

CREATION

(Chapter 15 in Wayne Grudem's Systematic Theology)

Why, how, and when did God create the universe?

EXPLANATION AND SCRIPTURAL BASIS

How did God create the world? Did he create every different kind of plant and animal directly, or did he use some kind of evolutionary process, guiding the development of living things from the simplest to the most complex? And how quickly did God bring about creation? Was it all completed within six twenty-four-hour days, or did he use thousands or perhaps millions of years? How old is the earth, and how old is the human race?

These questions face us when we deal with the doctrine of creation. Unlike most of the earlier material in this book, this chapter treats several questions on which evangelical Christians have differing viewpoints, sometimes very strongly held ones.

This chapter is organized to move from those aspects of creation that are most clearly taught in Scripture, and on which almost all evangelicals would agree (creation out of nothing, special creation of Adam and Eve, and the goodness of the universe), to other aspects of creation about which evangelicals have had disagreements (whether God used a process of evolution to bring about much of creation, and how old the earth and the human race are).

We may define the doctrine of creation as follows: God created the entire universe out of nothing; it was originally very good; and he created it to glorify himself.

A. God Created the Universe Out of Nothing

1. Biblical Evidence for Creation Out of Nothing. The Bible clearly requires us to believe that God created the universe out of nothing. (Sometimes the Latin phrase *ex nihilo* "out of nothing" is used; it is then said that the Bible teaches creation *ex nihilo*.) This means that before God began to create the universe, nothing else existed except God himself.

This is the implication of Gen 1:1, which says, "In the beginning God created the heavens and the earth." The phrase "the heavens and the earth" includes the entire universe. Ps 33 also tells us, "By the word of the LORD the heavens were made, and all their host by the breath of his mouth....For he spoke, and it came to be; he commanded, and it stood forth" (Ps 33:6,9). In the New Testament, we find a universal statement at the beginning of John's gospel: "All things were made through him, and without him was not anything made that was made" (John 1:3). The phrase "all things" is best taken to refer to the entire universe (cf. Acts 17:24; Heb 11:3). Paul is quite explicit in Col 1 when he specifies all the parts of the universe, both visible and invisible things: "For in him all things were created, in heaven and on earth, visible and invisible whether thrones or dominions or principalities or authorities—all things were created through him and for him" (Col 1:16). The song of the twenty-four elders in heaven likewise affirms this truth:

"You are worthy, our Lord and God, to receive glory and honor and power, for you created all things and by your will they existed and were created." (Rev 4:11)

In the last phrase God's will is said to be the reason why things even "existed" at all and why they "were created."

That God created both the heavens and the earth and everything in them is affirmed several other times in the New Testament. For instance, Acts 4:24 speaks of God as the "Sovereign Lord, who made the heaven and the earth and the sea and everything in them." One of the first ways of identifying God is to say that he is the one who created all things. Barnabas and Paul explain to the pagan audience at Lystra that they are messengers of "a living God who made the heaven and the earth and the sea and all that is in them" (Acts 14:15). Similarly, when Paul is speaking to pagan Greek philosophers in Athens, he identifies the true God as "The God who made the world and everything in it" and says that this God "gives to all men life and breath and everything" (Acts 17:24-25; cf. Isa 45:18; Rev 10:6).

Heb 11:3 says, "By faith we understand that the worlds were prepared by the word of God, so that what is seen was not made out of things which are visible" (NASB). This translation (as well as the NIV) most accurately reflects the Greek text. Though the text does not quite teach the doctrine of creation out of nothing, it comes close to doing so, since it says that God did not create the universe out of anything that is visible. The somewhat strange idea that the universe might have been created out of something that was invisible is probably not in the author's mind. He is contradicting the idea of creation out of previously existing matter, and for that purpose the verse is quite clear.

