

PROPOSALS FOR SCIENCE FRAMEWORK GUIDELINES

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General

In the restricted and proper sense, *science* consists of the collected and correlated data of observation and experimentation on presently observable phenomena. Science, as the name itself implies, means *knowledge*, and the essence of the scientific method is experimental reproducibility and verification. Thus, the science of chemistry deals with chemical processes, the science of biology with biological processes, and so on.

In this restricted sense it is evident that the subject of origins is entirely outside the scope of science proper. Unique historical events cannot be repeated for scientific measurement and description.

The origin of the universe, the origin of the earth, the origin of life, the origin of the major "kinds" of organisms (e.g., families, genera, and even most species), and the origin of man are phenomena which are not occurring in the present world, so far as scientists can see, and therefore are not amenable to the scientific method. It is misleading and false, therefore, to teach that "science" has proved anything whatever about origins or even about other events in the distant past antedating human records.

Nevertheless it is not really satisfactory to teach science without any reference to origins. In principle it would of course be possible to do this; that is, physics could be taught merely as a description of physical processes and how things work, geology could be taught merely as a description of the earth's crust and its present geological processes, and so forth. However, man by nature wants to know the "why" as well as the "how," the explanation as well as the description, and this desire inevitably and quite legitimately brings up the question of origins.

It is certainly desirable, therefore, to incorporate a discussion of origins into any science course—indeed into any subject whatever—since both the fundamental understanding and the practical application of the data in any field will surely be functions in some degree of one's basic philosophic commitments. Nevertheless, it should never be forgotten that, when origins are considered, the teacher or textbook must necessarily leave the realm of true science and enter the realm of philosophy and even of faith.

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Theories of Origins

Although each has many variants, there are really only two basic theories of origins. These are both equally "scientific," in that they attempt to explain the origin and nature of the data of science, and equally "religious," in that these ultimate answers they seek are necessarily beyond the reach of the observational and experimental techniques of the scientific method. It is therefore intolerable in a public institution in a free society for either one of these theories to be labelled "science" and the other "religion." If either is taught, then both should be taught, and the evidences for and against each should be fairly and impartially presented.

If a particular textbook author or teacher is so committed personally to either of the theories that he really cannot present the other in a fair manner, then a system of dual authors and dual teachers may be indicated. The latter would neither infringe on the academic freedom of the teacher on the one hand, nor on the civil and religious liberties of the children and their parents on the other hand. The cost of textbooks would not be affected and teachers could be scheduled to share various classes in such a way that teaching budgets need not be increased. In any case, it is obvious that the only course consistent both with the various federal and state constitutions and with relevant court decisions is to devote equal time for impartial presentation of both theories of origins in any course in which any discussion of origins at all is included.

The two basic theories of origins are of course the evolutionary and the creationist theories. In the first, the ultimate explanation for all entities in the universe is to be found in terms of the processes and relationships innate to the universe itself, developing itself by means of its own properties into its present structure.

The creationist theory of origins, on the other hand, maintains that the universe could not have originated and developed itself but, rather, that its fundamental cause must be transcendent to its present processes and structure. It does not in any sense deny the scientific validity of these phenomena, but merely says that they could not have originated themselves and that, therefore, they must be explained in terms of unique creative processes which functioned in the past but are no longer operative at present.

Although both of these theories are fundamentally philosophical, rather than scientific, certain scientific techniques may be used in analyzing and comparing them. Science works in terms

of "models," and each proposed model is evaluated in terms of its effectiveness in correlating the available data. A decision between alternative hypotheses will always be statistical, rather than absolute, and this is especially true for hypotheses of origins. These two theories are henceforth called, in this paper, the Evolution Model and the Creation Model.

It is recognized that some have attempted to formulate a mediating hypothesis of some kind, by which it is hoped that evolution and creation can *both* be accepted. That is, perhaps evolution was the *method* of creation. The tenability of this type of compromise can best be considered after the two basic models are first evaluated. In any case, it is certainly true that many evolutionist scientists and many creationist scientists alike reject this idea.

The consistent evolutionist insists that, if indeed innate evolutionary processes suffice to explain all the data, as he believes they do, then there is no need to invoke extraneous creative processes. The creationist says that, since there is a need to postulate extraneous creative acts and processes to explain the data, as he believes, the Evolution Model is by that very fact rendered impotent. These two theories cannot really be harmonized, except at a very superficial level, since they really represent diametrically opposite philosophies of origins.

