

**A SCIENTIST  
AND HIS BIBLE**  
BY DR. EDWIN A. OLSON



TEXT OF ORAL PRESENTATIONS GIVEN AT  
TRINITY BAPTIST CHURCH



SPOKANE, WASHINGTON  
JANUARY 19, 26, and FEBRUARY 2,  
1992

### Introduction

I have been a member of Trinity Baptist Church for over 31 years. In that time I have taught hundreds of Sunday School classes and occasionally spoken from the pulpit. But tonight marks the first time that I have addressed the Trinity family on the relationship between science and the Christian faith.

To say that in my years at Trinity I have earned your trust is to state the obvious. Consequently I have no fear that you have come ready to write me off as one of those mischievous scientists bent on destroying the faith. We both know better than that. However, I am under no illusion that you will shout a hearty amen to all that I say. Although I know what is "politically correct" to utter in conservative churches, you will sometimes find me breaking out of the mold. Whether you are persuaded by my words or disappointed by some of my ideas, I feel confident that you will continue to love me because you know that we both love the same God and worship together his exalted Son.

In my three Sunday night sessions I can only touch the surface of a controversy with a long history and countless disputants. I do not come with a fully developed set of final answers. In fact, to some questions I must respond with "I don't know." Of course, that may be followed by my stating an opinion or by offering what seem to be several acceptable alternatives. Whatever the case, I follow in the line of the Apostle Paul who told the Corinthian Christians that "at present all I know is a little fraction of the truth" (I Cor. 3.2... Phillips) Aren't you glad that Paul then added, "but the time will come when I shall know the truth as fully as God now knows me."

Tonight my remarks fall in three sections. First, I will present nine foundation stones that undergird all my subsequent thinking. Then I will tackle the question "Who should you believe?", giving mention to some of the Christian people who today give all or part of their working hours to science/faith issues. Finally I intend to list some questions we will explore during our next two Sunday nights together.

## PART I      NINE FOUNDATION STONES IN FACING BIBLE/SCIENCE ISSUES

1. When we seek to relate science and the Bible, we need to realize that the task which engages us is important but does not have much bearing on the central message of the Christian faith.\* This is so because the "Book of Nature" and the "Book of God" have different themes. Admittedly there will be some overlap of the two books because the Bible presents us with an historic faith - one wedded to space and time. It is in the overlap where one finds the seeds of controversy. Since the essentials of the faith are rarely at stake, Christian brothers and sisters need not feel compelled to agree on every matter that has both biblical and scientific dimensions.
2. However, I do believe that we must agree about what the Bible and science are - specifically that in the Bible we have God's words addressed to humans and in scientific endeavor we have a God-given procedure for learning truths about the material universe. Of course, we realize that the Bible can be wrongly interpreted and scientists can make statements that do not match the material world.
3. The Bible and the material universe stand together as sources of information calling for investigation. Both of them need to be "read" - that is, they need to be deciphered. At the start both appear to be so varied and obscure as to defy immediate understanding, but time and effort combine to bring a measure of clarity to both. Experience has shown that people cannot expect understanding if they come to their subject unprepared. Few would challenge that assertion in regard to science, but it is also true of Bible study. Unless we know well the language our Bible is written in, unless we bring with us extra-biblical facts derived from secular history and geography, unless we are aware that customs vary with cultures, we will not gain a thorough understanding of the Word of God. Yes, the unlearned may understand enough to enter God's Kingdom. In fact, Jesus insisted that all must become as little children to enter the Kingdom of heaven (Matthew 18.3). It does not follow, however, that a grade-school education is sufficient to plumb the depths of God's written revelation.

\* James I. Packer makes this point at the close of his book KNOWING GOD:  
"From current Christian publications you might think that the most vital issue for any real or would-be Christian in the world today is church union or social witness or dialogue with other Christians and other faiths or refuting this or that-ism or developing a Christian philosophy and culture or what have you. But our line of study makes the present-day concentration on these things look like a gigantic conspiracy of misdirection. Of course, it is not that; the issues themselves are real and must be dealt with in their place. But it is tragic that in paying attention to them so many in our day seem to have been distracted from what was, is and always will be the true priority of every human being - that is, learning to know God in Christ. 'Thou hast said "Seek ye my face." My heart says to thee, "Thy face, Lord, do I seek." [Psalm 27.8, RSV]. If this book moves any of its readers to identify more closely with the psalmist at this point, it will not have been written in vain."

4. Christians need to respect scientific endeavor as well as the majority of scientists. Since God made the world and described it as good, studying that world is a worthy activity. History shows that many Christians have made significant contributions. They continue to do so today - although one Christian writer has noted that in the race for Nobel Prizes the score is: Jewish scientists 42 and evangelical Christians zero.
5. Among the scientific community there is a silent majority when it comes to religious faith. These are scientists who go about their business with no thought that their efforts are contributing to the downfall of religion. It is not that they are all religious. In fact, most are probably not, just as most plumbers and most bank tellers are not particularly religious. What is true about them, however, is that they see no obvious inconsistency between seeing how the world works and acknowledging that it was made by a creating God. Contrast such scientists with a vocal minority who effectively use media channels to trumpet the supposed victory of science over religion. Listen to Paul Davies, author of God and the New Physics (1983): "A growing number of people believe that recent advances in fundamental science are more likely to reveal the deeper meaning of existence than (is an) appeal to traditional religion." Such an opinion repeated frequently has an intimidating effect on many Christian people who feel relegated to the role of society's mental incompetents. Fortunately there are those in the science/technology camp who have rostrums from which to expose the nonsense coming from those espousing science as savior. Listen to the words of Samuel Florman, a civil engineer:

"Wherever scientists are searching for the fundamental architecture of the natural world, they are accompanied by a host of camp followers who attempt to define scientific work in terms of frenzied spirituality. This fervor goes beyond the utopian literature of earlier times. The message now is not merely that science and technology will ease our lot and improve the human condition. We are hearing promises about ultimate truth. Admittedly, researchers on many fronts are making fundamental advances.... But while this is exciting science, it is hardly grounds for the quasi-religious rapture that it seems to arouse in publishers and headline-writers.... The essence of science has always been dispassionate analysis. And scientists have always found that each discovery leads, not to a blinding epiphany, but rather to the unfolding of new mysteries.... The human heart does indeed crave to "apprehend the world". But science, for all its marvels, cannot take the place of art, religion and philosophy. Frenetic boosters who do not recognize this truth threaten to damage the very enterprise they claim to serve" (Technology Today, 1990, page 73).
6. It is a fact that scientific advances have paved the way for wonderful technological accomplishments. And because some scientists have heralded those accomplishments as harbingers of a future worldwide utopia, Christians often suppose that the greatest enemies of their faith are scientists. I beg to differ. Without justifying what Carl Sagan and his ilk are foisting on the public, I suggest that there are

more insidious forces at work in other academic disciplines. A college student is more likely to find blatant undermining of Christian faith in social science and humanities courses than in the science classroom. Let us stop making scientists the scapegoats when young Christians lose their faith in college.

- 7 The key element in Christian faith that most infuriates secularists is the Christian commitment to supernaturalism - to the idea that beyond the natural world of the scientist is a divine realm more real than the material. This is God and the abode of God. That conviction, some say, is merely wishful thinking, the product of minds unable to cope with this world's difficulties. Such weaklings, so the explanation goes, invent the word faith as a euphemism for self-delusion. One Christian response is to say that God's grace is sprinkled as the rain - some receive enlightenment and some do not. While that may be true of God's saving grace in Christ, it is not true of his attempts to make his reality known to the human race. The apostle Paul put it this way:

"All that may be known of God by men lies plain before their eyes. Indeed God has disclosed it to them. His invisible attributes - that is to say, his everlasting power and deity - have been visible, ever since the world began, to the eye of reason, in the things he has made" (Romans 1.19-20 NEB).

