found in Revelation 22:17 with reference to salvation. How appropriate that water, the most mentioned natural resource in the Bible, should be used to symbolize the Creator's greatest gift to His creatures. Both are free; both are priceless. May this study help the reader worship the Creator and Giver of every good thing.

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ON THE IMPORTANCE OF PHILOSOPHY IN THE ORIGINS DEBATE

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Abstract

The importance of philosophy in the origins debate, in addition to empirical science, is underscored. This is done first by outlining some historically older philosophical issues in the areas of epistemology and ontology which allowed for the subsequent acceptance of modern-day evolutionism. Secondly, the effect of some of these views on thought in general and in relation to some aspects of biology, physics and origins in particular is examined. Finally, the nature of the origins debate and the limits of science are considered. It is concluded that the origins debate does involve questions of philosophy and that empirical science alone cannot resolve the issue.

Introduction

In the problem of ultimate origins, the correct evaluation and interpretation of the empirical data have played a major role. Creationists have repeatedly taken the evolutionists to task in their interpretations of physics, biology and geology. However, it should be equally clear that in any discussion of ultimate origins there is more involved than the data of the natural sciences. Questions dealing with the nature or definition of science, for example, clearly are not matters of scientific data and cannot be answered "scientifically." They are, rather, philosophical questions. While creationists have dealt with some of the philosophical aspects involved in the debate on ultimate origins, there is still room for both a more rigorous and consistent approach. It is therefore the burden of this paper to show the relevance of considering some basic philosophical issues, especially in examining (1) the epistemological and ontological views which in some respects have adumbrated the rise of modern evolutionism, (2) the problem of language and universals in relation to science and (3) the relation of science to origins studies.

The Epistemological/Ontological Problem

One of the major issues underlying the question of origins is the problem of epistemology, the theory of knowing. This is important because the evolutionist is capitalizing on a set of assumptions which gained ascendancy in the last century but had centuries earlier been articulated and promoted philosophically. Evolutionism is the terminal expression of a long, historical trend.

That trend begins philosophically with what Molnar calls the "God-problem." Historically there have been three positions possible regarding the existence of God and His relationship with man. The traditional Christian position holds that God is both personal and transcendent, an accessible, caring God. The two main opposing views include the position (A) that God exists but is distant or remote so as to be inaccessible. (This view can lead ultimately to agnosticism or atheism: God is so inaccessible as to be indistinguishable from non-existence.) A second opposing position (B) holds that God exists and is indistinguishable from man (and finally from nature). In position A the attempt is made to bridge the distance or remoteness between man and the "inaccessible" God by undergoing a process of growth whereby man becomes one with God. In position B it is already assumed that man partakes of the divine substance, at least he did originally, but that as a result of Creation, man has become alienated from God and from his own true self. Again a process is envisioned in which this alienation is overcome and man becomes reunited with God or the Godhead.[1]

These two positions have profound implications for the problem of how man acquires knowledge (epistemology) which arises out of the conditions of man's

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existence or being (ontology). Positions A and B hold that since man is a distinct, separate creature he is also a *limited* being and as such incapable of acquiring true knowledge. In other words man is assumed to be ontologically flawed and imperfect by virtue of being a finite creature (by definition). Molnar observes that this view "asserts that there is no valid way for the creature to apprehend the world, and that a growth in being, a rise from creatureliness, is necessary in order to have real knowledge."[2] In late medieval times this problem was believed to be resolvable by seeking a union of "all in all," especially of man in God. Meister Eckhart, for example, held that since God is all, man is nothing; he is an essenceless void, a non-entity.[3] Man must therefore renounce his separateness, his creatureliness and he must become God. This growth in being or upward movement to a higher level of being in order to attain true knowledge Molnar calls the "ontological promotion."[4] In this fashion epistemology became linked and dependent on ontology. Others who promoted similar views include Joachim de Fiore (12th century), William of Ockham (14th century), Giordano Bruno (17th century) and Caspar Schwenckfeld (17th century). Modern philosophers who have retained and secularized certain of these elements include Kant, Schelling and Hegel, the German philosophers of the *Naturphilosophie* (18th and 19th centuries).[5]

This attack on creatureliness, on limits and separateness logically leads to the fusion of the knowing subject with the known object in the attempt to total union. If man must surrender his distinctness, if he can no longer remain a separate being, then in the area of epistemology he cannot retain the distinction between himself (the subject) and the thing he studies (the object). The abolition of distinction implies the fusion of subject and object in the theory of knowing. Also the mental operations of such an epistemology take place in the mind of the subject in the sense that he believes his concepts are agents which shape the real world, and so the real world must be inside the subject. The extramental world is seen as "phantomatic," i.e., as not having full existence.[6] He desires to absorb the extramental world, to reconcile things within and without.[7] Indeed, he sees this fusion or coalescence of subject and object as the *source* of true knowledge.[8] The goal of this subjectivist epistemology is to introduce the "extramental" or material world into the subject or to reduce its reality such that it can fuse with the subject and then the subject can finally study itself.[9] The path toward total reunion is one which requires an ontological change:

> His increased 'true knowledge' signifies a general increase of mankind's and the world's maturity; it also modifies radically the relationship between the object-world and the perceiving mind; it brings about an absolute change, a transmutation in man's morality, intellectual powers, and political insights; it brings about a change of being.[10]

However, this "maturity" is a carry-over from, or is at least analogous to, the alchemists' desire to overcome human limitations, e.g., by accelerating certain natural processes to transform common metal to gold and matter into spirit.[11] In terms of modern philosophy, however, the maturation process is thought to occur over historical time in certain phases or stages with each phase of history measuring a phase in the growth of the mind. The historical phases are, in other words, assumed to correspond to higher forms of intelligence.[12] It is in this way that the maturation process is also conceived as a conquest of limits:

> But modern philosophy is able to favor the notion that knowledge, and with it being, grows by the shedding of human limitations and the progressive emergence of a better intellect encased in better moral and historical forms.[13]

To this Molnar adds: "This notion is not only not hindered by modern science, it is promoted by evolutionary theories in the realm of biology and morals."[14] That this view receives sustenance by a "scientific conception committed to the idea of historical evolution" and vice versa is evidenced by the popularity of such writings as those of Teilhard de Chardin.[15] The maturation process is actually one in which man supposedly evolves (is alchemically transmuted) from creatureliness to divinity.[16]

If the world, then, continuously matures through history to new ontological heights, it must be in a continuous state of change; nothing ever *is*, everything merely *becomes* on the path to true being and knowledge. This subjectivist approach to knowledge is thus considered *dynamic*, and a rejection of the Aristotelian concept of knowledge *in aeternum* (in eternity) which is static.[17] The focus, naturally, is on the process of becoming and of change.

