



*Committed To Principle-Centered Teaching*

**MACRO-EVOLUTION:**

**A CRITIQUE OF**

**FIRST PRINCIPLES**

*[by PETER BOCCHINO]*

## INTRODUCTION:

In the summer of 1984, I had the distinct pleasure of making the acquaintance of a Professor of Biology (let's call him Paul). Paul and I eventually found ourselves in the middle of a very interesting discussion concerning the origin of life. At that time, I believed in the macro-evolutionary model of the universe and I wasn't quite sure how to respond to some of the comments that Paul was making. Paul, with his own Ph.D. in biology, did not hold to the macro-evolutionary model. He eventually told me about a lecture he had attended at the New York Museum of Natural History in 1981. Paul said that this lecture was given by Dr. Colin Patterson, the senior paleontologist at the British Museum of Natural History in London and editor of its journal. He is the author of the book *Evolution* and a lifelong macro-evolutionist. Paul began to explain to me how the macro-evolutionary theory was being shaken at its very Darwinian roots. So much so that the vibrations were being felt at the level of top macro-evolutionists such as Dr. Patterson. (Before I go any further, **let me make an essential distinction between the terms macro-evolution and micro-evolution.** The macro-evolutionary model of origins claims that highly specified and complex life evolved by chance mutations, transcending the natural genetic limits to biological change. These genetic mutations gave rise to organisms different not only in degree, but different in kind, producing a new life form. The term micro-evolution is used to denote the fact that an organism does adapt to environmental changes or stresses. However, these genetic variations are only different in degree, not in kind, reaching and never surpassing the natural genetic limits to biological change.) Paul went on to describe how Dr. Patterson challenged his colleagues to reconsider their present dogma about the macro-evolutionary view of life. I was finding it hard to believe that Dr. Patterson actually made some of these remarks. So the conversation ended with his promise to send me the unedited transcript of that lecture.

After receiving that transcript, I was shocked to read Dr. Patterson's opening declaration, let alone the rest of his lecture. His speech forced me to think about the macro-evolutionary view in a more systematic and scientific manner. Let me quote from Dr. Patterson's opening remarks, which were very bold, and deliberate. He said,

"One of the reasons I started taking this anti-evolutionary view or let's call it non-evolutionary view, was last year I had a sudden realization that for over twenty years I had thought I was working on evolution in some way. One morning I woke up and something had happened in the night and it struck me that I had been working on this stuff for twenty years and there was not one thing I knew about it. That's quite a shock to learn that one can be so misled so long. . . . For the last few weeks I've tried putting a simple question to various people and groups of people.

**The question is: Can you tell me anything you know about evolution, any one thing, any one thing that is true?** I tried that question on the geology staff at the Field Museum of Natural History and the only answer I got was silence. I tried it on the members of the Evolutionary Morphology Seminar at the University of Chicago, **a very prestigious body of evolutionists, and all I got there was silence for a long time and eventually one person said, "I do know one thing - it ought not to be taught in high school."**

. . . The explanatory value of the hypothesis of common ancestry is nil. Evolution not only *conveys no knowledge, but it seems to convey anti-knowledge.* (Frair, *Speech By Dr. Colin Patterson*, American Museum of Natural History, N.Y., N.Y., November 5, 1981, Transcript, pp.1,4, emphasis added).

How could these remarks be true? What prompted Dr. Patterson to ask himself, "How can I work on evolution for twenty years and learn nothing from it? . . . Evolution not only conveys no knowledge, but it seems to convey anti-knowledge." And as if that weren't enough, *the only answer he got back from the "very prestigious body of evolutionists," was that "it ought not to be taught in high school."* This was too much for me! These comments were not coming out of the mouths of unseasoned amateurs; they were coming from the lips of veterans.

After reading that transcript over and over, a nagging question kept popping into my mind. I kept asking myself, "What would prompt such an eminent paleontologist as Dr. Patterson to come all the way from London to relay his "awakening" experience to so many of his colleagues?" How could they silently agree? How could he work for such a long time on this macro-evolutionary view of life and then question it so tenaciously? Dr. Patterson's remarks initiated my serious scientific and philosophical investigation into the macro-evolutionary theory of life. After reading David Hume, Immanuel Kant proclaimed, "I was awakened from my dogmatic slumber," and proceeded to rescue science from British Empiricism. It seemed to me that Dr. Patterson was echoing Kant's thoughts as he said, "One morning I woke up . . . and it struck me that I had been working on this stuff for twenty years and there was not one thing I knew about it. That's quite a shock to learn that one can be so misled so long." I now felt it was also time for me to wake up!

I had to find out who was right and what was real. C.S. Lewis, the Oxford scholar and author, had a similar "awakening" experience which he describes in an essay about two lecturers. I'll quote a rather long portion of it because it sets the tone for what we are about to critique. Lewis writes,

"And so," said the lecturer, " I end where I began. Evolution, development, the slow struggle upwards and onwards from crude and inchoate beginnings towards ever-increasing perfection and elaboration - that appears to be the very formula of the whole universe.

We see it exemplified in everything we study. The oak comes from the acorn. The giant express engine of today comes from the Rocket. The highest achievements of contemporary art are in a continuous line of descent from the rude scratchings with which prehistoric man adorned the wall of his cave.

What are the ethics and philosophy of civilized man but a miraculous elaboration of the most primitive instincts of savage taboos? Each one of us has grown through slow pre-natal stages in which we were at first more like fish than mammals, from a particle of matter too small to be seen. Man himself springs from beasts; the organic from the inorganic. **Development is the key word. The march of all things is from lower to higher.**"

None of this, of course, was new to me or to anyone else in the audience. But it was put very well . . . and the whole voice and figure of the lecturer were impressive. At least they must have impressed me, for otherwise I cannot account for the curious dream I had that night.

I dreamed that I was still at the lecture, and the voice from the platform was still going on. But it was saying all the wrong things. At least it may have been saying the right things up to the very moment at which I began attending; but it certainly began going wrong after that. What I remembered on waking went like this: ". . . appears to be the very formula of the whole universe. We see it exemplified in everything we study. The acorn comes from a full-grown oak. The first crude engine, the Rocket, comes not from a still cruder engine, but from something much more perfect than itself and much more complex, the mind of a man, and a man of genius. The first prehistoric drawings come, not from earlier scratchings, but from the hand and brain of human beings whose hand and brain cannot be shown to have been in any way inferior to our own; and indeed it is obvious that the man who first conceived the idea of making a picture must have been a greater genius than any of the artists who have succeeded him. The embryo with which the life of each of us began did not originate from something even more embryonic; it originated from two fully-developed human beings, our parents.

**Descent, downward movement, is the key word. The march of all things is from higher to lower.** The rude and imperfect thing always springs from something perfect and developed. . . ."

It appeared to me that the Dream Lecturer had a good deal to be said for him. It is true that we do see all around us things growing up to perfection from small and rude beginnings; but then it is equally true that the small and rude beginnings themselves always come from some full-grown and developed

thing. All adults were once babies, true; but then all babies were begotten and borne by adults. Corn does come from seed: but then seed comes from corn.

**For the first time in my life I began to look at the question with both eyes open.** In the world I know, the perfect produces the imperfect, which again becomes perfect - egg leads to bird and bird to egg - in endless succession. If there ever was a life which sprang of its own accord out of a purely inorganic universe, or a civilization which raised itself by its own shoulder-straps out of pure savagery, then this event was totally unlike the beginnings of every subsequent civilization. The thing may have happened; but all its plausibility is gone. On any view, the first beginning must have been outside the ordinary processes of nature. An egg which came from no bird is no more natural than a bird which had existed from all eternity. And since the egg bird-egg sequence leads us to no plausible beginning, is it not reasonable to look for the real origin somewhere outside the sequence altogether? You have to go outside the sequence of engines, into the world of men, to find the real originator of the Rocket. Is it not equally reasonable to look outside Nature for the real Originator of the natural order?" (Lewis, "Two Lectures," *God in the dock*, 208-211, emphasis added).

It was time for me to decide which view of life was real and which view was illusion. To my own embarrassment I must confess that up to that point I had probably studied more about what kind of car to buy than on any model of the origin of life. I had become lazy in my thinking and let other people do it for me. I had taken the authors of science textbooks and magazines at face value, never questioning what I was hearing from their lecterns. It was important to know why I really believed in macro-evolution because it was used as a major presupposition in establishing my other views of life. It significantly influenced my views of the nature of reality, man, truth, ethics, morality, culture and virtually all the answers to the ultimate questions I had in life. This macro-evolutionary world view had now been seriously called into question by the authorities themselves. Some were daring to tell the emperor that he was wearing no clothes.

It was time to answer what Peter Kreeft refers to as that "haunting question," penned by the philosopher Martin Heidegger: "Why is there anything rather than nothing at all?" (Kreeft, *Three Philosophies of Life*, p.9). I began to ponder what kind of consequences resulted from a misguided world view. It didn't take long to remember one of the darkest times in history. In 1859, Charles Darwin had published his work on evolution, *The Origin of Species*. Adolf Hitler read *The Origin of Species* and in 1924 he wrote a book in which he said,

**"The stronger must dominate and not mate with the weaker, which would signify the sacrifice of its own higher nature. Only the born weakling can look upon this principle as cruel, and if he does so it is merely because he is of a feebler nature and narrower mind;** for if such a law did not direct the process of evolution then the higher development of organic life would not be conceivable at all.

. . . If Nature does not wish that weaker individuals should mate with the stronger, she wishes even less that a superior race should intermingle with an inferior one; because in such a case all her efforts, throughout hundreds of thousands of years, **to establish an evolutionary higher stage of being,** may thus be rendered futile" (Hitler, *Mein Kampf*, pp.161, 162, emphasis added).