Rom 4:17 also implies that God created out of nothing, even if it does not exactly state it. The Greek text literally speaks of God as one who "calls things not existing as existing." The RSV translation, "calls into existence the things that do not exist" (similarly NASB) is unusual but possible grammatically, and it makes an explicit affirmation of creation out of nothing. Yet even if we translate it so that the Greek word takes its common sense "as," the verse says that God "calls the things which do not exist as existing" (NASB mg.). But if God speaks to or calls something that does not exist, as if in fact it did exist, then what is implied? If he calls things that do not exist as though they existed, it must mean that they will soon exist, irresistibly called into existence.

Because God created the entire universe out of nothing there is no matter in the universe that is eternal. All that we see—the mountains, the oceans, the stars, the earth itself—all came into existence when God created them. There was a time when they did not exist:

"Before the mountains were brought forth, or ever you had formed the earth and the world, from everlasting to everlasting you are God." (Ps 90:2)

This reminds us that God rules over all the universe and that nothing in creation is to be worshiped instead of God or in addition to him. However, were we to deny creation out of nothing, we would have to say that some matter has always existed and that it is eternal like God. This idea would challenge God's independence, his sovereignty, and the fact that worship is due to him alone: if matter existed apart from God, then what inherent right would God have to rule over it and use it for his glory? And what confidence could we have

that every aspect of the universe will ultimately fulfill God's purposes, if some parts of it were not created by him?

The positive side of the fact that God created the universe out of nothing is that it has meaning and a purpose. God, in his wisdom, created it for something. We should try to understand that purpose and use creation in ways that fit that purpose, namely, to bring glory to God himself. Moreover, whenever the creation brings us joy (cf. 1 Tim 6:17), we should give thanks to the God who made it all.

2. The Creation of the Spiritual Universe. This creation of the entire universe includes the creation of an unseen, spiritual realm of existence: God created the angels and other kinds of heavenly beings as well as animals and man. He also created heaven as a place where his presence is especially evident. The creation of the spiritual realm is certainly implied in all the verses above that speak of God creating not only the earth but also "heaven and what is in it" (Rev 10:6; cf. Acts 4:24), but it is also explicitly affirmed in a number of other verses. The prayer of Ezra says very clearly: "You are the LORD, you alone; you have made heaven, the heaven of heavens, with all their host, the earth and all that is on it, the seas and all that is in them; and you preserve all of them; and the host of heaven worships you" (Neh 9:6). The "host of heaven" in this verse seems to refer to the angels and other heavenly creatures, since Ezra says that they engage in the activity of worshipping God (the same term host is used to speak of angels who worship God in Ps 103:21 and 148:2).

In the New Testament, Paul specifies that in Christ "all things were created, in heaven and on earth, visible and invisible whether thrones or dominions or principalities or authorities—all things were created through him and for him" (Col 1:16; cf. Ps 148:2-5). Here the creation of invisible heavenly beings is also explicitly affirmed.

3. The Direct Creation of Adam and Eve. The Bible also teaches that God created Adam and Eve in a special, personal way. "The LORD God formed man of dust from the ground, and breathed into his nostrils the breath of life; and man became a living being" (Gen 2:7). After that, God created Eve from Adam's body: "So the LORD God caused a deep sleep to fall upon the man, and while he slept took one of his ribs and closed up its place with flesh; and the rib which the LORD God had taken from the man he made into a woman and brought her to the man" (Gen 2:21-22). God apparently let Adam know something of what had happened, for Adam said,

"This at last is bone of my bones and flesh of my flesh; she shall be called Woman, because she was taken out of Man." (Gen 2:23)

As we shall see below, Christians differ on the extent to which evolutionary developments may have occurred after creation, perhaps (according to some) leading to the development of more and more complex organisms. While there are sincerely held differences on that question among some Christians with respect to the plant and animal kingdoms, these texts are so explicit that it would be very difficult for someone to hold to the complete truthfulness of Scripture and still hold that human beings are the result of a long evolutionary process. This is because when Scripture says that the Lord "formed man of dust from the ground" (Gen 2:7), it does not seem possible to understand that to mean that he did it over a process that took millions of years and employed the random development

of thousands of increasingly complex organisms. Even more impossible to reconcile with an evolutionary view is the fact that this narrative clearly portrays Eve as having no female parent: she was created directly from Adam's rib while Adam slept (Gen 2:21). But on a purely evolutionary view, this would not be possible, for even the very first female "human being" would have been descended from some nearly human creature that was still an animal. The New Testament reaffirms the historicity of this special creation of Eve from Adam when Paul says, "For man was not made from woman, but woman from man. Neither was man created for woman, but woman for man" (1 Cor 11:8-9).

