EVOLUTIONARY ASSUMPTIONS IN PHYSICS LITERATURE

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Two well known physics periodicals, the Physics Teacher and the American Journal of Physics, were surveyed for evolutionary content during the year 1981. Many examples of evolutionary presuppositions and attitudes were found, in items on various topics, including science education, cosmology, and the energy crisis.

Introduction

During 1981 the journals *Physics Teacher (PT)* and *American Journal of Physics (AJP)* were monitored for evolutionary content. These two widely read journals are dedicated to the instructional aspects of physics. Articles are generally concerned with demonstrations, testing techniques, and new developments in the physics world. Many articles are funded by government grants. It was initially thought that evolutionary overtones in the journals would be minimal because the writings are technical and non-biological. However it quickly became a problem of deciding which of the numerous examples to include in this summary! In the following paragraphs, instances of evolutionary assumptions will be discussed.

Indoctrination

A February *AJP* letter asks, "How can we explain physics to a kindergarten student?" An activity involving the origin of the earth is then described for children:

> "Suppose the Earth started as a small solid blob condensed from a dusty, gaseous nebula. This might be represented by an irregular-shaped piece of clay. . . . Smaller particles are supposed to be flying about randomly in all directions; when they hit our protoearth blob they have a good chance of sticking to it. Stand back several feet and throw small pieces of sticky clay at the blob you have mounted."[1]

This suggested activity promotes the accretion hypothesis for the formation of the planets. Of course the fundamental problems of gravitational condensation of planets and stars, as well as the origin of initial material are not mentioned. Such problems might confuse the kindergarten student!

A letter in the February *PT* concerns entropy. The letter writer had found a copy of the November 1980 *Bible-Science Newsletter* which had made the valid point that the ultimate reason for universal decay was man's sin. The *PT* writer's sarcastic conclusion:

> "At last! A solution to the energy crisis! All we have to do is stop sinning, and we can gather up all the degraded energy we keep discarding at low temperature, and use it over again."[2]

There is more truth here than the unwitting writer ever intended. His words unknowingly touch on the major implications of pre-fall thermodynamics.

Cosmic Calendar

It is very popular to illustrate assumed geologic and astrophysical ages in new ways. Thus a short article in the March *PT* suggests using a frequency counter to convince students of a 15 billion year history.[3] The counter is to be set at 5000 cycles/second, with each count representing 1000 years. The counter accumulates 10^6 counts (1 billion years) in just 200 seconds. The full 15 billion years is registered in 50 minutes, just the length of typical class period! The instructor is told to label the display in *millions* and *billions* of years so that everyone in the room is sure to get the message. If the time span still remains incomprehensible to students, it is suggested that the instructor lower the counter pulse rate so that 15 billion years will be counted during the length of the semester. It appears that many *hours* are spent thinking up demonstrations to convince students that many billions of *years* have gone by. Addition of the flashing lights of a frequency counter is supposed to add credibility to the tale!

Testimonies

The April *AJP* gives a review of *The Particle Play* by J.C. Polkinghorne. This new book does a splendid job of reviewing the elementary particle physics world of quarks and leptons. In a most unusual addition to a technical book, author Polkinghorne further gives his testimony of faith in the Creator:

> "I believe we must hold fast to the insights of science, and to our experience of beauty, choice, and moral responsibility. And to that list I would want to add the worship of God and the knowledge of his grace in Jesus Christ . . . Israel developed an idea of the Word of God who was his agent in the *creation* of the world. The prologue of St. John's gospel not only makes the astonishing identification of that Word with Jesus of Nazareth but also says that the Word is the true light that lightens every man."[4]

This quotation is included in Polkinghorne's book but *not* in the *AJP* review. Instead, the *AJP* reviewer simply says that the book is ". . . idiosyncratic . . . The publisher is to be congratulated for not suppressing the author's individual style."

The April *PT* contains an article titled "Literature and Science at a Catholic College (Catholic University)." Unlike the book review, the journal this time gives full coverage to the author's philosophy of life. One wonders if this is true mainly because the views expressed are opposed to creation or absolutes of any other kind:

> "To the objectivist there is an intelligent order in reality . . . As a subjectivist, I believe there is no external truth independent of human consciousness.