It does matter what view of reality one holds as much as it matters to reflect on and learn from places such as Auschwitz. At one time Auschwitz was just a horrible place that I read about in a history book. But now, after personally visiting that place, it is a reality in my life. To me, it is one of the darkest places that exists outside of hell itself. One only has to walk down its halls and stare at the photographs of pregnant women and little children who were eventually tortured to death at the hands of men like Mengele, to recognize the fact that **a world view can shape the whole world.**

## CRITIC / CRITIQUE BACKGROUND:

After being trained as a mechanical engineer and working for ten years in research and development, specializing in thermodynamics, I have become quite familiar with the scientific method. I supervised a test group, overseeing six engineers and two technicians. I also served on a committee for the American Society of Mechanical Engineers (ASME). This ASME Power Test Codes Committee had the tedious assignment of making empirical corrections to the theoretical assumptions made in many of the equations used in the power generation industry. This experience certainly gave me enough background to do my own research and testing of the macro-evolutionary model of life. This paper reflects the main findings of my investigation and the resulting critique of the theory of macro-evolution.

This work has been critiqued many times on the campuses of several universities in the United States including the University of Southern California, Fullerton and Princeton University, as well as other universities overseas. I have learned many things from my critics which have challenged me to think harder, longer and deeper. The results of their critiques have been factored into the body of this text. Therefore, I welcome your criticism, but please remember that my goal is not to expound on every aspect of this theory. I only want to examine the foundational principles that are sufficient enough for a valid evaluation. Keep in mind the fact that I do not assume that every comment I make applies to all macro-evolutionists. It is therefore up to each individual to take this basic material and shape it into the thoughtful responses needed to comment on this particular type of critique.

So, if you do intend to give me feedback, I welcome your criticism as long as you keep the overall goal of this work in mind. C.S. Lewis, in his familiar style, said,

"We are doubtless full of faults and do not shun criticism, provided such criticism is based on an understanding of our aims. You may not agree with these aims--though I hope that you will--but do not blame a man for making slow progress to the North when he is trying to get to the East" (Lewis, *Rehabilitations*, p.59).

## CRITIQUE CRITERIA

Some of my favorite type of books or movies are detective stories. I love the way a good mystery is solved through the investigation of a brilliant detective, be it Lieutenant Columbo or Sherlock Holmes. **Their use of inductive and deductive logic seems to be so simple, yet they are able to examine the evidence (clues), unravel the mystery and solve the case.** When you begin to study their methodology, it reveals a **common factor--getting back to first principles.** When Dr. Watson asks Holmes how he managed to uncover some critical aspect of the case, Holmes usually replies, "*Elementary my dear Watson, elementary.*" This critique will follow a similar "elementary" approach in terms of its methodology.

This work was initiated both in an effort not to be superfluous and at the same time not to overlook essential data. I wanted to be sure I did not fall into the trap of being overwhelming and yet I also wanted to guard the principles of science and philosophy. As someone has said, **"scientists learn more and more about less and less until they know everything about nothing, while philosophers learn less and less about more and more until they know nothing about everything."** It is often true that scientists cannot see the forest because of the trees and many analytical philosophers tend to lose people in the abstract. Therefore, I will endeavor to keep this critique focused on the larger picture while keeping the details to a minimum. Conversely, being too simple may cause us to ignore difficult but vital information, resulting in a critique of only the superficial elements.

In considering a critique of macro-evolution there are literally volumes of scholarly works to choose from, both pro and con. I have put in my fair share of study time, absorbing the works of as many authors as possible from Stephen Jay Gould (*The Panda's Thumb / Eight Little Piggies*) to Duane T. Gish (*Evolution: The Fossils Say No! / Evolution: The Challenge of the Fossil Record*). But I always came away with the conviction that there must be a better way to test origin models. After my experience in engineering, in combination with serving on the ASME Test Codes Committee, it seemed time for me to apply that same engineering procedure to the model of macro-evolution. The goal of that ASME committee was to ensure the empirical verification of scientific models based on fundamental principles of physics with certain built-in assumptions. We were mainly interested in the empirical verification of the assumptions and adjusted them accordingly.

I basically want to test the macro-evolutionary model of life by a similar procedure, drawing on first principles from the empirical sciences coupled with valid inferences in logic in order to reach conclusions that have a reasonable degree of probability. As a result of my research I am suggesting a critique criteria that can be used to test any model of origins. In terms of philosophy, it follows the principle of "Ockham's Razor," the simplest explanation is preferred. In terms of science, it is based on what Albert Einstein once said,

"The laws of physics should be simple. . . . [if they were not]  
I would not be interested in them."

Einstein's statement has come to be known as the beauty principle. It states that the correct description in nature should be that which manifests the greatest degree of simplicity, beauty, elegance and consistency. This principle has been a guide to new insights in theoretical physics. This may seem rather simple, but it's not. There are two kinds of simplicity, the simple and the profoundly simple. Simple would reflect an equation such as  $1 + 1 = 2$ . However, the profoundly simple would be more like  $E = mc^2$ . **The profoundly simple approach was at the very heart of Einstein's investigation into the laws of physics.**

The profoundly simple approach to science is one which is based on first principles. The approach I am taking in examining the theory of macro-evolution is also based on a first principles methodology. This methodology will cover both the disciplines of science and philosophy (in particular, two branches of philosophy known as epistemology and logic). This test is simple enough for any rational person with a basic understanding of science and philosophy to follow. At the same time it will challenge some of the current views held by even the very educated macro-evolutionists. I wanted to make sure that anyone with intellectual integrity would be able to come to her or his own conclusion about the origin of life.

At this point, you may be thinking that this could never be the case. How could macro-evolutionary scientists have overlooked, ignored or rationalized the first principles of both science and philosophy? If we are honest about our own experiences, we would all have to admit to the fact that at some point in our lives we have overlooked the obvious. To my own embarrassment I have occasionally wandered around my house looking for my car keys when they were in my pocket the whole time. It is the kind of thing we do when we are looking for our spectacles as they sit there on the top of our heads or even the end of our noses.

You may also be thinking, as I did, that in everyday life one may occasionally overlook the obvious, but surely not in science. Unfortunately scientists get just as emotional as anyone else when their findings are in opposition to their own personal beliefs about reality. In fact, Robert Jastrow, one of America's top astronomers and founder of NASA's Goddard Institute for Space, wrote a book documenting these emotional reactions. He claimed to be agnostic in matters of religion but was confused about his colleagues who were getting so upset with objective data. He wondered why scientific men were finding scientific evidence hard to accept. He wondered why these men were reacting with their hearts, instead of their minds. Einstein was one of the scientists Jastrow wrote about, he said,

"Signs of irritation began to appear among the scientists. Einstein was the first to complain. He was disturbed by the idea of a universe that blows up, because it implied that the world had a beginning" (Jastrow, God And The Astronomers, p.17).

Einstein missed his own "expanding-universe" solution in his equations, allowing his emotions to guide his investigations rather than his mind. His emoting over the idea of a Creator or Prime Mover seems to have muddled his thinking. He actually made a schoolboy error in algebra, in effect he had divided by zero! This error was pointed out by the Russian mathematician, Alexander Friedmann (Jastrow, God And The Astronomers, p.15).

Einstein's emotional reaction gives us a very important clue as to why someone may overlook fundamental principles. When the scientific findings disagree with one's own personal presuppositions about the nature of reality, it could be one reason as to why there is a natural human tendency to ignore the obvious while being preoccupied with advanced scientific exercises. This is what I had concluded about my own condition as a macro-evolutionist and I believe the same is true of those who presently believe in the macro-evolutionary model of the universe. The purpose of this work is to set forth the evidence in a rationally consistent manner in order to justify my conclusion.

## WHAT ARE YOUR REASONS?

I once held fast to the macro-evolutionary view of the life. The reason for holding that position had nothing to do with a rational and critical examination of the evidence. I believed it to be true for three simple reasons. First, it was the only model of life that I learned about during my entire educational process. Second, it seemed very tenable to me at the time. Third, and probably the most important reason, it seemed to be the view of the scientific community. Basically, I believed in the macro-evolutionary view of life for the same reasons Darwin and Huxley believed.

Darwin and Huxley believed that slow micro-evolutionary changes over enormous lengths of time (adaptation to an environment) would gradually add up to a macro-evolutionary genetic leap over the natural biological boundaries that exist in that species. This leap would yield a species that is not just different in degree (a micro-evolutionary result), but one that is different in kind. This new life form would then go through the same process over and over again leaping over observably insurmountable limits eventually leaping up to the "dawn of man." **This view is called the gradualistic, macro-evolutionary model of life.**

However, recent research has rendered the reasoning of Darwin, Huxley and their disciples to be obsolete. If these men were alive today, they would most likely admit that their reasons were no longer tenable. It seems that the theory of macro-evolution has gone through its own series of mutations, making a final leap of faith outside of scientific and logical boundaries. Our current understanding of astronomy, genetics and paleontology is making the old gradualistic dinosaur model of origins become extinct. All of a sudden there has burst into existence a new species called **punctuated equilibria**.

This new model was necessary in order to account for the great gaps in the fossil record. Stephen Jay Gould along with his colleague, Niles Eldredge proposed a hypothesis (an idea called punctuated equilibria) that would account for these gaps. But, as we critically examine that idea, it will be easy to demonstrate that this new theory is extremely weak both in terms of science and epistemology. In fact, it turns out to be nothing more than a restatement of the facts.