The special creation of Adam and Eve shows that, though we may be like animals in many respects in our physical bodies, nonetheless we are very different from animals. We are created "in God's image," the pinnacle of God's creation, more like God than any other creature, appointed to rule over the rest of creation. Even the brevity of the Genesis account of creation places a wonderful emphasis on the importance of man in distinction from the rest of the universe. It thus resists modern tendencies to see man as meaningless against the immensity of the universe. Derek Kidner notes that Scripture stands against every tendency to empty human history of meaning....in presenting the tremendous acts of creation as a mere curtain-raiser to the drama that slowly unfolds throughout the length of the Bible. The prologue is over in a page; there are a thousand to follow.

By contrast, Kidner notes that the modern scientific account of the universe, true though it may be, overwhelms us with statistics that reduce our apparent significance to a vanishing-point. Not the prologue, but the human story itself, is now the single page in a thousand, and the whole terrestrial volume is lost among uncataloged millions.

Scripture gives us the perspective on human significance that God intends us to have. (This fact will be discussed in more detail in chapter 21, below.)

4. The Creation of Time. One other aspect of God's creation is the creation of time (the succession of moments one after another). This idea was discussed with respect to God's attribute of eternity in chapter 11, and we need only summarize it here. When we speak of God's existence "before" the creation of the world, we should not think of God as existing in an unending extension of time. Rather, God's eternity means that he has a different kind of existence, an existence without the passage of time, a kind of existence that is difficult for us even to imagine. (See Job 36:26; Ps 90:2,4; John 8:58; 2 Peter 3:8; Rev 1:8). The fact that God created time reminds us of his lordship over it and our obligation to use it for his glory.

5. The Work of the Son and of the Holy Spirit in Creation. God the Father was the primary agent in initiating the act of creation. But the Son and the Holy Spirit were also active. The Son is often described as the one "through" whom creation came about. "All things were made through him, and without him was not anything made that was made" (John 1:3). Paul says there is "one Lord, Jesus Christ, through whom are all things and through whom we exist" (1 Cor 8:6), and, "all things were created through him and for him" (Col 1:16). We read also that the Son is the one "through whom" God "created the world" (Heb 1:2). These passages give a consistent picture of the Son as the active agent carrying out the plans and directions of the Father.

The Holy Spirit was also at work in creation. He is generally pictured as completing, filling, and giving life to God's creation. In Gen 1:2, "the Spirit of God was moving over the face of the waters," indicating a preserving, sustaining, governing function. Job says, "The spirit of God has made me, and the breath of the Almighty gives me life" (Job 33:4). In a number of Old Testament passages, it is important to realize that the same Hebrew word (*rûach*) can mean, in different contexts, "spirit," or "breath," or "wind." But in many cases there is not much difference in meaning, for even if one decided to translate some phrases as the "breath of God" or even the "wind of God," it would still seem to be a figurative way of referring to the activity of the Holy Spirit in creation. So the psalmist, in speaking of the great variety of creatures on the earth and in the sea, says, "When you send forth your Spirit, they are created" (Ps 104:30; note also, on the Holy Spirit's work, Job 26:13; Isa 40:13; 1 Cor 2:10). However, the testimony of Scripture to the specific activity of the Holy Spirit in creation is scarce. The work of the Holy Spirit is brought into much greater prominence in connection with the inspiring of the authors of Scripture and the applying of Christ's redemptive work to the people of God.

