

IS ARISTOTLE'S PHILOSOPHY ANTHROPOCENTRIC? A BIOCENTRIC DEFENSE OF THE ARISTOTELIAN PHILOSOPHY OF NATURE

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ABSTRACT. *This article has focused on the Aristotelian philosophy from which I have sketched some traits of biocentrism. Through the discussion, I have tried to defend the view that the state of having life is central to biocentrism. As such, I have shown that Aristotle is one of the best instances of the biocentric outlook. In the context of contemporary environmental philosophy, the biocentric worldview has been accepted as a life-based notion. It rejects the view of anthropocentrism. In addition, Aristotle has made another contribution with regard to the processing of matter and the flow of life, which is based on evolutionary biological grounds. This article has also shown that we should choose to receive the Aristotelian concept of biocentrism.*

KEYWORDS: *anthropocentrism, autopoiesis, biocentrism, natural philosophy, substance, place and artifacts*

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Introduction

At the end of the materialistic age of Greek philosophy, social, ethical, and normative approaches had emerged seriously. The Sophist, Socratic, and Platonic schools had, to that date, been involved with social and moral discourses. At this time, Aristotle turned back to the materialistic school in addition to the social and moral focus. Moreover, most environmentalists have shown that Aristotle's natural philosophy is an anthropocentric one. However, it needs to be examined whether the Aristotle's notion could indeed be considered as anthropocentric. Different sections of this article will concentrate on how Aristotle perceived the life-centric view in his natural philosophy. The present article focuses on the relevant interpretations under two sub-groups. The first line of thought covers particular critical standpoints, leading to the argument as to whether Aristotle's thought is either biocentric or anthropocentric in nature. On the other hand, it weighs Aristotle's thought upward in the discussion. Critics, from various perspectives, may show Aristotle's views as anthropocentrism. Various influential concepts of nature can be found in Aristotle's works which are categorized into two streams: **firstly**, the hierarchy of species and natural objects, and **secondly**, Aristotle's natural teleological view. This article will also defend Aristotle's view which was not explicated by him as being in the anthropocentric gesture; rather, his philosophy of biological view is a consistent form of biocentrism.

1. Aristotle's Natural Philosophy

1.1 Pyramid of Natural Objects in Aristotle's Natural Philosophy: Anthropocentrism or Biocentrism

Before entering into the issue, this section pays an attention into the definition of anthropocentrism. According this theory, human being is considered as an important part of this world and natural world exists only to be subservient to human beings. From the value perspective, it has been accepted that only human beings are the center of all values and all values originate from humans. All other beings, that is, non-human and objects, have value only in relation to human beings. It is to be mentioned here that most anthropocentrists explain value "by making reference to the satisfaction of subjective preference" (Silvi, 2005:4). They give "priorities the satisfaction of immediate human needs and desires, no matter how trivial" (Silvi, 2005 : 4). Under this value orientation, they assume that only human beings have intrinsic value and that the value of nature is an instrumental.

However, this theory has been criticized because of its human-centric inclination. Such intention of this theory simply be named an anti-environmentalists approaches. Baird Callicott (1995) also affirms with this view and argues that anthropocentrism "grants moral standing exclusively to human beings and considers non-human natural entities and nature as a whole to be only a means to humans' ends." (Callicott, 1995: 276). It implies that anthropocentrism is a conception that is inclined to make a dichotomy between humankind and the rest of the world. In that dichotomy, humankind's position is above all other things and "...humankind is the only principal source of value or meaning in the world" (Eckersley, 1992: 51).

Anthropocentrism is centered in binary opposition comprising two oppositions: man and nature. In addition, their relationship is hierarchical, from top to bottom. This duality reveals the up and down positions in the relationship among the realities and that it appears as exploitative. Therefore, dualism, as a source of the anthropocentric worldview, should be rejected as an exploitative.

On the contrary, biocentrism is a different from that of anthropocentrism. It focuses on “nature-centered living” and holds that human beings are inherently members of nature. All of the components of nature are integrated through the flow of life. However, biocentrism as a notion is opposite to anthropocentrism. Therefore, it does not permit to use other components of Nature for consumption of human beings; rather it considers non-human species as equally valuable in Nature. For example, we should protect natural beings or different species from extinctions. However, this is clear to us that like other species or organisms, human beings are also an integral part of world life cycle.