This stress on flux can lead to a rejection of the notion of "concepts" because these represent a "stopping and a staying" in a world that is always changing.[18] Concepts must distort reality because they are static, not evolving. Instead, it is preferable or necessary to grasp things directly without any form of mediation, intellectual or otherwise. Nicholas of Cusa, for example, advocated in his *Of Learned Ignorance* a way of "beholding without grasping," i.e., acquiring direct knowledge without intellectual apprehension, without "concepts."[19] Meister Eckhart speaks of knowing God directly, without mediation.[20] This leads finally to the rejection of a *personal*, incarnate and anthropomorphic God.[21] Such a concept of God implies a form of mediation between man and the eternal Father. Desiring to fuse with all reality, the adherents of subjectivism have sought to apprehend God directly, without mediation. Such a God is objectionable because He is the guarantor of the reality of the extramental world and so of the very distinction, creatureliness, and limitation, and hence the need for mediation, which the subjectivist is desirous of eliminating.

Because of this desire for total union or fusion the subjectivist must reject a concept of Biblical Creation because "creation implies a distinction between God and creature, consequently a relationship that is not a fusion."[22] He requires the abolition of distinctions. This position leads the modern subjectivist/evolutionist thinker to abandon any sense of difference between what is artificial and what is natural; whatever occurs in his own mind is natural. In presenting methods of teaching about ultimate origins, Moore points out the problem this way:

> In point of fact, a 'natural' thing or event is different than a concept that is plausible or thinkable. Evidently many students and others who have adopted the 'anything-is-possible attitude,' consider that if an idea is at all thinkable, then it is somehow natural. Yet the thinkable idea may well involve *no real*, naturally occurring object and/or event.[23]

Historically, a shift in emphasis occurred from God manifesting himself in nature to a concept of God-Nature. "The Eckhartian mystics had prepared the way for man to identify himself with God; the Ockhamists were to have no difficulty to identify man with nature." From here on God was seen as a mechanism of nature, rather than as a personal, transcendent God.[24] The subjectivist, in other words, is a nominalist believing that the individual mind creates the world. As Molnar points out the function of reason was no longer to determine that thing and thought reliably fit together, but rather to "transform the world in the process of comprehending it."[25] The goal is to develop absolute intellect which will correspond to absolute being. The subjectivist is caught up in his own mental activity, in the process of knowing but not in the things that are known because, in the final analysis, the extramental world is for him not real. He thus abolishes the distinction between the artificial and the natural: whatever he thinks is natural.

An understanding of these philosophical views as sketched briefly above aids in understanding modern day evolutionism in so far as the latter incorporates certain key elements of the former. These elements then include (1) a rejection of *distinction* or *separateness* resulting in a desire for fusion; (2) a process of *maturation* to become a higher being, from creatureliness to divinity; (3) the view that the world is in constant *flux* and (4) a distrust of *mediating concepts* with its concomitant change in the function of reason.

Molnar correctly summarizes this epistemological/ontological dilemma by noting that "the whole debate turns on whether creatureliness is a fault, an imperfection, a nonbeing, or a limited, but in its limitedness a full, essence."[26] But the very notion of "essence" leads us to another main issue, a philosophical position relating to origins.

The Problem of Universals, Languages and Essences

The nominalist/subjectivist/evolutionist holds that universals (generalizations) are merely convenient mental constructs but which describe no reality. This view involves the belief that rather than an interlocking system, or inner structure to things (nature or essence), there are only particulars or individuals. Ramm, not unlike Molnar, notes that this change to a nominalist philosophy occurred during the Renaissance and Enlightenment and "did much to unravel the idea of a structural universe, including the Biblical doctrine of the one God who is Lord of creation, history, morality, and redemption."[27]

Francis Schaeffer reaffirms the importance of universals because they give meaning to the particulars: ". . . in learning we are constantly moving from particulars to universals. . . . This is not only a linguistic thing, it is the *way we know*."[28] If nature (the material world) becomes autonomous it will eat up grace (the spiritual world), he says, and then the universals will become lost and life in both morals and epistemology will become meaningless.[29] But Schaeffer also points out that the loss of universals, i.e., a denial of their objective existence, ultimately involves the loss of the ability to discriminate between "reality and fantasy"; without them man has no way "to distinguish what is in his head from that which is in the external world."[30]

There is also a connection between the reality of universals and the meaningfulness of words. With the rise of nominalism, Weaver argues, words were thought no longer to correspond to objective reality and so it appeared no great loss to take liberty with them. After this faith in language as a means of arriving at truth is weakened.[31] This weakening is especially promoted by semanticists who acknowledge a Darwinian link and attempt to explain language in behavioristic terms. Weaver, commenting on one such book by Charles Morris, notes that:

> Language is spoken of as if it were some curious development of sense which enables an organism to take into account objects not perceptually present. The determination of the scientist to see all reality as process appears later in the same work when Morris collapses the notion of 'meaning' by making it purely a function of relationships. That is to say, nothing is, intrinsically, but each thing is, in terms of the process as a whole. The significant implication follows that concepts are not entities but are, rather, highly selective processes 'in which the organism gets indications as to how to act with reference to the world in order to satisfy its needs or interests.'[32]

Behaviorism, functionalism or relationism is stressed in this evolutionary view to the exclusion of any inherent nature, substance or essence. To collapse the notion of the meanings of words so that they are considered to be solely a function of context is not unlike the view that organisms have developed solely according to their environment. It is a thoroughly Darwinian view. (Interestingly, Schaeffer cites a book by Korzybski and Bourland on general semantics in which the verb "to be" was never allowed to be used.[33])