8. The Christian commitment to supernaturalism can have occasional bad side-effects. The Bible reveals that the supernatural realm is populated by more than the benign forces aligned with God. There also exist, in Paul's words, "spiritual forces of evil in the heavenly realm" (Ephesians 6.12). Consequently, some Christians tend to see all that happens in this world as an extension of a heavenly spiritual battle. Hence, when issues come up that involve the question of scientific truth or error, they abandon the immediate contest by converting it to a good-versus-evil struggle rooted in the supernatural realm. Such an approach may outwardly seem very spiritual, but it is often an abdication of our earthly responsibility to engage the secular culture on its own terms, and let God dictate the ultimate outcome.
9. Another bad side-effect of a supernatural commitment is the tendency to be gullible. Many Christians are quick to believe anyone who claims to have psychic powers. How thankful I am for people like Christian Dan Korem and secularist James Randi who specialize in revealing psychics as con artists. Unfortunately Christian gullibility manifests itself in swallowing a whole host of allegedly paranormal occurrences - so-called mysteries that science has failed to explain. It is as if these mysteries are weapons by which to cut the scientists down to size, taunting them as if to say, "Thought you were so smart, didn't you? But see all the things you can't explain." Even Dr. Hugh Ross, astrophysicist turned Christian apologist, imagines certain UFO's as "rebellious angels, called demons, (which) like to be seen in fascinating forms to draw people's attention away from God and toward the mysterious." Ross adds that such demons "don't show themselves to just anyone... (just to those) who have involved themselves in occult activities." What biblical passages yield such a conclusion he does not

mention. Personally I know of none. And so I would advise Ross to direct his efforts to matters with more substance and less speculation.

## PART II      WHERE CAN CHRISTIANS TURN FOR HELP?

There is an abundance of books and journals which focus on the interface between science and Christian faith. People who wrestle in this area are known as apologists, and their endeavors comprise one facet of Christian apologetics. It is not that they apologize for being Christians, as if to express remorse for something they cannot control. No, to be an apologist is to argue in a rational and systematic way for the truth of the biblical view of life, the world and God's place in the scheme of things. Most apologists work on the premise that refined secular knowledge, when interpreted properly, is a help to faith rather than a hindrance. In support of their position they point to different Bible passages - to the Lord's injunction, "Come, let us reason together" (Isaiah 1:18), to Peter's instruction that Christians should "always be prepared to give an answer" (1 Peter 3:15), and to Jesus' command to love the Lord with all one's being, including the mind (Matthew 22:37).

Not all Christians, however, consider apologetics of high priority. Kierkegaard, for example, was so disgusted with the Christianity of his time - much sterile intellectualizing but almost no spiritual vitality - that he urged people to set aside alleged mental barriers and take a leap of faith. Now a century and a half later the influence of Kierkegaard lives on with many Christian groups who are either suspicious of apologetics or antagonistic to it. This is true in many mainline Protestant denominations. Since their general tendency is to accommodate whatever the contemporary intelligentsia say is true, they tend to compartmentalize the sacred and the secular, stressing their separateness rather than their integration. Of course, exactly the opposite is true of apologists. That is why today Christian apologists are almost exclusively in the conservative, evangelical and fundamentalist churches. At least this is true of the people who form organizations chartered for an apologetics ministry.

Since a listing of apologists would be interminable, let me simply mention a few contemporary people and organizations that give center-stage to science/faith issues:

1. Institute for Creation Research - The ICR was founded by Henry Morris and is based in San Diego, California. It is by far the largest and certainly the most influential group on this list in terms of both acceptance by conservative American Protestants and rejection by the general scientific community. The ICR runs a graduate school, uses the printed word widely, produces films, sponsors debates and offers speakers and seminars to churches throughout the United States and Canada. More about Henry Morris later.

Reasons for Faith - This is the corporate name for a relatively new organization that, while growing, mainly involves the speaking and writing of Dr. Hugh Ross, graduate in astro-physics from the University of Toronto. A post-doctoral appointment brought him to the California Institute of Technology in Pasadena where he continues to live. He stresses the apologetic value of Big Bang cosmology and advocates a universe of great age. Both positions have drawn fire from the ICR, but Dr. James Dobson and the Trinity Broadcasting Network continue to give

Ross a national platform. He maintains a busy speaking schedule throughout the United States and Canada, publishes a quarterly newsletter and has authored the book Fingerprint of God.

3. The Genesis Foundation - Dr. Robert Gange founded this organization and remains its primary agent of apologetic ministry. Its reason for existence is "to show that the Bible is trustworthy from a scientific perspective." Gange is an engineering physicist with twenty-five years of fruitful research at the David Sarnoff Research Center in Princeton, New Jersey. Although he holds many positions in common with Hugh Ross, he has not gained national exposure to a clientele ICR considers its own. Consequently, he has so far drawn little criticism from ICR. Like Ross, Gange speaks widely, issues a newsletter and has authored a book entitled Origins and Density. Subtitled "A scientist examines God's handiwork," the book is said to show that science reveals the Bible to be surprisingly up-to-date. *Destiny*
4. Genesis International Research Association - Founded by a professional geologist named H. Donald Daae, the organization has a more limited goal than that of most apologists. The purpose of GIRA is "to promote the Day-Age concept of creation." To achieve that end, Daae has written a book entitled Bridging the Gap: The First Six Days. A second book soon to be published is The Seventh Day: The History of Early Man. It will broaden the group's scope and touch on archeological evidences suggestive of a human history encompassed within 6000 years. Children's books on science and the Bible are now in the works. Donald Daae speaks in churches, and the group issues a quarterly newsletter. The home office is in Calgary, Alberta, Canada.
5. John Clayton - He has been active much longer than Ross, Gange, and Daae. In addition to holding series of meetings in churches, Clayton offers correspondence courses on Bible/Science issues. Many of his talks are available on videotape. He operates out of South Bend, Indiana.
6. Access Research Network - This organization was founded in the 1970's in Goleta, California, by several recent college graduates with an interest in Bible/Science issues centering on origins. That's why until recently it went by the name of Students for Origins Research. The main outreach has been through quarterly publication of Origins Research. Using a format somewhere between a tabloid newspaper and a scientific journal, the editors of Origins Research serve as gadflies nipping at the mental sloppiness of complacent scientific orthodoxies - whether secular or religious. Colorado Springs is their current base of operations.
7. Films for Christ - This organization has existed over twenty years. Started in the Midwest by Stan Taylor, FFC is currently directed by his widow and son who make Mesa, Arizona, their headquarters. Although the group's statement of faith is silent about Bible/Science commitments, the films they turn out follow closely positions held by the Institute for Creation Research in San Diego. The two organizations often work together. Most FFC films have scientific themes.

8. Probe Ministries - This group has a broad apologetic ministry which includes Science/Bible issues. Based in Dallas, Texas, their staff speak widely - in person and on videotape. Several books bear their imprint.
9. American Scientific Affiliation - The ASA was established as a scientific society rather than an agent of apologetic outreach. Started in 1941, the Affiliation has grown to a membership of about 2500 scientists and engineers. Guided by an elected council of five fellows, an executive director operates out of an office in Ipswich, Massachusetts. There is an editor for the ASA's quarterly journal, Perspectives on Science and the Christian Faith. And a newsletter editor turns out six issues a year. Each August the ASA holds a four-day annual convention, usually on the campus of a Christian college. Affiliation members hold to an evangelical faith, but they have greater tolerance for organic evolution than most conservative Christians. I am an ASA fellow, a former council member and president, and have given papers at four annual conventions.
10. Creation Research Society - This organization parallels the ASA. In fact, it was started by former ASA members who felt that the ASA was allowing "evolution" to be discussed in ways that would make it an acceptable position. The CRS publishes a quarterly journal and holds annual meetings.

