

Unity of Nature in the Western Tradition of Thoughts: A Critical Overview

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Abstract

The idea of Nature as a unified entity seems to be an aesthetic, impressionistic attribute ascribed to Nature. In the western metaphysics, such unification is a divine intension or divine architecture, which is perhaps beyond the possibility of human cognition. It proclaims that such idea is not a quixotic imagination or notional image or a mere speculation of Nature. Rather there are certain understandings based upon certain logical premises that help in conceptualisation of this idea. This paper intends to present how the idea has been conceptualised and developed in the history of western philosophy. This paper is a retrospective overview of the journey of such idea of Nature from the ancient to the modern time, and the conceptual impediments it has faced in the course of its journey. It has not touched upon all ideas in the gamut of philosophy due to the constraint of space. However, views of select philosophers on the nature of natural reality have been analysed to substantiate the idea concerning the unity of Nature. Although attempt has been made to maintain chronological coherence among the ideas, yet in the course of conceptual analysis some lapses will unavoidably be present in the paper.

Key words: Nature, wholeness, systems, interconnectedness

The idea of Nature as an integrated whole inspires a sense and understanding that the individual being in natural system (both living and non-living) has its existence with certain unique features, but not in separation; rather they are in a complexity of interdependence and interconnection within a system. These individual beings are not self-sufficient in isolation; rather the system conditions and inspires their existence. In other words, the system is immanent in the individual as the essence. Thus, like a broken hologram, all beings express the system at micro level. Such view may be termed as “holistic and organismic”. But, if the Nature is viewed as the sum of spectrum of species or the arbitrary arrangement of things and species, the view is mostly mechanistic or reductionist. To the modern environmental scholars, the mechanistic and reductionist views are “the intellectual harbingers of death” and they “kill the environment by reducing the natural world to broken up bits and pieces which have no soul, no animation, no life” (Marshall, 2002, 14). It is also viewed that such conception possibly separates human being from Nature, that leads to struggle against and domination over Nature. It further demolishes the sense of responsibility and obligation of human to Nature as a life-giving and life-sustaining force, by creating the image of Nature as a vast machine which is destined to function by using its stock of energy, until its energy is completely exhausted and which can be manipulated by external forces, to function till it has productive potential. Modern day's environmentalism and ecophilosophy repudiates such conception, whereas accepts the former as the core concept of their doctrine. Ecophilosophers reassert that the holistic concept of Nature can possibly save the earth from ongoing macabre and the upcoming destruction. The approach, needed for it, is least scientific and more spiritual, which is perhaps the reminiscence of animistic tradition or the tradition of mother earth's worship since the Paleolithic era. It is evident that the post-positivist or post-

modern science has shifted focus from the part to the whole, moreover has focused on the biological principles of the earth. And the idea of the unity of Nature has reached at present and received scientific affirmation by traveling down the centuries, since Pre- Socratic era. It was the time when scientific concept of environment and Nature was no longer known to the world, but the philosophical views, since that time, have given the concept a way to flourish.

In ancient time, particularly in animistic tradition, the world was not viewed as fragmented or dead, rather the locus of all living force. Even humanity was not viewed as separate from and antagonistic to Nature, but was in co-existence with Nature. In the spiritual and ritualistic practices of such tradition, Nature was personified as “a Goddess, as mother earth” and the focus was on “the sacredness in Nature and the holism in humanity and everything living” (Tollefsen, 2011, p. 92). It was also viewed as the infinite force, represents the immanence of the God. It was revered and worshiped, as Vandana Siva (1988) says, because of “its life-giving and life- supporting and -sustaining qualities” (as cited in Tollefsen, 2011, p. 92). So, every living and non-living beings were believed to be the creation of Nature Goddess, for which there was a sacred unity in the world and everything was thought to be connected with a spiritual thread. Marshall (2002) says, “the earth, itself, was also seen as alive. It possessed an overall harmony and integrity much the same as the harmony and integrity of a single living creature” (p. 11). Such is the holistic conception of Nature, which cannot be confined within the ancient tradition of the East and the West. Rather it still exists in the cultural and ritualistic practices where people worship Nature and its agents as the embodiment of the God.