Certainly evolutionists have not been rigorous or careful with the meanings of words and definitions. Words cannot capture the flux which is the reality conceived by subjectivist/nominalist/evolutionists. Garrett Hardin, for example, succinctly summarizes this view:

> It is language that deceives us. Our language breeds gods: it is admirably suited to dealing with substances and persons, but poorly adapted to dealing with processes, which it constantly tends to degrade to things or beings. Perhaps no single ability is so characteristic of the true scientist as the ability to think in terms of process in spite of language.[34]

Moore has well documented the result of this attitude to language in relation to evolutionists' use of words and definitions in the origins debate. He points out the cavalier use of such words as "history," "science," "hypothesis," "cosmology," "measurement" and especially "evolution" to cover a wide variety of meanings.[35]

How was this attitude manifested in the natural sciences? Certainly, if one cannot believe in the reality of universals or in the ability of language to convey knowledge accurately, then it follows that "genera" and "species" are merely convenient inventions but name no reality. This was not the view of Linnaeus, though, whose nomenclature Wightman says "demands the 'reality' of the genus as much as that of the species."[36] The failure to continue in this vain is a sign of backsliding to Wightman:

> It is perhaps significant that with our growing scepticism towards the existence of rigid 'species,' let alone genera, we are accepting more and more *trinomials*—perhaps the first retrograde step to the descriptive phrase from which Linnaeus rescued us. . . . However it was the definition of *genus* and *species* that was all important; and here he did posterity the signal service of framing every description on a definite plan in which all essential parts were passed in review and described in a terminology admirable for its terseness and clarity . . .[37]

This recognition of the reality of universals in biology is further suggested when Wightman, in referring to certain "progressive" creationists such as Owen, Agassiz and others, remarks that their refusal to recognize *progressive change* (macroevolution) was due to their acceptance of "Platonic forms" where, as he earlier describes it, change is restricted "to a mere return to the *status quo*." Homologous organs, for example, were not interpreted as arising "by any historical succession, but only in the mind of God, out of which they have become actualised by separate acts of creation."[38] Greene makes a similar point when commenting that in the Linnaean view, which would include others such as Ray, Tournefort and Cuvier, the "natural historian" was "above all, to search for a natural method of classification," one which corresponded "to a pattern in the mind of the Creator."[39] For these taxonomists and biologists classifications and universals were "real," a reality directly related to their faith in the unchanging character of a personal Creator.

But it was Charles Darwin, according to Ernst Mayr, who signaled the break with this tradition. Among the four major shifts in Darwin's thinking that Mayr cites, are (1) the abandonment of belief in "essences," and (2) the gradual loss of his Christian faith. The opposite of belief in "essences" is population thinking according to Mayr and this is what Darwin came to accept. Furthermore Mayr emphasizes the importance of these two views coming together:

> That Darwin lost his faith in the same crucial years in which he began to adopt population thinking (and 'hard' inheritance) is a synergistic constellation, the importance of which should not be underestimated.[40]

The loss in Christian faith and in essences was no mere coincidence. Darwin eventually came to believe, then, that only individual differences were real, not species or genera. The organism began to be seen in terms of its "relation" to its environment alone; it was no longer thought to have an inner structure, nature, or essence which identified it with its "universal" or "type."

A similar story holds for modern physics. The movement from classical to present-day concepts involves an emphasis on "relations" and the "state of the observer" as in relativity theory, and no longer places much importance on "essences" as Dampier writes: "The old physics assumed that we observed directly real things. Relativity theory says we observe 'relations,' and these must be relations between physical concepts, which are subjective."[41] The nominalism and subjectivism are made further evident when Dampier suggests in the same context: "The regularities of science may be put into it by our procedure of observation or experiment." New ideas become "laws of nature" by being assimilated to our accustomed picture of nature and are therefore really "subjective laws which have grown out of the subjective aspect of physical knowledge. Thus the epistemological method leads us to study the nature of the accepted frame of thought."[42] And finally the author concludes that:

> In these pages we have often found reason to suggest that the concepts of science are but models and not reality. . . . Our scientific model of nature is so successful that we gain increasing confidence in believing that reality is something like it. But it remains a model, and a model which can only be examined in sections, *cut to suit our own minds* (emphasis added).[43]

The truth of the regularities of science varies with the accepted frame of thought (or accustomed picture of nature) and our concepts of the world are merely mental constructs convenient or successful in manipulating things but they are not real, i.e., they do not accurately convey the truth or *re-present* reality. Because we do not have exhaustive knowledge these constructs can be examined only piecemeal, fashioned to suit our own minds. The entire implication here is that we distort reality or at least what we think we know is not extramental reality but only our own "models" of it and hence the preoccupation with studying the "accepted frame of thought." This suggests that the laws of nature are not descriptions of objective reality but subjective statements prescribed for or imposed onto the world.

Sir Karl Popper apparently praises Heraclitus' "discovery" that the world is not the sum of things but the sum of all events, changes, or facts. To this denial of substance, Jaki responds by noting that when the existence of *things* is denied, in favor of "facts" or "relations," the universe becomes unintelligible, an intellectual rubbish heap. And this ruins also the

> strict consistency of any discourse about the cosmos, including cosmology, philosophical or scientific. Any admirer of the alleged exclusivity of facts still has to find a logical way of defining a process which is not undergone by some*thing* (emphasis added).[44]

Isaac Newton, on the other hand, clearly relied on the concept of essences in his work. John Greene states that:

> Newton's impenetrable atom was an example par excellence of a permanent structure [essence] that participated in the world of change without being altered thereby. The atom simply was what it was because God had designed it a certain way and intended it to stay that way.[45]

Newton's hard, impenetrable particles gave a sense of coherence and permanence to the physical world. As Jaki describes it:

> When relativity made meaningless the notion of the ether as an absolute, all-pervading essence, it did not disprove the doctrine of essences. . . . More importantly, while it may be claimed that the superstructure of Newtonian science could function without essences, Newton the creative scientist found them indispensable. For it is essences that secure to a world of change the coherence and permanence needed for its scientific investigation and philosophical interpretation.
>
> In view of this it will not appear as a rank obscurantism to state that the traditional ways to God rest on the recognition of the existence of contingent essences. Their contingency points to a noncontingent existence, whereas their being essences indicates unlimited coherence and consistency in the Being whose essence is existence itself.[46]

Essences or substances, then, are epistemologically necessary because their properties of permanence and coherence give the world intelligibility. Without them how is learning possible? We may ask with Plato's Cratylus that if all things are mutable how is anything knowable? The position of the subjectivist/nominalist/evolutionist, then, is one which undermines our ability to know; it is a position of anti-knowledge in that it focuses solely on flux as the only "reality" and in its quest for the abolition of distinctions which are necessary for knowledge.