The Evolution Model

The present processes of nature are, in the Evolution Model, adequate to explain the origin of the universe and its development into its present immense degree of variety and complexity. Despite occasional failures and even retrogressions, the over-all effect of these innate principles and processes has been that of the rise of diversity and complexity from primeval simplicity. The processes of the cosmos, therefore, are fundamentally processes of origination and integration.

Since, according to this model, all things are inter-related by common descent through slowly-operating innate processes, certain *basic predictions* can be made from the model as a test of its validity:

(1) innumerable structural and functional similarities should be observed among the entities of the present world, with in fact a more or less continuous array of inorganic species, semi-organic transitional species and organic species, and with no "gaps" of any consequence between adjacent kinds;

(2) the basic processes which have presumably given rise to all things should, when observed in the present world, turn out to be processes which tend to develop new entities in an ever-higher state of order and integration;

(3) if it is possible to decipher the actual history of the earth, it should be found that the variety and complexity of the world and its inhabitants tend to increase as time increases.

Support for Predictions Only Apparent

These three predictions are supported to some degree by the observed data. Many types of similarities are observed between different organisms, for example—similarities in anatomy, in embryonic development, in genetic biochemistry, in blood serology, etc.

However, the inference of a continuous array of such similarities, with no gaps of any consequence between adjacent kinds, is not supported by the data. Although certain hypotheses might be offered to explain the existence of the great gaps between all the basic kinds, these hypotheses are not accessible to experimental test and thus do not give any genuine scientific explanation for this obvious deficiency in the Evolution Model.

Secondly, study of earth's processes does bear out the evolutionary inference that many changes continually take place in the world. In the organic world, for example, new varieties and even new species are easily developed through the mechanisms of hybridization, induced mutation and selection, and these phenomena may occur either naturally or artificially. No two individuals are alike, even with the same parents, and there is obviously a great deal of variation and change taking place in the world.

Once again, however, this evidence in itself is not very compelling, since these processes of change are not innately processes tending toward increase of order as predicted. On the contrary, they seem always to fall into one of two categories:

(a) variation within relatively small limits leading merely to new varieties within a basic kind;

(b) mutations which represent random changes in the D.N.A. of the germ cells, resulting almost always in decreased order within the germ cells.

These two phenomena seem actually to support better the principles of conservation and decay, rather than origination and integration, as the evolutionary model would suggest. These observational fallacies in the theory have not to date been overcome by any measurable facts, although evolutionists feel justified in extrapolating these small variations into the general theory of evolution.

Again, Basic Facts Deny Prediction

The inference that the complexity of life should have increased with the passage of geologic time does seem at first to be substantiated by the fossil record, and indeed this evidence from paleontology is undoubtedly the strongest of the evidences for evolution. However, it is seriously weakened by the necessity of circular reasoning in its development. That is, the scale of geologic time must essentially be based on the assumption of evolution in the first place.

The relative dating of the geologic formations is always determined mainly by the "index fossils" which they contain, and their supposed absolute dating by radioactive minerals is always subject to correction by these paleontologic criteria. Furthermore there are many, many locations where fossils from different "ages" are found in the same beds, and even where entire formations containing "old" fossils are superimposed vertically above formations containing "young" fossils.

This argument is still further weakened by the obvious fact that most of the fossiliferous rocks, especially those containing fossils of large plants or animals, must have been deposited and lithified rapidly, even catastrophically, or else the fossils would not have been preserved at all. Thus the fossil record does not necessarily speak of slow, uniformitarian evolutionary development over vast ages, but rather provides a graphic record of violence and death on a worldwide scale.

Although some of the data could possibly be interpreted in an evolutionary framework, this interpretation is not at all compelling. The Evolution model contains numerous deficiencies and discrepancies. One may adhere to it as an act of faith, but it is fallacious and misleading to label it "science."

The Creation Model

The Creation Model postulates a period of special creation in the past, when the world was brought into existence out of nothing except the power of the Creator. All of the basic physical entities were perfected and all the basic biologic kinds established, each with its own specific form and function.

These basic units are now being "conserved" rather than "created." The present processes of nature are therefore not creative (or evolutionary) processes at all, but rather "conservative" processes, which serve to maintain the essential integrity and stability of the universe as created.

This does not mean of course that no change or variety is possible. To the contrary, the Creation Model postulates that a tremendous complex of inorganic and organic variants can be develop-

ed from the basic created entities. However, such variation will always be within the limits imposed by the initially created structure of each entity. In the biologic realm, for example, many new varieties (or even species or genera, depending on terminology) may quickly be developed in response to environmental constraints, but never a new basic 'kind.'