The diversity of opinion among those who address science/faith issues is great. Whatever your position on any particular Bible/Science issue, there is likely to be some "expert" out there who will provide you with a supporting rationale. So without mentioning names what I want to do is simply list people who, in my judgment, you should be suspicious of in your search to find answers:

- People who seek to be leaders in Bible/science discussions without having earned formal credentials by the completion of a relevant course of study.
- (2) People who have the answer to every question and admit to no ambiguities in their efforts to build a total world view.
- (3) People who make sweeping derogatory comments about the scientific establishment and its supposed stone-walling of Christian truth. People who propose new scientific ideas but refuse to introduce them into the standard forums of scientific discussion where they can be criticized, refined or rejected.
- People who avoid discussing substantive issues and instead make snide remarks about their opponents, often tarring them with emotion-laden labels such as fundamentalist or evolutionist.
- People who think debates before uninformed audiences are the way to resolve science/faith issues.
- People who do not understand the difference between proving a statement and marshalling arguments in support of a position.
- People who seem to love controversy for controversy's sake - those Charlie Browns who don't much like baseball but surely enjoy the arguing that baseball makes possible.



### PART III     MAJOR ISSUES AT THE BIBLE/SCIENCE INTERFACE

What issues do the various apologists address? Certainly controversial questions of long-standing concern will head the list, but new topics keep coming up - UFO's, for example. I haven't surveyed the Christian public nor do I know of pollsters who have, but from my own experience the following list of questions includes most points of tension between scientific perspectives and biblical concerns:

- How old is the universe, the earth, life on earth, human life? Are the days of Genesis, chapter 1, to be understood as consecutive, 24-hour-long intervals?
2. How did the different parts of the natural world originate - the heavens, the earth, different forms of life? Is there a place for a BIG BANG or evolutionary modes of origin?
3. What do you do when the previous two questions are answered differently by scientists and Bible scholars?
4. When did Noah's flood occur? What visible effects did it leave behind? Did it affect the entire planet or just a local area?
5. How do the dinosaurs fit into the Biblical story?
6. Was there death in the animal kingdom prior to the sin of Adam and Eve?
7. Are humans body only or do they also have an immaterial component (some would call it "soul")?
8. How do miracles stand up to scientific scrutiny?
9. When God interacts with the material world, how does he do it?

I could spend the next two sessions giving you my own answers to these questions. In fact if question #5 were typical of the rest, just a few minutes would suffice for the whole lot. The reason is that my answer to question #5 would simply be: the Bible is silent about dinosaurs. That's six words and perhaps three seconds of speaking time. Of course, you would want to know what lies behind such an answer. Perhaps some of you would counter that "leviathan" is the biblical word equivalent to dinosaur. It's clear, then, that you don't want merely a list of answers. You want the thinking that leads to answers. So in our next session I will be thinking about the proper way to think in addressing Bible/Science issues. The time we take for that will prevent my answering every one of the above questions. Those who want pro and con arguments on a series of similar questions may wish to read The Genesis Debate, edited by Ronald F. Youngblood (Baker Book House, 1990).

## SESSION TWO: A SCIENTIST AND HIS BIBLE

### Introduction

My remarks in this second session are again divided into three parts. First, I want to tell you my idea of what science is. I do this because people's ideas about the nature of science are as likely to cause Bible/Science disagreements as how they handle the Bible. Secondly, I intend to consider in some detail the nature of God's creative activity. Some years ago, a Christian academic from Biola University, Dr. Robert Fischer, wrote a little book entitled God Did It, But How? His title succinctly says that for Christians there never has been any question about God's authorship of the material universe. The debate has always been about the way or ways in which God works. Finally I will describe how the dominant figure of "scientific creationism", Henry Morris, interprets the days of Genesis, chapter one, and how his radical approach has alienated him and his followers from the general scientific community. Such alienation I consider to be both unwise and unnecessary.

### PART I WHAT IS SCIENCE?

To this question "scientific creationists" give an answer different from that of orthodox scientists, among whom I count myself. The "scientific creationists" confine science pretty much to chemistry, physics, physical geology, descriptive astronomy, and the biological fields of anatomy, physiology and genetics. In other words, they refuse to include as science the historical dimensions of biology, geology, and astronomy. As Henry Morris writes: "pre-historical events, by very definition, are beyond reach of the scientific method." (History of Modern Creationism, page 95). By so restricting science and by using the word evolution for all scenarios of pre-historical events, Morris and his followers make it seem that "evolution" is accepted solely by faith. This presumably makes it another religion competing with Christianity on the same epistemologic grounds.

In my opinion, Morris is wrong. If eye-witness evidence does not exist that Joe Doaks murdered Jane Doe, a jury may still find him guilty on the basis of circumstantial evidence - fingerprints, powder burns, a certificate of gun ownership. These are material evidences relevant to a past event not observed by anyone. Just as they are admissible in a court of law, so certain natural artifacts extracted from the material world are credible witnesses to past events. Admittedly the pre-historic past is sometimes not easy to decipher, and so progress in understanding it may be slow. But anyone who takes the time to study what has been accomplished in figuring out pre-history will see that it is not merely a house of cards.

Then what is science? Nobelist Peter Medawar writes: "Science is used as a general name for, on the one hand, the procedures of science (adventures of thought and stratagems of inquiry) that go into the advancement of learning and, on the other hand, the substantive body of knowledge that is the outcome of this complex endeavor." He adds that "science is organized knowledge" (The Limits of Science, page 3). And I would add that it is knowledge about the material world that is gained by purposefully directing the physical senses toward that world with the intent of learning its structure, function and history. So science is both a method of discovery and a compendium of what has been discovered by applying that method. Let us first look at the method.

Figure 1 is a diagram entitled "How Science Works." It begins with the transmission of factual sensory information into human minds. Sometimes that transmission is incidental to day-to-day living, stoking the memory furnace without evoking comprehensive schemes of explanation. To some extent all of us human beings are daily engaged in filling our mental storehouses with disorganized minutia. What distinguishes scientists, however, is that a portion of their time involves active rather than passive data collection coupled with intentional reflection on the larger meaning of the data. The initial step in getting that larger meaning is to construct a hypothesis - a tentative conception of how a part of the material world functions or how it is structured or what history it went through. Among physicists, the hypothesis may be framed in mathematical terms.

While the move from data to hypothesis is called inductive logic, there is no formalized procedure by which the transition is made. Hypotheses can originate after intense periods of concentration on a problem, or they can suddenly spring out of minds involved in the routine of life. However they originate, hypotheses are the first step toward understanding the world - but by no means the last. Hypotheses are calls to action; they invite the thinking of people who say, "Alright, suppose the world really does resemble the picture painted by your hypothesis. Such a picture must also include other parts beyond the facts that gave rise to the hypothesis. So this must be true and that must be true... and that... and that. Are they true?" People who think this way are engaged in deductive logic.

Now the action turns to hypothesis-testing. As Peter Medawar wrote, "Most of the day-to-day business of science consists in trying to find if your imagined world is anything like the real one. If it is not, we have to think again." So each hypothesis starts scientists to searching for the many "facts" it predicts. If those "facts" are seen to be facts, the hypothesis is strengthened. Let me add that it is not proved, for scientists don't prove anything. They marshal evidence to build cases. Only geometers talk of proof, that condition of certitude that we associate with deduction from axioms and postulates. All scientists can do is support hypotheses with repeated successful tests. Since it would take an infinity of testing to produce absolute certainty, scientists must be content with levels of probability below 100%.

In the history of science, it is fair to say that most hypotheses die young. Their deaths, however, are often not in vain, for the testing process, though fatal for the hypothesis, often reveals additional information about the world and thus puts useful constraints on future hypothesis-makers. When they eventually come up with a hypothesis that handles all the challenges thrown at it, the word theory enters to reflect that fact. Scientists as a group then begin to see the world routinely through the eyes of that theory.