Each entity, though finite, has its own substance, essence or nature, an inner structure which contributes to its intelligibility and that of the world. And furthermore, "the property of intelligence is precisely, to bring out this intelligibility, which is inherent in finite things and which is not the task of reason to imprint on them."[47] The determination of *what* a thing *is*, is one of the most important aspects of intelligent activity:

> This is the function of intelligence, which, like a Don Quijote, would indeed aimlessly agitate its arms facing nonexisting targets if it did not have before it an intelligible object, a real being, the whatness of which is reliably cognized.[48]

Though the orderliness of the extramental world is real, the mind "must conform to what is in order to report order, and the object, existing in its own right, must be the orderly substratum about which our intelligence informs us."[49] How is this possible without some concept of essences or substances?

This same attitude, which undermines belief in the validity of languages, universals and essences to convey or consist of truth, because of its mistrust of intermediaries such as "concepts," its nominalism and subjectivism, requires the abolition of philosophy and metaphysics traditionally conceived. The obvious example of this is the historicist school, a form of positivism, which stresses historical phases or stages, each stage leading to a higher ontological and/or epistemological level, i.e., man "evolves" in some way from a lower to a higher state of being. The final stage is the end of the "maturation" process (often conceived as a utopia). In this last stage man no longer needs philosophy or metaphysics for he will have absolute knowledge in absolute being. Comte, for example, envisioned three stages of man's intellectual development: the theological, the metaphysical and finally that of positive science. In this stage even society would be studied in the manner of physics and hence he called for a "social physics" or sociology. The rise of Darwinian evolutionism contributed to the rise of positivism in that modern science could seemingly explain everything: society, human nature, history and even the ultimate origin of the universe and life. As a result philosophy and metaphysics hardly appeared necessary. With the rise of modern evolutionism "the hope of discovering or knowing a reality behind the veil of sense experience diminished as the prestige of [a Darwinian controlled and positivistically oriented] science grew."[50] And similarly, speaking of the consequences of Darwinism, Russett notes:

> Science has for the most part ceased to serve as a platform for polemics, or at least for polemics of a metaphysical nature. . . . The abstention of scientists (as scientists) from metaphysical speculation results partly from a feeling shared by many scientists that metaphysics is non-existent or meaningless.[51]

In this view natural science is believed to be the only source of valid knowledge and all human thought is analyzed or critiqued in the terms of a positive science. But as Molnar points out speaking in the context of Kant's contribution to the rise of positivism, this involves a logical caveat:

> ...this critique [of human thought] is inevitably absorbed into the science closest to the linguistic or positivist thinker's heart, a kind of privileged science chosen for nonscientific reasons. . . . Then this particular science assumes the function of a metaphysics, and so on indefinitely, because to judge its own assumptions, a third science must be formulated, and so on.[52]

Evolutionists desire an end to philosophy (traditionally conceived) but allow their evolutionism (as a world view) to function covertly as a metaphysic while parading it in the garb of "natural science." This allows them to proselytize their lingering positivism and materialism while enjoying all the respect, authority and prestige rightfully attaching to genuine science.

That "prestige of science" is of course a major point. Science came to be explicitly viewed as the only source of genuine knowledge, or at least the only way to get things done. Hence if anything was to become "respectable" it had to be "scientific." This attitude combined with the desire to abolish distinctions made it increasingly difficult to identify, at least in the popular mind, the limits of science; to distinguish between what is "science" and what is not and between evolutionists functioning as scientists and as metaphysicians. This leads to the question at hand here: What limits are there to science and does a consideration of ultimate origins fall within those limits?

Is the Study of Ultimate Origins Scientific?

Many evolutionists claim that their concept of ultimate origins is "scientific" and creationism is purely religious. Some creationists, on the other hand, argue that creationism is "scientific." The Creation Research Society, furthermore, proposes "to re-evaluate science"

from a Biblical creationist viewpoint. Any evaluation of science has to be non-scientific, extra-scientific or meta-scientific, i.e., metaphysical or philosophical. In the following section, some of these issues will be raised and tentative answers given. The purpose is not to rigorously or exhaustively pursue these points in all their subtlety but primarily to illustrate the importance and relevance of philosophy in the origins debate, These issues will revolve around the central question whether the consideration of origins problems is "scientific" and if so, in what sense.

Thaxton and Buell have recently attempted to deal with this question and conclude that origins studies are scientific but in a special sense. They distinguish between "operation science" and "origin science." The former is said to involve the gathering of data through experimentation and observation leading to the formulation of theories. These theories are valid if they (a) explain what was observed by some unifying principle, (b) predict phenomena which have not yet been observed and (c) are tested by repeated observation or experiment.[53]

With these criteria it is clear that the study of origins is not scientific operationally. But Thaxton and Buell argue it is scientific in another sense. "Origin science" involves the assumptions (a) that every event, including past ones, has an adequate cause and (b) that like events have like causes. This is the principle of uniformity [really, uniformitarianism]: the present is the key to the past.[54]

First, it should be noted that the postulate of adequate cause is assumed also in operation "science" and thus Thaxton and Buell's criteria do not sharply separate the two sciences. The second point is how does one scientifically study or determine past causes? The second criterion is based on analogy. But in studying ultimate origins are there really any events or processes occurring in the present which are "like" those believed to have occurred in the distant past? What is presently analogous to the "processes" used by the Creator to make the world? Or what is analogous in the present to an explosion of primordial ylem leading to the complex ordering of the entire universe? Actually, the cogency of any possible analogy is often governed by one's prior commitment to a worldview, religion or philosophy. In order to make an analogy one must in fact have a prior conception of ultimate origins for which analogies serve as illustrations for comprehension and communication.