In the Pre- Socratic era, Thales of the Milesian School said that everything is made of water. To him water was the primordial substance out of which all others are formed and this is the substance, which the earth rests on; thus, it is the most potential substance present in everything. It gives and supports life. This view of Thales can be considered as scientific hypothesis because modern science has explored the fact that everything is made of hydrogen, that constitutes the two third of water. The living systems on the earth are highly dependent on water; it occupies major portion, constitutes significant parts and controls their functions in such systems. It seems the idea had been conceptualized through empirical exploration and scientific understanding by Thales. In a similar vein, Anaximenes of this school, viewed air as the fundamental substance present in everything as the soul. To him, earth, fire, water, stone etc. are different states of air. By focusing on air he was of the view that “just as our soul, being air, holds us together, so do breath and air encompass the whole world” (as cited in Russell, 2012). Viewing so, Anaximenes has added living qualities on earth because taking breath is the characteristics of a living being. The air, which embodies life, is contained in water or the latter is constituted by the former. It indicates that there is perpetual proximity and constitutive correlation between the two primal elements. It seems both Thales and Anaximenes viewing these elementary forces as the base and prime constituents of the physical world, attempts to show a vital relation among the objects at a very fundamental level.

Unlike Anaximenes and Thales, Anaximander, the other member of the Milesian school, did not view any physical substance like air, fire or earth as primal. Aristotle has famously rephrased Anaximander’s argument in his *Physics*,

Some make this the boundless, but not air or water, lest the other should be destroyed by one of them, being boundless; for they are opposite to one another (the air, for instance, is cold, the water wet, and the fire hot). If any of them should be boundless, it would long since have destroyed others; but now there is, they say something other from which they are all generated. (204b 24-29)

To Anaximander, the primal substance is “infinite, eternal and ageless, and it encompasses all the worlds” and that primal substance is “transformed in to different substances” (Russell, 2012, Mark, 2009). Although his primal substance is abstract, yet his belief in the existence of one substance permeating in all objects makes him similar to Thales and Anaximenes. Again, like these Milesian thinkers, an Ionian Xenophanes believed “all things to be made out of earth and water” (Freeman, 2008). From these views, it may be deduced that to the Milesians, there is a linear relation among all the substances. And as a primal substance, it is transformed into other substances and particularly into objects. There must be an inherent

bond among the objects and one is not different from the other on the basis of its origination from one substance. So the objects, at a very fundamental level, are one, but different in expressions in accordance with changing in natural conditions.

In 500 B.C., the famous Ionian Heraclitus declared fire as the prime element (Russell, 2012). Such views were driven further by Empedocles who viewed all four elements, earth, air, fire and water as fundamental to everything existent (Freeman, 2008). But Heraclitus is important when he says everything is in a state of flux. This view perhaps marks the process of evolution, which found scientific affirmation and elaboration in Darwinian Theory of evolution. He has underlined the perpetual revolution of the life cycle, in which life and death follows each other perennially. The relation between life and death, in his philosophy, implies that there is unity in the world and that unity is formed by the combination of opposites. Again everything in the world is succumbed to change, so everything is in a state of becoming- it is a process and not a point. In this sense, the prime substance, perhaps, remains constant; only the physical matter changes. Here, Empedocles posits that the four elements were everlasting but their mixing in different proportions produces different complex matters which are visibly present in the world. Again, Heraclitus says “all things come out of the one, and the one out of all things” (Russell, 2012, p. 49). It shows the integration among the one and many, between the source and the products, the substance and the objects etc. But, is this connection trans-material and happens in subatomic level? Or is it concrete, happens in physical space? Does one lose its form and identity in the process of creating others or like an archetypal metaphysical source one casts out many things by remaining unchanged? Do many things get fused in creating one? It is conspicuous that in the physical world, in a process of creating other, an object or matter loses its part or gets transformed. Only living beings can procreate their upshots through their union and the upshots carry the nature of their source of origin. But the primordial living beings do not get transformed in this process. To Heraclitus, the integration is not like fusion of matter, rather it is complex and organic, in which the creator and creations, the source and the forms etc. are inseparably one. The later as the natural extension or manifestation of the former bears the testimony of its nature, thus validates the former. In this regard, Parmenides thinks the one or the source is not something metaphysical or godly, rather as material and as a sphere, which is undivided because the whole of it is present everywhere (Robinson, 1968). Heraclitus and Parmenides's views show that the whole combines everything in an intricate bondage and the essence of everything is potentially derived from that bondage. In other words, the whole expresses itself in all things, which are in the state of interconnectedness. Thus, the separation of one part from the whole is highly impossible.