So science is method, but it is also content. In fact, that's what typical science textbooks and journals are mostly about. When students take science tests, they are generally asked to draw from their reservoirs of scientific knowledge. Those with correct answers may not have the slightest clue as to how the wheels of scientific method turned in order to bring a particular theory to eminence. For them it may be sufficient, for example, to know that seafloor spreads from a mid-ocean ridge and electrons orbit an atomic nucleus.

The content of science is obviously diverse because the world is so multifaceted. As a result, science has been broken up into different categories depending on what part of the world is the focus of study. Figure 2 outlines the different scientific disciplines. In the middle column are listed different parts of the material world which the different sciences focus on. On either side are names of scientific disciplines - on the left side those fields which

concentrate on the way things are today and on the right side those areas where historical development is central. It is fair to say that those scientific disciplines most often seen to threaten the Christian faith are those in the right column. This is not surprising because the Bible is a book about origins and history. Not many Christians claim to see in the Bible certain modern ideas about how the world is structured and how it functions.

## PART II

### THE NATURE OF GOD'S CREATIVE ACTIVITY

What a wonder is a newborn baby! "A creation of God," says the believer. But how did God make that baby? Did he snap his fingers or wave his arms or shout, "Appear!"? We know that he did none of those things. Instead, he created a world with seemingly self-acting processes. When one such process runs its course, the result is a baby. The process takes a short enough time that we can monitor it at different stages. At conception the template is put in place and then biochemical activity ensues for a nine-month period to turn a microscopic zygote into an eight-pound baby.

Of course there are other processes in the material world which happen quickly enough for us to watch them occur. Air masses interact and bring us needed rainfall... or perhaps so much rain that river valleys are flooded. Lava works its way up under the island of Hawaii and then bursts out to fill Kilauea Iki caldera with a new 300-foot thickness of hardened rock. Houses built on a seacliff in order to bring a beautiful view into the living room are tumbled into the ocean when a severe winter storm takes big bites out of the cliff face. With time, shiny iron nails rust and polished marble headstones become rough and illegible. Where does God fit in all of these changes? Is it accurate to say that God brought the rain or the lava? Did he gnaw at the seacliff or spoil the iron and marble?

For atheists the answer is simple: God plays no part in natural processes because there is no God. Many admit that they simply don't know; we call them agnostics. Then there are the theists who have constructed two levels of causation; they say that while God is the primary cause in the sense that he set the natural world going, there is secondary or natural causation in the observable processes described above. It is these secondary causes that science deals with.

Although I am a theist holding to two-tier causation, I am aware that my rationale has two weaknesses. On the one hand, it tends to distance God from his created world, since explanations are routinely given in natural terms. Such distancing is the last thing Christians need when they are struggling to live God-honoring lives. Here is where sound doctrine regarding the person of God and the Holy Spirit comes to the rescue. On the other hand, two-tier causation moves God closer to the world by placing ultimate responsibility on his shoulders for the indiscriminate destruction resulting from natural catastrophes such as floods, earthquakes and volcanic eruptions. Struggling with this latter problem has a long history in the Christian church. It is the problem of theodicy, attempting to vindicate the justice of a god who permits evil and suffering to exist in the world he created.

Now I am not about to enter the treacherous waters of theodicy.\* To do so would sidetrack me from my immediate purpose, which is to consider God's

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\* A recent book, Naming the Silences (by Stanley Hauerwas), is an excellent source for anyone wishing to read more about theodicy.

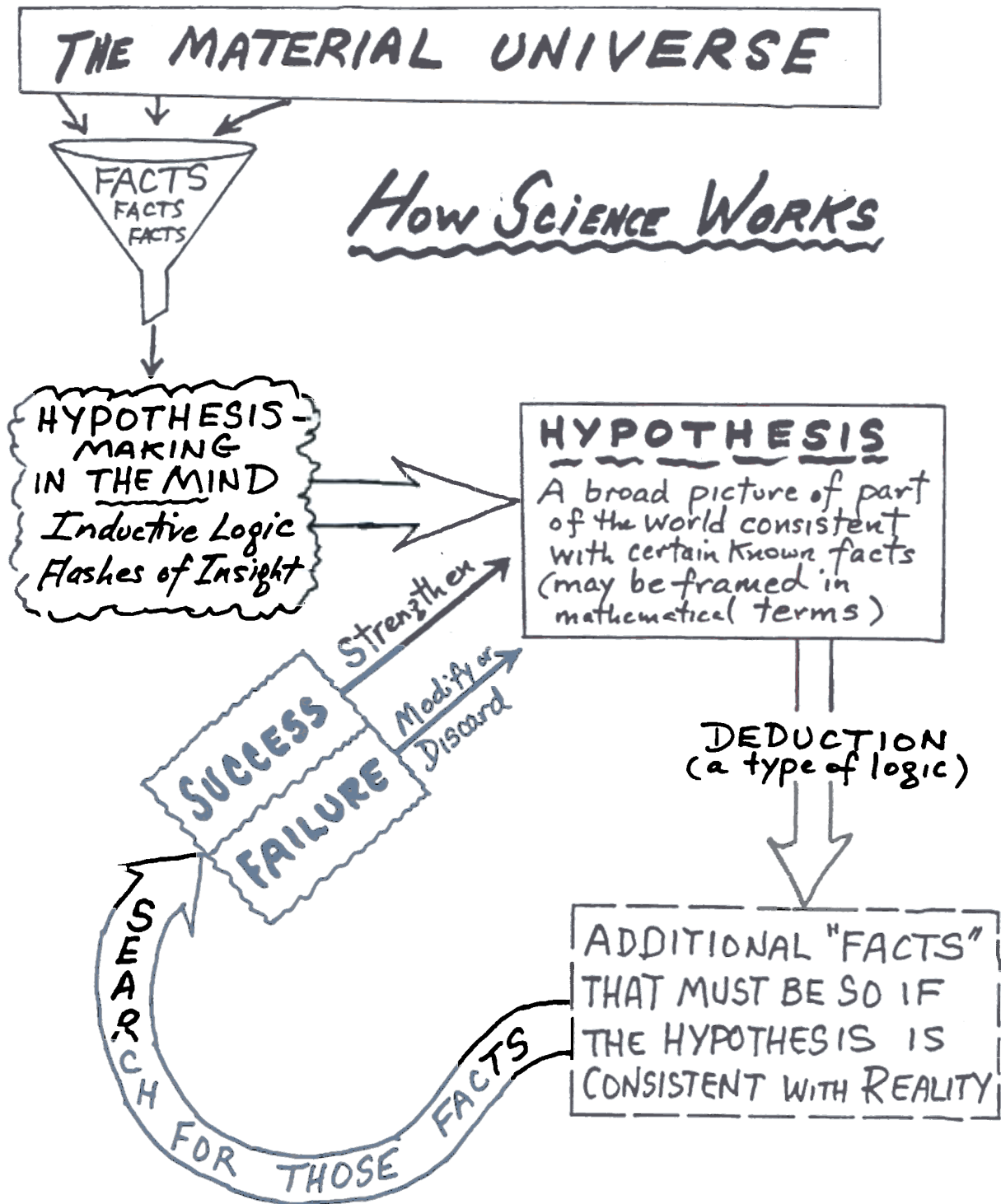
relationship to the world in his role as creator. So let me return to that newborn baby which we saw entering the world after a nine-month process. That new creature which developed in a now well-understood gestation process causes us to think more broadly and to ask: Could it be that certain other components of our diverse universe also originated by natural processes? The answer is obviously yes. Plant and animal hybrids abound, thanks to agricultural experimenters around the world. In nature we see the birth of new volcanic mountains over a span of a few years. Stretch the time to a thousand years and we see the stranding of seaports by delta growth and the retreat of seacliffs over hundreds of feet. Could it be that if we lived longer or looked closer we would become aware that more and more features of today's world can be explained as the end-products of natural processes proceeding so slowly that they go unrecognized by the average person? Of course, the end of such thinking is to say that all we see in the natural world came about by natural processes - some fast in terms of a human life, some barely perceptible and others so slow as to be recognized rationally rather than through personal experience. Are there reasons to avoid extending this line of thinking to encompass everything in the natural world?