B. Creation Is Distinct From God Yet Always Dependent on God

The teaching of Scripture about the relationship between God and creation is unique among the religions of the world. The Bible teaches that God is distinct from his creation. He is not part of it, for he has made it and rules over it. The term often used to say that God is much greater than creation is the word transcendent. Very simply, this means that God is far "above" the creation in the sense that he is greater than the creation and he is independent of it.

God is also very much involved in creation, for it is continually dependent on him for its existence and its functioning. The technical term used to speak of God's involvement in creation is the word immanent meaning "remaining in" creation. The God of the Bible is no abstract deity removed from, and uninterested in his creation. The Bible is the story of God's involvement with his creation, and particularly the people in it. Job affirms that even the animals and plants depend on God: "In his hand is the life of every living thing and the breath of all mankind" (Job 12:10). In the New Testament, Paul affirms that God "gives to all men life and breath and everything" and that "in him we live and move and have our being" (Acts 17:25,28). Indeed, in Christ "all things hold together" (Col 1:17), and he is continually "upholding the universe by his word of power" (Heb 1:3). God's transcendence and immanence are both affirmed in a single verse when Paul speaks of "one God and Father of us all, who is above all and through all and in all" (Eph 4:6).

The fact that creation is distinct from God yet always dependent on God, that God is far above creation yet always involved in it (in brief, that God is both transcendent and immanent).

This is clearly distinct from materialism which is the most common philosophy of unbelievers today, and which denies the existence of God altogether. Materialism would say that the material universe is all there is.

Christians today who focus almost the entire effort of their lives on earning more money and acquiring more possessions become "practical" materialists in their activity, since their lives would be not much different if they did not believe in God at all.

The scriptural account of God's relation to his creation is also distinct from pantheism. The Greek word "pan" means "all" or "every," and pantheism is the idea that everything, the whole universe, is God, or is part of God.

Pantheism denies several essential aspects of God's character. If the whole universe is God, then God has no distinct personality. God is no longer unchanging, because as the universe changes, God also changes. Moreover, God is no longer holy, because the evil in the universe is also part of God. Another difficulty is that ultimately most pantheistic systems (such as Buddhism and many other eastern religions) end up denying the importance of individual human personalities: since everything is God, the goal of an individual should be to blend in with the universe and become more and more united with it, thus losing his or her individual distinctiveness. If God himself (or itself) has no distinct personal identity separate from the universe, then we should certainly not strive to have one either. Thus, pantheism destroys not only the personal identity of God, but also, ultimately, of human beings as well.

Any philosophy that sees creation as an "emanation" out of God (that is, something that comes out of God but is still part of God and not distinct from him) would be similar to pantheism in most or all of the ways in which aspects of God's character are denied.

The biblical account also rules out dualism. This is the idea that both God and the material universe have eternally existed side by side. Thus, there are two ultimate forces in the universe, God and matter.

The problem with dualism is that it indicates an eternal conflict between God and the evil aspects of the material universe. Will God ultimately triumph over evil in the universe? We cannot be sure, because both God and evil have apparently always existed side by side. This philosophy would deny both God's ultimate lordship over creation and also that creation came about because of God's will, that it is to be used solely for his purposes, and that it is to glorify him. This viewpoint would also deny that all of the universe was created inherently good (Gen 1:31) and would encourage people to view material reality as somewhat evil in itself, in contrast with a genuine biblical account of a creation that God made to be good and that he rules over for his purposes.

One recent example of dualism in modern culture is the series of Star Wars movies, which postulate the existence of a universal "Force" that has both a good and an evil side. There is no concept of one holy and transcendent God who rules over all and will certainly triumph over all. When non-Christians today begin to be aware of a spiritual aspect to the universe, they often become dualists, merely acknowledging that there are good and evil aspects to the supernatural or spiritual world. Most "New Age" religion is dualistic. Of course, Satan is delighted to have people think that there is an evil force in the universe that is perhaps equal to God himself.

The Christian view of creation is also distinct from the viewpoint of deism . Deism is the view that God is not now directly involved in the creation.