To Parmenides, the reality needs to be constant, in order to be thought on and spoken of, as human thinking is the thinking of something. In other words, thought requires objects outside itself, to be constituted. But, in Parmenides view the object must exist all times, without any changing, to support thought. But, can a world be possible without changing? How can human thought be static, or how can it carry the same and singular thing in it when everything is in a way of constant changing or in a process of evolution; and when constancy is an impossible reality? Human consciousness or thought is in a state of flux corresponding to the changing phenomena. And what exists in the thought or consciousness is the impression of the object or event, not the object itself. So an event or object to get its way into consciousness needs to have existence in certain spatio-temporal condition. With the changing in space and time the object or event necessarily changes, so does the thought or consciousness. As a matter of fact, Parmenides was the first among the ancient philosophers to talk about the constitution of thought, moreover the inalienable relation between mind and matter. This logic of relation between the reality and thought was further interpreted and elaborated in phenomenology, aesthetic, moreover environmental aesthetics. So Parmenides' logic of the whole is understandable, but his logic of constancy of reality seems to be abstract and ambivalent to the modern readers.

It is Pythagoras, who brought the world into the mathematical ambit by saying that “all things are numbers” (Russell, 2012, p. 43). To him the shape of numbers determines the shape of an object, also the number determines the size. He thought of “the world as atomic and the bodies are built up of molecules composed of atoms arranged in various shapes” (p.44). So, mathematical knowledge or methods can be applied to the real world for its interpretation. In this way, mathematical principles, to him, are the fundamental ground of physics or basis of aesthetics. The view of the world as falling into numbers, seems to be a mechanical way

of understanding the world, in which the number or pattern is distinguished from substance or matter and the former influences the later. But, from Pythagoras' view it is apparently clear that atoms of similar properties but varied in number determine the size and nature of an object. Although number plays an important role in the constitution of matter, yet the role of 'the rudimentary building blocks' (atoms) cannot be denied. Here, 'many' has inference to 'one'.

In a seemingly similar vein, the Atomists believed that everything is composed of atoms, which are physically indivisible. As the famous Atomist, Democritus says that each atom is impenetrable or indivisible because it contains no void. But there is empty space between the atoms, in which they move and deflect like "billiard balls". So they move and collide; and matters are created from collision, through a process of interlocking. In this sense, the creation does not have *telos*, rather it is a matter of sheer chance as the collision is unpredictable. And in relation to space, Leibniz of the same school maintained that space is a system of relations, that posed a contradiction to Newton's view of space as absolute. But Leibniz's view was reasserted later by Albert Einstein who gave the concept of relational space.

In contrast to the Atomists and more particularly to Democritus' Aristotle posits his concept of *telos* which he applied to biological character of Nature. To him "Nature acts for something" which possibly means that "the parts of natural organisms develop because of the good ends they serve" (Mayer, 1992, p.791). Being the first biologist in ancient western tradition, Aristotle applied his natural teleology to physics, chemistry etc., instead of applying the principles of mathematics or physics to Nature. In his *Physics*, he has pointed out the inextricable relation between the form and substance (Charles, 2000). Similarly, Capra (1996) observes:

matter, according to Aristotle, contains the essential Nature of all things, but only as potentiality. By means of form this essence becomes real, or actual. The process of self-realization of the essence in the actual phenomena... is a process of development, a thrust towards full self-realization". (p. 18)