Thaxton and Buell use the analogy of forensic medicine as a model of the nature of origins questions. Here unrepeatable crimes are solved by reconstructing a history of events. This is a legal approach, though one which uses some results of medicine and the natural sciences. This analogy suggests all those disciplines which are primarily concerned with historical reconstruction: archaeology might be another example. This does seem to come closer to capturing the heart of the matter. Even here, though, it should be noted that the practitioners of forensic medicine, like those of archaeology, are able to make their reconstructions based on analogies and comparisons of present, ongoing events or processes. Their *particular* events are nonrepeatable or unique but the type of event is not only repeatable but is usually continuing in the present and thereby allowing for extrapolation. The reconstruction of buildings and roads of an ancient culture would fit this pattern as would the fact that chemical and anatomical analysis relating to the human body (physiology) are ongoing types of research which are used in forensic medicine. Some of the questions relating to origins, however, deal with *necessarily unique* events that are without type or pattern in the past or the present. Thus no comparable analogy is rigorously possible for the big bang or Creation *ex nihilo.* Such events are atypical.

In his discussion of scientific theories, Moore argues that these involve "immediate activities of human beings," and function to explain "present phenomena involving events occurring in the lifetime of human beings."[55] This includes both prior observations and predictions that can be developed from such theories before the fact and are testable by repeated experience (directly or indirectly).[56] As for the discussion of ultimate origins questions, Moore holds that these "involve basically imaginative speculations because they are formulated with the primary function of explaining *unobservable origins* . . ."[57] Because these are unrepeatable events, he concludes, "careful, orderly science properly understood as limited to the present cannot be applied." Any predictions here are mainly after the fact and are testable only by logical reasonableness or internal consistency about past events.[58]

Moore's assessment might be characterized as stressing a certain kind of "closure" necessary for proper, scientific work. Not, of course, closure in the sense of delivering the final word on a subject but rather a level of temporal and spatial closure that is encompassable by a human scientist. Thus a proper scientific experiment or observation has a specific beginning and end and occurs within a specific place. This is indispensable if the scientist is to be a witness to the process or event under consideration; it gives a minimal amount of control which actually contributes to the definition of "observation." But infinite processes, or those which are thought to be of ages far longer than humans have been in existence, let alone of one scientist, are not encompassable or comprehensible to the scientist; they lack the necessary property of closure which makes the experiment or observation tractable or manageable. Macroevolution is one such postulated process. More generally in this view, ultimate causes such as the big bang and Creation *ex nihilo* are in principle outside the domain of natural science.

One example that some creationists use to show that creationism is scientific, i.e., that it yields testable hypotheses, is the prediction of coal formations from the Flood model.[59] Is this then not an example of "science"? There are several observations that can be made here. First, science proceeds on the basis of certain uniformities (not to be confused with uniformitarianism) in nature. A massive, global Flood would not be a uniform, ongoing, natural phenomenon; rather, it would be a unique, historical event and therefore, not susceptible of scientific treatment. Of course, the *presently* existing geological formations and deposits are capable of being so studied, but not their origin. The processes and events which generated or originated such features are unique to the Noachian Flood. The products of the Flood, like those of Creation gen-

erally, can be scientifically studied in the present. Secondly, a scientist can study these features and observe correlations or relationships which allow him to make predictions. But how necessary is a concept of origins for this? Is it possible that making observations of presently existing patterns is sufficient to predict the location of coal formations without elaborating in any significant detail a concept of origins? Thirdly, there are many aspects of a scientist's life which may give insight or inspiration to his science but which are not therefore "scientific." These would include his religion, his family, or even some accidental event. All that may be legitimately argued here is that creationism is not a hindrance to science, indeed, it is conducive to it. But this alone does not make it "scientific."

Furthermore, if we conceive of science as somehow involving a search for laws of nature, say, like the law of gravity, or the laws of planetary motion, then what are the laws of ultimate origins? The singular, historical event of the generation of the cosmos is more of a metaphysical concern than a scientific one. This should be especially clear when it is recalled that science, among other things, relies on the method of induction to derive laws of nature which were not formerly known. How could this method apply in the study of ultimate origins?

One other argument which some evolutionists have made in contending that the study of ultimate origins is "scientific" involves the concept of "indirectness." A physicist, so the argument goes, cannot study atoms, electrons, etc. directly but he can do so indirectly, making inferences about them. So, too, the paleontologist can study the past indirectly via the fossils and thus it is reasonable to conclude that ultimate origins can be scientifically studied in a similar way.

There are two observations to make here. First, assuming this does constitute a legitimate, scientific study of the past, it is not the study of *origins* but only of the life forms of the past, not the manner in which they originated. Second, the paleontologist is actually studying *presently* existing fossil materials which can be repeatedly observed, analysed and compared with presently existing life forms, as well as with other presently existing fossils. But how can his inferences about the past, and especially ultimate origins, be scientifically tested? Unlike the physicist's atoms, the process of fossilization is presently not ongoing. However reasonable the inferences about the origin of life, the universe, etc. may be, the event or process is no longer a part of nature and thus out of the purview of the natural scientist, strictly speaking. To be rigorously analogous the student of origins would have to *indirectly* observe the first appearance of life, or the big bang, etc.

There is also the problem of circumstantial evidence. All inductive evidence is usually considered to be circumstantial. But the circumstantial evidence for a repeating, ongoing process in nature is different from that of a nonrepeating or unique process or event which is imagined to have left a presently observable product. Evidence of the latter kind forces one to make an argument from the consequent, postulating a scenario to explain the event. But there may be all sorts of plausible stories to explain the event which cannot be rigorously examined or tested because by definition the event or process is not occurring in the present.[60]

Jaki describes the scientific method as involving a sorting out process, the isolation of special factors "operative in nature," and the integration of these factors into "fact laws" resulting from a complete generalization in the act of induction. He then comments:

> In all these steps it is the facts of nature that dominate the mind, in the sense of holding it to a steady diet of facts, data, and observations which the mind must digest into an increasingly more abstractive nourishment.[61]

Can we really say that ultimate origins can be studied in this way? If not, then this topic falls outside the limits and thus outside the domain of natural science.