I believe there are reasons to stop short of an all-encompassing, process-centered scenario of origins. However, I do not think there is anything inherent in two-level causation which would stop us. After all, natural processes are God's processes; so there is no reason why he should not get the credit when babies enter the world or volcanic mountains build up. No, I think that what will stop a Christian thinker are explicit Biblical statements which unequivocally declare that origin by process is not the way it happened in certain cases. Furthermore, I believe that all thinkers, not just Christians, should be stopped from espousing origin by natural process if the empirical evidence is overwhelmingly against the continuity demanded by natural process. Later I will be more specific about the biblical and scientific constraints that I see standing in the way of a completely developmental model for origins.

So far I have used the words process, development, change but not the word evolution. I have done so deliberately because the word evolution is an incendiary term among many Christian people. Its meaning of developmental process is masked by a tendency to associate evolution with evil and godlessness. However, a look at the dictionary reveals that evolution means "a process of opening out what is contained in something." Obviously such a definition of evolution encompasses the process of human gestation. That which is contained in the zygote with its DNA template is opened out as a baby over a nine-month period. In other words, junior is evolving in mother's womb.

Now I know it is not customary to describe fetal development as evolution. Yet if we did, we might bring some light to current discussions of the so-called creation-evolution debate. I wish Christians thought more about the true nature of the debate. They need to stop making quick judgments about who are in the evolution camp - they're the bad guys - and who are in the creation camp - they're the good guys. If babies are the products of nine-months of evolution and if God is responsible for the origin of babies, then it is not an oxymoron to speak of God-honoring evolution. But, you say, the creation-evolution debate is not about babies. True, but it is about development as a mode of divine creation. The real question is: What has God brought into being by a process of continuous development and what has he brought into being by other means? Most Christians suppose those other means to involve a sudden act of God - a speaking of a word, the snapping of a finger, the wave of an arm. In the history of Christian theology it has most commonly been called the doctrine of fiat or special creation - God spoke and it was instantaneously so. There is

FIGURE 1





**THE NATURAL SCIENCES** .. focus on the material world with two main goals:

1. There is concern with how things are today – their **STRUCTURE & FUNCTION**.
2. And there is concern with how they have changed over time and what notable events have marked their **HISTORY**.

Names of scientific disciplines that focus on the way things are today	What material realms these disciplines are concerned with	Corresponding disciplines that are concerned with the historical dimension
BIOLOGY/BIOGEOGRAPHY	LIFE – animal, plant, micro	PALEONTOLOGY (fossil chronology) PALEOBIOGEOGRAPHY (fossil locations)
ANTHROPOLOGY	HUMAN LIFE – physique, culture	PALEOANTHROPOLOGY (fossil man), ARCHEOLOGY (human history)
ASTRONOMY/ASTROPHYSICS	THE COSMOS – planets, stars, nebulae and their aggregates such as stellar systems, star clusters, galaxies, galaxy clusters, the UNIVERSE	COSMOGONY and COSMOLOGY (origin and development of the universe)
GEOLOGY	THE EARTH – rocks and their structures, hydrologic and plate tectonic systems	HISTORICAL GEOLOGY (origin and development of the earth)
PHYSICS and CHEMISTRY	MATTER and ENERGY IN GENERAL – properties, micro-structures and compositional changes	PALEOBIOCHEMISTRY (origin of life), “BIG BANG” PHYSICS (quantum cosmology and nucleosynthesis)

figure 2

discontinuity, not the continuity of evolution. There is supernatural activity, not natural process. The problem for us Christians is to discern what it is that originates by a process of natural development and what does not. It is God at work in either case. In our quest we will look for help not only from our Bible but from the efforts of scientists who normally understand the world in terms of natural processes. If those scientists may err on the side of ruling out supernatural input, we Christians may err by failing to see how much God has brought into being through continuous development,

Today's debate over origins is commonly framed as a contest between creation and evolution. In the minds of many - both creationists and evolutionists - the issue is made to revolve around the question: Do you or do you not believe in God? I hope I have shown that belief in God, while playing a role, is not central to the matter of developmental processes, otherwise known as evolution.

Furthermore, today's discussions are often kept vague by a failure to pinpoint the context of evolution - that is, to say what component of the natural world is to be considered. Is it earthly life? If so, the discussion concerns organic or biological evolution. Or is attention to be directed to the earth with its varied topography, diverse rocks and different crustal structures? Here the topic will be geological evolution. If stars are the focus, we debate stellar evolution; if we give our attention to the human species, we are tackling the question of human evolution. Once focused, we proceed to the question; to what extent is a given component of today's material world the result of a developmental process and in what measure should we invoke an ad hoc supernatural insertion of creative activity? A recent book by a Christian author answers that last question in the following way:

"The fundamental idea in the creationist tradition is that the entire universe is subject to a single code of law which was established along with the universe at the beginning of time. The origin of the universe is beyond human understanding, depending as it does on the wisdom and will of God, but its subsequent operation can be understood due to the fact that human reason is in some way a reflection or image of that same lawfulness or reason that governs the world." (Christopher B. Kaiser in Creation and the History of Science)

In other words, Kaiser is saying that there was one supernatural act in the beginning when God made a functioning world out of nothing. All subsequent change proceeded and continues to proceed according to natural processes.

Is Kaiser's view your view? It is not my view, and it is certainly not the view of Henry Morris, Duane Gish and all the other members of the Institute for Creation Research. Now I want to turn my attention to Morris' view, which will lead us to a watershed issue - how are the days of Genesis, chapter 1, to be interpreted?

### PART III      HENRY MORRIS AND THE DAYS OF GENESIS, CHAPTER ONE

The pivotal figure of the modern movement called "scientific creationism" is Henry Morris, former professor of hydraulic engineering and longtime president of the Institute for Creation Research in San Diego. How Morris thinks about Bible/Science issues is well communicated in those autobiographical sections of his book History of Modern Creationism. Here are some relevant excerpts:



"After arriving at Rice (University where I did my undergraduate study), I soon realized my need of answers in the science and apologetic areas and began to read everything I could find that seemed relevant.... Practically all of even the creationist books seemed to accept the geologic-age system, and it seemed clear even then that the gap theory and day/age theory - not even to mention the local flood theory - involved a very strange and forced type of Biblical exegesis which one would never use elsewhere in the Bible. Finally, to try to settle this question in my own mind, I resolved to embark on a verse-by-verse search through all the Bible, listing and categorizing every passage that bore on creation, the flood, science, nature, and other relevant topics.... I no longer believed there was any substance whatever to evolution.... But there was still the problem of the age of the earth and the geological column. If this could be settled anywhere, it would have to be in Scripture (pre-historical events, by very definition, are beyond reach of the scientific method, as such, a fact which many evolutionists find hard to comprehend).... Surely God has the answer in His Word, and that, of course, is exactly what my verse-by-verse study confirmed! The Bible could hardly be more explicit on this point. Everything was created and made in the six natural days of the creation week, several thousand years ago. There may be some uncertainty in the precise date.... But there is no legitimate way the Bible can be made to yield anywhere near an age of a million years ago, say for the date of creation. Neither the gap theory, nor the day/age theory, nor the allegorical theory, nor the revelation-day theory, or any other theory that tries to accommodate the evolutionary ages of geology will satisfy the straightforward teaching of the Bible on this vital subject..... This conviction henceforth became the basic premise of my own creationist studies and has continued so ever since" (pages 94-97).