A rigorous version of biocentrism can be found in Schweitzer’s (Schweitzer, 1987) modern versions of life. His notion of “reverence for life” is known as a most developed form of biocentrism. Paul Taylor’s (Taylor, 1986: 99–100) view is known as egalitarian biocentrism. It is biocentrism because it upholds that human are member of earth’s community of life as the other things are member of that community of life too. Even the survival of each member depends on its relations to other living organisms. It is egalitarian, because this notion holds that every living being has equal *intrinsic value*. It also agrees with the view that “[a]ll organisms have teleological centers of life in the sense that each is a unique individual pursuing its own good in its own way” (Taylor, 1986 : 100). Biocentric pluralism argues that life has different expression, and different expressions have different degrees of values. It also upholds that only human should not be treated as superior over the other living organisms. All organisms should be treated as equal overall to other living organisms. Recently James Lovelock (1982) and Lawrence (2011) develop a new form of biocentrism. The term biocentrism is used in James E Lovelock’s book *Gaia: a New Look at Life on Earth* (Lovelock, 1982). He proposes a new formation of hypothesis which holds a view that living and non-living organisms of this earth are closely connected to form a “self-regulatory complex system” (Wikipedia, accessed 2014). This regulatory process maintains the condition for life on the earth. The same urge already has been found in the Humberto Maturana’s notion of *autopoiesis*.² It also indicates that the earth and its living organisms have an interacting process that has an inter-dependent relationship. For example, we can think about the life of bacteria *E-coli*, the life cannot be survived without getting the proper environment of their habitat.

Different expressions of biocentrism can be shown here through the following diagram:

² Aristotle was pioneer of this notion. In his philosophy of natural philosophy, Aristotle holds a view that every living being has capacity to develop by its own self. This notion is known as *autopoiesis*.

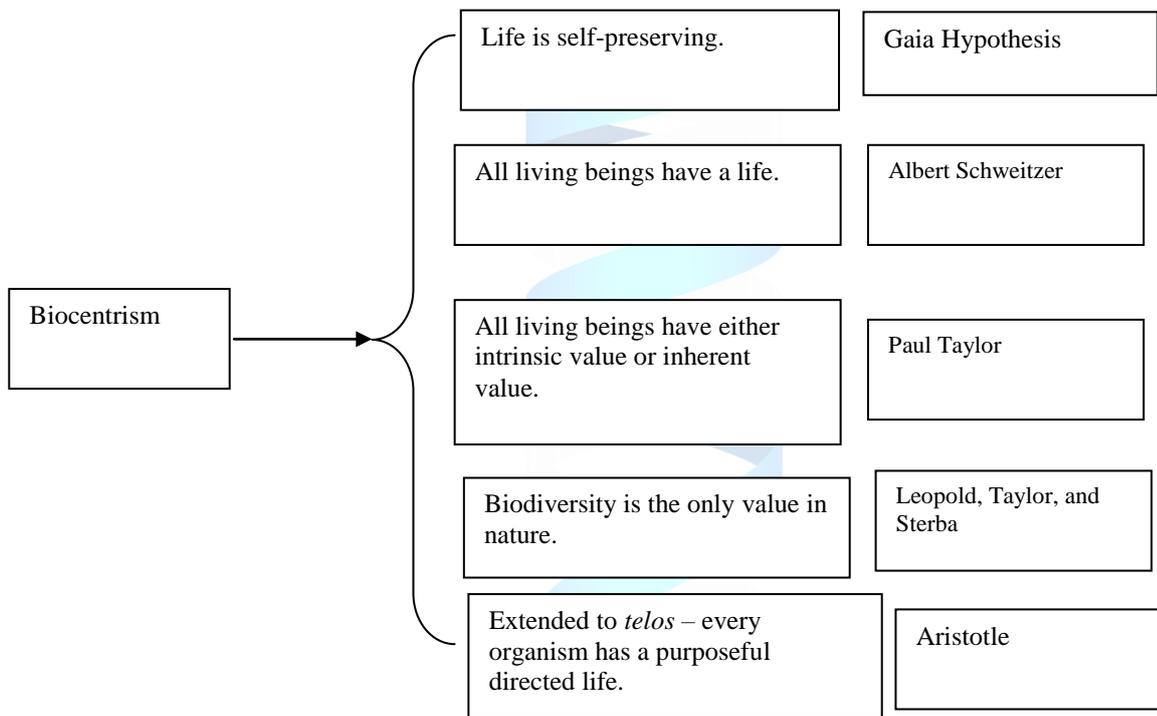


Figure 1. Different versions of biocentrism

The diagram gives us an impression that all living components of nature are equal having their intrinsic or inherent value and having values implies that they have a right to life. In that sense, biocentrism gives emphasis on biodiversity and it assumes the highest value for living organisms. As a notion, it also holds that all living organisms in the nature are centers of life.

However, as a notion biocentrism has lots of inner force that can be useful for saving the nature from dangerous anthropocentric worldview. Though, we cannot avoid the drawbacks of this notion. Firstly, human beings are treated from outside of natural process. In the same manner, a serious dichotomy between human beings and nature has drawn sharply. When biocentrists emphasize on “life” they consider it equally, but it requires to consider that the difference between “life of human beings” and “life of an ant” is important. In our daily life, while we are walking, ploughing a land, hundreds of worms, ants and various kinds of animal life are being killed. But, none of a human right activist or biocentrists ever claims that killing of “life” has occurred in agriculture which is one kind of massacre. As we attribute the term genocide for the killing of the mass people of Bangladesh in 1971, in Herzegovina, in the Second World War and recently in Iraq, we do not consider the killing as such. In the next sections, I will analysis whether Aristotle’s Philosophy of Nature is anthropocentric or biocentric in terms of the given definition.