This leads to the threshold of another point, that science is not limited only by its methods but also by its object: ". . . science is divested of its nature when it ceases to be about nature . . ."[62] Is the study of the *origin* of nature a study of *nature?* Or is the ultimate origin of the universe (nature) a natural event or process? These are philosophical rather than scientific questions yet are of importance to the origins debate. The metaphysical question of what is nature or what must nature and man be like in order to have modern science is something that must be answered before one can have a legitimate science. The evolutionist holds that nature "makes itself"; there is a process of "self-generation" and this supposed process takes place according to known natural laws.

If we define nature to be the "totality of consistently interacting things,"[63] then it is difficult to see how ultimate origins are a part of nature and so within the purview of the natural scientist. The processes producing nature are not a part of the "consistently interacting things." Again the problem of postulated but unobserved processes or events which are unique or singular but which are believed to have generated the universe cannot be a part of that universe. The *operation* of the present universe or nature can be explained in terms of presently known processes and events but not its *origin.* The origin of a typewriter, for example, cannot be explained exclusively in its own terms but only in reference to a set of different and more complex machines whose operational principles are also different[64] Evolutionists are thus led into the logical caveat of inconsistency or infinite regress in trying to make nature "self-generating" or "self-explanatory." Neither the big bang nor Creation *ex nihilo* can be explained according to natural laws. Since they do not occur in nature now, they are actually "unnatural." In fact it would not be going too far to say that much of what the macroevolutionist proposes is really contranatural.

One final but major point in considering the problem of origins is the historical meaning and definition of science. For Robert Boyle, who distinguished between science (experimental chemistry) and a philosophy of science, the purpose of the scientist was to discover and formulate the laws of nature based on observation. In articulating this position Boyle *presupposed* a creationist view of origins.[65] Similarly for Ray and Linnaeus, Greene observes that "they did not consider it their business as natural historians to explain the origin of species, but neither did Newton consider it his

business as a natural philosopher [i.e., a physicist] to explain the origin of the solar system."[66] Rather they assumed the basic structures and specific forms of nature were permanent and part of a wise design. For Ray and Linnaeus the purpose of their science was to "name, classify, and describe"; it involved "blending Aristotelian logic and teleology with a static form of the Christian doctrine of Creation, [and] identified natural history with taxonomy."[67] Furthermore, this view was the dominant one in the field of natural history for almost two hundred years, that is, until Darwin changed the view from a static, taxonomy-oriented one to a dynamic, causal and evolutionary biology. This shift, says Greene, inaugurated a *new era in the study of nature*.[68] Darwin's methods were as revolutionary as his "theory."[69] But the basis for its adoption "sprang more from the *appeal* of this [evolutionary] *vision* of nature and natural science to imaginative minds than it did from factual discoveries . . ." (emphasis added).[70]

Such a revolutionary vision of nature was possible once history and nature were both placed under a prescriptive definition of law. History became seen as having forces which moved in a certain direction affecting both nature and society. It became necessary then to formulate the "laws of historical development." Buffon, for example, "strove to portray the history of man as a part of the wider history of nature" and was preoccupied with devising a "theory of generation" that would explain the presently observed uniformities as "necessary products" of matter in motion.[71] This historicist form of positivism became dominant in the last century and later emerged as evolutionism. More generally Greene concludes that:

> It was not until the idea of social evolution was linked to the idea of organic evolution in the middle of the [19th] century that the concept of nature-history as a single continuum undergoing progressive development emerged as the central theme of evolutionary naturalism.[72]

This revolutionary view affected modern man's vision of reality and the positivistic element in it inclined to the opinion that all reality was susceptible of scientific treatment. But as Greene observes:

> Every great scientific synthesis stimulates efforts to view the whole of reality in its terms, and Darwin's theory [sic] of natural selection was no exception. But the views of reality that originate in this way are not themselves scientific, nor are they subject to scientific verification.[73]

Why then call the study of ultimate origins "science"? It would seem that the main reason is to capture the aura of irrefragability that attaches to anything purporting to be "scientific." This comes from an inflated view of the role and method of the natural scientist.

Summary and Conclusion

Some of the key elements found in the world view of "evolutionism" were adumbrated centuries earlier in certain philosophical and religious positions of the late medieval period and were subsequently secularized in modern subjectivist philosophy. The problem originates in assuming that the limitation which inheres in the status of "creature" is an unacceptable flaw or imperfection in being which must be overcome. The path to true knowledge is inseparably linked to the growth in being, the "ontological promotion." This promotion requires, among other things, the abolition of distinctions between subject and object, between God and man, and between these two and nature. It is a commitment to complete fusion in the effort to achieve total knowledge and total being. Man is thought to outgrow his creatureliness and become divinity in a "maturation" process occurring over historical time. This epistemological and ontological "evolution" in stressing flux, changeableness, and "becoming" rather than being, leads also to a rejection of anything requiring stasis and limits, including the rejection of mediating concepts, which cannot capture the world of flux, in favor of direct apprehension of God and nature.

Among other relevant philosophical positions of importance in the origins debate are the rejection of the doctrine of essences, denial of the reality of universals, and abandonment of belief in the validity of language to convey accurately truth. These are, of course, derivative of the position mentioned above. In the sciences these philosophical positions are reflected in both biology and physics in the denial of separate types of organisms and in the rejection of substance. Instead of things whose whatness is reliably cognized the modern mind is usually preoccupied with behaviorism, functionalism and relationism, again stressing change, becoming, and process. The emphasis is more on the *process* of knowing than on the *things* known since the reality of the extramental world is denied. This is a position which tends toward atheism.

All of this contributes to the positivism and materialism of the modern view in which the natural sciences are seen as the only valid source of knowledge with the result that philosophy and metaphysics are considered meaningless or non-existent, suited to an earlier, more primitive stage of man's intellectual evolution. The sciences are believed to explain everything: history, society, and ultimate origins. Hence in the discussion of ultimate origins almost anything the materialist or positivist scientist can imagine is considered "scientific." Little recognition is given to the limits of science here, to the making of distinctions. In this paper some of these limits and distinctions have been suggested with a view to recognizing some serious handicaps in claiming that origins questions can be studied "scientifically."

