Konfrontasi Journal: Culture, Economy, and Social Changes
pISSN: 1410-881X (Print)
eISSN:

Trans-Substantial Motion (Al-Harakah Al-Jawhariyyah) Toward a Holistic Evolutionary Theory Traditional Contribution to Islamic Philosophy of Science

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Abstract: *The modern evolution theory which starts its growth in popu- larity from the phenomenal Darwin's the Origin of Species published in 1859. Inspired by Malthus's essay on human populations competing for limited resource, he found a clue for a theory to interpret the voluminous data he had collected on the H.M.S Beagle voyage wherein he served as a naturalist for five years. Darwin had noted the gradual changes in successive generations to the "natural selection" of heritable characteristics that contribute to survival. This paper elaborated the thesis of new species which comes into existence by variation and selection over a long period of time.*
Key Word: *Islam; evolution; philosophy*

Introduction

The Evolutionary Theory: an Overview

In this section, we will briefly look up into the evolutionary theory in modern sense to set a background of opening wider discussion in the traditional perspective in order to present Sadra's doctrine of gradation of beings especially the principle of trans-substantial motion (al-harakah al-jawha_riyyah). The overview which leads to the second part will present the modern evolutionary theory originating its idea pertaining to its conceptual relation- ship with certain philosophical ideas that were dominant at the time of its formulation that is relevance of our present discussion.

It is the modern evolution theory which starts its growth in popularity from the phenomenal Darwin's the Origin of Species published in 1859. Inspired by Malthus's essay on human populations competing for limited resource, he found a clue for a theory to interpret the voluminous data he had collected on the H.M.S Beagle voyage wherein he served as a naturalist for five years. He had noted the gradual changes in successive generations to the "natural selection" of heritable characteristics that contribute to survival. Then, he elaborated the thesis that new species have come into existence by variation and selection over a long period of time. To be more precise, we need to note that though the terms are often conflated, evolution is not the same as Darwinism. Evolution is the observed natural history of the planet. Darwinism, particularly natural selection, is a theory of how this evolution occurred. In this scope, work on population genetics in the 20th century greatly advanced the understanding of the inheritance of variations, as Mendel's laws of heredity were studies in plant, insect and animal population. Mutation and the combination of units of heredity (genes) from two parents were seen to be the main sources of variation, both were evidently random processes unrelated to the needs of the organism. Genetics and evolutionary theory were brought together in a systematic neo-Darwin- ism to which Julian Huxley in 1942 gave the name "The Modern Synthesis". Among its exponent were Ernst Mayr, Theodosius Dobzhansky, and Gaylord Simpson. Moreover, the discovery of the structure

of DNA molecule by James Watson and Francis Crick in 1953 together with the study of fossil, which raised important questions about evolutionary history made neo-Darwinism, since 1940'S, has shared Darwin's assumptions that long-term evolutionary changes are the result of the gradual accumulation of many small changes.

Then, it was in 1970'S Stephen Jay Gould and Niles Eldredge advocated punctuated equilibrium, the theory that there have been long periods of stability interrupted by brief periods of rapid change. The directions of change they said are determined by selective forces acting on adult organism. The extinction of species according to this theory is sometimes the product not of gradual competitive forces but of sudden contingent events, such as the impact of comets. Instead of accepting the theory as antithesis of ortho- dox evolution theory, the defenders of neo-Darwinism stated that their theory was more varied and flexible than Gould and his supporters have acknowledged. The rarity of transitional forms among fossils may be result of the incompleteness of the fossil record. Changes that appear rapid on the scale of geological time can encompass many generation. Hence, Ledyard Stebbins and Francisco Ayala said that many Gould's ideas could be included in an expanded version of the neo-Darwinian synthesis such as by stating that even the "punctuations" take up millions of years gradual changes. For the neo-Darwinians the gaps in the fossil record that points to the special creation of each new species directly by God cannot be a good reason to doubt the general validity of Darwin science. The Jesuit paleontologist Teilard de Chardin wrote in the Human Phenomenon, the beginning of any new form of life will be so fragile and insubstantial that records of its appearance will inevitably be quickly erased. We should not expect, there-fore, to find many transitional forms. And the fossil record, even with all of its unevenness, should provide no comfort to antievolutionists.

Neo-Darwinism viewed evolutionary change as the product of random variations that were then selected by the environment. Some biologists, however, have noted that the internal drives of organisms can initiate evolutionary changes. The environment selects individuals, but individuals also select environments, and in a new niche a different set of genes may contribute to survival. In each case organisms themselves took initiatives; genetics and then anatomic changes followed from their actions—the so called Baldwin effect. Neo-Darwinism avowed it does not imply that organisms were trying to evolve, only that purposive behavior as well as chance mutations set the direction of evolutionary change. The Baldwin effect, thus, can be incorporated in an expanded neo-Darwinism with revisions of its earlier assumptions.

One version of radical thesis is presented by evolutionary materialists such as Richard Dawkins and Daniel Dennett, whose viewpoints are widely rejected by theistic critics of neo-Darwinism such as Philip Johnson and Michael Behe. Both assert that one cannot with intellectual integrity be both a theist and a neo-Darwinist. The evolutionary materialism is founded on two principles: first is epistemological reductionism which leads to onto- logical reductionism or materialism, in which matter is the fundamental reality. And second is the stance that the evolution is the product of a mind- less, purposeless process. The Blind Watchmaker, wherein Dawkins carries a chapter the Evidence of Evolution Reveals a Universe without Design, is a clear and forceful presentation of current evolutionary theory and a defense of orthodox neo-Darwinism against its religious critics. He maintains that many systems in nature are far from perfect in their design such as 'wired black' of human eye. Another argument against design Dawkins points to be the widespread suffering, pain, and fear in nature and the senseless tragedies that occur in human life:

"In a universe of blind physical forces and genetic replication, some peop- le are going to get hurt, and other people are going to get lucky, and you won't find any rhyme or reason in it, nor any justice. The universe that we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil, and no good, nothing but blind, pitiless indifference… DNA neither cares nor knows. DNA just it. And we dance to its music."

