidos called by Aristotle and (d) in the sense that something which has dunami or potency (idest fere quod dunamis). In physics 194 b26 Aristotle usually uses the 'form' in the meaning of paradigma or model e.g. syllables are model for the letters, artifacts to the stuff out of which they come out, living bodies to their constituents, i.e., four elements, fire, earth water and air and the parts and conclusion premisses. David, Ross, "Aristotle", Methuen and Co. Ltd. London, 1964, P.74 states that the form for Aristotle embraces a variety of meanings. some times it is used for sensible shape, as when the sculptor is said to impose a new form on his material. But more often perhaps it is thought of as something which is an object of thought rather than of sense as the nature of a thing which is expressed in its definition, the plan of its statue".
3. Aristotle's physics, trans, with introduction and notes

by W. Charlton, Clarendon Press, Oxford, 1970 P.100.

4. C.J.F. Williams, remarks in his *Common De Genet Corr*, P. 184 that the phrase "a this" translated 'essence' frequently found in Aristotle's works and literally it has the meaning what it was to be. Essence is the traditional translation. Ross defines in his commentary on *Metaphysics*, edited by W.D.Ross, 2 vols, Oxford, Clarendon Press, 1970 P. 127, Vol. I. the answer to the question, what it was to be so and so. The phrase is a generalization from such a phrase as.
5. C.J.F. Williams, *Comm, De Genet Corr*, P. 85. says that the word *eidos* is the more common use of Aristotelian use of this word and it is synonymous with the word "morphy" Hence David. Ross adds in "Aristotle". P.74, that "morphy" points to sensible shape and "eidos" to intelligible structure, and Aristotle one more often "eidos" for the "morphy". G.E.M. Anscombe, "Three Philosophers,". P.49 also agrees that the idea of formal cause must be intelligible because the matter which the formal cause makes to be statue or a syllable or a lintel or break fast, strikes us as something already having a fully actual existence on its account.
6. C.J.F. Williams, *Aristotle De Generation Corruption* P.85 says that the word "eidos" refers to the way in which an explanation of a "henomenon can be given by referring to its sturcture of definitions".
7. *Metaphysics*, 983 a 27.
8. *Ibid*, 1032 b2.
9. *Ibid*, b14 Ross, comments in *Aristole's Metaphysics*

Vol. I.P. 127 that to state "a this" of a thing is to state its form in full genus and defferentia without matter.

10. Metaphysics, 1039 b20-24.
11. R. Albriton, "The forms of particular substance in Aristotle," *Journal of Philosophy*, P.701.
12. Metaphysics, 1017 b24 - 1070 a11-12.
13. Ibid, 1030 b16-20 "For we must explain them adding a determinant e.g. there is nose, and compound out of the two by the presence of the one in the other, and it is not by accident of the one in the other, and the nose has the attributes either of concavity of snubness, but in virtue of its nature".
14. Ibid, Harold, Cherniss Aristotle's criticism on preSocratic philosophy, Octagon book, New York, 1971, P.240. The essence or formal cause will be the ratio. The number is merely the measurement of definite objects in the mixture of the number whether they be corporeal or not", David Ross, "Aristotle," P. 729.
15. Metaphysics, 1043 a 29-33 see also De Anima, 4053 b 3-5.
16. G.E.R., Lloyed, Aristotle the growth and structure of his thought, London, Cambridge, University Press, 1968 P.289.
17. D.K.W., Modrak "Aristotle the power of the perception" London and Chicage. The University of Chicage Press, 1987 writes that Aristotle often uses the psyche form and the composite psychological

state. Just as Aristotle uses ophthalmos for the matter of the eye and the functional eye, he uses anger and desire for the form and for the composite state. This practice would be wildering, were it not the case that Aristotle accepts the designation of the term in ordinary speech as the primary sense ophthalmos for eye, orxis for desire. In ordinary usage terms such as orexis or orge are used for psychological states. Aristotle assumes that in common parlance these terms have a puerly physical sense. When orexis appears in the formal definition of orge, it is being used in the popular physical sense. However, when a philosophical analysis of orexis is undertaken by Aristotle, orexis turns out to be psychological state. The ordinary sense of orexis, the theory, treated as the description of the formal psychical component of a psychical state".

18. De Anima 403 a 32.
19. Metaphysics 1036 ag-12.
20. Physics 193 b 22 - 24.
21. Posterior Analytics, 79 a14-16 Medicine is also so related with geometry e.g. it is for a physician to know that wounds heal more slowly, the Geometer to know the reason. See also. Sir Thomas Heath, Mathematics in Aristotle, Oxford: The Clarendon Press, 1966, P.60.
22. Category, 10 all-12.
23. De Caelo 286 - 16
24. Mueller "Aristotle on Geometrical objects", *Archiv für Geschichte der Philosophie* 52, (1970) P.157-171

"The solids of course, cannot really exist separate from physical bodies, but they are somehow adapted to being considered separately".

25. Posterior Analytics 74 a 35 bl.
26. Metaphysics 1036 a5. Mario Mignuca, "Aristotle's Airthmatics" (ed. Y Hrsg) Andreas Gracer, Switzerland; Verlas Paul Hant Bern and stuttgart, 1987, P.176. says that to consider mathematical objects qua indivisible does not imply that they are ontologically different entities from perceptible substance. We can think that they are simple things of world conceivable as lengths or planes or solids or indivisibles.
27. Metaphysics 1036 a29-30.
28. Ibid 33-35.
29. Physics 200 b5-7.
30. De Partibus Animalium 641 a4.
31. Ibid a16 - 20.
32. Ibid a10.
33. Ibid
35. De Anima, 412 a6-16.
36. Ibid of Metaphysics, H. 1042 a27-8 b9-11, 1043 a5-28, 1045 a25-b23.
37. Physics, 191 b 27-29.
38. Metaphysics, 1048 b1-8.
39. C-II, Chen "The Relation Between the Terms

- ENERGEIA an ENTETECHEIA in the Philosophy of Aristotle", *Classical Quarterly* N.S.VIII (1958), P.12-17.
40. *Quarterly* N.S.VIII (1958), P.12-17.
 41. *Ibid.*
 42. *Metaphysics* 1050 a23, Edwan, Wallace, Aristotle's Psychology, P-X/II, The distinction can be understood by this way that energeia represents merely a stage on the path towards enthelecia while enthelecia is the realization which contains the end (telos) of a process i.e. a complete expression of some function, the perfection of some phenomenon, the last stage in the process from potentiality to reality", cf. D.Ross Aristotle's *Metaphysics* ii P.245.
 42. *Metaphysics*, 1043 a6-15
 43. *Metaphysics*, 1043 a35.
 44. *Ibid*, 1035 b14-16. of *De Anima* trans. with introduction and notes by D.W. Hamlyn, Oxford; Clarendon Press, 1968 P.85-86.
 45. *De Anima*, 412 a22-27. D.Ross, Aristotle P.134. Here Ross found the notion of soul as the form or actuality of a living thing as ambiguous one.
 46. *De Anima*, 412 a 29 b5.
 47. *De Anima*, 412 a 20 - 413 b34.
 49. *Ibid* 414 a5-29.