Deism generally holds that God created the universe and is far greater than the universe (God is "transcendent"). Some deists also agree that God has moral standards and will ultimately hold people accountable on a day of judgment. But they deny God's present involvement in the world, thus leaving no place for his immanence in the created order. Rather, God is viewed as a divine clock maker who wound up the "clock" of creation at the beginning but then left it to run on its own.

While deism does affirm God's transcendence in some ways, it denies almost the entire history of the Bible, which is the history of God's active involvement in the world. Many "lukewarm" or nominal Christians today are, in effect, practical deists, since they live lives almost totally devoid of genuine prayer, worship, fear of God, or moment-by-moment trust in God to care for needs that arise.

C. God Created the Universe to Show His Glory

It is clear that God created his people for his own glory, for he speaks of his sons and daughters as those "whom I created for my glory whom I formed and made" (Isa 43:7). But it is not only human beings that God created for this purpose. The entire creation is intended to show God's glory. Even the inanimate creation, the stars and sun and moon and sky, testify to God's greatness, "The heavens are telling the glory of God; and the firmament proclaims his handiwork. Day to day pours forth speech, and night to night declares knowledge" (Ps 19:1-2). The song of heavenly worship in Rev 4 connects God's creation of all things with the fact that he is worthy to receive glory from them:

"You are worthy, our Lord and God, to receive glory and honor and power, for you have created all things, and by your will they existed and were created." (Rev 4:11)

What does creation show about God? Primarily it shows his great power and wisdom, far above anything that could be imagined by any creature. "It is he who made the earth by his power, who established the world by his wisdom, and by his understanding stretched out the heavens" (Jer 10:12). In contrast to ignorant men and the "worthless" idols they make, Jeremiah says, "Not like these is he who is the portion of Jacob, for he is the one who formed all things...the LORD of hosts is his name" (Jer 10:16). One glance at the sun or the stars convinces us of God's infinite power. And even a brief inspection of any leaf on a tree, or of the wonder of the human hand, or of any one living cell, convinces us of God's great wisdom. Who could make all of this? Who could make it out of nothing? Who could sustain it day after day for endless years? Such infinite power, such intricate skill, is completely beyond our comprehension. When we meditate on it, we give glory to God.

When we affirm that God created the universe to show his glory, it is important that we realize that he did not need to create it. We should not think that God needed more glory than he had within the Trinity for all eternity, or that he was somehow incomplete without the glory that he would receive from the created universe. This would be to deny God's independence and imply that God needed the universe in order to be fully God. Rather, we must affirm that the creation of the universe was a totally free act of God. It was not a

necessary act but something that God chose to do. "You created all things, and by your will they existed and were created" (Rev 4:11). God desired to create the universe to demonstrate his excellence. The creation shows his great wisdom and power, and ultimately it shows all of his other attributes as well. It seems that God created the universe, then, to take delight in his creation, for as creation shows forth various aspects of God's character, to that extent he takes delight in it.

This explains why we take spontaneous delight in all sorts of creative activities ourselves. People with artistic or musical or literary skills enjoy creating things and seeing, hearing, or pondering their creative work. God has so made us to enjoy imitating, in a creaturely way, his creative activity. And one of the amazing aspects of humanity—in distinction from the rest of creation—is our ability to create new things. This also explains why we take delight in other kinds of "creative" activity: many people enjoy cooking, or decorating their home, or working with wood or other materials, or producing scientific inventions, or devising new solutions to problems in industrial production. Even children enjoy coloring pictures or building houses out of blocks. In all of these activities we reflect in small measure the creative activity of God, and we should delight in it and thank him for it.

D. The Universe God Created Was "Very Good"

This point follows from the previous point. If God created the universe to show his glory, then we would expect that the universe would fulfill the purpose for which he created it. In fact, when God finished his work of creation, he did take delight in it. At the end of each stage of creation God saw that what he had done was "good" (Gen 1:4,10,12,18,21,25). Then at the end of the six days of creation, "God saw everything that he had made, and behold, it was very good" (Gen 1:31). God delighted in the creation that he had made, just as he had purposed to do.