Morris continued his education at the University of Minnesota where he did graduate work in hydraulic engineering, the study of water and its effects in nature. He chose this field "because of its importance in the study of the Deluge" (the flood of Noah's day). During this time he learned about a scientific organization of supposedly Bible-believing Christians, the American Scientific Affiliation. He joined the ASA in 1948 and soon saw himself as "the Affiliation's chief gadfly." By correspondence, he pointed out that

"the ASA had completely ignored the flood geology position, whereas many very competent Christian scientists had argued with some cogency that it was a better geological model than uniformitarianism, as well as the only valid Biblical model." (page 137)

After finishing his Ph.D. degree at Minnesota, he was finally able to attend an ASA annual convention and carry on a face-to-face engagement. That was 1953.

"I prepared a paper entitled "Biblical Evidence for a Recent Creation and Universal Deluge" to present at the meeting, hoping this would be the opportunity finally to reverse the trend toward evolution in the ASA. Since all members professed to believe the Bible, I thought, if they could only be led to see that the Bible really taught these two basic doctrines (as I had discovered by myself a decade earlier), then surely they would choose to believe the Bible instead of modern scientism.... There was intense interest and much discussion, both during the meeting and afterward. No one even attempted to answer or refute the Biblical

arguments, which is what the paper was all about, but there were all kinds of equivocations to the effect that scientific evidence precludes belief in literal creation and flood geology, and that there have been many good people who believe Scripture can be adapted to whatever scientists dictate on these matters." (page 140)

One of the few positive responses Morris got at the 1953 ASA meeting was from Dr. John C. Whitcomb, Jr., a theology professor at Grace Theological Seminary in Indiana. Two months after hearing the paper of Morris, Whitcomb wrote him:

"I greatly appreciated your paper on a Recent Creation and Universal Deluge which you read at the A.S.A. convention. I feel that your conclusions are scripturally valid, and therefore must be sustained by a fair examination of geologic evidence in time to come. My only regret is that so few trained Christian men of science are willing to let God's Word have the final say on these questions" (page 147).

This letter from Whitcomb "began a long corresponding friendship which ultimately culminated in our co-authoring The Genesis Flood" (page 147). That book kicked off the modern "scientific creationist" movement and became its "Magna Carta".

Let me summarize. Over 40 years ago Henry Morris read the Bible and became convinced that it teaches "recent creation" and a "universal deluge". By "recent creation" he means that the universe was made by God some time between 6000 and 10,000 years ago. Since no one disputes that the geologic rock record is huge, Morris reasoned that to make it all in 10,000 years must have required violent geological processes not seen in today's world. In his search for a past catastrophe to make rocks in a hurry, Morris settled on the flood of Noah - what he calls a "universal deluge", meaning that it covered the entire planet. Thus, he is an adherent of a view called "flood geology". While the idea was not original with him, he is its greatest exponent today.

Morris' position stands in stark contrast to that of today's community of geologists. In their eyes the slow geologic processes we now observe can adequately account for the extensive rock record. This is the uniformitarian principle which Morris considers totally unacceptable. That's because slow processes require much time, if they are to make the great volume of rocks now visible. In other words, uniformitarianism requires the earth to be very old. Radiometric dating of rocks confirms great age - specifically, four billion years for the oldest rocks so far dated. *indicate*

Time does not permit me to provide fully convincing geologic evidence for the earth's great age. That is what is so sad about short Bible/Science series such as this. The audience can never become scientifically grounded, and so they must adopt a position based on which authority they consider most trustworthy. Nonetheless, you should know that 200 years ago when geology was in its infancy, almost everyone in the Western world - both scholars and ordinary folks - believed the earth to be only a few thousand years old. Their sole source of information concerning earth age was a literal reading of Genesis. As the years went by, more and more facts about the earth were discovered, and greater effort was given to making sense out of those facts. A young earth could not survive this onslaught of evidence. It was so overwhelming that even conservative Christians made peace with an old earth by finding ways to integrate it into the Biblical text.

But then Henry Morris came on the scene. What an influential man, how capable, how untiring a worker! He won other competent people to his position, and together they have cut a wide swath in America's conservative Christian

community. They have become the voice of science for millions of American Christians - for Bible school faculty and students, for home-schoolers, for many pastors and congregations outside the mainline denominations. This stream of influence comes through books, pamphlets, films, lay seminars, radio programs, field trips, public debates, conferences, an Institute for Creation Research and a Creation Research Society. No channel seems to have been overlooked in the effort to promote what they call "scientific creationism". I stand in awe of what Morris and company have accomplished.

At the same time I am saddened, for success among Christians has been bought with a high price - estrangement from the scientific community. If Morris and his band are right, orthodox geology is a sham, astronomers with their distances in millions of light-years are talking nonsense and the science of paleontology, which traces past life by sequencing fossils, spins webs without substance. By interpreting the days of Genesis as he does, Morris is saying, in effect, that the sciences of geology, astronomy and paleontology are all built on sand. Has the centuries-long development of these scientific specialties led to such insubstantial conclusions that one man's supposedly insightful interpretation of the Bible can blow them away like feathers in a fan? Most people find such a possibility unlikely and some even suggest it smacks of arrogance. I think it is zeal to do God's will that motivates Morris and those of like mind. They know well that the Scriptures alert us to the ongoing spiritual battle, and so they see nothing inappropriate in painting the scientific establishment as an enemy of God. People such as Carl Sagan only strengthen their opinion. Yet remember what got us going on this track - it was the days of Genesis, chapter one. How are we to interpret them? I ask why the great body of scientific evidence supporting the earth's great age should not be taken into account when interpreting Genesis? If we happily bring all sorts of extra-biblical knowledge to the task of Bible interpretation, why exclude firm scientific conclusions? Isn't the main point of the first chapter of Genesis what the apostle John said more concisely - "Through him all things were made; without him nothing was made that has been made" (John 1:3). Every interpretation of the days of Genesis that I know of upholds the world's origin by the hand of God. Christians don't feel a need to ask who made the universe; but they do wonder how it all came about. I and many other Christians would like the earth to have a say regarding its origin.

Thus, I conclude that the universe made by God testifies to its great age and is telling us that a literal interpretation of the days of Genesis is incorrect. Secondly, I conclude that Morris' twin ideas of "recent creation" and "universal deluge" are wrong and that their aggressive propagation in the Christian community is a disservice to the cause of truth - both spiritual and secular.

After my criticism of Morris, it is incumbent upon me to provide specific ideas on how I relate biblical and scientific perspectives. That I will do in the final session.

### SESSION THREE: A SCIENTIST AND HIS BIBLE

#### Introduction

In this last session I will first look at the biblical genesis as recorded in the first chapter of Genesis. That will be followed by what I call "the scientist's book of genesis." By that I mean a sequence of historical stages which began with nothingness and ends at the universe of today. Finally I will address a key presupposition of life - the matter of committing to theism or atheism. This will bring me back to some thoughts resembling those which began this series.

#### PART I. THE BIBLICAL GENESIS (chapter one)

##### A. SPECIFICALLY MENTIONED COMPONENTS OF THE NATURAL WORLD

A reading of the first chapter of the book of Genesis will reveal the following chronology:

DAY 1 The heavens and the earth [Note: verse one is probably a summary statement equivalent to "God created the entire material universe." Verse 2, in referring to the earth as "formless, empty and dark", suggests that the initially created universe was in an undeveloped condition - this is how the New English Bible translates Genesis 1.1-2].

Light (which when combined with darkness makes for day and night)

DAY 2 Separation of waters to produce sky (or heaven) [Note: does separation of waters mean the origin of clouds and oceans?]