Accepting epistemological reductionism, Dawkins and his supporters believe that the carburetors are explained in terms if smaller units… which are explained in terms of smaller units… which are ultimately explained in terms of the smallest fundamental particles…My task is to explain elephants, and the world of complex things, in terms of the simple things that the physicists either understand, or are working on. He holds the view that science is the only acceptable form of explanation; if science does not discover purpose, there is no purpose in the universe.

Another sound defender of neo-Darwinian position is the philosopher Daniel Dennett who vehemently rejects all forms of intelligent design, including Darwin's belief that the laws of evolution rather than individual species were the product of design. He draws his arguments in biology, probability theory, cognitive science, and computer simulations. In protracted critique of Gould, he insists that mutations and natural selection are the only factors respon- sible for the direction of evolutionary change. Through mutations a popu- lation's genes explore the neighboring portions of "design space" (the set of all possible genetics configurations). Through natural selection, those genes that confer adaptive advantages are passed on with greater frequency. Selection is thus an automatic, impersonal process following an algorithm (a formal rule with simple steps. In any case, the exploration of design space occurs entirely by chance. The subsequent retention of new configurations is the product of contingent environmental conditions and the usefulness of certain general capacities, such as vision, locomotive, and intelligence. Dennett gives this summary:

"What is design work? It is the wonderful wedding of chance and ne- cessity, happening in a trillion places at once, at trillion different levels. And what miracle caused it? None. It just happened to happen, in the fullness of time. You could even say, in a way, that the Tree of Life created itself. Not in miraculous, instantaneous whoosh, but slowly, slowly, over billions of years. Even the laws of physics, he suggests, "could themselves be the outcome of blind, uncaring shuffle through Chaos. Like Dawkins, Dennett merges evolutionary science and a philosophy of naturalism. He says that acceptance of evolution requires the rejection of theism, which invited harsh reactions among believers of literal interpretations of scriptures of various traditions especially Christianity and Islam."

Both Dawkins and Dennett represent one of the theological responses to evo- lution, which is to say that evolution by natural selection proves that God does not exist or at least need not exist in order to account for the origins of life. This should be understood as a theological response, because like many atheists, Dawkins, for example, has very definite ideas about the kind of God that he believes does not exist. Dawkins sees Darwinism as a revolutionary break from the past. All of the old attempts of theology and philosophy to answer the questions of how humans ought to live and act are no longer valid. "The point I want to make now," writes Dawkins, "is that all attempts to answer that question before 1859 are worthless and that we will be better off if we ignore them completely."

Darwinism together with neo-Darwinism challenge religious worldviews as well as the integrity of the science itself. Viewed as an ideology in scientism, the theory has greatly

influenced various fields outside its borders. Take into account, Darwin's theory of evolution contributed to undermining the earlier cosmological hierarchy and sense of moral purpose. Some latched on to the new theory of evolution to argue for the natural superiority of the European races over other races of the world; so late nineteenth and twentieth century racism shares an ugly legacy which often used Social Darwinism to lend it "scientific" legitimacy. Others latched on to the theory to promote predatory capitalism. Herbert Spencer coined the phrase "survival of the fittest," which Darwin incorporated into later editions of The Origins. The term "survival of the fittest" would quickly become the shorthand for natural selection cited by the baron-robber capitalists of the early twentieth century to rationalize their extreme wealth. Karl Marx, however, also saw Darwin's theory as a validation of his theory of dialectical materialism and wanted to dedicate Das Kapital to Charles Darwin, though Darwin declined the offer.

Early twentieth century eugenics also drew on Darwin's theory, though the controlled breeding of humans was sometimes cast as moral response to the immoral implications of Social Darwinism and sometimes involved mixing races rather than preserving some notion of racial purity. Of course, both eugenics and Social Darwinism would provide ideological fuel to Stalinism and Nazism, which on sheer scale were perhaps the greatest tragedies in human history. Historians suggest that the real impetus for the conservative religious reaction against Darwinism arose not from concern about the origins of species, but from the perception that the theory of natural selection as applied to humans was inherently immoral.

Shortly, we have seen the impact of the growth of the evolutionary theory in our life. We come to note that the proponents of the modern evolutionary theory do not view it as a mere sound scientific finding based on the 'objectively measurable data'; rather the case of evolution is, borrowed Kuhn's thesis, a psychology of research driven by faith and belief held of normal scientists within mainstream paradigm. Since its claim and undertaking are beyond science, the rejections addressed cannot be exclusively confined into critique by anti-evolution biologists. However, to do the justice for the issue, religious and metaphysical criticism should be precisely pointed out since the blind faith of the evolutionists is based on certain philosophical principles on reality and worldview of the scientific empire. With this stance, we will present another scientific interpretation on the evolutionary theory; identify the underlining paradigm of Darwinism in order to preserve an Islamic answer for holistic perspective toward reality.

Evolution: The Need of Creativity and Holistic Perspective

As slightly illustrated above, more than century and half after Darwin's publication of the Origin of Species, opposition to the theory of evolution still continues and in fact has been more widespread in the past several years. That the transformation of species focuses only on material substance driven or forced to adaptation by external environment leads to a philosophical position of man as a creature determined by his environment, passively absence of consciousness and free will.