It is my belief that there is a quiet revolution taking place in origin science today, while macro-evolution continues to be held as orthodox science. That is why this kind of critique of the theory is timely and of possible interest to any rationally consistent thinker concerned with the credibility of scientific investigation. Even though many consider macro-evolution to be orthodoxy, that should not lull us into intellectual laziness. Scientific orthodoxies can be just as blind as religious orthodoxies due to the intellectual climate. An entire intellectual community may ignore fundamental principles of science and philosophy for this reason alone. Based on the evidence presented in this work I am personally convinced that the theory of macro-evolution is both philosophically and scientifically untenable.

**If you hold to the macro-evolutionary view of life, what are your reasons?** It is the goal of this critique to challenge those reasons for both the unseasoned and experienced macro-evolutionist. It is my hope that you will carefully reconsider the macro-evolutionary view of life because as the title of Richard Weaver's book announced, *Ideas Have Consequences*.

## EPISTEMOLOGY AND SCIENCE

### INTRODUCTORY REMARKS

Epistemology is the branch of philosophy which studies the different theories of knowledge. It is a prerequisite to any theory of origins in that it will influence the interpretation of evidence. My epistemological presupposition is theistic in nature; yours may be agnostic, atheistic or pantheistic. The point is, everyone uses a frame of reference to interpret the facts. Since facts are not self-interpreting, it becomes incumbent upon us to determine which epistemological presupposition is correct. To believe that the facts support the world view, while the world view interprets the facts, is faulty logic because it involves circular reasoning. Stephen Jay Gould, Harvard paleontologist and professor, disagrees and claims to be philosophically neutral. He said,

"Science simply cannot (by its legitimate methods) adjudicate the issue of God's possible superintendence of nature. We neither affirm it nor deny it; we simply cannot comment on it as scientists. **Science can work only with naturalistic explanations**; it can neither affirm nor deny other types of actors (like God) in other spheres (the moral realm, for example)" (Gould, *Scientific American*, July, 1992, p.120, emphasis added).

First of all, we need to understand what Professor Gould means by natural. As C.S. Lewis explains,

If the `natural' means that which can be paralleled, that which can be explained by reference to other events, then Nature herself as a whole is not natural. If a miracle means that which must simply be accepted, the unanswerable actuality which gives no account of itself but simply is, then the universe is one great miracle" (Lewis, *God in the Dock*, p.36).

Secondly, with all due respect to Professor Gould, he either has a memory problem or has no problem engaging in self-defeating statements. Commenting on the meaning of life and the idea of a "higher" existence than man (God), he said,

"We may yearn for a `higher' answer -- ***but none exists***. . . . We must construct these answers ourselves -- ***from our own wisdom and ethical sense***. There is no other way" (Friend, *The Meaning of Life*, p.33, emphasis added).



Professor Gould has also said,

"Creation science has not entered the curriculum for a reason so simple and so basic that we often forget to mention it: **because it is false.** . . . calculated to undermine any general understanding of science as an enterprise" (Gould, "The Verdict On Creationism," *The New York Times Magazine*, July 19, 1987, emphasis added).

Professor Gould seems to have denied the very thing he said ought not to be affirmed or denied, the possibility of "God's superintendence of nature." *He falsely assumes that it is possible to remain epistemologically neutral.* The very notion that only natural explanations apply to the universe is itself an epistemological presupposition. *Is it really credible to believe that one can keep his or her epistemology isolated from other disciplines of study?* The answer is no! Especially not in science, for epistemology undergirds science in a foundational way. One philosopher of science mentions a few of the most basic epistemological presuppositions that are assumed before scientific investigation begins. He has said that these assumptions include that,

"The universe is intelligible and not capricious, that the mind and senses inform us about reality, that mathematics and language can be applied to the world, that knowledge is possible, that there is a uniformity in nature that justifies inductive inferences from the past to the future and from examined cases of, say, electrons, to unexamined cases, and so forth. . . . **All of them are philosophical in nature**" (Moreland, *Christianity and Science*, p.45, emphasis added).

Contrary to what Professor Gould says, along with popular belief, macro-evolution is not a fact and is therefore subject to the principles of forensic and operational science which necessarily incorporates the principles of epistemology. To support this claim, let me refer you to a newspaper article in the Atlanta Constitution;

"To promote the teaching of evolution . . . three university professors are showing high school biology teachers how to present the material in a philosophical context. . . . **We're talking epistemology here.** We're talking about our ideas of what's going on in the universe, and our ideas are always changing" (Article, "Evolution Course Stresses Uncertainty", *The Atlanta Constitution*, 15 November 1992, p.A4, emphasis added).

The article also mentioned the fact that the National Science Foundation has provided a grant of \$1.7 million to promote this training of teachers on the philosophical foundations of the macro-evolutionary model of origins.

So let us dismiss forever the notion that somehow scientific investigations are isolated from philosophical assumptions. **Epistemological assumptions really have priority over all scientific investigations just as mathematical assumptions have priority over predictions arising from a theory and experimental verification of them.** This is exactly what we did on the ASME committee. One error in a mathematical equation may waste years of research. *In the same way errors in philosophical assumptions can lead to a waste of time, effort and funding.* Everyone has a set of epistemological presuppositions; the question is, which set of presuppositions are more credible?

## **THE FORMAL INVESTIGATION:**

We will examine three major links in the chain of macro-evolution; the origin of the universe, the origin of first life and the origin of new life forms. **Our goal is to find out how these events occurred and who or what caused them to happen.** It is critical that we do not get subjectively involved in this investigation. As good detectives we must be open minded and stay as objective as possible. What we really want to discover is which epistemological presuppositions are more consistent with the first principles of science and philosophy. This means that we must remain open to the possibility that the universe may or may not be the

product of an intelligent first cause [God]. In order to lend some credibility to the supernatural presupposition, let me quote two well known scientists:

**Albert Einstein** - "I want to know how God created this world. I am not interested in this or that phenomenon, in the spectrum of this or that element. I want to know his thoughts, the rest are details" (Clark, *Einstein, The Life and Times*, p.37).

Einstein also said,

"Science without religion is lame, religion without science is blind"  
(Einstein, *Out of My Later Years*).

Stephen W. Hawking holds Newton's Chair as Lucasian Professor of Mathematics at Cambridge University. He is widely regarded as the most brilliant theoretical physicist since Einstein. In a television interview with Hugh Downs, he responds to anyone who thinks that theology and science are opposed to each other.

**Hugh Downs** - "Many scientists are reluctant to make reference to God, as though theological ideas are in direct opposition to scientific ideas. And yet, you as a scientist have invoked not only the idea of God, but the mind of God."

**Stephen Hawking** - "It is difficult to discuss the beginning of the universe without mentioning the concept of God. My work on the origin of the universe is on the borderline between science and religion. But I try to stay this side of the border. It is quite possible that God acts in ways that cannot be described by scientific laws" (Downs Interview, *20/20*, July 21, 1989).

Hawking also ends his book, echoing the words of Einstein:

"Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason--for then we would know the mind of God"  
(Hawking, *A Brief History of Time*, p.174).

My only point in referring to these two men, is that one can posit science alongside theology and not be called unscientific. If not, then both Hawking and Einstein must necessarily be ostracized from the scientific community. Not only them, but you would have to logically jettison most of the founding fathers of science who held theistic presuppositions. Geisler and Anderson provide the following list of theistic scientists:

Johannes Kepler _____	Celestial mechanics, physical astronomy
Blaise Pascal _____	Hydrostatics
Robert Boyle _____	Chemistry, gas dynamics
Nicolaus Steno _____	Stratigraphy
Isaac Newton _____	Calculus, dynamics
Michael Faraday _____	Magnetic theory
Charles Babbage _____	Computer science
Louis Agassiz _____	Glacial geology
James Young Simpson _____	Gynecology
Gregor Mendel _____	Genetics
Louis Pasteur _____	Bacteriology
William Thomson (Kelvin) _____	Energetics, thermodynamics
Joseph Lister _____	Antiseptic surgery
James Clerk Maxwell _____	Electrodynamics, statistical thermodynamics
William Ramsay _____	Isotopic chemistry

(Geisler and Anderson, *Origin Science*, pp.39-40)

**FIRST PRINCIPLES METHODOLOGY**

*I have decided to use a first principles methodology in examining origin models. My goal is to present the most essential evidence (while discarding interesting though extraneous data) so that we can reach a conclusion that is beyond a reasonable doubt. In order to be as unbiased as possible, the data selection ought to be guided by its relevance to the first principles used in determining our conclusions.*

Since a first principles methodology is being used, we must agree on the validity of certain first principles. These first principles are found in the disciplines of both philosophy and science. I am suggesting that the following list be used as the main criteria to check our data interpretation process and conclusions. Then we can determine which epistemological presuppositions are more credible.

**FIRST PRINCIPLES - COSMOLOGY: THE ORIGIN OF THE UNIVERSE**

PRINCIPLE OF CAUSALITY \_\_\_\_\_ EVERY FINITE EVENT NEEDS A CAUSE

SECOND LAW OF THERMODYNAMICS \_\_\_\_ FINITE AMOUNT OF USABLE ENERGY

**FIRST PRINCIPLES - GENETICS: THE ORIGIN OF FIRST LIFE**

LAW OF UNIFORMITY \_\_\_\_\_ PRESENT OBSERVATIONS ARE SIMILAR TO PAST

PRINCIPLE OF CAUSALITY \_\_\_\_\_ EVERY FINITE EVENT NEEDS A CAUSE

LAW OF SPECIFIED COMPLEXITY \_\_ LAW THAT GOVERNS A CODED STATEMENT

**FIRST PRINCIPLES - PALEONTOLOGY: ORIGIN OF NEW LIFE FORMS****INFORMAL LOGICAL FALLACIES:**

MISUSE OF ANALOGY \_\_\_\_\_ HAVING MORE DIFFERENCES THAN SIMILARITIES

BEGGING THE QUESTION \_\_\_\_\_ USING A CONCLUSION AS A PREMISE

ARGUMENT TO THE FUTURE \_\_\_\_ APPEALING TO EVIDENCE NOT YET DISCOVERED

SPECIAL PLEADING \_\_\_\_\_ IGNORING EVIDENCE AGAINST A POSITION

APPEAL TO THE PEOPLE \_\_\_\_\_ TO BELIEVE THAT POPULARITY EQUALS TRUTH

## LOGICAL FALLACIES AS FIRST PRINCIPLES

Logic is that branch of philosophy responsible for governing the world of reason by distinguishing between acceptable and unacceptable forms of argumentation. We may not fully understand all the technical details found in courses on logic, but we do have a natural sense for sound inference. We know that some conclusions do not follow from an argument. We also know that some facts are irrelevant to the central issue being discussed.