To Aristotle, the Nature of a thing is its end, and the thing exists for this end. The Nature is perhaps a set of internal principles by which the thing exists. Once certain thing is formed, then it is not clandestinely present in the matter, rather be expressed in form. In other words, Nature is a cause that expresses in form and operates with some purpose (James, 2017). Again to Aristotle, everything including animate and inanimate follows an internal principle of motion which is different from the motion of a body towards other by which the other relatively moves towards the body, shortening the distance between them. Here motion includes changing of quality, size etc. To underline, Aristotle's views of Nature as *Phusis or physis*, which is characterised by the potentiality of growth and has a *telos*, dominated the Western views of Nature for centuries, till Renaissance.

In sixteenth and seventeenth century, the new discoveries in physics, astronomy and mathematics marked sudden changes in the world views. Aristotelian philosophy and Christian theology were gradually disproved and replaced by new world views developed by Copernicus, Galileo, Descartes, Bacon, and Newton whose rationalistic and scientific views are largely known as reductionist, dualistic, mechanistic etc. Galileo viewed the quantifiable nature of Nature and restricted science to the study of phenomena. Nature was interpreted as a physical object which can be measured by scientific tools. Rene Descartes suggested the method of analysis of the complex phenomena of Nature through the properties of its parts. For which the wholeness of Nature was viewed as the combination of different parts. Again, in his world view, he separated mind from matter or humanity from Nature, on the basis of its ability to think. Such mechanistic and reductionist views of Nature were reaffirmed by Newtonian mechanics and William Harvey's biology. William Harvey used Cartesian mechanistic model for the study of blood circulation in the animal's body and compared it with the system of a machine. Inspired by Harvey, other physiologists applied that model to describe other bodily functions like digestive, respiratory, metabolism system etc. In this sense human mind could be considered as a series of neural circuits and body as a set of chemical process. But Harvey can never deny the functionality of these systems within and in relation with a broader system. And these systems can never be viable in isolation. Similarly, the reductionist views of Descartes, Bacon, Galileo, Newton and others fail to reject the idea that there is a fundamental relation existing among different parts

of natural system; without such relation the natural system is non-functional or dead. Although Cartesian ideas continued to consider animals and plants as machines with productive potential, and proclaimed humanity as at the top of the hierarchy for using his 'cogito' to make the biological machines function for its purpose, yet separation of humanity from Nature is an impossible reality because humanity is essentially natural. Its dominance over other non-cogito objects of Nature happens within the system of Nature, not from outside as an isolated community.

As a matter of n the late 18th century, the situation gradually changed when Antonio Lavoisier, the father of modern chemistry emphatically declared "the relevance of chemical process to the functioning of living organisms" (Capra, 1996, p. 21). Thus the fact came to the fore that the body functions through harmonious operation of andro- neurotic fluid or other such things, which are developed naturally (Carson, 1962). In spite of such views which could have brought certain changes, Cartesian mechanism continued to exist through the centuries.