Darwinian evolution has been obviously implied a mechanistic-deterministic and linier-atomistic worldview. Standing against Darwinism, Gregory Bateson, a famous ecologist and biologist, maintains that variations are not originated from genes; rather sourced from organism's pattern and forms as element of heredity. Bateson basing on holistic-ecological outlook, views heredity cannot be objective substance, yet a kind of forcing faculty which is capable of producing new substance--- a tendency and character of each organism.

Subsequently, in contrary to Darwinian thesis, organism's means of adaptation as well as its transformation into variations are found in inner reality of the organism itself. Capra identifies Darwinian concept of chance of variation and natural selection as two aspects of a complex phenomena, which necessitates a holistic-ecological-systematical frame.

In fact, the evolution theory considerably advocates a dynamics and natural process in the universe. Darwin, however, with the stance of Cartesian para- digm understood it as the dynamic process moves on mechanical and atomistic sense abandoning the presence of non-material inner faculty of an organism. A coherent refection on the concept of adaptation and modification, for example, should convey inherent force of organism. Muthahhari says:

"The evolution theory of species basically supports for the concept of life force including its supremacy and control power over matter and non- material vigor. Darwin failed to present this substantive reality of the life force so that he leant his thesis on natural selection viewed as random and directionless natural changes.

However, once he intensively studied the secrets of evolutionary progress and leveled evolution of species, he was compelled to admit the presence of the character of living things. It was a spontaneous and unavoidable conclusion at which his scientist collogues responded," You described natural selection as if it is an active force or a supernatural power."

In line with Muthahhari's above statement, since publication of the Origin in the mid of the 19th century, there has been widespread emergence of newly scientific findings on the evolution which break the hold of the principles of Darwinism. Prigogine's discovery on self-organizing systems demonstrates evidence that chance and randomness cannot mean the absence of pattern and character of life; rather they are the source of an order. Prigogine indentifies it as Order Out of Chaos. He has analyzed many inanimate self- organizing systems in which disorder at one level leads to order at a higher level, with new laws governing the behavior of structures showing new types of complexity. Randomness at one level leads to dynamic patterns at another level. Moreover, he shows that in some cases the new order can be predicted by considering the average or statistical behavior of the myriad components. But in other cases, he proves, there are many possible outcomes, and no unique prediction can be made. There seems to be an interplay law and chance; here, too, we must look at larger wholes and higher levels of organization, and not just at component parts. Once again, deter- minism and reductionism on which the modern evolution theory based are called into question.

Barbour, moreover, asserts that the advancement of the evolutionary theory goes onto what he called "evolutionary design". When viewed locally and over short periods, it seems to be characterized by many directions. Long term observation on pattern and relation points to the appearance of design and order underlining the evolutionary process. The order is akin with "implicate order" of David Bohm's concept of quantum physics. The pattern of evolution looks less like a uniformly growing tree than like sprawling bushes whose tangled branches grow in many directions and often die off. Nevertheless, evolutionary history shows an overall trend toward greater complexity, responsiveness, and awareness. The capacity of organisms to gather, store, and process information has steadily increased. Barbour asks; who can doubt that a human being represents an astonishing advance over an amoeba or a worm? Could all this be the product of chance? Quoted from bio-chemist and mathematician, Fred Hoyle and Chandra Wickramasinghe, Barbour argues that the origination of any particular protein chain by change is inconceivably improbable. As larger structures are formed, stable combi- nations at various

levels will stay together. Complexity comes into being by hierarchical stages, not one in gigantic lottery. For Barbour, evolution shows a subtle interplay of chance and law. Traditionally, design was equated with a detailed preexisting blueprint in the mind of God. This theological position is an influence of the Platonic view of an eternal order of ideas behind the material world. God was said to have a foreordained plan that was carried out in creation. In this framework, chance is antithesis of design. But evolution suggests another understanding of design—an understanding that postulates a general direction but no detailed plan. A long-range strategy could be combined with short-range opportunism arising from feedback and adjustment.

Pertaining to above discussion, Capra argues that there is a forgotten or a missing aspect of development in Darwinism that is creative development of structures and new functions of organism not as the result of environmental pressure; rather it is a potential manifestation inherently presents in living organism—its faculty of self enhancement. Thus, in this perspective, the central characteristic of evolutionary course as a process of life is creativity not adaptation. Cited Robert Livingstone who said that the process of selection in evolution works on the basis of behavior; Capra affirms the existence of the soul in living system ranging from organic system to social and ecosystem. In addition, the soul, Bateson insists, is the essence of life. With the resolute awareness that the nature is a living organism possessing soul, the concept of evolution in sense of organism level alone is expanded into organic-ecological evolution.

The new discovery in the theory of evolution cannot just immediately replace the dominantly scientific worldview nor does it become sufficient solution of failure in understanding reality.

There is an urgent need to deep dive into the root of the problem—viewing the evolutionary theory as more than a mere theory of science within its border but to see it as a metaphysical problem in order to be able to trace its conceptual relationship with certain philosophical ideas. Aforementioned illustration shows that the paradigm shift in the history of the evolutionary theory subsists. Hence, it is very obvious, the discrepancy between inter-pretations of evolution—Darwinism versus holistic-ecologist (also to include religious and philosophical standpoints)-occurs due to respective paradigm existing in each scientific circle. We come to see that the mainstream of Darwinian interpretation is based on Cartesian-Newtonian paradigm which is mechanistic-reductionist together with its binary opposition or on-off logic. The foundation of the worldview was founded on dualism in philo- sophy.