The informal logical fallacies stated above will be used to test various explanations with respect to both the mechanism of macro-evolution and the presumed facts surrounding the fossil record. When we criticize incorrect thinking we imply the value of correct thinking. Incorrect thinking leads to faulty conclusions and ultimately to an invalid world view. It is important to understand that logic is not a test for truth; it is a test for error. We can use it to test a philosophical model to see if it has any major cracks (errors) in its foundation.

## POSING THE CRITICAL QUESTION

**Any legitimate critique should be both positive and negative**, examining both the contributions of the view being critiqued (what is true about it and what we can learn from it), as well as revealing its problems. Since there has been so much written on this topic I will only mention a few of the positive contributions of the evolutionary model of life. The first and foremost contribution is that which has contributed to our understanding of adaptation to environmental stresses within natural biological limits. Research has also provided us with a deeper appreciation for and understanding of natural laws. But please note that **these positive attributes apply directly to the micro-evolutionary model**. There are many other positive contributions that evolutionary scientists have made to the discipline of science and to mankind as well. Time should be taken to investigate them and learn from them. However, we must critically evaluate the macro-evolutionary model and draw some conclusions with respect to its credibility.

Also, I do not assume that every macro-evolutionist would hold to each and every representation of their model as spelled out in this paper. I have resisted the temptation to compress the varieties of views into a small enough package for the expressed purpose of critiquing it. However, **I think that I have accurately represented the major tenets of the macro-evolutionary model and it is the goal of this critique to expose both its scientific and philosophical errors.**

Any good detective will get right to the essence of the case by posing the most critical question to be answered. In this case, it was posed by Michael Denton;

"Is it really credible that random processes could have constructed a reality, the smallest element of which - a functional protein or gene - is complex beyond our own creative capacities, a reality which is the very antithesis of chance, which excels in every sense anything produced by the intelligence of man?" (Denton, *Evolution: A Theory In Crisis*, p.342).

The theory of macro-evolution answers this question in the affirmative. Yet, intuitively, **something does not ring true about the credibility of random processes constructing this "kind" of complexity, the "kind" that transcends our own intelligent creative capacities.** The existence of the universe and this type of complexity seem to offer sufficient grounds to justify an investigation of the original event.

**FIRST PRINCIPLES - COSMOLOGY: THE ORIGIN OF THE UNIVERSE**

**PRINCIPLE OF CAUSALITY** \_\_\_\_\_ **EVERY FINITE EVENT NEEDS A CAUSE**  
**SECOND LAW OF THERMODYNAMICS** \_\_\_\_\_ **FINITE AMOUNT OF USABLE ENERGY**

**EVENT ALTERNATIVES:**

- A) The universe is infinite and is therefore uncaused; or,
- B) The universe is finite and consequently needs a cause.

*The following syllogism is offered in favor of alternative B:*

**Premise 1** - Every finite, changing, contingent thing needs a cause.

**Premise 2** - The universe is finite, changing and contingent.

**Conclusion:** Therefore, the universe needs a cause.

The burden of the proof rests upon Premise 2, that the universe is finite, changing and contingent. The first premise is inescapable, science assumes causality or else why bother with scientific investigation?

**EVIDENCE IN SUPPORT OF PREMISE 2:****1. THE SECOND LAW OF THERMODYNAMICS:**

This law simply states that in a closed isolated system, like the universe, the total amount of available energy decreases as time increases--nuclear fission is occurring throughout the universe. In other words, the universe is running out of usable energy. It is analogous to a clock which winds down as the energy in the springs is being converted and used as mechanical energy. This "winding down" characteristic implies a "winding up" or beginning, which means we live in a finite universe.

A car would be another example of increasing entropy, as it will eventually run out of gasoline. Now with a car you can pull into a gasoline station and fill up the tank with fuel. However, with respect to the universe, there is no cosmic service station to stop at and refuel. Therefore, based on the second law of thermodynamics, it is highly probable that the universe is finite.

In one open forum on evolution, a university student had a 4-5 minute prologue to his question on cosmology. Trying to avoid the beginning of the universe, he described an exotic theory of how the universe was infinite. My only response was to ask if his theory was in violation of the second law of thermodynamics. He said that scientists are not sure that the second law applies throughout the universe. That is not the case. Let me quote Paul Davies as he comments on the second law. Davies said that some scientists do try to escape the death grip of the second law, but then he continued by saying;

"Most scientists, however, have only confirmed the absolutely fundamental nature of the second law, and the hopelessness of avoiding the relentless rise of entropy. Sir Arthur Eddington put it thus:

The law that entropy always increases--the Second Law of Thermodynamics--holds, I think, the supreme position among the laws of Nature. If someone points out to you that your pet theory of the universe is in disagreement with Maxwell's equations--then so much for Maxwell's equations. If it is found to be contradicted by observation--well, these experiments do bungle things sometimes. But if your theory is found to be against the Second Law of Thermodynamics I can give you no hope; there is nothing for it but to collapse in deepest humiliation (Davies, *The Cosmic Blueprint*, p.20).

According to the Second Law of Thermodynamics, no process can be 100% efficient with all of the available energy converted into work. Some must be deployed to overcome friction and will be degraded to non-recoverable heat energy, eventually being radiated into space. This applies to theories such as the oscillating universe. Even if that process was 99.9% efficient, it would still be a finite process for the reasons stated above. **There are no self-contained perpetual motion machines that defy the Second Law of Thermodynamics.**

## **2. EINSTEIN'S THEORY OF GENERAL RELATIVITY:**

Einstein's theory of general relativity demands an expanding universe. A universe that experiences expansion coupled with deceleration is indicative of a beginning. Solutions to Einstein's equations will always contain a singularity (an initial condition where space and time cease to exist). General relativity brings us back to a point where all the known laws of physics break down (the "region of ignorance"). The four basic forces (weak nuclear, strong nuclear, electromagnetic and gravity) of the universe are undifferentiated at this initial condition. This singularity initiated Einstein's quest for a "Grand Unified Theory", the quest to find the supra-natural uniting force.

Robert Jastrow has documented Einstein's reaction to the implications surrounding his own theory of relativity;

"Signs of irritation began to appear among the scientists. Einstein was the first to complain. He was disturbed by the idea of a universe that blows up, because it implied that the world had a beginning" (Jastrow, God And The Astronomers, p.17).

## **3. THE "BIG BANG" THEORY:**

In 1965, Arno Penzias and Robert Wilson two physicists at the Bell Telephone Laboratories, discovered that the earth is bathed in a faint glow of radiation. For this, they were awarded the Nobel Prize in 1978. No explanation other than the "Big Bang" theory has been found for the fireball radiation.

NASA has also uncovered more evidence supporting this event. The Cosmic Background Explorer (COBE) satellite reported back with data revealing a uniformity in background radiation that is orders of magnitude higher than any previously measured. Stephen Hawking hailed this discovery as "the discovery of the century, if not all time" (*The Times*, London, April 25, 1992, p.1). **The most convincing aspect of this background radiation is the fact that it has the exact pattern and wavelength for the light and heat expected in an explosion of that magnitude.**

## **CONCLUSION:**

### **FIRST PRINCIPLES OF SCIENCE VIOLATED:**

It is clear that the space-time universe had a beginning, in support of alternative B, **the universe is finite and consequently needs a cause.** To posit the idea of an **infinite universe violates the Second Law of Thermodynamics.** Also, to postulate that **"nothing" (in the sense of a perfect vacuum) has produced this universe violates the principle of causality.** Any valid cosmological model is restrained by the laws of mechanics as it adheres to the legal requirements of the laws of thermodynamics. It must also bind itself to the laws of causality or it will undermine its own validity. In other words, if the law of causality does not

hold true, then all scientific reasoning becomes suspect. This includes the very reasoning that calls into question the law of causality.

**Therefore, it is more credible to posit an infinite and eternal first cause or power beyond the space-time universe in order to account for our existence.**

**FIRST PRINCIPLES - GENETICS: THE ORIGIN OF FIRST LIFE**

LAW OF UNIFORMITY \_\_\_\_\_ PRESENT OBSERVATIONS ARE SIMILAR TO PAST  
PRINCIPLE OF CAUSALITY \_\_\_\_\_ EVERY FINITE EVENT NEEDS A CAUSE  
LAW OF SPECIFIED COMPLEXITY \_\_\_\_\_ LAW THAT GOVERNS A CODED STATEMENT

**EVENT ALTERNATIVES:**

There are only two alternatives with respect to the origin of first life:

**A) The macro-evolutionary model of origins** claims that highly specified and complex life evolved by chance mutations, transcending the natural genetic limits of biological change. These chance mutations, due to environmental pressures, were somehow transformed into highly specified and complex organisms ***without intelligent intervention***. These mutations gave rise to organisms different not only in degree, but different in kind. It also took place apart from any empirically verifiable genetic law(s).