1.2 Is Aristotle Anthropocentrist?

In case of Aristotle, according to the above mentioned traits of anthropocentrism some exponents of environmental philosophers blame his philosophy as an anthropocentric one. Now we can go through Aristotle’s philosophy of nature. He contends that everything is an object of concern due to the fact that it is good.

Regarding the principle of the hierarchy of things, it can be said that the lower objects systematically follow the higher things. Even within each of these categories, there is a hierarchy of objects with varying concerns. Now, let us look at the following diagram:

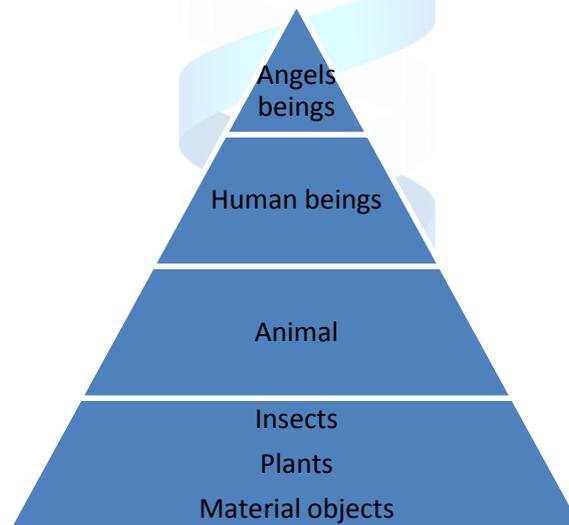


Figure 2. Aristotle's view of the hierarchy of creatures

In the figure of the hierarchical pyramid, it appears that Aristotle specially favors human beings. He is of the view that all “animals exist for the sake of man ... for the use he can make of them as well as for the food that they provide”. On the basis of this notion, some critics argue that the hierarchical pyramid of living beings as shown above manifests the self-serving nature of the pattern of ranking diversity. Only man is the ranker, who just happens to end up at the top of his own ranking. However, here there are certain questions which confuse the concept of the uniqueness of the superiority of human beings above others.

Regarding Aristotle's hierarchical view, the following question needs to be considered: is it practical or possible to assign a degree of value to each object or being regarding their position in the hierarchy? If any critics claim that Aristotle attributes values to the natural objects according to their strength, it will not be wrong to think that the value of plants, the value of animals, and the value of human beings should not be the same or equal. In support of this claim, they may provide the philosophy of biology. Aristotle's philosophy of biology claims that among the beings, the gradation could be found in the sense of their belongingness. We can follow the hierarchy of the soul along with its properties in the following table (on Hierarchy of beings):

Table 1

Hierarchy of beings with their essence			
Living beings	Plants	Animals	Human beings
Properties of living beings	Nutrition and reproductive (A)	A	A
Additional properties		+ Sensitive (touch + taste) + appetitive: desire and hunger (B)	A + B
Additional properties			(A + B) Physical desire + courage + (C) rational will

Due to his value and life hierarchy notions, Aristotle can be criticized as an anthropocentrist. In Table 1 shown above, we see that plants have reproductive as well as nutritive faculties. Animals also have sensation and movement. The term *sensation* means touch, and the term *movement* means growth, development, and change. If any plant does not possess nutrition, the act of accretion of life will no longer be sustained. Nutrition – the essence of life – includes body, primordial soul, and generative soul. Only the nutritive body is to be nourished and can be nourished. After completion of nourishment, the body reproduces a similar thing. Thus, a soul becomes a generative soul as it can produce the same thing spontaneously.

Humans and those that resemble human beings have the faculty of appetite, sensitivity, and intellect: thinking and reason. Aristotle is of the opinion that things having such faculties should be treated as living organisms. In other words, *life* belongs to the living organisms which have the capacity to inherit these faculties and principles. Table 1 as shown above also indicates that organisms, insects, plants, animals, and human beings are living organisms and have the inheritance of faculties. Regarding the inheritance of faculties, Aristotle places humanity above all other organisms. However, he agrees that the flow of life in terms of energy is not separate from that of other organisms. This view reveals the truth that every living organism has the capacity to possess a soul. A plant can possess a nutritive soul; an animal can possess a sentient soul; and a human being can possess intellect or the soul of reason. Aristotle intends to make sense of this by providing the clarification that *life* is present in all living beings. However, the expression of the form of life may be different. Life is also formed with the essence and principle of locomotion, growth, alteration, nutrition, and touchable sensation.

In the case of value attribution to objects, some critics think that human beings have a higher value. This is the basic approach of anthropocentrism. However, at

least two reasons could be presented here which may imply that value attribution does not make a specialty of the higher animals. In this context, we can show the following two reasons:

First: Every individual organism has some specific parameter by which to evaluate its value. For example, some will say that the qualitative factors are nothing but the performance, usefulness, and utility of the object. In addition, while deciding how to attribute value, the agent (human being) would consider each good thing from a particular different perspective. That is why it is really difficult to evaluate such decisions.