Again, with the discovery of microscope and opening of avenues for international travel, a great range of species, places and landscapes etc. were explored by people with sufficient resources and people with time and interest for exploration. So the distant landscapes were viewed as the natural spaces away from human community and the expedition to reach such places became favorite and thrilling pastime for people. As a result the mystery of Nature no longer remained the mystery, rather people got more and better control over Nature, which resulted in the description of Nature in "more anthropomorphic terms" (Lawley, 2009, p. 6). Nature became the destination for human to get respite from routine life by giving feast to the senses and became the space to be conquered for unrestricted expansion. And the former as a practice still continues all over the globe. Mark Lawley in his book *The History of Nature*(2009), further mentions that pre-industrial naturalists studied only "how organisms change during their lives" (p. 6) and they did not have inclination and provision to study the continuity and connection of various natural forms with their natural past. And to him the pre- 19th century history of Nature offers a panoramic description of the visible forms of Nature. Lawley also mentions, the naturalists or the natural historians "had no idea that Nature changes as time goes by, and no more saw a connection between the visible features of natural objects and their origin and development in the past than the illiterate hunters and the farmers of the prehistory"(p. 7). But after French revolution and Industrial revolution, with the surge of a group of middle class people, who "benefited from the wealth generated by industrialization" and number of educated classes developed their interest in studying the similarities among and life cycles of various groups of species. (p. 9-11) In 1830's, with new development in life sciences, ideas of similarities and relation among the species, moreover the relation of the life of an individual organism with other species, came in to prevalence. Natural scientists like Etienne Geoffroy St. Hilaire and others focused on the evolutionary ideas and laws of living Nature and described the lineage of the species from their past. Apart from this, in the late 18th century the Scottish geologist James Hutton showed the interlink between biological and geological processes. Similarly, German Naturalist Alexander von Humbolt demonstrated the interrelation between the global forces, like water, climate, earth etc. and their co-evolution. (Capra, 1996, p. 23) And such ideas have found elaboration in post-positivist scientific language in Gaia hypothesis.

In the late 18th century and 19th century, series of strong oppositions to Cartesian paradigm-that perhaps started with Anaxagoras¹- came in to force with the arrival of group of poets, artists, philosophers in the west and in America, moreover with Romantic Movement. In a mystic vein, they present an idealized picture of Nature by attributing the supreme value of god to Nature. Their works muse the continuity of the primal force of Nature in various manifestations. P. B. Shelley epitomizes such idea in his famous poem *The cloud*: I am the daughter of Earth and Water,

¹Anaxagoras, being an Ionian distinguished the dead from the living on the basis of an argument that the living things have mind. To him mind is the supreme substance in the body and it has power over all things that have life. It is independent and indefinite and free from any physical conditions. Such view may be considered as the prelude to the dualistic and mechanistic paradigm of Descartes, Newton or others.

And the nursling of the sky;
I pass through the pores of ocean and shore;
I change, but I can't die.

Similarly, Wordsworth believes in prevalence of god in Nature or the presence of the world in human (“The world is too much with us”) and the connection of everything with everything- As marked by Jonathan Bate in his study of *The Excursion*. Again Oscar Wilde, in his 1881 poem “Panthea” suggests that one single force expresses itself in everything from earth to hill, from germs to human, from birds to beasts etc. The famous German poet and philosopher, Goethe has observed “form as a pattern of relationships within an organized whole” and this is the “great harmonious whole”, in which every creature is a “patterned gradation” (as cited in Capra, 1996, p. 21). Having been influenced by Goethe's scientific philosophy, number of 19th century natural and Geo- scientists attempted to search for wholeness in the entire planet and found the earth as an integrated whole, a living being with interconnection of places with Geo-physical interrelation. In addition to these poets, the philosopher of that time Immanuel Kant, in his *Critique of Judgement* (2000), has defined the Nature of living organisms by underlining the self-reproducing and self-organizing potential of the organisms. These organisms are the wholes, in which the parts function with perfect interdependence and interrelation. They are evidently different from machines as in a machine, to Kant, parts function to support each other, but in an organism parts produce one another. Again the idea of Earth as a living being is perhaps synonymous with the age old and mythical image of earth as mother. Such concepts of earth as a living goddess or a harmonious whole constitute the core of Gaia hypothesis and modern System theory (Lovelock, 1979; Laszlo & Krippner, 1998).