**B) The intelligent, first cause model of origins** claims that highly specified and complex organisms now in existence, are the result of ***design and were created by an intelligent intervention*** into the space-time universe. These organisms were designed to experience only limited genetic variations (micro-evolution) in order to adapt to environmental changes. These genetic variations are only different in degree, not in kind, due to the natural genetic limits to biological change. This is consistent with the laws of genetics as delineated in empirical science.

**LAW OF UNIFORMITY / PRINCIPLE OF CAUSALITY**

The scientific ***law of uniformity*** tells us that present causes of events hold true for similar past events. It is the very essence of forensic science. In other words, if we always observe that it takes an intelligent cause to produce highly specified, complex information in the present, then it must also be the same for past events. Highly specified and complex information is the type of information that one finds in a book like a dictionary or an encyclopedia. Next, any good scientist must apply the principle of causality to find the cause of the highly specified and complex information (book). **Using the law of uniformity, coupled with the principle of causality, it is only reasonable to conclude that this kind of information is always produced by intelligent causes** (books have authors). Whenever we find a high level of specified and complex information, we can conclude that it is highly probable that it had an intelligent cause. The question is, ***"Did the first living cell contain this kind of information?"*** If so, then by applying the law of uniformity and the principle of causality, we can correctly conclude that the first living cell had an author, or intelligent cause.

**INFORMATION THEORY AND GENETICS**

**DNA AND THE LAW OF SPECIFIED COMPLEXITY**

The law of specified complexity can be thought of as the reciprocal (1/entropy) of the law of increasing entropy (1/specificity). In his book, *The Philosophical Scientists*, David Foster comments on this law as follows:

"The polar or inverse symmetry as between entropy and specificity is of great philosophical interest since it shows that the Paradox as between the running-down of the universe and its winding-up depends upon the same general mathematics with an inverse or NOT relationship.

We must agree with Eddington that the Second Law of Thermodynamics is a major law of nature. But we find that it is only half the likely truth and that it has a complement in a sort of *Law of Specificity* which is its obverse using the same general mathematics. . . .

1. There is a process of running-down from order to chaos . . . measured by entropy.
2. There is a process of winding-up from chaos to order . . . measured by specificity" (Foster, *The Philosophical Scientists*, pp.41,59).

**THE RULES OF SPECIFIED COMPLEXITY**

What is the difference between random processes producing order (or complexity as in the theory of CHAOS) and intelligence producing order? The essential difference is the level of **specified** complexity. The **CHAOS** theory accounts for random, redundant and complex patterns as found in fractal geometry, while ***intelligent causes are needed to account for highly specified and complex order.*** The following table will help to illustrate this essential difference:

<b><u>RANDOM, REDUNDANT AND COMPLEX</u></b>	<b><u>HIGHLY SPECIFIED AND COMPLEX</u></b>
---	--

INDIVIDUAL SNOW FLAKES.....	CASTLE MADE OUT OF SNOW
PATTERNS IN SAND DRIFTS.....	MESSAGE WRITTEN IN THE SAND
REDUNDANT CLOUD PATTERNS.....	A MESSAGE WRITTEN IN THE SKY
REDUNDANT PATTERNS IN MARBLE.....	MARBLE STATUE OF ABRAHAM LINCOLN
RANDOM / REDUNDANT NOISE PATTERNS .....	HIGHLY SPECIFIED, COMPLEX MESSAGE
COMPUTER FRACTAL GEOMETRY (CHAOS) .....	PROGRAMS FOR FRACTAL ANALYSIS
SELF-GENERATING COMPUTER PROGRAMS.....	THE MIND OF THE PROGRAMMER

David Foster gives the following example :

**CONSIDER THE FOLLOWING ALPHABETICAL CHARACTERS:**

**ABCEHIACKLST / NO MEANINGFUL PATTERN**

***(HIGH ENTROPY / UNSPECIFIED RANDOM INFORMATION)***

**BLACKTHEISCAT / A MORE MEANINGFUL PATTERN**

***(MEDIUM ENTROPY / MEDIUM SPECIFIED COMPLEXITY)***

**THECATISBLACK / THE MOST MEANINGFUL PATTERN**

***(LOW ENTROPY / HIGH SPECIFIED COMPLEXITY)***



This third set of data is the most meaningful because it conforms to the rules of a written language. The law of specified complexity, is the law that governs a coded statement. **The coded words themselves must be brought into a limited set of parameters that we refer to as the rules of grammar** (Foster, *The Philosophical Scientists*, pp.90-91).

What evidence is there to support the claim that the first living cell contained highly specified, complex information? A brief review of the basic roles of DNA, RNA and proteins will help us to understand the nature and functions of a living cell. We now know that in any given organism DNA, RNA and proteins are mutually interdependent. DNA stores the genetic information (blueprints for life), RNA is the messenger that carries portions of the blueprints from DNA to specific proteins, while the proteins carry out the essential chemical work of the cell to build and repair. It is essential to remember that according to macro-evolution, DNA, RNA and proteins must evolve separately and at the same time because they are mutually dependent. Which came first, the nucleic acids (DNA or RNA) or the proteins? This is a major roadblock for the macro-evolutionist.

The complex systems of every known organism are reproduced and assembled on the basis of the instructions (blueprints) built into the DNA molecular system. All biological cells are guided by programs stored in the cell nucleus on DNA molecules in code form. This little computer or code center remotely controls all cellular syntheses and catabolic processes. The entire chemical metabolism is preprogrammed by the genetic code. **The question we need to ask is, "How complex is this genetic information?"**

**THE MATHEMATICAL IDENTITY AND SPECIFIED COMPLEXITY OF THE GENETIC CODE**

We now know, through the study of "Information Theory", that **DNA and its functions is as complex as a written language. This is not an analogy, it is a mathematical identity.** I submit the following expert testimony as conclusive evidence to support the fact that the information content within a single cell is as highly specified and complex as a written language:

"The statistical structure of any printed language ranges through letter frequencies, diagrams, trigrams, word frequencies, etc., spelling rules, grammar and so forth and therefore can be represented by a Markov process given the states of the system. . . It is **important to understand that we are not reasoning by analogy.** The sequence hypothesis applies directly to the protein and the genetic text as well as to written language and therefore **the treatment is mathematically identical**" (Yockey, "Self Organization. Origin of Life Scenarios and Information Theory," *Journal of Theoretical Biology*, 91, 1981, p.16, emphasis added).

**Markov process:** Statistics, a succession of events each of which is determined by the event immediately preceding it. Named after Andrei Markov, 1856-1922, Russian mathematician.

**This mathematical identity helps us to understand that the genetic code is governed by a set of rules in the identical manner by which a set of finite words are governed.**

**THE GENETIC CODE AS A WRITTEN LANGUAGE:**

The Genetic Code is composed of 4 nucleotides represented by the letters A-T-G-C:

- |             |              |
|-------------|--------------|
| A (Adenine) | G (Guanine)  |
| T (Thymine) | C (Cytosine) |

Lester and Bohlin clearly demonstrate how these four nucleotides give rise to the "genetic text" as follows:

- A. COMPOSED OF FOUR AVAILABLE **LETTERS** .....(NUCLEOTIDES)
- B. ARRANGED INTO **64 WORDS 3 LETTERS EACH** .....(TRIPLETS)

- C. WORDS ARE PUT INTO A SEQUENCE OF **SENTENCES**.....(GENES)  
 D. RELATED SENTENCES ARE PUT INTO **PARAGRAPHS** .....(OPERONS)  
 E. TENS TO HUNDREDS OF PARAGRAPHS COMPOSE **CHAPTERS**.....(CHROMOSOMES)  
 F. SET OF CHAPTERS WITH ALL NECESSARY DATA FOR A **BOOK**.....(ORGANISM)

(Lester and Bohlin, *The Natural Limits to Biological Change*, p.86)

This evidence tells us that **the first living organism was composed of highly specified, complex information as opposed to random information.** The genetic code is mathematically equivalent to a written language and the information content identical to the information found in a book. It is a language in every sense of the word used to describe the detailed features of the organism. How much specified, complex information does a single cell contain, the kind of cell that is representative of the first living cell?

### **THE DNA IN A SINGLE CELL IS MARKED BY SPECIFIED, COMPLEX INFORMATION**

Michael Denton gives us a vivid illustration of the highly specified, complex state of a single cell. He describes it as follows:

"We must magnify a cell a thousand million times until it is twenty kilometers in diameter and resembles a giant airship large enough to cover a great city like London or New York. What we would then see would be an object of unparalleled complexity and adaptive design. On the surface of the cell we would see millions of openings, like the port holes of a vast space ship, opening and closing to allow a continual stream of materials to flow in and out. If we were to enter one of these openings we would find ourselves **in a world of supreme technology and bewildering complexity**" (Denton, *Evolution: A Theory In Crisis*, p. 328, emphasis added).

### **INFORMATION CONTENT OF A SINGLE CELL (30 VOLUMES)**

We already demonstrated that DNA and its functions are mathematically identical to a written language. But how much information is there in a single-cell organism as found in the first living cell? Richard Dawkins testifies that,

"Each nucleus . . . contains a digitally coded database larger in information content, than all 30 volumes of the *Encyclopedia Britannica* put together. And this figure is for each cell, not all the cells of a body put together. . . . The total number of cells in the body (of a human) is about 10 trillion" (Dawkins, *The Blind Watchmaker*, pp.17-18).

### **INFORMATION CONTENT OF THE BRAIN (20 MILLION VOLUMES)**

If a single cell contains 30 volumes of highly specified, complex information, how much information is there within the human brain?