DAY 3 Land appear within the ocean, then vegetation on the land.

DAY 4 Lights appear in the sky - specifically, sun, moon and stars

DAY 5 Aquatic life (including great sea-monsters) and birds

DAY 6 Livestock, reptiles, wild animals: human beings

What is missing in this account? People throughout the ages would join in answering "lots of things". But the fact that many things go unmentioned is not surprising for a number of reasons. First, a welter of details would obscure what is foundational. Secondly, we can't expect a writer living several thousand years ago to include things unknown to the people of his day. In fact, we might suspect a hoax if the account spoke of micro-organisms, galaxies and radioactivity. Finally, the inclusion of problematic things and phenomena would sidetrack the author's purposes. Imagine the fruitless discussions provoked by inclusion of fossils, meteorites, glaciers and solar eclipses.

B. How are We to Interpret the Genesis Account?

The three possibilities I propose are: literally, sequentially and metaphorically. If one interprets the account literally, as Henry Morris and his followers do, the days of creation are 24 hours long and they follow each other continuously. The result is a universe no more than a few thousand years old. Other interpreters take a sequential approach, not requiring the days to be 24 hours long but insisting that the components making up the universe originated exactly in the order given. The last possibility, the metaphorical approach, sees the author's purpose as merely to communicate the universality of God's creative handiwork and not to provide details that model a scientific description.

The last interpretive scheme is the one I follow. To me the account is intended to reveal at least four highlights:

- (1) God is the maker of all.
- (2) The universe has developed over time.
- (3) An organized inanimate world had first to be made before life could appear.
- (4) Human beings are the most recent creation of God and are special in his sight.

If I were to delete from this list any mention of God and human uniqueness, most scientists would likely agree with the remainder. Admittedly that guts the account of its theistic core, and so I am not suggesting that God and human uniqueness are optional elements. My point is that the remaining elements, rather than flying in the face of scientific thinking, are perfectly consistent with it. As for the first point - God as Creator - it is something to be embraced by faith. That, says the writer of Hebrews (verse 11.3), is how "we understand that the universe was formed at God's command, so that what is seen was not made out of what was visible." As for the primacy of human life in the mind of God, only special revelation can communicate that fact. It is a fact which the incarnation of God as a man emphatically confirms. Jesus said, "I have come to give my life a ransom for many." He meant human beings, not dogs or chimpanzees.

C Closing Comments on the Biblical Genesis

How high-minded it sounds to say that we understand Genesis correctly only when we have set aside all worldly ideas which may contaminate our understanding. In this view we need only come submissively to the text and be spoken to by God. Unfortunately this idea is simply inconsistent with reality. The very use of language makes this view untenable, for we all gain our knowledge of words by living in a communicating society. Words cannot help but be freighted with denotations and connotations which often change with time. For example, has the word earth always been associated with the third planet out from the sun? Has it always been equated with a ball 8000 miles in diameter? Of course not. In a text written before people knew about earth's true physical character the word earth must be read in a different light. Only after having been intellectually tough-minded in our search for the meaning of the Biblical text are we ready to be submissive to the Word of God.

We have seen, then, that the language used at any time is a reflection of the common knowledge of people living at that time and is influenced by the world view predominating in that culture. It is certainly true of you and me who live

today; we cannot avoid bringing our prejudices to the reading of any text. When the text is ancient and comes out of a very different culture, our problem of understanding what we read is magnified. Add in the fact that the ancient text was likely written in a different language, and you can see we face significant obstacles. These are especially important when we are dealing with scientific matters, because scientific vocabulary is full of words taken from common parlance and given special meanings.

Realizing what confronts us, we need to curb our dogmatic tendencies and seek help in our study of God's Word. I suggest that when it is the nature and origin of the created world which concerns us, we allow that world to speak. In other words, science can be a useful tool, for it reads the Book of Nature. And two books are better than one when it comes to understanding the created world. Do some read the Book of Nature in a way that leads them to scoff at the Book of God? Of course! But we Christians hurt ourselves if we respond by cutting ourselves off from what the natural world has to teach us.

## PART II. THE SCIENTIST'S BOOK OF GENESIS

The accompanying block diagram (Figure 3) outlines a chronology of universe history that most of today's scientists adhere to. It has eight process arrows connecting nine intermediate stages for the universe or parts of it. Along the left edge is a time-line which gives a rough but reasonable chronology of stages and events, assuming current scientific estimates are correct. Notice that the time-line is definitely not to scale.

For scientists committed to a full-blown naturalism, the entire developmental sequence proceeds in a continuous chain in which every link is a scientifically lawful step involving secular cause-and-effect. Adherents to this view include people such as Carl Sagan and Stephen Hawking. In his introduction to Hawking's book A Brief History of Time, Sagan writes: "Hawking is attempting... to understand the mind of God. And this makes all the more unexpected the conclusion of his effort, at least so far. (His conclusion is that there is) a universe with no edge in space, no beginning or end in time and nothing for a Creator to do."

Probably a majority of scientists are not willing to go to the extreme of Sagan and Hawking. It is not that they are all committed theists. Rather they at least stumble over regarding the transition from nothing to something as merely a normal scientific process no more out of the ordinary than the decay of a radioactive atom. Perhaps their reluctance will break down with time as Frank Wilcyk's statement is constantly repeated, "The reason there is something instead of nothing is that 'nothing' is unstable." For the present, however, there are few people, scientists included, who do not see a supernatural contribution somewhere along the sequence of events shown in the attached block diagram. Some will see a special act of God only in the process that originated the material universe. Others may propose one or more additional processes as falling outside the bounds of naturalism. At the extreme end of this group are the "scientific creationists" who consider the diagrammed scenario to be almost a total fiction. God, they believe, has told a different story of origins in the Bible; and it is to that story they intend to hold.

My own position is no doubt influenced by my theistic conviction, a belief that was embraced long before I had much formal scientific knowledge and even before my Christian conversion at age 25. I happen to have a high regard for the Christian Scriptures which I unhesitatingly call the Word of God. At the same time I read those Scriptures differently from the way "scientific creationists" do, and that explains why I have a lot of respect for the scientist's "Book of Genesis."

First of all, I have no problem with the diagrammed sequence of universe development nor of the timing. That is because I do not feel constrained in my

estimates of duration and sequence by the Genesis One account. What mainly constrains me is scientific evidence. At the present time I am unpersuaded that processes #1, 6 and 8 are plausible on scientific grounds. Specifically, the creation of matter from nothing, the origin of terrestrial life and the origin of human life are all events for which I see a need for a supernatural input that is different from the sustaining power of God which is ever active in undergirding material reality.

What about transition #7, which is actually double-barreled, since it includes both biological evolution and geological evolution? In the case of the latter, I have no problems with naturalistic cause-and-effect as the acceptable originating principle to explain the inanimate earth. For biological evolution, however, I have some reservations. Much of the evidence for biological evolution stems from the commonality of structure and function in today's biota. The argument that similarity in structure and function reflects common ancestry is, in my judgment, a potent one. Yet if biological evolution is truly a historical process, it needs historical support - that is, it needs documentation in the fossil record. Charles Darwin himself was aware of this fact and aware, as well, that the continuity of fossil sequences which he believed would seal his case was absent. He wrote that the fossil record "does not yield the infinitely many fine gradations between past and present species required on the theory." Why was this so? In Darwin's view it was because "the crust of the earth with its imbedded remains must not be looked at as a well-filled museum but as a poor collection made at hazard and at rare intervals." Now after 130 years we find that what was true of the fossil record in Darwin's time has changed little in its broad outline; the record is loaded with discontinuities, yet continuity is what naturalistic change requires.