Second: If we maintain the hierarchy in the animal kingdom or among human beings based on their performance and usefulness, this will appear to be arbitrary. This possibility allows for the destruction, or the extinction of species, while we promote some greater good. For example, a multinational company, in order to establish an amusement park (which is sometimes attributed as an eco-park) for commercial purposes, wants to buy some land from a rural area which is also the part of a forest where the indigenous tribal people have been living for many years.

In this situation, how will a virtuous man make the decision? If we consider this question from the perspective of Foster's (Foster, 2002 : 411–426) proposal of *Aristotle's Environmentalism*, we shall have to make a list of all the good things that live in the forest. The good aspects of indigenous people and non-human beings of the forest, etc. should be taken into consideration. Now, how do we compare these things with one another through the degrees of hierarchy? To Foster, prescription species – which are secondary substances – are less significant than natural substances. For this reason, an endangered species deserves a lesser degree of consideration than any other natural substance, although we need more attention to be given to promoting better through having allowed for the extinction of an endangered species. This analysis gives an impression that the Aristotelian view is not anthropocentric in nature. Rather, his notion focuses on *life* which is the main tenets of biocentrism.

1.3. Anthropocentrism and Natural Teleology: A Biocentric Defense

Anthropocentric criticism of Aristotle has come from David Sedley in his article "Is Aristotle's Teleology Anthropocentric?" (Sedley, 1991). He makes the charge against Aristotle's teleological view of nature. We can see the term *teleology* in the sense that Aristotle understood it. The term *teleology*, according to Aristotle, means that most of the natural events can be explained by their purpose. It means that every natural object has special goals. Any sort of entity is excited, or could happen due to the course of nature, only because it is good. Aristotle uses the words *heneka tinos*, which give the idea that "natural objects act for something". This means that the components of natural organisms develop in nature only to serve the good ends of human beings (cf. Sedley, 1991 : 180; Aristotle, 31–32). In this regard, Sedley makes some observations in favor of his projection, as quoted below:

Even at the moment of childbirth, some animals generate at the same time sufficient nutriment to last until the offspring can supply itself – for example all the animals which produce larvae or lay eggs. And those which bear live young have nutriment within themselves for their offspring for a time, the substance called milk. Hence, it is equally clear that we should also suppose that, after birth, plants exist for the sake of animals, and the other animals for the sake of men – domesticated animals for both usefulness and food, and most if not all wild animals for food and other assistance, as a source of clothing and other utilities. If, then, nature makes nothing incomplete or pointless, it is necessary that nature has made them all for the sake of men. (Sedley, 1991 : 180)

The idea can be put forward by the following verses of Aristotle:

We must explain then (1) that nature (*physis*) belongs to the causes (*aitiai*) which act for the sake of something (*heneka tou*); then (2) about the necessary and its place in physical problems, for everyone refers the cause to this, saying that “since the hot and the cold and so forth are by nature such and such, certain things are and come to be out of necessity.... (Sedley, 1991 : 190, Aristotle, *Physics*, II 8, 198b : 10–14)

Sedley mentions about his point from Aristotle’s *Physics*, which makes a distinction between the beneficiary of a process or *state of affairs* and *the object of aspiration*. Here, Aristotle places a great emphasis on human beings as being the “ultimate beneficiary”, while “God remains the ultimate object of aspiration that which all lesser beings strive to imitate” (Sedley, 1991 : 180). In this case, nature appears as subservient to human benefits, which is anthropocentric in a strong sense.

Sedley finds an *anthropocentric* stand in Aristotle’s notion of *natural teleology*. As a notion, anthropocentrism holds that man is the most significant part of this world, and that non-human nature exists only to serve human beings. This notion of anthropocentrism speaks of the uniqueness of human beings. It also assumes that *only* human beings can understand things and are able to moderate the material world. This idea, prevalent in anthropocentrism, denies any moral consideration of the non-human world. Here, the philosophical observations attribute a special superior spiritual status to mankind. Sedley finds such an approach in the Aristotelian dictum of natural teleology.

A defends of Aristotle’s philosophy of nature will focus on in the next sections. In doing so, some criticism of Aristotle’s notion will justify whether their claims is either consistent or contrary.

2. Aristotle’s Notion of Substance, Place, and Biocentrism

Aristotle introduces the theory of substance in his *Categories* (Aristotle, 1980) and *Metaphysics* (Gill, 1989). Let us now try to understand the term *substance*. According to Aristotle, the determinants of substance are the quantity, quality, and relationship, and the place or time or state or the undergoing of something. For

example, logs of wood, rocks, potatoes, forks, etc., belong to the category of substance, and organisms, including human beings, are referred to as substance. Substances are “one by a process of nature”. As an interpreter of Aristotle, Smith claims that the Aristotelian-type substances have the unity of living things. So, a substance enjoys a certain natural completeness or rounded offness (Smith, 1992 : 105–127). From a spatial standpoint, substance is an *extended spatial magnitude*, which occupies a *place* and has a spatial part. As a whole, *substance* is completeness and has no parts; however, more or less *substances* themselves are often joined together. In Aristotle’s theory of substance, *dimensional spatial regions* and *the content of location* are very important ideas. Actually, in order to arrive at this point, we need to clarify the *notion of place*, which is also ascribed to Aristotle’s philosophy.