In addition, the Biblical version of the Creation Model notes the establishment of a universal principle of decay and death (though not annihilation) in all the world, at some time after the creation period. Finally it records a great worldwide cataclysmic Flood at a still later date, which radically changed the face of the earth, as well as the nature and rate of action of most earth processes.

Specific Predictions Are Confirmed

The above features are confirmed by most or all of the actual observed phenomena of nature, thus demonstrating the validity of the Creation Model as a well-founded scientific theory, even though no theory of origins can be fully verified by science.

The two most basic and firmly established scientific principles are the First and Second Laws of Thermodynamics. These apply without exception to all scientific disciplines and may properly be regarded as confirmed predictions of the Creation Model. That is, the First Law (Conservation of Mass-Energy) supports the prediction that nothing is being created or annihilated in the present order of things, since the creation was completed and perfected at some time in the past and is now merely being maintained.

Similarly the Second Law (Increasing Entropy) is essentially a confirmation of the universal law of decay and death postulated by the Biblical Model.

The permanence of basic "kinds" is supported without exception by all observed biologic data. Thus, a population of moths may change colors because of a change in the smoke content of the atmosphere, but they remain moths. A thousand successive generations of fruit-flies may be exposed to radiations and other mutagenic influences, with the production of a wide variety of mutants, but they still are fruit flies.

The great gaps between basic kinds are likewise to be expected, since each has its own created purpose and, therefore, a structure uniquely designed with that purpose in view. On the other hand, many similarities would likewise be expected, since it is reasonable that, when similar functions are to be performed in similar environments, even different "kinds"

would be designed with somewhat similar structures.

As far as the fossil record is concerned, it is well known that essentially the same gaps between basic "kinds" exist in both the fossil record and the present biologic world. There are, of course, many extinct kinds, as well as extinct varieties of present kinds, found in the fossils, but few if any of these can be considered as transitional forms between any of the established kinds.

Sedimentary Layers Relate to Cataclysmic Flood

Furthermore, the Biblical Model, with its cataclysmic Flood, predicts that such fossil deposits should be found in sedimentary beds all over the world. In fact, there seems no way of accounting for most of the great fossil beds of the world, especially of vertebrate fossils, except in terms of very rapid burial and lithification, such as posited by the Biblical Deluge, with its accompanying volcanic and tectonic activity and its inferred subsequent glaciological phenomena.

The order of succession of fossils is predicted by the Biblical Model to be from the simplest at the bottom to the most complex near the top, though with numerous statistical exceptions to this rule. That is, the hydrodynamic action of moving water is a highly efficient sorting agent and would tend to segregate its sedimentary contents into aggregations of similar sizes and shapes, normally depositing them in nicely stratified layers. Hydrodynamically the simplest (i.e., most nearly spherical) and densest would tend to settle out first and thus be buried deepest.

Further the simplest organisms tend to dwell at the lowest elevations and would therefore tend to be deposited at the lowest elevations. Finally, the more advanced organisms are the more mobile and would therefore survive flood waters

longer and consequently be trapped and buried at the higher levels if at all.

These would be statistical criteria only, of course, and many exceptions would be anticipated in the context of a universal aqueous cataclysm lasting an entire year (and, in lesser intensity, for centuries). Both the expected normal sequences and the occasional exceptions are found as predicted in the geologic column all over the world.

Summary and Conclusion

There are two possible models of origins, the Evolution Model and the Creation Model, though each may have several variants. Both are fundamentally religious in nature, since they deal with ultimate meanings and are both incapable of scientific proof. On the other hand, both are scientific in the sense that they provide frameworks of prediction for comparative evaluation of the present phenomena of nature.

On this basis, the Creation Model provides a basis of interpretation and correlation which is at least as satisfactory as the Evolution Model. The two Laws of Thermodynamics, the apparent stability of the basic "kinds," the existence of great gaps between the kinds, the deteriorative nature of mutations, and the catastrophic nature of the worldwide fossil-bearing formations all correlate far more easily with the Creation Model than with the Evolution Model.

Furthermore the data and principles of physics, chemistry and the other physical sciences are much more easily understood within the framework of the Creation Model than in the Evolution Model.

Nevertheless, many people prefer the latter as a matter of faith. Therefore it should be included along with the Creation Model as an alternative in any textbook or course dealing with origins, in the public schools.