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> Truth is the product of human consciousness . . . there is no truth in the world outside."[5]

The reader of *AJP* and *PT* certainly does not get a balanced diet of philosophy. Instead, the "modern" subjective view is carefully inserted among the technical articles.

Science Education

The creation-evolution issue itself was the subject of a May *AJP* editorial. The topic was discussed with typical misunderstanding, so common in current periodicals.

> "Creation versus evolution . . . faith versus reason . . . the religious will believe what they believe by conviction . . . Scientists, on the other hand, will not, cannot accept any explanatory scheme that cannot, at least in principle, be falsified."[6]

The Editor, a well-known physicist, ends his message with a note of open mindedness which is too often lacking in such discussions:

> "One thing is certain: truth will out . . . the creationists cannot remove one fossil from the geologic record nor can the evolutionists put one there."[7]

These are good sentiments. However, maybe the editor should admit that a few "fossils" *have* been inserted into the fossil record: Piltdown man and Nebraska man to begin with!

In the August *AJP*, Editor Rigden laments the declining interest in science education:

> "Remember Sputnik? Remember the millions and millions of dollars spent on curricula in mathematics, physics, chemistry, biology, and earth science during the 60's? . . . Yet, here we are, almost a generation later, debating in ⅓ of our state legislatures whether creationism should be taught in the science classroom, science enrollments are down, and the very existence of science in school and college curricula is under siege."[8]

Perhaps there is a correlation here that Editor Rigden has completely missed. Could it be the very acceleration of humanistic science education and research which has caused many citizens to become disillusioned with science? Consider the creationists Johannes Kepler, Robert Boyle, Blaise Pascal, Isaac Newton, Lord Kelvin, Clerk Maxwell, etc. Their accomplishments and Christian testimonies provided true excitement and popular support for science in their day. However today, even the enthusiasm for these early scientists has been blunted by their thoroughly secular treatment in the literature.

Nucleosynthesis

Gamma-ray line astronomy is discussed in the November *PT*. Of special interest in this discipline is the search for evidence that terrestrial elements were long ago formed in the interior of stars. One often hears the poetic statement that "our bodies are made of stardust." This assumption is forced upon big bang cosmologists who realize that no atoms heavier than helium could possibly spontaneously form in open space. The article describes a possible test; I have italicized statements that admit speculation:

> "It is widely *believed*, but *unproven*, that much if not all of the intermediate and heavy mass elements we see around us are produced in stellar explosions called supernovae and novae . . . With the advent of very large computers it has been possible to follow the extremely complicated nuclear reaction matrix which occurs during the explosive phase. In a few seconds the whole history of stellar nucleosynthesis, which *may* have run for billions of year, is rewritten. A remarkable result of the . . . calculations is that it is possible, *on the computers at least*, to make most of the elements in their observed relative cosmic abundances. In *principle* we can (test the theories). Much of the freshly synthesized matter *should* be in a radioactive state. Ultimately the detection of even one single gamma-ray line from decaying stellar debris will represent a major step forward in our understanding of how our world was made."[9]

Of course, even the detection of such gamma-ray lines could *not* prove that all heavy elements originated in star explosions. At best the finding would be yet another evidence of the rapid and violent decay of the physical universe.

Energy Crisis

M. King Hubbert who is a scientist with the U.S. Geological Survey has become well known for wisely predicting our present energy dilemma several decades in advance. He has a summary article on the energy crisis in the November *AJP*.[10] His writings are certainly required reading for those who wish to understand the exponential nature of energy flow. Regarding the origin of fossil fuels, Hubbert assumes the standard view: "the accumulation of fossil fuels occurs very slowly with a geologic time scale of hundreds of millions of years." On what does he base this time scale? ". . . we accept the geological and biological evidence that our ancestors were present a million years ago . . ." Hubbert very clearly demonstrates the absurdity of extrapolating current fossil fuel energy consumption into the *future*. Perhaps he should also address the question of extrapolation far into the *past*.