In his book *Physics*, Aristotle argues that every *substance* has its *place*, which is “neither a part nor a state of it, but is separable from it. For place is supposed to be something like a vessel (Aristotle, *Metaphysics*, 209b, 26f.). Aristotle thinks that *place* itself is not something material; however, one or more material bodies can exist in the same place at a time. *Place* has shape, form, and size, but we would not treat it as matter or divisible bulk. Aristotle states that *place* is:

We say that a thing is in the world, in the sense of in place, because it is in the air, and the air is in the world; and when we say it is in the air, we do not mean it is in every part of the air, but that it is in the air because of the surface of the air which surrounds it; for if all the air were its place, the place of a thing would not be equal to the thing – which it is supposed to be, and which the primary place in which a thing is actually is. (Smith, 1997: 90)

From the citation above, we get the impression that the material thing is related to its place in the way an eye is related to a pair of spectacles. Place itself does not depend upon things, but it exactly surrounds the thing, but not in the sense in which the shell of a snail exactly surrounds the membrane (internal soft muscles). Membrane and snail are there to form a single continuous whole, and the membrane in the snail is not similar as a thing is in its place. However, things refer to a part: at the same time, the *place* refers to wholeness. In every context of matter, there are two boundaries, that is, *external boundary* and *internal boundary*, which exactly coincide with the latter surrounded by the former (Aristotle, *Metaphysics*, 211a: 30–33.). Thus, when a thing is in a surrounding body of air or water, “it is primarily in the inner surface of the surrounding body”. The concept of the *place of a substance* in Aristotle’s philosophy is the inner boundary of the immediate surrounding or containing body. So, we can now conclude that place *contains* body. But, in the context of *substance*, *place* is separable from it, occupying it in the sense that it can be occupied at different times by different *substances*. But, *place* is also dependent upon the *substance* in the sense that places are essentially the sorts of objects into which substances can fit. Smith also tells us that *place* and *substance* are generically

dependent on each other. A *place* is generically dependent on a substance, but *place* cannot exist unless there is some appropriate occupying *substance* of that shape and size. So, it now appears that Aristotle's *theory of place* has a number of strange consequences. These consequences are described as follows:

1. It follows from the theory that proper substantial parts of bodies (e.g., your legs) are not, in fact, in place – but only potentially so: they will actually be in place only if they are transformed into substances in their own right.

2. Aristotle associates his general ontology of place with the doctrine of natural places, according to which bodies fall down to the floor when dropped because their 'earthy' nature makes them seek the ground as the resting place.

The importance of his general ontology of place for our purposes here turns on the fact that it points towards the theory of environments, settings, or niches in which substances, and especially human and non-human animals, characteristically and for the most part, exist (Smith, 1997: 13).

The previous discussion has a strong claim that both the *theory of substance* and the *theory of place* imply certain points: (i) nature and natural objects are not separated or isolated from each other. Every object of nature is related to its place. The notion of place in Aristotle's *Physics* has much importance in the sense of surroundings. (ii) The term *substance* in Aristotle's philosophy implies integrity amongst the contents of objects. This very sense is the representation of the interrelationship among the objects. According to the ideas presented in (i) and (ii), Aristotle's notions of *substance* and *place* have much importance as the conceptual background of biocentrism. In particular, Taylor's style of biocentric approach can be found in Aristotle's theory of substance. In defending this claim, we can present here two arguments:

First: For every individual object, there is some specific parameter to evaluate its value. For example, somebody, while evaluating the object's degrees of value, will emphasize that the qualitative factors are the performance, usefulness, and utility of the object. In addition, while taking a decision, the agent would consider each good with different perspective. That is why it is really difficult to evaluate such decisions.

Second: If we maintain a hierarchy in the animal kingdom or among human beings for the sake of their performance and usefulness, it will be arbitrary. Thus, many lesser goods might be overlooked for the reason of a greater good. This possibility allows for the destruction or the extinction of species while we are setting out to promote some greater good.

However, Foster's proposed the *Aristotelian Environmentalism* does not consider this importance of the endangered species. At the same time, the hierarchy ranking found in the Aristotelian environmentalism has not yet adequately answered certain questions which are as follows:

1. Can we think comparably that human beings, as a species, have the best eyes or ears or sense of smell or fleetness of foot?
2. Have human beings convinced us that big brains are the mark of a superior species?