In the later part of 19th century, Rudolf Virchow formulated “cell theory” and Louis Pasteur developed “germ theory”. With such formulations, attention of scientists again shifted from the organismic wholeness to individual cells as the building- blocks of a living body. Pasteur's theory foreshadowed the then existing theory of Claude Bernard who focuses on the unchanging nature of the holistic, internal environment of an organism when the outer environment constantly changes.² The development of cell theory, embryology, microbiology etc. have brought a lot of confusion and debate into academia, as they become amnesiac and they ignore the integration of operation through the coordination between the cells as a whole. In other words confusion comes out of the fact that how can there be the differentiation of cells- bone cell, nerve cell, blood cell etc.- if the highly complex structure of an organism depends on the multiplication of a single embryonic cell. It later came to light that genetically all cells are identical, but at functional level, some genes are expressive and some are non-expressive, which defines the role of a cell. And there is a constant interaction and interrelation among the cells and the function of cells is monitored by such functions. And such debates and discussion gave rise to “Vitalism” which although rejected reductionist view of organism, yet continued to use some Cartesian metaphors and principles for the understanding of the nature of organisms (Capra, 1996, p. 26). That was disproved by Hans Driesch, the German embryologist who affirmed the potential of the parts of certain organisms to constitute the whole, through his experiments on the “sea urchin eggs” (Capra, 1996, p. 26). Such experiment opened up ways for the development of organismic Biology.

Ross Harrison, an exponent of the organismic school explored the concept of organization, characterised by configuration and relationship in an organism and among organisms. Like him, the famous Biologist Lawrence Henderson developed the idea “system” by which he means an “integrated whole whose essential properties arise from the relationships between its parts” (Capra, 1996, p. 27). The biologist Joseph

²Virchow viewed the function of organism at the cellular level and also viewed the organism as the result of interaction between cellular building-blocks. He differentiated cells on the basis of genetic expression in them. Such theory has been rejected by modern organismic biologists, as a sheer misinterpretation of cellular interaction. Such view, as Capra says, is evidently reductionist. But Bernard insisted on the intimate relation between the organism and its environment. Again to him, each organism has an internal environment which remains constant and it contains all tissues and organs. The external environment constantly changes. So, disease may be viewed as the result of a discord or gap between the two environments and it is not only caused by the germs and bacteria as propounded by French Scientist Luis Pasteur.

Woodger, emphasised on the organizing relations and multiple levels of structure in a complex system of organisms, which is termed as hierarchy in organismic biology. But to Capra this must not be viewed as hierarchy because it implies domination and control of the simple by the complex. And it suggests a view of the web or a network of relationship among the systems in a system. As Capra (1996) writes: "Each of these forms a whole with respect to its parts while at the same time being a part of a larger whole. Thus, cells combine to form tissues, tissues to form organs, and organs to form organisms"(p. 28) Such view suggests a series of relation among the parts from the micro-level to the macro. This principle functions in ecology (and society) as we find living systems have their places in "other living systems". Apart from such affirmation of systemic functions in organisms, moreover in biological systems, Quantum theory reasserted the infinite interconnection among the things in the sub-atomic level. Quantum theory has forced to accept the fact, as Capra (1996) says:

the solid material objects of classical physics dissolve at the subatomic level into wave like patterns of possibilities. These patterns, (...) rather probabilities of interconnections. The sub-atomic particles have no meaning as isolated entities but can be understood only as interconnections, or correlations between various process of observation and measurement (p. 30).

It is conspicuous that the idea of integrity of Nature continues to be present in both philosophical and scientific tradition of thought in the west. From their philosophical view it is clear that the matrix of the world which offers an array of heterogeneous matters is based on an elemental matter or principle at very fundamental level. Thus, the idea of relation among the objects is not a mere speculation but a systematic understanding of the reality. Such idea has contributed to the development of many holistic theories. Getting ideas and influence from such theories, in the late 20th century, the idea of ecology came into existence and became a buzz word at present. It underlines the interrelation among species within a living system-ecosystem- and their interaction with this system which forms a unit. The idea of ecology can be elaborated, by the study of different biologists, ecologists, environmentalists etc. from Haeckel to Hayek. In the wake of rapid environmental pollution, ecological degradation and decimation of natural resources, ecology as a branch of scientific study has profoundly influenced philosophy, politics, economy etc. to formulate new ideas from the tradition of thought, in which Nature has been conceptualized as a unified force. However, in the limited space of this paper it is impossible to analyze everything. So our attempt will be to elaborate this idea in the course of writing at different levels.

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