Hubbert gives an interesting summary of the total original fossil fuel energy reserves of the *world*. His estimates in joules of energy are quoted in Table 1. These figures can be compared with the influx of solar energy upon the earth, estimated at 1.5×10^{22} joules per day. The surprising result is that the accumulated solar energy for just 12.5 days is equivalent to the total stored energy of all known coal reserves! Just 16 days of solar energy is equivalent to *all* of the fossil fuels in the list! Of course, most of this solar energy is not available to

Table 1. Estimates of the total reserves of fossil fuel in the world, as given by Hubbert.[10]

coal	18.80×10^{22}j	(8.4×10^{12} tons)
oil	1.22×10^{22}j	(2×10^{12} barrels)
shale oil	2.75×10^{22}j	(4.5×10^{12} barrels)
natural gas	1.09×10^{22}j	(10^{16} ft^3)
total	23.86×10^{22}j	

our present world. Direct reflection back into space takes 30%, and 47% continually warms the atmosphere, ground, and seas. Only 0.02% is captured by plants in the important photosynthesis reaction. However, going beyond what Dr. Hubbert says, one can speculate that the early earth's vapor canopy was much more efficient at capturing and utilizing solar energy. As we have seen, if solar energy could somehow be 100% channelled into the formation of plants (fossil fuels), the total fossil fuel inheritance of the earth could be accumulated with just 16 days of sunlight!

Conclusion

Reading science periodicals from a creation perspective is a revealing experience. One begins to see evolutionary assumptions on origins in many unexpected places. Some of the assumptions are humorous to even consider while others are carefully chosen to discredit the creation view. This situation will not improve during the decade of the eighties, for indeed all current science periodicals are increasingly emphasizing evolution as a reaction against the creation movement. Our assignment of providing widely circulated creationist literature has just begun.

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THE FIRST SEVEN BASIC BIOLOGICAL LAWS OF CREATION

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Introduction

There are set forth here seven points, which I have called laws, and which I think everyone would agree to be important principles. I say "first seven" because it may be possible to formulate others; and "biological" because it may be possible to formulate some other laws having to do with the inorganic creation.

First the laws will be stated; then will come a few comments on them.

The Laws

1. The creation needs a Creator, Whom we call God.
2. When God created the basic kinds of life, He created within them the D.N.A. system. (And whatever else there may be which governs heredity).
3. Within the D.N.A. system (and whatever else may work in conjunction with it) is the ability to adapt to various environments, by appropriate changes.
4. While variations may arise within a kind, due e.g. to mutations, the variants remain within the kind. Variants which are suited to the environment may multiply; those which are not suited will in time be removed.
5. The kinds, i.e. Genesis kinds, may involve a great variety of forms. There may be varieties, sub-species, species, genera, sub-families, and possibly families within a kind. The question, whether orders may be considered to be within a kind, needs more study.
6. Only creatures related to each other at least as closely as being within the same kind can hybridise.
7. Organs can become degenerate with the passing of generations, possibly being completely lost, or nearly so; the creature, however, remaining within its original kind. The question, whether organs can be acquired, is a more difficult one; but something will be said about it later.

Comments on the Laws

1. Until the nineteenth century, or so, most people would have granted the first law. It is true that a few tried to evade creation by saying that things had continued in more or less their present form from eternity. Nowadays, developments in thermodynamics have closed off that avenue.

It is the first law which is the basis of Natural Theology, as set forth by many writers, of whom Paley is likely the best known.[1]

2. If creation is accepted, this law seems self-evident. I say "And whatever else . . ." because there is evidence that D.N.A. is not the only thing involved in heredity.[2]
3. The third law is plainly seen in the marvelous adaptations which are found throughout nature.
4. I have written at greater length on the fourth law earlier, and need not repeat here all of what was said.[3] Evidence for it can be seen in, on the one hand the adaptation of many creatures to their environments, and on the other hand the fact that some sorts have become extinct.
5. The point of the fifth law is that the Genesis kind is

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