From the analysis presented above, I want to claim that Aristotle's *notion of artifacts* and *hierarchy theory* provide us with such an idea that we may use natural entities as a means to fulfill our anthropocentric ends by imposing a function onto an entity that lacks an innate function. Eric Katz (Katz, 1992 : 232) has also expressed the same opinion in this regard. He holds that if we indicate *artifacts and matter* as a factor of environmental processing, natural entities, as is conceived through the characteristics of an artifact, would not entail any intrinsic function. Hence, an artifact is created to meet human satisfaction and interest. This is the proper implication of the anthropocentric worldview which is also the manifestation of the insidious dream of the human domination of nature (Katz, 1992 : 232). But, if we turn to Aristotle's *virtue ethics*, his theory does not seem to be an anthropocentric one. His virtue ethics provide us with a reasonable account for the consideration of non-humans in a moral agent's deliberation and intention to consider non-human beings as s/he considers humans. Therefore, the articulation of artifacts and substance as narrated in the Aristotelian philosophy is completely consistent with the biocentric worldview.

2.1. Substance and Artifacts are Conceptual Resources of Biocentrism

After studying Aristotle's works, thinkers like Susan E. Foster (Foster, 2002 : 411–426), Barry Smith (Smith, 2001 : 79–97), and Nancy J. Holland (Holland, 1999 : 409–420) argue that there are several common features of ecological aspects in his philosophy. We derive some versions of the ideas in Aristotle which might help us to show whether or not he is an ecologist.

First: There are differences between substance and artifacts. In her article, Foster draws on the differences between substances and artifacts as expressed by Aristotle. This can be shown through the following figure:

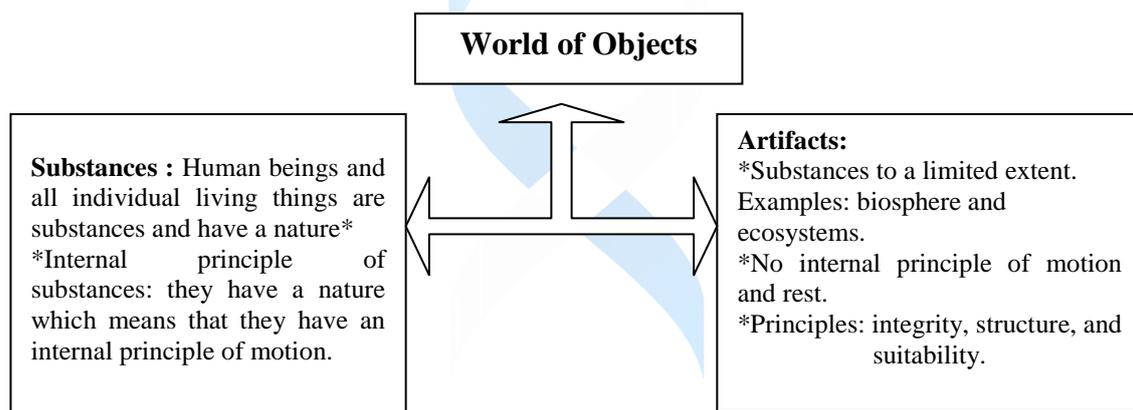


Figure 3. Differences between substances and artifacts

In her article, Foster emphatically states that artifacts, like all other substances, have the following principles which assign this vitality as human. These are explained as: a) integrity implies natural bodies through the *Principle of Rest*; b) suitability implies that objects are suited to their function; c) possessing goodness

implies that they have both instrumental and *aesthetic values*; and d) structure and purpose imply the *Principles of Movement*.

According to Foster, Aristotle treats biosphere and ecosystems as artifacts which have an aesthetic and instrumental value. Furthermore, both possess measures of collection, like *structure*, *integrity*, and *suitability*, which imply their goodness (Foster, 2002 : 413-414). Foster finds the point from Aristotle's philosophical literature in which there is the idea that agents (human beings) should concern themselves with the welfare of others (plants, animals, ecosystem, and biosphere). According to Aristotle, there are many reasons to be conscious about the welfare of artifacts and substances. He also assumes that both these objects possess aspects of being, with the collection of *structure*, *integrity*, and *purpose*, which indicates some degrees of goodness.

According to Foster, Aristotle believes that all living beings have interest in realizing their own nature. Realizing one's own nature implies that there is something to be actualized, and that the actualized nature of anything reflects its individualism. So, if we indicate that plants, animals, ecosystem, biosphere, and human beings have a standard criterion of the individual, who can realize their nature, it means that these have goodness. According to *virtue theory*, one should necessarily be taking into consideration the other's well-being. This means that, to be a virtuous, it is in the agent's interest to consider the well-being of others. By acting virtuously, the agent might achieve the real happiness of life. Aristotle also holds that the act of failing in one's responsibility to the environment is a defect in the moral character, which is also an obstacle to the development of the agent's virtuous personality. By considering the value and goodness of things, Aristotle states that it would be unethical to destroy things unnecessarily. However, the fact is that substances have the greatest degree of being and they should be the object of the greatest concern. Therefore, we can propose an environmental ethics. It is also true that, according to Aristotle, value is the opportunity to practice virtuous activities.