Carl Sagan testifies that,

"The information content of the brain, expressed in bits, is probably comparable to the total number of connections among the neurons, about 100 trillion or  $10^{14}$  bits. If written in English, that information would fill some 20 million volumes. As many as contained in the world's largest libraries. The equivalent of 20 million volumes is inside the head of each one of us. The brain is a very big place in a very small space" (Sagan, *Cosmos*, p.278).

## **INFORMATION CONTENT OF THE HUMAN BODY (300 TRILLION VOLUMES)**

**There are 30 volumes of highly specified, complex information in a single cell. There are 20 million volumes of genetic information in the brain alone!** Richard Dawkins told us that the total number of cells in the human body was about 10 trillion ( $10^{12}$ ). This means that one human being is equivalent to  $30 \times 10^{12}$ , or three hundred trillion (a 3 with 14 zeros after it) volumes.

To help us grasp the order of magnitude of such numbers, Michael Denton offers the following analogy of the number,  $10^{15}$ :

"Numbers in the order of  $10^{15}$  are of course completely beyond comprehension. Imagine an area about half the size of the USA (one million square miles) covered in a forest of trees containing ten thousand trees per square mile. If each tree contained ten thousand leaves, the total number of leaves in the forest would be  $10^{15}$ , equivalent to the number of connections in the human brain" (Denton, *Evolution: A Theory in Crisis*, p.330).

I realize that some would argue that the 30 volumes of specified, complex information found in the first living cell would not be found on every line of every page. But even if we cut these numbers in half, one must still explain how 15 volumes of highly specified, complex information appears in a single cell. The explanation must also be consistent with the first principles of science, philosophy and genetics. The explanation ought to be as rationally consistent as that of hearing a scientific explanation about how 15 volumes of the *Encyclopedia Britannica* appeared on a library shelf. It could also be the case that the other 15 volumes of what may now be considered to be "unspecified data" might be relevant to the overall information content of the cell.

**I am not trying to stress the volume of information by going from a single cell to the brain or to the entire body, I am much more interested in where and how this new information enters the genetic system. There are no genetic laws to govern this phenomenon.** Dr. A.E. Wilder-Smith describes the enormous problem faced by the macro-evolutionist as he or she attempts to explain how life formed from matter and energy alone without the aid of intelligent information. He said,

"It represents an attempt to explain the formation of the genetic code from the chemical components of DNA without the aid of a genetic concept (information) originating outside the molecules of the chromosomes. This is comparable to the assumption that the text of a book originates from the paper molecules on which the sentences appear, and not from any external source of information (external, that is, to the paper molecules). . . .

Hence the genetic "Book of Life," genetic information, stems allegedly from the "paper" on which it is written--the nucleotides, bases, and amino acids which comprise DNA. Chance is believed to have synthesized this genetic information onto matter. . . .

*Every attempt at artificially creating life in a laboratory proves that scientists, without exception, attempt to synthesize the machine of life from matter using matter, energy, and know-how (logos, concept, information, expertise)"(A.E. Wilder-Smith, *The Natural Sciences Know Nothing of Evolution*, pp.4-5,8).*

## **WHAT IS THE CAUSE OF HIGHLY SPECIFIED, COMPLEX INFORMATION?**

NASA's Search For Extra Terrestrial Intelligence (SETI) has prompted the use of large radio telescopes, aimed into deep space. The purpose of SETI is to receive some type of transmission from deep space. Carl Sagan has said,

"The receipt of a single message from space would show that it is possible to live through such technological adolescence; the transmitting civilization, after all, has survived. Such knowledge, it seems to me, might be worth a great price" (Sagan, *Bocca's Brain*, p.322).

How would we conclude intelligent life exists somewhere in space? If a single message (even one sentence) was received from outer space that would prove intelligent life existed. **If that is true for one message, what if NASA found 15-30 volumes of highly specified, complex information?**

Would NASA conclude that this information (message) was the result of intelligent intervention or of non-intelligent random processes? Can such highly specified, complex information be produced randomly? Is there any observable evidence to support this type of information resulting from chance? NO! A single message from outer space, even one sentence, would be enough proof for scientists such as Carl Sagan to conclude that intelligent life had produced (caused) it. Well, using the same logic, these same scientists ought to reach a similar conclusion with respect to the origin of the first living cell. In fact, the conclusion would be ever so more probable due to the fact that 15-30 volumes of highly specified, complex information was found to be in the coded message of that single cell.

Moving from chaos to meaningful order can be measured by the law of specified complexity. The degree of order produced in a system and the improbability of producing that order (specificity) against a background of alternatives is illustrated by David Foster as follows:

"Let us imagine that there is a pack of 52 cards well shuffled and lying face-downwards on a table. What are the chances of picking all the cards up in the correct suit sequence starting with (say) the Ace of Spades and working downwards and then through the other suits and finishing (say) with Two of Clubs? Well the chance of picking up the first card correctly is 1 in 52, the second card 1 in 51, the third card 1 in 50, the fourth card 1 in 49 and so forth. So the chance of picking up the whole pack correctly is Factorial 52 . . . 1 in  $10^{68}$  (Foster, *The Philosophical Scientists*, pp.39-40).

Foster continues in his writings to discuss the specificity of the DNA and concludes with the following statement;

"Hemoglobin has an improbability of  $10^{650}$  while the DNA of the T4 bacteriophage has an improbability of  $10^{78,000}$ . In a universe only  $10^{18}$  seconds old it is obvious that life could not have evolved by chance" (Ibid., p.83).

**Scientific conclusions must be based on the highly probable.** Any objective, rationally consistent scientist knows that science can never reach the level of certainty. At best, scientific conclusions depend on a level of probability that a certain cause produced a certain effect. The problem associated with the probability of life arising without an intelligent cause has been amplified by both mathematicians and astronomers. Lester and Bohlin note the following:

"Mathematicians, drawn in by the statistical nature of the problem, have denied the feasibility of random minor mutations producing biological novelty and complexity. Using computers, mathematician Marcel Schutzenberger, found the odds against improving meaningful information by random changes were  $10^{1,000}$ . The astronomers Fred Hoyle and Chandra Wickramasinghe placed the probability that life would originate from non-life as  $10^{40,000}$  and the probability of added complexity

arising by mutations and natural selection very near this figure" (Lester and Bohlin, *The Natural Limits to Biological Change*, pp. 84-85).

Needless to say, **this type of chance event is highly improbable. The number of 10<sup>40,000</sup> is extremely larger than the number of atoms in the known universe (10<sup>80</sup>).** The probability of life arising by chance is much less than the probability of finding one particular atom in the entire universe (similar to finding the proverbial needle in the hay stack). Now if science is built upon the highest degree of probability and 1/10<sup>1,000</sup> power is not regular or probable, then to believe it is true, is to go beyond the scope of science! The "rule of thumb" in physics is that once the probability of an event decreases below 1/10<sup>50</sup>, it enters the realm of the impossible.

**CONCLUSION:**

**FIRST PRINCIPLES - GENETICS: THE ORIGIN OF FIRST LIFE**

LAW OF UNIFORMITY \_\_\_\_\_ PRESENT OBSERVATIONS ARE SIMILAR TO PAST  
 LAW OF SPECIFIED COMPLEXITY \_\_\_\_\_ LAW THAT GOVERNS A CODED STATEMENT  
 PRINCIPLE OF CAUSE AND EFFECT EVERY FINITE EVENT NEEDS A CAUSE

The theory of macro-evolution maintains that the first living cell was produced by pure chance. That 15-30 highly specified and complex volumes of genetic information was produced by the non-intelligent random processes that synthesized the genetic text onto matter. **That is a direct violation of the first principles of uniformity, specified complexity and causality.** The theist maintains that this is a most unreasonable conclusion. To postulate that the development of the genetic text is entirely a consequence of blind chance seems to be a hypothesis based on no evidence and governed by no scientific principles.

The theist, however, in adhering to and combining the first principles of uniformity, specified complexity and causality can rightly conclude that when one finds highly specified and complex information, it is highly probable that it was produced by an intelligent cause. Since we have demonstrated that highly specified and complex information was contained in the first living cell, it is more credible to conclude that it had an intelligent cause.

**FIRST PRINCIPLES - PALEONTOLOGY: ORIGIN OF NEW LIFE FORMS**

**INFORMAL LOGICAL FALLACIES:**

MISUSE OF ANALOGY \_\_\_\_\_ HAVING MORE DIFFERENCES THAN SIMILARITIES  
 BEGGING THE QUESTION \_\_\_\_\_ USING A CONCLUSION AS A PREMISE  
 ARGUMENT TO THE FUTURE \_\_\_\_\_ APPEALING TO EVIDENCE NOT YET DISCOVERED  
 SPECIAL PLEADING \_\_\_\_\_ IGNORING EVIDENCE AGAINST A POSITION  
 APPEAL TO THE PEOPLE \_\_\_\_\_ TO BELIEVE THAT POPULARITY EQUALS TRUTH

**THE MECHANISM:**

It is quite simple to demonstrate the fact that propositions made by macro-evolutionary scientists violate the first principles of philosophy listed above. The first violation occurs with respect to the mechanism used to support the macro-evolutionary model of life. **The most popular mechanism offered in support of the theory of macro-evolution is natural selection.** Environmental pressures force an organism to mutate and change beyond its natural genetic limits in order to adapt and survive (survival of the fittest).

**VIOLATION OF THE FIRST PRINCIPLES OF PHILOSOPHY:**

**MISUSE OF ANALOGY \_\_\_\_\_ MORE DIFFERENCES THAN SIMILARITIES**

The problem with natural selection is that it does not select anything. There is no intelligent decision, it just occurs! Chance mutations will produce variations in a species **over long periods of time** (that is an important qualification as we shall see). How can there be a goal or selection without intelligence involved in the process?