Even though there is now sin in the world, the material creation is still good in God's sight and should be seen as "good" by us as well. This knowledge will free of us from a false asceticism that sees the use and enjoyment of the material creation as wrong. Paul says that those who "forbid marriage," and "enjoin abstinence from foods which God created to be received with thanksgiving by those who believe and know the truth" (1 Tim 4:1-3) are giving heed to "doctrines of demons." The apostle takes such a firm line because he understands that "everything created by God is good, and nothing is to be rejected if it is received with thanksgiving; for then it is consecrated by the word of God and prayer" (1 Tim 4:4-5). Paul's mention of "the word of God" that consecrates or "sanctifies" the foods and other things we enjoy in the material creation is probably a reference to the blessing of God spoken in Gen 1:31, "It was very good."

Though the created order can be used in sinful or selfish ways and can turn our affections away from God, nonetheless we must not let the danger of the abuse of God's creation keep us from a positive, thankful, joyful use of it for our own enjoyment and for the good of his kingdom. Shortly after Paul has warned against the desire to be rich and the "love of money" (1 Tim 6:9-10), he affirms that it is God himself "who richly furnishes us with everything to enjoy" (1 Tim 6:17). This fact gives warrant for Christians to encourage proper industrial and technological development (together with care for the environment),

and joyful and thankful use of all the products of the abundant earth that God has created—both by ourselves and by those with whom we are to share generously of our possessions (note 1 Tim 6:18). Yet in all of this we are to remember that material possessions are only temporary, not eternal. We are to set our hopes on God (see Ps 62:10; 1 Tim 6:17) and on receiving a kingdom that cannot be shaken (Col 3:1-4; Heb 12:28; 1 Peter 1:4).

E. The Relationship Between Scripture and the Findings of Modern Science

At various times in history, Christians have found themselves dissenting from the accepted findings of contemporary science. In the vast majority of cases, sincere Christian faith and strong trust in the Bible have led scientists to the discovery of new facts about God's universe, and these discoveries have changed scientific opinion for all of subsequent history. The lives of Isaac Newton, Galileo Galilei, Johannes Kepler, Blaise Pascal, Robert Boyle, Michael Faraday, James Clerk Maxwell, and many others are examples of this.

On the other hand, there have been times when accepted scientific opinion has been in conflict with people's understanding of what the Bible said. For example, when the Italian astronomer Galileo (1564 AD - 1642 AD) began to teach that the earth was not the center of the universe but that the earth and other planets revolved around the sun (thus following the theories of the Polish astronomer Copernicus [1472 AD - 1543 AD]), he was criticized, and eventually his writings were condemned by the Roman Catholic Church. This was because many people thought that the Bible taught that the sun revolved about the earth. In fact, the Bible does not teach that at all, but it was Copernican astronomy that made people look again at Scripture to see if it really taught what they thought it taught. In fact, descriptions of the sun rising and setting (Eccl 1:5; et al.) merely portray events as they appear from the perspective of the human observer, and, from that perspective, they give an accurate description. But they imply nothing about the relative motion of the earth and the sun, and nowhere does the Bible explain what makes the sun go "down" in the viewpoint of a human observer. Scripture says nothing at all about whether the earth or the sun or some other body is the "center" of the universe or the solar system—that is not a question Scripture addresses. Yet the lesson of Galileo, who was forced to recant his teachings and who had to live under house arrest for the last few years of his life, should remind us that careful observation of the natural world can cause us to go back to Scripture and reexamine whether Scripture actually teaches what we think it teaches. Sometimes, on closer examination of the text, we may find that our previous interpretations were incorrect.