However, regarding the Aristotelian environmental ethics, as has been offered by Foster, there might be some questions and queries. The question may arise about whether or not the environment's individual ecosystems, individual species, and individual plants and animals offer a unique opportunity to practice virtuous action. If we agree with Foster's interpretation that artifacts offer a special type of opportunity, they have a certain degree of value. I think that Foster does not exactly offer a viable answer to the following questions:

Question 1: a) What parts are natural environments?

b) Are these parts necessary for the opportunity for virtuous action?

Question 2: To what extent should each person be considered good?

According to the Aristotelian environmental ethics, Foster's proposal fails to offer a consistent response to the questions raised above. The next section will show that Aristotle's views of organisms and natural teleology place a great emphasis on biocentrism.

2.2. A Defense of the Aristotelian Biocentrism

In response to the criticism of Aristotle being an anthropocentrist, we can now put forward relevant points by first providing a comprehensive definition of *soul*. Aristotle gives two definitions of soul. His first definition originates from the term *organikon*, by which he means the “actuality of a natural object/body” (Aristotle, *De Anima*.II.1, 412b: 4-6). This becomes clearer through his analysis of the “genus of substantial beings” (Aristotle, *DA*.II.1, 412a: 6–21). According to Aristotle, there are three types of substantial beings: (i) the first one belongs to the category of matter, which is the potentiality of soul; (ii) the second one refers to the category of form and shape, which is the actuality; and (iii) the third one points towards the compound reality of *potentiality* and *actuality*.

Aristotle assumes that most people believe that a substantial being is a natural body which has *life*. In his *De Anima* (Aristotle, *DA*.II.1, 412a : 11–16), Aristotle claims that *natural objects*, which have *life*, inherit at least three characteristics: i) they have the capacity to possess self-nourishment; ii) they have the inner force of development or growth; and iii) they have the capacity to decay. In fact, Aristotle is of the view that these are the third type of *substantial objects* (Aristotle, *DA*.II.1, 412a : 11–16) which integrate actuality and potentiality. From this position, Aristotle comes to the conclusion that the soul is a substantial body. Accordingly, it has the “potentiality of life” (Aristotle, *DA*.II.1, 412a : 19–21). In this clarification, the soul appears as a natural object which has the capacity to bring *life*. If we identify the soul as a natural object with the power of self-nourishment, growth, and decay, certainly it would be understood in terms of *life*. On the other hand, an understanding that the soul has its vital functions of life reflects the fact that every natural body is alive. Such an argument implies that natural bodies as well as the soul have a special kind of integration of life-functioning characteristics.

Now, I will turn to the second definition of *soul*. With assistance from the first definition, particularly its two characteristics, Aristotle moves towards obtaining the second definition. Here, at first, Aristotle argues that soul is the *actuality* of natural bodies and the properties of *life* are there as the potentiality. The *first actuality* means the sense of “possession of knowledge” which he sometimes calls disposition (*hexis*). The second actuality is contrary to the first *actuality*. In this sense, soul does not represent the actuality in the way that it does in the first form of *actuality*. The second sense of *actuality* refers to an activity (*energeia*). So, the concept – *actuality* – in the first sense, appears as a “possession of knowledge.” In the second sense, the concept – *actuality* – appears as an “exercise of knowledge”. Therefore, the first one refers to *disposition* and the second one refers to *energeia*. In order to be *alive*, Aristotle claims that the natural body is not required to exercise the capacity which it possesses. For example, in a sleeping situation, natural objects do not need to exercise possessive knowledge, whereas life is potentially there. In other words, it can be said that in the state of one’s sleeping and in any other kind of situation, life potentially exists in the natural body, although it is not necessary to exercise all of its functions.

The soul, natural body, and life are interrelated. The soul appears as an actuality of the natural body and the life potentially inherited there. Therefore, the concept of life appears as a force of the natural body as well as of the soul. This life is also central to biocentrism. This is one reason for defending Aristotle as a biocentric exponent, rather than making attempts to discover elements of anthropocentrism in his philosophy.

From the value perspective, it has been claimed that anthropocentric environmentalists make a difference between *instrumental value* and *intrinsic value*. Anthropocentrists take the side of instrumental value which confirms that only human beings have intrinsic value. In their view, all other things whether or not they are natural objects have no *instrumental value*. In this respect, Aristotle may seem to be a follower of *instrumental value*. While giving a comprehensive definition of soul, Aristotle focuses on the relationship between souls and natural bodies which have the potentiality of life. This relationship is instrumental (Everson : 1997). In the following lines, his concept of *instrumental value* in regard to *life* has been expressed in a clear manner:

Instrumental are also the parts of plants, even if they are extremely simple, such as for example the leaf is a cover of the pod, and the pod of the fruit. And the roots are analogous to the mouth, for both take in nourishment. (Aristotle, *DA.II.1*, 412b : 1–4)

In the teleological process, the natural body has an instrumental role for the soul, and the parts of the natural body have their own functions and activities which are also instrumental to the soul. However, Aristotle finds this instrumental essence as an interrelated means among the parts of natural objects. So, unlike its use in modern anthropocentrism, *instrumental value* does not mean any sort of exploitation. Aristotle uses this concept as an end for natural objects within the system of nature.