**ANALOGY:** Some would argue that since artificial selection can produce significant changes over short periods of time, then natural selection would produce even greater changes over long periods of time. Let's test this analogy.

First, let us remember that analogies do not prove, they merely clarify or illustrate. Secondly, an analogy is credible only if its similarities are strong and its differences are weak. If the opposite is true, it is not a valid analogy. Geisler and Anderson test this analogy by listing the crucial elements associated with both artificial selection and natural selection as follows:

<b><u>ARTIFICIAL SELECTION</u></b>	<b><u>NATURAL SELECTION</u></b>	<b><u>SIMILAR / OPPOSITE</u></b>
GOAL IN MIND	NO GOAL	X
INTELLIGENT PROCESS	BLIND PROCESS	X
INTELLIGENT CHOICES	NO CHOICES	X
PROTECT FROM ALIEN FORCES	NO PROTECTION	X
KEEP FREAK MUTATIONS ALIVE	MOST FREAKS ARE FATAL	X
SURVIVAL OF PREFERRED BREED	NONPREFERENTIAL SURVIVAL	X

**Conclusion:** Rather than being similar, artificial selection and natural selection are in most crucial respects exactly opposite. Thus the analogy is invalid" (Geisler and Anderson, Origin Science, p.149).

Stephen Jay Gould has said that the mechanism is indeed unknown and a continuing struggle to understand. Yet he also states that it is insignificant with respect to the "fact" of macro-evolution. He says,

"Our continuing struggle to understand how evolution happens (the `theory of evolution') does not cast out our documentation of its occurrence -- the `fact of evolution'" (Gould, "The Verdict On Creationism", The New York Times Magazine, July 19, 1987).

**BEGGING THE QUESTION \_\_\_\_\_ USING A CONCLUSION AS A PREMISE**

**Gould says, that the mechanism (how evolution happens) is not really known, but the `fact of evolution' (that we exist) is certain. This is simple question begging,** that is, the conclusion (evolution is true) is used as a premise (it happened). Stated more forthrightly, Gould should have said, "We know that evolution is true because it happened." How do we know it has happened? "We know it has happened because it is true." This is clearly a simple case of circular reasoning or question begging.

## THE FOSSIL RECORD

### ACCORDING TO GRADUALISM:

If the theory of macro-evolution is true and single mutations over long periods of time have survival value, then this theory should be verifiable (documented) by the evidence produced in the fossil record. The long transitions between species should appear in the record as part of what the organism was and part of what it will be evolving into. In other words, one would expect to find half-wings and half-jaws.

As I stated at the beginning of this paper, Darwin and Huxley believed that slow micro-evolutionary changes over enormous lengths of time (adaptation to an environment) would gradually add up to a macro-evolutionary leap over the natural genetic boundaries that exist in a certain species. This slow, gradual process of evolution is referred to as "gradualism."

Any credible theory ought to be based on sound reasoning, observation and experimentation. It must at least help us to predict and explain natural phenomena. As Stephen Hawking points out,

"A theory is a good theory if it satisfies two requirements: It must accurately describe a large class of observations . . . and it must make definite predictions about the results of future observations" (Hawking, *A Brief History of Time*, p.9).

The macro-evolutionary, gradualistic model of origins predicts a large class of transitional fossils. The fossil record should provide verification of these predictions, the kind of evidence that verifies the hypothesis that gradual transitions of relatively simple forms of life into more and more complex forms of life did take place.

### **ARGUMENT TO THE FUTURE \_\_\_\_ APPEAL TO EVIDENCE NOT YET DISCOVERED**

The fossil record is essential to the verification of the theory of macro-evolution. It is a historical record that must support the theory of regular and systematic transitions occurring through gradual changes of simple life forms into more complex forms. **For the past 130 years (500 million years worth of fossil evidence), macro-evolutionists have appealed to evidence that would eventually emerge from the fossil record in support of their theory.** However, this is not the case. The following testimonies will reveal the fact that the fossil record shows no evidence of these transitions and consequently does not accurately describe a large class of observations.

The testimony of Stephen Jay Gould;

"The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference, however reasonable, not the evidence of fossils" (Gould, *The Panda's Thumb*, p.181, emphasis added).

David Raup, Professor of Geology at the University of Chicago (previously, Curator of Geology - Field Museum of Natural History in Chicago) also testifies to truth of this matter. He says,

"The record of evolution is still surprisingly jerky and, ironically, we have even fewer examples of evolutionary transition than we had in Darwin's time. . . . So Darwin's problem has not been alleviated" (Raup, *Field Museum of Natural History Bulletin*, 50:22, 1979, p.244).

The testimony of Stephen Stanley, Paleontologist at John Hopkins University, agrees:

"The known fossil record fails to document a single example of phyletic evolution accomplishing a major morphologic transition and hence offers no evidence that the gradualistic model can be valid" (Stanley, *Macroevolution*, p.39).

### SPECIAL PLEADING \_\_\_\_\_ IGNORING EVIDENCE AGAINST A POSITION

It is clear that there is no evidence to support the theory of gradualistic, macro-evolution. The evidence against this model has been intentionally hidden (E.g., Gould's comment, "the trade secret of paleontology"). **This is an obvious case of the violation of a first principle in logic, namely, special pleading.** The evidence to support a gradual transition of life does not exist and has been non-existent for the past 130 years. I often wonder why my college text books never mentioned this negative evidence. The fact of the matter is that it was suppressed by some macro-evolutionists in an attempt to mislead the public.

The following testimony is taken from the introduction to **the 1956 edition** of the *Origin of Species*, written by Dr. W. R. Thompson. It is indicative of the true state of affairs. He said,

"As we know, there is a great divergence of opinion among biologists, not only about the causes of evolution but even about the actual process. This divergence exists because the evidence is unsatisfactory and does not permit any certain conclusion. It is therefore right and proper to draw the attention of the non-scientific public to the disagreements about evolution. But some recent remarks of evolutionists show that they think this unreasonable. This situation, where scientific men rally to the defense of a doctrine they are unable to define scientifically, much less demonstrate with scientific rigor, attempting to **maintain its credit with the public by the suppression of criticism and the elimination of difficulties**, is abnormal and undesirable in science" (Darwin, *Origin Species*, N.Y. Everyman's Library, 1956, p.8, emphasis added).

### APPEAL TO THE PEOPLE \_\_\_\_\_ TO BELIEVE THAT POPULARITY EQUALS TRUTH

**Many macro-evolutionists have tried to establish their position by misleading the public and appealing to popular sentiments or opinions instead of the evidence.** The truth is that the present data indicates a remarkable absence of the many intermediate forms required for the verification of the macro-evolutionary model. This is a solemn charge that cannot be ignored. Charles Darwin himself wrote,

"Why then is not every geological formation and every stratum full of such intermediate links? Geology assuredly does not reveal any such finely graduated organic chain. ***This is perhaps the most obvious and gravest objection which can be urged against my theory***" (Darwin, *Origin of Species*, p. 287, emphasis added).

Darwin said that if his theory was correct, the fossil record should generate the necessary evidence to verify it. But, the fact of the matter is that the fossil record has not generated such evidence. So, how does the macro-evolutionist deal with this fact? **In a desperate attempt to save an epistemological presupposition, a modified theory (idea) of macro-evolution has been developed.**

### THE FOSSIL RECORD

#### ACCORDING TO PUNCTUATED EQUILIBRIA:

**The main advocates of a new hypothesis created for the sole purpose of making the theory of evolution fit the data are:**



Stephen Jay Gould \_\_\_\_\_ Paleontologist, Harvard University  
 Steven Stanley \_\_\_\_\_ Paleontologist, John Hopkins University  
 Niles Eldredge \_\_\_\_\_ Paleontologist, American Museum of Natural History

This new hypothesis is referred to as the **punctuated equilibria model**. It is not a mechanism, it is only a description attempting to describe the known data, a restatement of the facts!

According to Stephen Jay Gould, the fossil record is depleted with respect to transitional fossils:

"There has been no steady progress in the higher development of organic design. We have had, instead, vast stretches of little or no change and one evolutionary burst that created the whole system" (Gould - Article in *Natural History*, 85 (6) : 37 (1976)).

Gould tells us that this **"evolutionary burst" is the reason why we do not find transitional fossils in the record**. Instead, the new species appears suddenly and fully formed. Gould describes the punctuated model below:

"For several years, Niles Eldredge of the American Museum of Natural History and I have been advocating a resolution of this uncomfortable paradox. We believe that Huxley was right in his warning. The modern theory of evolution does not require gradual change. In fact, the operation of Darwinian processes should yield exactly what we see in the fossil record. It is gradualism that we must reject, not Darwinism.

The history of most fossil species includes two features particularly inconsistent with gradualism:

**1. Stasis.** Most species exhibit no directional change during their tenure on earth. They appear in the fossil record looking much the same as when they disappear; morphological change is usually limited and directionless.

**2. Sudden appearance.** In any local area, a species does not gradually appear by the steady transformation of its ancestors; it appears all at once and fully formed" (Gould, *The Panda's Thumb*, p.182).

"Eldredge and I refer to this scheme as the model of *punctuated equilibria*. Lineages change little during most of their history, but events of rapid speciation occasionally punctuate this tranquillity. Evolution is the differential survival and deployment of these punctuations. (In describing the speciation of peripheral isolates as very rapid, I speak as a geologist. The process may take hundreds, even thousands of years; you might see nothing if you stared at speciating bees on a tree for your entire lifetime. But a thousand years is a tiny fraction of one percent of the average duration for most fossil invertebrate species -- 5 to 10 million years. Geologists can rarely resolve so short an interval at all; we tend to treat it as a moment.)" (Ibid., p.184).