Dualism has embraced in various dimensions of modern life. Berman accurately portrays the impact of dualistic modern thought and science:

"Modes of thought and modern sciences are depicted as disenchantment and non-participant for it necessitates rigid demarcation between the observer and the observed. Scientific consciousness is alienated aware- ness. I am not my experiences; they, hence, are not the very part of my world. The logical consequence of this worldview is the total reification: everything is object, alien, not me; finally, I am also object, "thing" aliena- ted in another world as absurd as other things. I don't make the world; the cosmos ignores me, and I feel nothing about it. What I experience and feel is a disease in the soul."

R.D. Laing, a well-known psychologist profoundly describes the psycho- logical and sociological effects of Cartesian dualism worldview in his book, The Divided Self: an Existential Study in Sanity and Madness. Employing existential-phenomenological approach, he demonstrates the process of the becoming of modern man—a fragmented and divided self who experiences alienation, reification, schizophrenia and ontological insecurity. Modern man

is alienated from himself as so is he from the others and the universe. Furthermore, in the other words, the expression of dualism in philosophy has appeared on various sciences and ideologies. Mechanistic-deterministic, for example, represents dualism between consciousness and external reality. Anthropocentrism is a manifestation of dualism emphasizing human sub- jectivity. Reductionism emerges from dualism dividing value and fact, sub- ject and object. Patriarchalism and feminism are dualism applied in the gender issue; whereas racialism, chauvinism, individualism or systemic- egoism, correspondingly are the demonstrations of dualism on sociology, ethics and psychology.

The modern theory of evolution cannot escape from this fate, as was brought upin the evolutionary materialism; it reveals the epistemological and onto- logical reductionism. The linier structure of historical interpretation of evo- lutionary evidence is either the Hegelian or Marxist reification and even deification of historical process. The modern theory of evolution has taken its stake on the fundamentality of matter than the spirit stating that the material world is the only reality opposing to the idealists who stand on the primacy of the ideas (non-material existents) rejecting matter as substantial reality. In point of fact, both materialism and idealism are variants of substantial monism which are characterized by reducing the plurality and dynamics of the reality itself.

The main problem of dualism does not deal with affirmation of the existence of two substances; spirit and body; but the relationship between these two, between the matter and consciousness. Refutation of the evolutionary mate- rialism on the existence of the creative force of the soul as fundamental means of evolutionary process does not always mean negation of the soul rather the failure of having sufficient explanation of relational modes bet- ween body and spirit— consciousness and matter, organism and nature, etc. the question is how we can understand the materialist's claim that con- sciousness is the epiphenomena of the matter?, or the idealist proposition that matter is merely the effect of consciousness of a subject?, without un- dermining the richness of phenomena, diversity and vigor of life.

Therefore, the challenges of Darwinism and neo-Darwinism against religious belief and metaphysical truth (which encompassed within human traditions) together with their subsequent effect in forms of crises of modern life cannot be simply refuted by only presenting new contrary theses in science; rather, by solving the problem of dualism on which the modern theory of evolution base its primary assumptions. Departing from the aforementioned analysis and in accordance with our principle of Tawhid – unity and diversity in hierarchy, permanence and change, and fundamentality of existence---there is a dire need to have a holistic and complex (nonlinier) perspective to properly perceive the evolutionary process as God's continuing creation in total manifestation of the Real. Instead of suggesting mechanistic-deter- ministic and reductionist standpoint, the evolutionary theory to a certain extent, suggests the affirmation of inner potentiality, character, spirit, sub- stantive force and creativity of living organism. The recent development of the evolutionary theory somewhat is in compliance with traditional pers- pective of evolution in Islamic philosophy such as in hikmah al-muta'aliyyah of Mulla Sadra. Sadra believes that evolution is inner becoming and natural manifestation of the principle of trans-substantial motion (al-harakah al-jaw hariyyah). Sadra conceives change and permanence, the two interdependent aspects of the order of nature, as modes of being (anha' al-wujud). It is the all-encompassing reality of being (wujud) that connects together the cosmos from celestial spheres to animals and minerals. It is also the same reality that establishes an inexorable

relationship between physics and metaphysics. On the basis of existential ontology, this traditional concept of becoming is not contaminated by dualism.

Trans-Substantial Motion (al-Harakah al-Jawhariyyah) in Ontology of Becoming: Islamic Answer for Evolution

Having set forth the reliance of the modern theory of evolution upon dualism and mechanistic-atomistic-materialistic paradigm, we need Islamic meta- physical doctrines in order to assist in the elimination of false implication in this biological theory. A re-discovery of metaphysics would be particularly pertinent in this case because it would remove the philosophical obstacle of holding 'evolution' as a dogma that cannot be challenged. We believes that the modern idea of organic evolution is none other than the traditional doctrine of gradation of beings reduced to its purely horizontal and temporal form. In the traditional view, gradation of beings refers primarily to a vertical hierarchy stretching from the lowest material form through man to God. Gradation in this sense is essentially qualitative and supra-temporal in nature without ignoring the temporal aspect of gradation. Hereby, our attempt is to revive Islamic ontological doctrine of Sadrian philosophy to set a newly holistic-dialogic paradigm without which any anti-thesis of scientific evidence against the modern evolutionary theory cannot be discussed and debated.

Sadra's philosophy starts form an existential investigation on reality. He called his methodology of thinking "meta philosophy" (al-hikmat al-muta'a- liyah), a term he incorporated into the title of his magnum opus, al-Hikma al-Muta'aliyah fi'l-asfar al-'aqliyya al-arba'a (The Transcendent Wisdom Concerning the Four Intellectual Journeys), known simply as the Asfar. Mulla Sadra made the primacy of existence (asalat al-wujud) the cornerstone of his philosophy. He maintains that it is existence which constitutes reality—identical with it while essence is merely mental concept with no corresponding reality. Quiddities are nonexistent but boundaries made by existence. Existence is neither genus nor differentia since existence which creates essence. In the other word, Mulla Sadra envisions the whole of existence not as objects which exist or existents but as a single reality (wujud) whose delimitations by various quiddities (mahiyyat) gives the appearance of a multiplicity which "exists" with various existents being independent of each other. Corbin named Sadra's view as "existential metaphysics".