Scientific investigation has helped Christians reevaluate what earlier generations thought about the age of the earth, for example, so that no evangelical scholar today would hold that the world was created in 4004 BC. Yet that date was once widely believed to be the date of the creation because of the writings of Irish Archbishop James Ussher (1581-1656), one of the great scholars of his day, who carefully added together the dates in the genealogies of the Bible to find when Adam was created. Today it is widely acknowledged that the Bible does not tell us the precise date of the creation of the earth or of the human race (see below).

On the other hand, many people in the Christian community have steadfastly refused to agree with the dominant opinion of scientists today regarding evolution. On this matter,

thousands of Christians have examined Scripture again and again in great detail, and many have concluded that Scripture is not silent on the process by which living organisms came into being. Moreover, careful observation of the facts of the created universe has produced widespread disagreement regarding theories of evolution (both from scientists who are Christians and from a number of non-Christian scientists as well). So on both biblical and scientific grounds, theories of evolution have been challenged by Christians.

We should also remember that the question of the creation of the universe is unlike many other scientific questions because creation is not something that can be repeated in a laboratory experiment, nor were there any human observers of it. Therefore pronouncements by scientists about creation and the early history of the earth are at best educated speculation. If we are convinced, however, that the only observer of these events (God himself) has told us about them in the reliable words of the Bible, then we should pay careful attention to the biblical account.

In the following section, we have listed some principles by which the relationship between creation and the findings of modern science can be approached.

1. When All the Facts Are Rightly Understood, There Will Be "No Final Conflict" Between Scripture and Natural Science. The phrase "no final conflict" is taken from a very helpful book by Francis Schaeffer, *No Final Conflict*. Regarding questions about the creation of the universe, Schaeffer lists several areas where, in his judgment, there is room for disagreement among Christians who believe in the total truthfulness of Scripture:

1. There is a possibility that God created a "grown-up" universe.
2. There is a possibility of a break between Gen 1:1 and 1:2 or between 1:2 and 1:3.
3. There is a possibility of a long day in Gen 1.
4. There is a possibility that the flood affected the geological data.
5. The use of the word "kinds" in Gen 1 may be quite broad.
6. There is a possibility of the death of animals before the fall.
7. Where the Hebrew word b^1r^1o , is not used there is the possibility of sequence from previously existing things.

Schaeffer makes clear that he is not saying that any of those positions is his own; only that they are theoretically possible. Schaeffer's major point is that in both our understanding of the natural world and our understanding of Scripture, our knowledge is not perfect. But we can approach both scientific and biblical study with the confidence that when all the facts are correctly understood, and when we have understood Scripture rightly, our findings will never be in conflict with each other: there will be "no final conflict." This is because God, who speaks in Scripture, knows all facts, and he has not spoken in a way that would contradict any true fact in the universe.

This is a very helpful perspective with which the Christian should begin any study of creation and modern science. We should not fear to investigate scientifically the facts of the created world but should do so eagerly and with complete honesty, confident that when facts are rightly understood, they will always turn out to be consistent with God's inerrant words in Scripture. Similarly, we should approach the study of Scripture eagerly and with confidence that, when rightly understood, Scripture will never contradict facts in the natural world.

Someone may object that this whole discussion is inappropriate, for the Bible is given to us to teach religious and ethical matters; it is not intended to teach "science." However, as we noted in chapter 5 above, Scripture itself places no such restriction on the subjects to which it can speak. Although the Bible is of course not a "textbook" of science in a formal sense, it does nonetheless contain many affirmations about the natural world—its origin, its purposes, its ultimate destiny—and many statements about how it functions from day to day. If we take seriously the idea that it is God himself (as well as the human authors) who speaks all the words of Scripture, then we must take these statements seriously and believe them as well. Indeed, Scripture says that our understanding of some "scientific" facts is a matter of our faith! Heb 11:3 tells us, "By faith we understand that the worlds were prepared by the word of God, so that what is seen was not made out of things which are visible" (NASB).