3. Autopoiesis, Virtue Ethics and Biocentrism: Aristotle's Relevancy

This section will focus on Aristotle's views on natural philosophy and virtue ethics which are the signs of the strong defense of biocentrism. Before illustrating autopoiesis in the Aristotelian natural philosophy, I explain the term *autopoiesis*³. In 1970, the term *autopoiesis* was used in Humberto Maturana's article "Neurophysiology of Cognition" (Maturana, 1970 : 3–23). The term has come to be used in the scenario of the self-referring process of the living organization. Varela, Maturana, and Uribe define the term as follows:

The autopoietic organization is defined as a unity by a network of productions of components which (i) participate recursively in the same network of productions of components which produced these components, and (ii) realize the network of productions as a unity in the space in which the components exist. Consider, for example, the case of

³ For this discussion, I have used the reference to Clarke, 2012.

a cell: it is a network of chemical reactions which produces molecules such that (i) through their interactions [they] generate and participate recursively in the same network of reactions which produced them, and (ii) realize the cell as a material unity. (Varela, Maturana, and Uribe, 1974 : 188)

Maturana reformulates the Aristotelian view of *substance* into *organization*. Autopoiesis is a *self-referential description* of our *cognitive process*. It has those operational forces by which the organization of life, bios, and the cell turns into a process of self-production under environmental interaction. So, the term *autopoiesis* refers to an autonomous or self-operating system which can maintain the continuous production of the natural components that are essential for the living system. In this respect, we can think of the biosphere as an autopoietic system. The components of the biosphere function within the large-scale universal system as an autopoietic system.

The term *autopoietic* can be compared with Aristotle's conception of *entelechy*. The term *entelechy* can be understood by realizing the idea of Aristotle's four causes. This concept of life is connected with Aristotle's view of the *laws of nature*. Under the *laws of nature*, the meaning of life and human lives evolves around natural boundaries. According to Aristotle, life has two aspects: form and matter which interact with each other. Form cannot exist independently. This is better understood through clarifying the four causes which play a certain role behind the process of the formation of substance. These are: (i) material cause, (ii) formal cause, (iii) efficient cause, and (iv) final cause. The formation and changes that take place in the material cause and in all contents of life require the setting of a balance. The formal cause is involved in shaping the ingredients to a form that has life. In turn, the efficient cause identifies the changes in the ontogenesis of the given form of life (shaped matter of life). The final cause is related to the purpose or goal that we strive to obtain from objects. In this stage, *entelechy* plays an important role in all living beings. Perfect growth and development are caused by the performance of *entelechy*. Even the relationship between form and matter is maintained by the role of *entelechy*. So, in all respects, the terms *entelechy* and *life* are used interchangeably in the Aristotelian philosophy.

Concluding remarks

This article has been focused on the Aristotelian philosophy from which I have sketched some traits of biocentrism. In defense of biocentrism in the context of philosophy, I have mentioned some philosophical clues in which I have shown that Aristotle's notion is very much inclined to biocentrism.

Through the discussion, I have also tried to defend the view that the state of having life is central to biocentrism. As such, I have shown that the metaphysical processing of the environment practiced by Aristotle is one of the best instances of the biocentric outlook. In the context of contemporary environmental philosophy, the biocentric worldview has been accepted as a life-based notion. It rejects the view of

anthropocentrism as well as speciesism. In addition, Aristotle has made another contribution with regard to the processing of matter and the flow of life, which is based on evolutionary biological grounds. This article has also shown that we should choose to receive the Aristotelian concept of biocentrism for the following reasons:

Firstly, as a life-based notion, Aristotle's biocentrism should be given due attention similar to that of recent biocentrists, Paul Taylor (1986) and Holmes Rolston III (1988). This theory assumes that life is life, and that life inherits all beings in nature, including plants and organisms. On the other hand, anthropocentrism maintains that animals and other non-human beings should not be treated as human beings as they lack rationality. Similarly, the Aristotelian philosophy establishes the natural flow of life that exists in all living beings. It is true that in this flow some things have more strength than some other things. However, this does not reflect one's superiority over others. In fact, the differences and degrees among them can be described as biodiversity as it is understood in modern environmentalism.

Secondly, the Aristotelian view of biocentrism has been influential on philosophical grounds. We also should follow Aristotle's notions of substance and natural teleology which help us to understand contemporary "ecological ethics", such as *deep ecology*, *land ethics*, and *biocentrism*. In the present context, with regard to the ecological crisis, we need a balance in nature, ecological equilibrium, and a natural stability-diversity relationship which have been addressed in many different ways in Aristotle's *teleological naturalism*.

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