Sadra's system of ontology is established on three principles: (1) the primacy of existence (asalat al-wujud), (2) gradation of existence (tasykik al-wujud), and (3) trans-substantial motion (alharakah al-jawhariyyah). These three principles are interdependent which the character of each is existential, holistic, dynamic and systemic in its nature.

The first principle states Sadra's refutation of the view that nothing in reality corresponds to existence and asserts, on the contrary, that nothing is real except existence. However, for Mulla Sadra, existence is ontologically prior, a unified reality graded in degrees on intensity and an elusive reality that cannot fully be grasped. Any attempt to conceptualize existence falsifies it through reification that determines an essence grasped in the mind. A reified, fixed and immutable concept cannot capture the nature of existence, which is dynamic and in flux. The existence, which is sole reality, is never captured by mind which can only capture essences and general notions. Since existence is objective reality and its transformation into an abstract mental concept necessarily falsifies it. Mulla Sadra said in al-Asfar:

"All notions which arise from (our experience of) of the external world and are fully grasped by mind, their essences are persevered (in the mind) even though the mode of their

existence changes (in the mind). But since the very nature of existence is that is outside the mind and everything whose very nature it is be outside the mind can be possibly come into the mind—or, else, its nature will be completely transformed—hence, existence can never be (conceptually) known by any mind."

It is true, then, if existence were to be treated only as an abstract general notion, then it must be regarded as some sort of an essence of the order of a genus like Sadra affirms; "Real existences have no names (i.e. properties and descriptions)... while essences have names (and describable properties)." And he added; "That which is experienced is existence but that which is understood is essence."

Accordingly, Sadra rejects the dualism of existence-essence in reality, since essence emerge from negation or definition or description of existence. Since existence is claimed to be the sole reality, on the one hand, and essences are also said to exist "for the mind," the defined relationship between these is to be determined. He again asserts that dualism existence-essence only occurs in the mind by stating: "The cause of effect and effects of the cause are nothing but real existents. Neither existence as a concept nor any other essence shares this reality. Existence is not something which has reality; existence is reality itself."For Sadra, existence is not an attribute of essence like in a statement; "man exists", and more properly say, "this is man," since essences are nothing in themselves, whatever being they posses is due to their being "conjoined" with existence while existences are self-real, thanks to their being manifestations of and relations to the absolute existence.

Nasr states that our usual experience of the world is that of things which exist, this ordinary experience serving as the basis of Aristotelian meta- physics which is based on existents (mawjud). Moreover, Toshihiko Izutsu similarly regards Aristotelian metaphysics is precisely a philosophy of "things" (entity, existent). For Aristotle, the primary substances are concrete individual things such as tables, mountains and trees (infinite number of things) that surround us. They are real reality, they are the pre-eminently real. And this view of "things" as primary substances accords very well with our common sense. Philosophically or ontologically speaking, the "thing" are called 'existents', 'mawjud', 'that-which-is', 'that-which-exists', or 'das Seiende' in Heidegger's terminology. Whitehead and Bateson mention Aris- totelian metaphysics as 'philosophy of substance' for Aristotle holds that substance underlines all attributes, predicates and changes of an entity. In line with it, Descartes, even though attempted to challenge Aristotelian metaphysics, keeps on using the scheme of Aristotelian ontology by affirming that substance is the ultimate reality things.

Within this context, Sadra's ontology is akin to existentialism since it exclusively concerns to the reality of existence as fundamental reality. It sounds comparable to Heidegger's ontology who argues, that it is not "that- which-is", but rather the verb "is", das Sein, which should be the central theme of ontology. Similarly, for Mulla Sadra, the whole existence is not existents, but a single reality obscured by quiddities manifesting multiplicity which 'exist'—independent existents. Sadra firmly advocates existence more than things surround us. It seems implicated and hidden, yet, it is inherently within existents. In the other words, Sadra primarily concerns on the wholeness (existence) viewing parts (existents) as modes of mani- festation of the wholeness. On the other hand, Aristotle mainly points out parts (existents) to perceive the wholeness (forms, ideas, essence). Hence, the difference between these two ontological schemes represents the discre- pancy between mechanistic-atomistic and holistic-existential paradigm.

Transformation of paradigms in the history of philosophy started from Aris- totle's ontology of entities to Sadra's ontology of existence.

	PLATO	ARISTOTLE	DESCARTES	SADRA
Starting point	Universal idea	Particular entity	Entity-cogito	Existence
Basic concept	Two worlds	Substance-accident	Two substances	Unity of existence
Spirit-body	Dualism	Hylomorphism	Dualism	Gradation of existence
Motion	Unreal maya	Accidental	Accidental	Substantial-accident

The table shows the differences of the ontological schemes of the philo- sophical thought which means that paradigm shift takes place; from mechanistic-atomistic paradigm, which represented by Aristotle's ontology of enti- ties to holistic-existential paradigm which exemplified by Sadra's ontology of existence.