The alternative is to accept the reality of the extramental world, of things, essences and natures and reject subjectivism/nominalism in favor of a moderate realism. This means accepting our status as creatures, finite and limited and recognizing that though we cannot know exhaustively, we can know truly. That inevitably leads to the recognition of God the Creator. As Jacques Maritain observed: ". . . if things really exist, it is inevitable to postulate God's existence also."[74] And Molnar repeatedly supports that point:

> . . . the Judeo-Christian-Aristotelian conceptual framework of our thought sees the existence of things in their createdness, so that the reality of objects presupposes also the reality of a supreme transcendental creator. . . . to postulate a God independent of man (transcendent), yet concerned enough (personal) to furnish the universe with other things and beings also . . . such a God stands guarantor to the reality of what he creates. . . .

> God reminds us that man is not the creator of nature, nor is nature the creator of man; both were created distinct and limited . . . and he created the extramental world as an entity distinct from the human being. Hence cognition is enclosed within wide but firm limits.[75]

In the creation/evolution debate, the gathering of more empirical data is simply not enough. Creationists must understand the long, philosophical background which lies not only behind belief in evolutionism but also behind evolutionists' concept of science. Greene urges that:

> To ignore the differences between science, philosophy, and religion and roll them all into one evolutionary gospel claiming to disclose the meaning of existence is as dangerous to science as it is to philosophy and religion.[76]

To ignore these differences is in fact to take a secular and essentially evolutionary position. Only when these distinctions are kept clear and when the philosophical understanding is added onto the critical evaluation of empirical data can creationists hope to unroll this "evolutionary gospel" completely and thus clear the path for hearing the only genuine gospel: Christ, the Redeemer of Creation.

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1. Molnar, Thomas. 1973. God and the knowledge of reality. Basic Books, New York, see especially pp. 3-69.
2. *Ibid.*, p. 110.
3. *Ibid.*, p. 40.
4. *Ibid.*, p. xiii.
5. *Ibid.*, pp. 44-45, 46-47, 92, 109, 110, 112, 114-116, 117, 129-130, 210-211, and elsewhere respectively as indexed. The tracing of the continuity of thought between these men is a fascinating and complex study but well beyond the scope and purpose of the present paper. One example of the interesting connections of thought is that of Schelling. As Jaki indicates in his *The road of science and the ways to God.* 1978. University of Chicago Press, Chicago, p. 136, Schelling started his work by considering the Biblical doctrine of Genesis and Fall as a kind of myth which he supplanted with his own version of the genesis of the world which Jaki describes as truly mythical, i.e., illusory. Much of Schelling's philosophy was a recapitulation of Giordano Bruno's views as Jaki shows (pp. 134-135). Interestingly, Wightman identifies Bruno as being perhaps the first modern pioneer of evolutionary thought. See his *The growth of scientific ideas.* 1953. Yale University Press, New Haven, p. 396.
6. *Ibid.*, p. 113.
7. *Ibid.*, p. 115.
8. *Ibid.*, p. 106.
9. *Ibid.*, p. 114.
10. *Ibid.*, p. 99.
11. *Ibid.*, pp. 98, 101; but see the entire chapter, pp. 97-124.
12. *Ibid.*, pp. 101-102.
13. *Ibid.*, p. 108.
14. *Ibid.*
15. *Ibid.*
16. *Ibid.*, p. 107.
17. *Ibid.*, p. 116.
18. *Ibid.*, p. 121; see also pp. 111-112, 116.
19. *Ibid.*, p. 41.
20. *Ibid.*, pp. 34-35.
21. *Ibid.*, pp. 60, 61.
22. *Ibid.*, p. 113.
23. Moore, John N. 1983. How to teach origins. Mott Media, Inc., Milford, Michigan, pp. 84, 86.
24. Molnar. *Op. cit.*, p. 45.
25. *Ibid.*, p. 107.
26. *Ibid.*, p. 206.
27. Ramm, Bernard. 1983. Does anybody have the right to tell me what to do? *Christianity Today*, 27(17):46-49; see especially page 47.
28. Schaeffer, Francis A. 1972. He is there and He is not silent. Tyndale House, Wheaton, Illinois, p. 38.
29. *Ibid.*, pp. 41-42.
30. *Ibid.*, p. 56.
31. Weaver, Richard M. 1948. Ideas have consequences. University of Chicago Press, Chicago, pp. 3, 7-8.
32. *Ibid.*, p. 158 (footnote).
33. Schaeffer. *Op. cit.*, p. 51.
34. Hardin, Garrett. 1959. Nature and Man's fate. Mentor Books, New York, p. 60.
35. Moore. *Op. cit.*, pp. 56, 58, 64, 103, 105 and 128 respectively. But see also his "An Estimate of the Current Status of Evolutionary Thinking" in *Creation Research Society Quarterly*, 18:189-97; see especially pp.192-93, 195-96.
36. Wightman, William P. D. 1953. The growth of scientific ideas. Yale University Press, New Haven, p. 375.
37. *Ibid.*, pp. 375, 376.
38. *Ibid.*, pp. 416, 269.
39. Greene, John C. 1981. Science, ideology and the world view. University of California Press, Berkeley, p. 34; see also pp. 16, 35, 36, 50. Greene adds that for Buffon, though, "classifications were arbitrary human devices that played a useful but subordinate role . . ." (p. 34). This suggests something of both pragmatism and nominalism. Also Wightman (p. 377, reference 36) states that it was by constant reliance on extinct forms coupled with the application of the principle of correlation of parts which allowed Cuvier "to transform animal taxonomy at one stroke into a *natural* system, despite his uncompromising acceptance of Linnaeus's dogma of the fixity of species" (original emphasis). Wightman fails to consider the possibility that Cuvier's belief in some form of fixity, in the reality of distinct, basic types derived from the mind of God, may have contributed to this transformation of taxonomy into a "natural system."
40. Mayr, Ernst. 1977. Darwin and natural selection. *American Scientist*, 65:321-27; see especially p. 327.
41. Dampier, Sir William Cecil. 1948. A history of science. Cambridge, at the University Press, p. 491.
42. *Ibid.*, pp. 491, 492.
43. *Ibid.*, p. 497. Wightman claims it is Maxwell who made the "critical transition" from Newton's method of explaining phenomena based on known things (hard, massy particles) "to one in which the form of the relationship *only* is sought in analogy, the 'model' being discarded as soon as its usefulness had been exhausted" (p. 305, emphasis added). This involves a rejection of the doctrine of essences in favor of pragmatism and functionalism based on the modern mind's epistemological dilemma: one can never really know things; one can at best only know what works.
44. Jaki, Stanley. 1978. The road of science and the ways to God. University of Chicago Press, Chicago, p. 433.
45. Greene. *Op. cit.*, p. 14. The statement of Newton which Greene gives in this regard is: "God, in the Beginning form'd Matter in solid, massy, hard, impenetrable, moveable Particules, of such Sizes and Figures, and with such other Properties, and such Proportion to Space, as most conduced to the end for which he form'd them." See p. 13.
46. Jaki. *Op. cit.*, pp. 88-89.
47. Molnar. *Op. cit.*, p. 214.
48. *Ibid.*, p. 217.
49. *Ibid.*, p. 225.
50. Greene. *Op. cit.*, p. 133.
51. Russett, Cynthia E. 1976. Darwin in America. W. H. Freeman Co., San Francisco, p. 218.
52. Molnar. *Op. cit.*, pp. 212-213.
53. Thaxton, Charles, and Jon Buell. 1984. *The Foundation Rationale* 1(2):1.