According to Gould's explanation, the punctuated model moves along as follows:

<b>STASIS</b> .....	} <b>ENVIRONMENTAL PRESSURES</b> .....	} <b>SUDDEN APPEARANCE</b>
5 MILLION TO.....	} EVOLUTIONARY BURST.....	} <b>OF</b>
10 MILLION .....	} 100'S TO .....	} <b>NEW</b>
YEARS .....	} 1,000'S OF YEARS.....	} <b>SPECIES</b>

So, according to the punctuated theory of evolution, **a new species can appear on the scene in as little as 100 years to as much as 1,000 years**. That is practically instantaneous, according to a geological time scale. This "new" hypothesis is just another indication of the bankruptcy of the theory of evolution. In fact, the

genetic roadblocks discussed earlier are pressed even harder with this view because of the extreme time limitations.

How has the punctuated model of macro-evolution helped science? Michael Denton has already answered that question, he says,

"The punctuation model of Eldredge and Gould has been widely publicized but, ironically, while the theory was developed specifically to account for the absence of transitional varieties between species, its major effect seems to have been to draw widespread attention to the gaps in the fossil record" (Denton, *Evolution: A Theory In Crisis*, p.194).

Denton goes on to tell us that when Eldredge raised this subject with a group of science writers, it received wide publicity and even reached the front page of the British newspaper *The Guardian Weekly*, in an article entitled "Missing Believed Non-existent":

"If life had evolved into its wondrous profusion of creatures little by little, Dr. Eldredge argues, then one would expect to find fossils of transitional creatures which were a bit like what went before them and a bit like what came after. But no one has yet found any evidence of such transitional creatures. This oddity has been attributed to gaps in the fossil record which gradualists expected to fill when rock strata of the proper age had been found. In the last decade, however, geologists have found rock layers of all divisions of the last 500 million years and no transitional forms were contained in them" (Denton, *Evolution: A Theory In Crisis*, p.194).

Can an environment change so rapidly and recover? Can species become new species so quickly and recover? Gould calls the time involved with genetic changes as geologically instantaneous! This only adds serious injury to all the genetic problems raised earlier in this critique. It also begs the question again as it is mere speculation and follows no rule, principle or law of science. In fact, it is diametrically opposed to the law of uniformity as we know of no present observational evidence to support such an idea as punctuated equilibria.

A good friend, also a retired Professor of Philosophy, who periodically interacts with me on scientific and philosophical issues gave me the following illustration concerning punctuated equilibria:

"A young bride agreed to take the responsibility for balancing the household financial accounts. The husband soon began to notice a small item marked 'c.a.f.f.' on the balance sheets. This small item began to grow and became quite an expensive entry into the accounts over time. The husband became so concerned about this entry that he finally asked his wife, "Honey what does the entry 'c.a.f.f.' mean?" She very lovingly looked at her husband and replied, "cannot account for funds."

The gaps which exist in the fossil record between the equilibrium (stabilized life forms) period and the punctuations ("rapid burst") of macro-evolution is one out of many ways to restate the facts. However, as an explanation that is suppose to be part of the entire model, it is a "c.a.f.f." entry. Again, it leads to the never ending road of circular reasoning or question begging.

## **CONCLUSION - PALEONTOLOGY:**

### **THE ORIGIN OF NEW LIFE FORMS**

#### **FIRST PRINCIPLES OF PHILOSOPHY:**

**The paleontological evidence that is supposed to support the theory of macro-evolution is in violation of the first principles of philosophy in that it has committed the following informal logical fallacies:**

<b>MISUSE OF ANALOGY</b> _____	<b>HAVING MORE DIFFERENCES THAN SIMILARITIES</b>
<b>BEGGING THE QUESTION</b> _____	<b>USING A CONCLUSION AS A PREMISE</b>
<b>ARGUMENT TO THE FUTURE</b> _____	<b>APPEALING TO EVIDENCE NOT YET DISCOVERED</b>
<b>SPECIAL PLEADING</b> _____	<b>IGNORING EVIDENCE AGAINST A POSITION</b>
<b>APPEAL TO THE PEOPLE</b> _____	<b>TO BELIEVE THAT POPULARITY EQUALS TRUTH</b>

The punctuated model of life has really helped the public understand the bankrupt position of the gradualistic model of macro-evolution. The punctuated model is merely an example of the unverifiable position of macro-evolutionists. Macro-evolutionists, such as Stephen Jay Gould, believe that something very similar to Darwinian evolution must be true because there is no other acceptable alternative. This is another example of engaging in the circular reasoning process. In essence, one must conclude that the macro-evolutionist is an unfalsifiable model.

**MACRO-EVOLUTION - OVERALL CONCLUSION:**

In examining the three main links in the macro-evolutionary model of life, one must conclude that there are major weaknesses associated with each one as summarized below:

**COSMOLOGY:** The universe is no longer considered to be self-explanatory due to the fact that it is finite. A finite universe needs a first (efficient) cause. This cause must be infinite, eternal and uncaused by the very fact that it is first. Therefore, in order to be consistent with first principles of philosophy and science, the first cause must be infinitely powerful and eternal.

**GENETICS:** Combining the first principles of uniformity, specified complexity and causality, one can rightly conclude that when one finds highly specified and complex information, it is highly probable that it was produced by an intelligent cause. Since we have demonstrated that highly specified and complex information was contained in the first living cell, it is therefore credible to conclude that it had an intelligent cause.

**PALEONTOLOGY:** Macro-evolutionists have claimed to examined over 500 million years worth of fossil evidence and yet there is not a sign of the so called transitional fossil (which according to Gould, "adorn our textbooks"). One has to stop and think critically about this fact. **There is no evidence of macro-evolution in the fossil record.**

In light of the aforementioned conclusions, where does that leave the macro-evolutionist? Let me have Dr. Colin Patterson answer that question;

"So I think many people in this room would acknowledge that during the last few years if you had thought about it at all, you've experienced **a shift from evolution as knowledge to evolution as faith. I know that's true of me and I think it's true of a good many of you in here**" (Frair, *Speech By Dr. Colin Patterson*, American Museum of Natural History, N.Y., N.Y., November 5, 1981, Transcript, p. 4, emphasis added).

I agree with Dr. Patterson's conclusion, that in order to believe in the theory of macro-evolution one has to shift from knowledge to faith. Please notice his qualification, **"if you have thought about it."** If you are like me and many others who seem to be waking up from their "dogmatic slumber", I suggest you take a look at other aspects of your world view as well.

We started our investigation with Michael Denton's question;

"Is it really credible that random processes could have constructed a reality, the smallest element of which. . . is complex beyond our own creative capacities, a reality which is the very antithesis of

chance, which excels in every sense anything produced by the intelligence of man?" (Denton, *Evolution: A Theory In Crisis*, p. 342).

**The theistic answer to that question is no!** The macro-evolutionary model is incredible. It is not credible to believe that chance has produced the highly specified complexity of our present existence. The macro-evolutionary model consistently violates scientific and philosophical first principles.

I can honestly say that if this paper was handed to me as a macro-evolutionist, I would have to seriously consider the intelligent, first cause model. The factual evidence coupled with the first principles of science and philosophy clearly indicate that the theory of macro-evolution is highly improbable leaning heavily toward the impossible. To reject this conclusion is an act of the will and not of the mind. The refusal to accept the alternative model of man's origin, an infinitely powerful, eternal and intelligent first cause, in spite of the evidence, is also a violation of a first principle in philosophy. It is known as the **ultimate logical fallacy**.

**SEE NEXT PAGE FOR ABBREVIATED BIBLIOGRAPHY ---->**

\*\*\*\*\*

**ORIGIN SCIENCE ABBREVIATED BIBLIOGRAPHY**

**GENERAL**

<b>The God Who Would Be Known</b>	<b>Templeton/Herrmann</b>	<b>Harper &amp; Row</b>
<b>Darwin On Trail</b>	<b>Phillip Johnson</b>	<b>Intervarsity</b>
<b>Evolution: A Theory In Crisis</b>	<b>Michael Denton</b>	<b>Adler &amp; Adler</b>
<b>Christianity and the Nature of Science</b>	<b>J.P. Moreland</b>	<b>Baker</b>
<b>Evolution: The Challenge of the Life Fossil Record</b>	<b>Duane Gish</b>	<b>Creation Life</b>

**COSMOLOGY**

<b>Does God Play Dice?</b>	<b>John Houghton</b>	<b>Zondervan</b>
<b>The Fingerprint of God</b>	<b>Hugh Ross</b>	<b>Promise</b>
<b>The Creator and the Cosmos</b>	<b>Hugh Ross</b>	<b>Navpress</b>
<b>The Creation Hypothesis</b>	<b>J.P. Moreland</b>	<b>Intervarsity</b>
<b>Genesis and the Big Bang</b>	<b>Gerald Schroeder</b>	<b>Bantam</b>

**MOLECULAR BIOLOGY**

<b>The Philosophical Scientists</b>	<b>David Foster</b>	<b>Dorset</b>
<b>The Mystery of Life's Origin</b>	<b>Thaston/Bradley/Olsen</b>	<b>Philosophical Lib.</b>
<b>The Natural Sciences Know Nothing of Evolution</b>	<b>A.E. Wilder Smith</b>	<b>T.W.F.T.</b>
<b>The Natural Limits to Biological Change</b>	<b>Lester/Bohlin</b>	<b>Zondervan</b>

**QUANTUM PHYSICS**

<b>A Brief History of Eternity</b>	<b>Roy Peacock</b>	<b>Crossway</b>
<b>The Quantum World</b>	<b>J.C. Polkinghorne</b>	<b>Princeton Univ.</b>
<b>One World</b>	<b>John Polkinghorne</b>	<b>WBC Print Ltd.</b>