Having discussed the first principle, we can ensue to the nature of existence a dynamic, systematic ambiguous process, which centralized in the second doctrine of Sadrian philosophy – systematic ambiguity of existence (tashkik al-wujud). It is a concomitant of Mulla Sadra's theory that reality and existence are identical, the existence, accordingly, is one but graded in intensity and perfection. The more existence is complete, the less of essence it exhibits and vice versa; the more essence an existent has, it has the more degree of intensity and perfection. The relation of the unity of existence is allegorically analogous with the sun and its light. The Sun's ray which is emitted by the sun is not identical with it; yet at the same time cannot be separated from it. And the rays can give rise to different characteristics as, for instance, in a prism. Thus, multiplicity appears form gradation of existence, or plurality comes from unity:

"Now that you are convinced that existence is one single reality which has no genus and no differentia and it is identically the same in all things and its self-manifesting instances do not differ in their very nature, nor do they differ through additional instantiating factors (huwiyat)—rather, these instantiating factors are identical with their very nature…you must conclude, therefore, that these existential instances (which are identical in nature) are (at the same time and by virtue of the same nature) different from one another in terms of priority and posteriority, perfec- tion and imperfection, strength and weakness."

Fazlur Rahman points out that Sadra's ontology creates a dynamic tension between monism and pluralism. He views existence, in a sense, one single reality; however, in each case it is basically different and sui generis as well. In the other words, even though Sadra believes in the doctrine 'unity of existence' (wahdat al-wujud), he also affirms the uniqueness of each mode of existence appearing on the plural world. Regardless of using the same term 'wahdat al–wujud', Sadra strongly opposes substantial monism as commonly held by the Sufis. Thus, we can infer that the principle of gradation of existence conveys plurality-in-unity but not unity-in-plurality.

Then, existence is not only ambiguous, it is systematic ambiguous. This is because existence is not static but in continues movement—motion in substance (al-haraka fi'l-

jawhar).This movement is from the less perfect to the more perfect is, further, uni-directional and irreversible, for existence never moves backwards. On the basis of this theory, Sadra rejects the reincarnation of human souls in animals. Consequently, on the opposing stand against Darwinism, Sadra's existential evolution is in contrary from Darwin's evolution for its core characteristics—teleological, existential, crea- tive, inner becoming, holistic and systemic; whereas the latter is mechanistic, directionless, uncreative (adaptive upon external environment), and ran- dom. For further analysis on the subject, the third principle of Sadra's onto- logy has its pivotal position. Concerning the discussion on trans-substantial motion, Fazlur Rahman writes:

"Sadra's theory of movement is something novel in the history of Islamic thought and rests on the concept of a continuous structure of spatio- temporal events. Solid bodies are liquidated and analyzed into factor of pure potentiality of movement called matter and an actualizing factor, called 'physical form' or ';bodily nature', which is continually changing and giving rise to a continuum which is spatio-temporal in the sense that neither space nor time exists independently but both are integrated functions o aspects of this continuum of movement."

Aristotle and the peripatetics had held that substance only changes suddenly, from one substance to another or from once instant to another, in generation and corruption (and therefore only in the sub lunar world), and that gradual motion is confined to accidents (quantity, quality, and place). They also held that the continuity of movement is something only in the, mind, which strings together a potentially infinite series of infinite changes to produce the illusion of the movement, although time as an extension is a true part of our experience. Movement is potential in time and is that through which it becomes actual. Mulla Sadra completely rejected this, on the grounds that the reality of this substance, its being, must itself be in motion, for the net result of the peripatetics view is merely a static conglomeration of spatio- temporal events. The movement from potentiality to actuality of a thing is, in fact, the abstract notion in the mind, while material being itself is in constant of flux perpetually undergoing substantial change. Moreover, this substantial change is a property not only of sub lunar elemental beings (those composed of earth, water, air, and fire) but of celestial beings as well. Fazlur Rahman reports Sadra's response to traditional philosophy:

Sadra goes on to say, since motion means moving as verb, i.e. a "continuous renewal and lapse (al-tajaddud wa'l-inqida)"of the parts of motion, it is impossible that its immediate cause should be something with a stable or enduring being. For, a stable or enduring entity will contain in itself a passing phases of movement as a present fact, and this togetherness of all passing phases would amount to stability, not movement. Movement, therefore, cannot be established on the basis of a stable entity. Such an entity can have a stable essence, but not a stable being which must consist simply in change and mutation. There is, therefore, beneath the change of accidents, a more fundamental change, a change-in-substance, thanks to ever-changing material forms--- to which in fact, all changes in accidents are finally traceable. All bodies, to be celestial or material, are subject to this substantial change in their very being and this proves that the entire spatio-temporal world is temporally originated insofar as its existence is ever-renewed every moment.

Sadra radically modifies the concept of motion in Aristotelian metaphysics. In the traditional philosophy, 'motion' belonged to physics based on the assumption that motion is attributed to physical entities. Motion, hence, only occurs on accidents or is simply attributed to

a fixed substratum. Motion, in the peripatetic metaphysical scheme, is considerably a product of the mechanism of nature; whereas it is not the case for Sadra nor is it a mere predicate; rather, motion is the fundamental characteristic of reality itself. It is amalgamated with his scheme of existential ontology.

Existence in Mulla Sadra's philosophical system, as has been seen, is cha- racterized by systematic ambiguity (tashkik), being given its systematic character by trans-substantial motion, which is always in one direction towards perfection. In the other words, existence can be conceived of as a continual unfolding of existence, which is thus a single whole with a cons- tantly evolving internal dynamic. What gives things their identities are the imagined essences which are abstract from the modes of existence, while the reality is ever-changing; it is only when crucial points are reached that we perceive this change and new essences are formed in our mind, although change has been continually going on. Time is the measure of this process of renewal, and is not an independent entity such that events take place within it, but rather is a dimension exactly the three spatial dimensions; the physical world is a spatio-temporal continuum. We infer that through the principle of trans-substantial motion, Aristotelian face of universe is radically changed. The principle necessitates the identical nature of the universe to motion with time's dependency on intensity and power of the trans-substantial motion. Sadra has proven that the universe in always in flux, it continuously moves. There is neither singly slight constancy nor uniformity of substances. Accidents serving as functions of substances are in motion as well. The universe is motion itself, and motion is indeed a continuous creation and extinction.