How these discontinuities are handled in the context of evolutionary theory is an interesting study of human thinking in areas where the disputants see themselves arguing over ultimate issues. Since naturalists cannot countenance historical discontinuities, they offer multitudes of reasons why the fossil record is incomplete, and they stress those cases where a measure of fossil continuity is well documented. In their minds, gaps are necessarily appearances rather than reality. On the other hand, gaps to some creationists are occasions for special divine activity. They seem consistent with the account in Genesis where God instructs the various forms of life he has just created to reproduce "each according to its kind." Thus, the transition of certain types of life to other types, as visualized in biological evolution, is said to be forbidden.

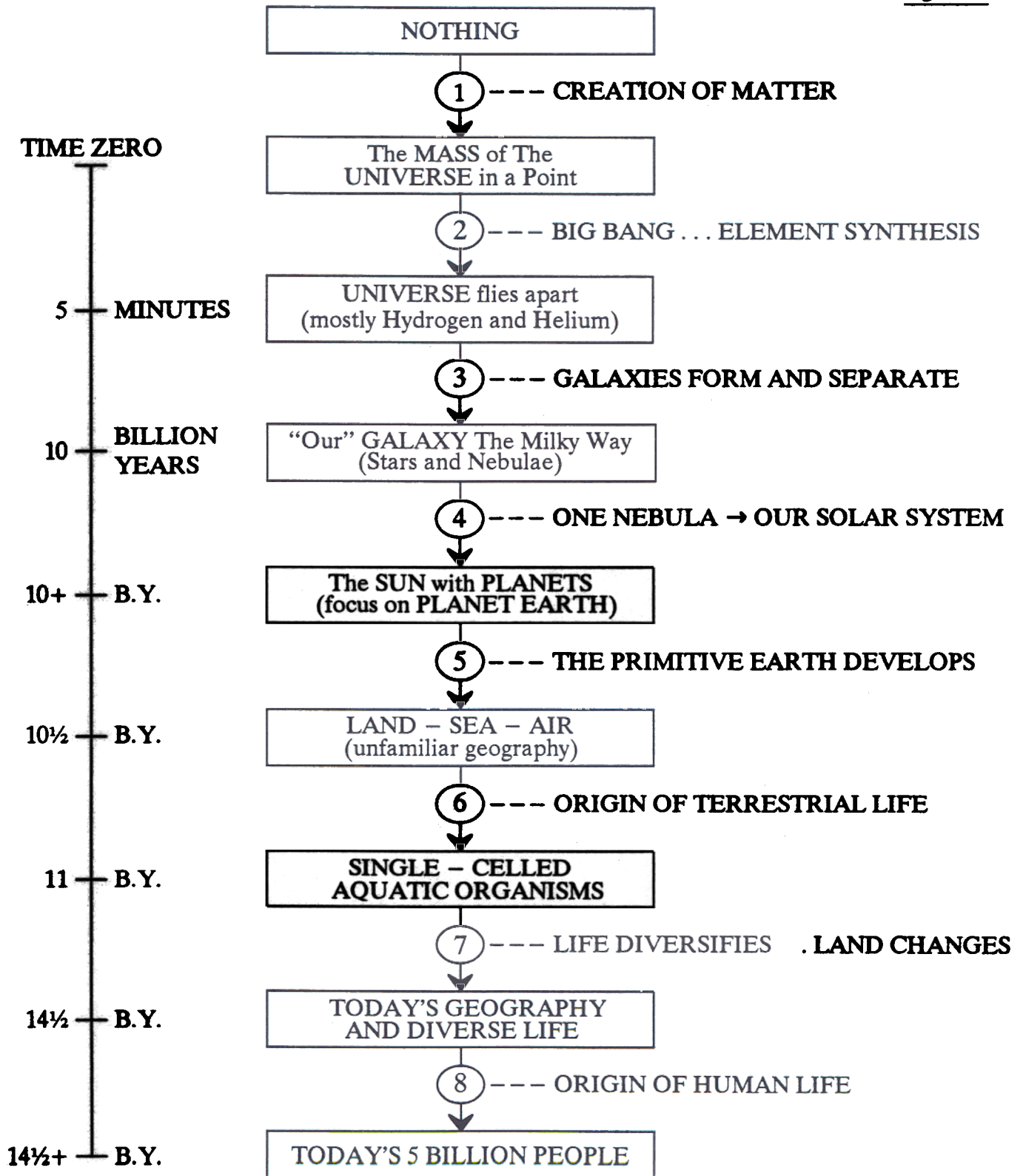
Where do I stand in all of this? First of all, I am impressed by the evidence that organisms have a certain amount of genetic malleability. What humans do in breeding plants and animals and what nature has done in the Galapagos Islands with finches and tortoises are evidence that biological changes can occur in a naturalistic way. The real question, of course, is how much change can occur - that is, how malleable are life forms? My personal judgment is that organisms are not infinitely malleable and that macroevolutionary continuity from amoeba to man is more fancy than reality. Whether or not I am correct in this conclusion, I think it is clear that the history of life on earth is filled with mysteries that ought to squelch dogmatism.

In the meantime, there are issues closer to home that need attention, personal issues that transcend the history of the universe. Of supreme importance are sin and death. The Christian faith is centered on these and on the Son of God - Jesus the Messiah - who came to cancel sin and give eternal life. We may haggle over how exactly God's world reached its present status, but there is no argument how he redeemed it for eternity - through Jesus Christ our Lord.



# THE SCIENTIST'S BOOK OF GENESIS

figure 3





### PART III     CONCLUSION

Do many people beginning a study of the origin of our universe or of any one of its components come to their task without already having decided for or against God? I think not. So if atheists have missed seeing God in the concrete world around them, they certainly will not gain their sight from an abstract search for worlds faraway in space and time. On the other hand, committed theists who pursue a study of the history and origin of life or of humans or of the earth or of the universe are unlikely to turn away from God because of what they learn about the world.

The fact is that the reality or unreality of a creating God is a presupposition often adopted early in life. People then carry it with them to be applied as circumstances dictate. For atheists this means that no occasion will ever arise when they suggest God as explaining anything. Dr. Stanley Miller, pioneer in origin-of-life studies, was asked whether he ever entertained the possibility that the genesis of life was a miracle not reproducible by mere humans. Not at all, Miller replied. "I think we just haven't learned the right tricks yet. When we find the answer, it will probably be so simple that we'll all say, 'Why didn't I think of that before?'" (Scientific American, Feb. '91, page 125). For example, a gap in the fossil-based record of past life will always be interpreted as missing evidence, either never preserved or destroyed by erosion or to be discovered in the future. To theists, however, gaps may be seen in a different way, appearing to be true interruptions in the continuous cause-and-effect chain of natural processes and thus likely places for God's special creative activity to have occurred. So both theists and atheists have a problem. With theists, it is having to back-pedal when evidential gaps are filled with new empirical data. For atheists it is to miss an awareness of God's special creative activity when overwhelmingly documented natural discontinuities demand explanations that transcend science.

Which is the worse problem? From a worldly perspective, the more onerous burden would seem to be on theists because they seem to be resisting the spectacular progress of science which rests on the assumption of naturalistic cause-and-effect continuity. However, if ultimacy does not reside with the material world but with God, then the theist's problem is a trivial one. What good will it be for a man if he gains full scientific knowledge of the world yet forfeits his soul?

This is not to say that the Christian theist, saved by the grace of God (as revealed in a book and not in nature), is thereby authorized to practice the indiscriminate insertion of God's special creative activity whenever the mood strikes. No, God has ordained a world that, by and large, works according to naturalistic cause-and-effect. We theists need to be very cautious about calling for a special zap from God every time we get into an explanatory jam. We need to let the world God made call its own shots. At the same time we should not capitulate to a universal naturalism that bridges gaps even Superman would refuse to leap. Finding a middle course that respects both scientific knowledge and a providential God is an intellectual challenge, one which will always be with us.