54. *Ibid.*, p. 2.
55. Moore. *Op. cit.*, p. 86.
56. *Ibid.*
57. *Ibid.*
58. *Ibid.*, pp. 86, 87.
59. Morris, Henry M., and Gary E. Parker. 1982. What is Creation science. Creation-Life Publishers, Inc., San Diego, pp. 134-36. Parker also believes that "creation is a scientific concept" and that it is "based on testable hypotheses and stimulates research" (p. 141). Yet in dealing with the question "Can Creation be Science?" (pp. 146-50), he seems to recognize, perhaps inadvertently, that the origins debate does involve philosophical issues (though one might infer that philosophy is to be relied on here only as an unfortunate last resort). One problem with his approach is that because he believes origins is a scientific subject, it "can never be completely settled by scientific study alone" (p. 143). The evidence will tend to "see-saw" back and forth (p. 145) due to our finite minds and "incomplete knowledge of the facts" (p. 145). This suggests that we cannot know truly unless we know exhaustively, a problem arising in nominalism but not in philosophical realism. Also, the open-mindedness suggested by the opened-endedness seems contrary to human nature: Who can fail to have a commitment on such a vital topic as ultimate origins that will not "see-saw" with the "scientific" evidence?
60. Schoeffler, Sidney. 1955. The failures of economics. Harvard University Press, Cambridge, p. 38.
61. Jaki. *Op. cit.*, pp. 252, 253.
62. *Ibid.*, p. 252.
63. *Ibid.*, p. 262, 263.
64. The example of the typewriter is taken from Harold Armstrong's "Thermodynamics, energy, matter, and form" in the 1978 *Creation Research Society Quarterly*, 15:119-21; see especially p. 120. For a further development of this type of argument see my article "The limits of human thought" in the 1983 *Creation Research Society Quarterly*, 20:30-39. See also Michael Polanyi. 1967. Life transcending physics and chemistry in *Chemical and Engineering News*, 45(35):55-66.
65. Klaaren, Eugene M. 1977. Religious origins of modern science. William B. Eerdmans Publishing Co., Grand Rapids, Michigan, pp. 116, 119; 170-71. Throughout his book, Klaaren stresses the importance of the creationist view in the development of early modern science not only for Boyle but for Bacon and Newton as well.
66. Greene. *Op. cit.*, p. 33.
67. *Ibid.*, pp. 33, 36.
68. *Ibid.*, pp. 33-34.
69. *Ibid.*, p. 51.
70. *Ibid.*, pp. 51-52.
71. *Ibid.*, pp. 35, 37.
72. *Ibid.*, p. 132.
73. *Ibid.*, pp. 196-97.
74. Molnar. *Op. cit.*, p. 137.
75. *Ibid.*, pp. 114, 137, 227 respectively.
76. Greene. *Op. cit.*, p. 197.

PANORAMA OF SCIENCE

Questions Remain About the Sun's Operation

It seems to be generally conceded now that there is a problem about the Sun. The failure to find the flux of neutrinos which would be predicted by the common theory of the way in which the Sun's energy is produced suggests that there may be something wrong with the theory.[1]

A recent article has taken up this matter.[2] The author agrees that the predictions do not match what is actually found. Not only is there the matter of the neutrinos, but there are other things, such as the five-minute oscillations, and other observations which are definitely at variance with the theory.

This matter is of interest to a creationist because, if the theory that the Sun's energy is produced by nuclear fusion must be discarded, some other source must be found. In fact, another source had been suggested before nuclear fusion was known: the Sun's contraction under its own gravity. Such contraction could supply energy at the rate at which the Sun is radiating; but it could do so for only, at most, a few tens of millions of years. Hence if the shrinking theory is accepted, and it seems to be the best alternative if the fusion is discarded, there will be another line of evidence for a recent Creation.

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2. Joseph, C. L. 1984. Solar neutrinos and other problems and their relation to energy production in the Sun. *Nature* 312 (5991):254-55.

Contributed by Harold L. Armstrong

Olbers' Paradox Again

Olbers' paradox is the observation that, if the universe is infinite, and if there are stars, nebulae, etc., distributed more or less uniformly throughout it, in whatever direction one looks at the night sky, one ought to see a star. So the night sky would not be dark, but would be ablaze with light.

This matter has been discussed many times in the past. Now a recent article has returned to it.[1] While the author does not much like the word "paradox," he concedes that there is no suggested solution to the paradox which is definitely known to be true. Suggestions have included such things as curved space, tired light, and even stranger notions. But these suggestions are not susceptible to direct independent experimental demonstration; so the field remains one in which anyone may speculate.

Creationists may use the paradox in urging caution in the fields of cosmology and cosmogony, and in pointing out that such speculations as the big bang are just that: speculations. For their own part, they will find no difficulty in believing in a finite universe, created, according to Scripture, as an adjunct to the Earth. Indeed, the situation which we actually see agrees with what might be expected from Scripture. God created day and night, and He created many stars to be seen at night; but not so many, nor in such an arrangement, as to obscure the darkness of night, which, along with other parts of His creation, He saw to be good.

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