According to Fazlur Rahman, a 'thing' for Sadra is, therefore, a particular 'structure of events. The continuity of movement and the similarity of infinitesimal forms permit the subsumption of a particular event-system under a mental concept or essence. In reality, there is nothing but a flow of forms and since this flow in unidirectional and irreversible, each successive form "contains" all proceeding forms and transcends them. The movement is from the more general and indeterminate toward the more definite and the more concrete: this process resembles the rise of ever more concrete species and individuals from the general and indeterminate being of genuses because of the emergence of successive differentiae.

Pertaining to theological perspective, Sadra explicitly rejects the atomism of Kalam-theology, because, by postulating movements by jerks or jumps (tafra). This theory denies the reality of continuity and process. Whereas in Kalam atomism, therefore, therefore, a "thing" is made up of discrete atoms, for Sadra, a "thing" is a particular segment of this continuous process regarded as a particular "events system" for the purposes of description.

Discussing motion entails time. Aristotle defines time as quantity of motion as if it works as 'stopwatch' which calculates changes in the universe. Sadra refutes the standpoint because by viewing time as independent entity. In line with his doctrine of trans-substantial motion, he holds that time is the measure of the universe as long as it in the process of renewal. It is not an independent entity such that events take place in it, but rather is an extension or a dimension exactly three spatial dimensions; it is the fourth of a spatio-temporal continuum.

The above illustration brings us to construe that Sadra's system of ontology has principles that are comparable with philosophical interpretations of recent scientific findings such as quantum theory and relativity theory saying that the universe is interdependently connected. Within this holistic perspective, time-space are not separated entities, but one single entity in a spatio-temporal continuum; that the universe is always in a dynamic flux, continuously growing

to renew itself each time so that deterministic pers- pective failed to see it. the entities in the universe are functions of relation an probability, not static" things"; the entities are between "existence" and "nothingness", between "something" and "nothing"; so that Cosmos is viewed as a process of renewals or events than a collection of entities.

Accordingly, Sadra's theory of trans-substantial motion (al-harakah al-jaw- hariyyah) provides the basis of the evolution theory occurs in entire particles of the universe that is holistic, teleological, systematical not random, organic, creative, systemic, inner becoming and dynamic. Sadra's evolution is akin with contemporary principles of cosmology indicating telos law (finality of cosmos), atrophic tenet, spirituality, a belief of perceiving the universe as an organism rather than a machine. With the same stance, Seyyed Hossein Nasr notifies the divergence between Sadra's evolution and Darwinian evolution is transpired due to their contrary principles and characteristics. For that reason, our position is clear that the discrepancy of these two types of evolution lies on the different paradigm they represent. Darwinian evolution stands for Cartesian-Newtonian paradigm which is atomistic-mechanistic; on the other hand, Sadra's evolution epitomizes holistic paradigm.

For the sake of our discovery of the solution of 'dualism' that is underlining Cartesian-Newtonian paradigm, we proceed to analyze how trans-substantial motion theory can give sufficient answer to the problem in order to establish a more holistic outlook in perceiving reality. Previously we have signified the problem of dualism in philosophy does not rest on negation or affirmation parts of reality—spirit and body, matter and consciousness; rather it is rooted in the failure in giving satisfactory explanation on modes of relationship they posses—their interconnection and interdependency. Application of a new term such as two aspects of a process or two substances without sufficient reason cannot do justice on the issue.

Sadra affirms that every possessing effect is substantive reality. Sadra's doctrine of the primacy of existence (asalat al-wujud) and gradation of existence (tashkik al-wujud) imply existence to be the main source of effects. Since spirit and body affect each other, they take part in the ocean of existence that each of them is a substance. Unlike Descartes's definition of substance, substance in Sadrian philosophy is openly directed to other substances forming a set of gradation of existence evenly perpetuates in moves and changes going to higher level of perfection. In the other words, substance is "structurally moving events" of certain space-time with its characteristics and attributes involving in the vast ocean of existence. Corollary, on the basis of the principle of systematic ambiguity, plurality of existence is mainly seen as inherent manifestation of the unity of the existence. Sadra, therefore, does not fall short into a proponent of 'statics and frozen substance' nor into substantial monism, which denies the plurality of existence.

Sadra's system of ontology specifically trans-substantial motion (al-harakah al-jawhariyyah) maintains that terms "two substances" or "two aspects/ phases" are applicable on each or both spirit- body or matter-consciousness. However, the application requires adequate clarification. Sadra's system of ontology firmly holds motion as the fundamental element of reality; that the cosmos is not in static state but in continuously constant movement going to higher level of perfection. In this respect, "two phases" of sprit-body or matter-consciousness becomes natural consequence of the systematic ambi- guity of existence and trans-substantial motion. Our main question on duality of spirit-body or matter-consciousness stays at examining their mode of interdependency and interconnection. Now, we come to see how trans- substantial

motion (al-harakah al-jawhariyyah) could enlighten and justify interrelation between these two substances.

Spirit and body are substances possessing effect meaning that they affect each other. As we have noted before that the recent scientific discoveries show interrelation, interconnection and interdependency between body and consciousness. Numerous sorts of physical-chemical-biological responses, for example, are influenced by the consciousness of an individual subject. Our bodily reactions upon certain external environment mostly depend on our defining perspective on that situation, the same as they affect our psychological state. The two-sided relationship cannot be regarded as cause- effect connection for causal relation takes only one-sided—linier correlation that a cause emanates its effect. The existence of effect leans on the existence of its cause. The existence of spirit—body has proven its very existence of substance. Consciousness is not an effect of the body or vice versa.

Spirit-body relationship is mutual-influencing and interdependent. See- mingly, that various philosophical thought failed to see the connection which brings about their discriminative position concerning the supremacy of one aspect over another implying the reduction of the existence of the consi- derably effected substance. Materialism, functionalism and biologism place spirit/consciousness in inferiority as effect while idealism or subjectivism tends to deny the influence of material-physiological aspects on conscious- ness and psychological state. To avoid this analytical mistake requires proper divulgence on mode of spirit-body or matter—consciousness interconnecti- vity.

Pertaining with the principle of the primacy of existence (asalat wujud), that it is the existence that is possessing and giving effect; we are to affirm body and spirit as two existents.

Moreover, the consequence of systematic ambiguity of existence is the position of spirit and body as two modes of existence participating in the unity of reality. Within Sadrian ontological scheme, nothing is existentially static in the cosmos since there is always constant and continuous motion in substance as it is in accident. The relationship of spirit-body or matter-consciousness, thus, is a part of this trans-substantial motion. In the other words, spirit and body are two levels of existence in trans-substantial motion, which we called them two phases. At this point, trans-substantial motion becomes the process of revealing reality into diverse manifestations. Trans-substantial motion is the source of two substances because motion is a means of uncovering reality and it is, therefore, the creation. Muthahhari comments on it stating that spirit and soul emerge in accordance with the principle of motion. Soul is made up in the embrace of physical matter while within its capacity; a supra-natural entity has ground to grow. Neither wall nor boundary prevents material existent transforming into extra-material (non-material) through a gradual evolution. The appearance or the creation of physical species are on the basis of this law—trans-substantial motion; not because of generation and corruption.

Due to trans-substantial ascent motion toward perfection, the movement is from less perfect existent to more perfect one, from matter to consciousness. Matter in trans-substantial motion moves in achieving higher perfection of its existence till under certain conditions, it detaches its materiality and becomes non-material-- a spiritual existent. Hence, there is no border line between material and spiritual realm; but they are grades of existence. Soul, despite of its nonmaterial nature, it somewhat posses material connection for it is the highest level of perfection of matter in trans-substantial motion. Matter becoming non-material is not subject to laws of material realm; yet it is determined by common law of existence. Baqir as-Sadr maintains that it is the only concept which gives rational solution to ‘dualism’ of spirit/soul and

matter/body. Again, Muthahhari expounds that in its nature, the existential relationship of spirit-body or life-matter more underlying than a sort of connection held by Aristotle and Plato. The connection illustrates a bond of lower level and higher level of growth; or precisely as a relationship of a dimension with another.

Obviously, we have seen the existential relationship between spirit-body or consciousness-matter that is principally substantial in nature. In the regard to their existence, matter and consciousness are unified, which at the same time they are particularly manifested into body and spirit. Sadra states; "I was possibly a seed of wheat which then transformed into me myself, and ever since I (my soul) have never been extinct."

However, it is imperatively underlined that though Soul is made up in matter; it is not its effect. Baqir al-Sadr said that the difference of degrees creates the distinction between materiality and spirituality like diverse degrees of heat—hot, warm and cold. However, soul is not emanated effect of matter since every movement is an emergence of an entity from potentiality to actuality in gradual evolution. Potentiality has no power to actualize, contingency cannot yield existence. The cause of trans-substantial motion exists outside the moving matter. Soul, thus, is human nonmaterial dimen- sion which is in fact produced from the movement; it is indeed the bridge between materiality and spirituality, between soul and body.

In this point of view, trans-substantial motion functions as channel between our consciousness and body. It gives us understanding on the plural modes of consciousness-body relationship in human beings as souls are in diverse states dependent on intensity of motion-in-substance of each particular individual. Trans-substantial motion validates substantial discrepancy between strong, rational and self-reliant man and irrational, heteronym and weak one. Moreover, on the basis of his doctrine of existence, Sadra identifies human modes of existence that is our essence which defines who we are. It brings about the plurality among human being stating that essence of man depends on the process of his revealing of existence—his actions toward perfection. Sadra said; "a man is not single species. He is in numbers; even a man of today is not him yesterday and tomorrow." Accordingly, by means of trans-substantial motion, dichotomy of matter-consciousness vanishes.

Finally, in contradiction to Darwinian evolution, we come to our position that Sadra's theory of evolution is not strictly confined into biological level; rather it occurs in psychological, anthropological, sociological and spiritual realms. The existential relationship characterizes the evolution in those levels that is at the same time exemplified by existential gradation in accordance with its constantly continuous trans-substantial motion.

Conclusion

By the way of conclusion, we shortly mention some points which will legiti- mate our stance on reviving traditional metaphysical doctrines in Islamic philosophy. First, Sadra's system of ontology is existential-holistic in the contrary with mechanistic-atomistic paradigm which is underlying the modern evolutionary theory especially Darwinism. The existential-holistic nature implies it's application on whole kingdom of creatures not exclusively confined into human as Western existentialism deals with. Secondly, his ontology of becoming is capable of appropriately providing just and propor- tional explanation of unity and plurality by means of existential analysis on the dynamics of existence. Thirdly, Sadra's system of ontology is dynamic, holistic and systemic in its character. Subsequently, it is greatly potential to constructively introduce more holistic paradigm for scientific, cultural and social endeavors.***

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