2. Some Theories About Creation Seem Clearly Inconsistent With the Teachings of Scripture. In this section we will examine three types of explanation of the origin of the universe that seem clearly inconsistent with Scripture.

a. Secular Theories: For the sake of completeness we mention here only briefly that any purely secular theories of the origin of the universe would be unacceptable for those who believe in Scripture. A "secular" theory is any theory of the origin of the universe that does not see an infinite-personal God as responsible for creating the universe by intelligent design. Thus, the "big bang" theory (in a secular form in which God is excluded), or any theories that hold that matter has always existed, would be inconsistent with the teaching of Scripture that God created the universe out of nothing, and that he did so for his own glory. (When Darwinian evolution is thought of in a totally materialistic sense, as it most often is, it would belong in this category also.)

b. Theistic Evolution: Ever since the publication of Charles Darwin's book *Origin of Species by Means of Natural Selection* (1859), some Christians have proposed that living organisms came about by the process of evolution that Darwin proposed, but that God guided that process so that the result was just what he wanted it to be. This view is called theistic evolution because it advocates belief in God (it is "theistic") and in evolution too. Many who hold to theistic evolution would propose that God intervened in the process at some crucial points, usually (1) the creation of matter at the beginning, (2) the creation of the simplest life form, and (3) the creation of man. But, with the possible exception of those points of intervention, theistic evolutionists hold that evolution proceeded in the ways now discovered by natural scientists, and that it was the process that God decided to use in allowing all of the other forms of life on earth to develop. They believe that the random mutation of living things led to the evolution of higher life forms through the fact that those that had an

"adaptive advantage" (a mutation that allowed them to be better fitted to survive in their environment) lived when others did not.

Theistic evolutionists are quite prepared to change their views of the way evolution came about, because, according to their standpoint, the Bible does not specify how it happened. It is therefore up to us to discover this through ordinary scientific investigation. They would argue that as we learn more and more about the way in which evolution came about, we are simply learning more and more about the process that God used to bring about the development of life forms.

The objections to theistic evolution are as follows:

1. The clear teaching of Scripture that there is purposefulness in God's work of creation seems incompatible with the randomness demanded by evolutionary theory. When Scripture reports that God said, "Let the earth bring forth living creatures according to their kinds: cattle and creeping things and beasts of the earth according to their kinds" (Gen 1:24), it pictures God as doing things intentionally and with a purpose for each thing he does. But this is the opposite of allowing mutations to proceed entirely randomly with no purpose for the millions of mutations that would have to come about, under evolutionary theory, before a new species could emerge.

The fundamental difference between a biblical view of creation and theistic evolution lies here: the driving force that brings about change and the development of new species in all evolutionary schemes is randomness. Without the random mutation of organisms you do not have evolution in the modern scientific sense at all. Random mutation is the underlying force that brings about eventual development from the simplest to the most complex life forms. But the driving force in the development of new organisms according to Scripture is God's intelligent design. God created "the great creatures of the sea and every living and moving thing with which the water teems, according to their kinds, and every winged bird according to its kind" (Gen 1:21 NIV). "God made the wild animals according to their kinds, the livestock according to their kinds, and all the creatures that move along the ground according to their kinds. And God saw that it was good" (Gen 1:25 NIV). These statements seem inconsistent with the idea of God creating or directing or observing millions of random mutations, none of which were "very good" in the way he intended, none of which really were the kinds of plants or animals he wanted to have on the earth. Instead of the straightforward biblical account of God's creation, the theistic evolution view has to understand events to have occurred something like this:

And God said, "Let the earth bring forth living creatures according to their kinds." And after three hundred eighty-seven million four hundred ninety-two thousand eight hundred seventy-one attempts, God finally made a mouse that worked.

That may seem a strange explanation, but it is precisely what the theistic evolutionist must postulate for each of the hundreds of thousands of different kinds of plants and animals on the earth: they all developed through a process of random mutation over millions of years, gradually increasing in complexity as occasional mutations turned out to be advantageous to the creature.

A theistic evolutionist may object that God intervened in the process and guided it at many points in the direction he wanted it to go. But once this is allowed then there is purpose and intelligent design in the process—we no longer have evolution at all, because there is no longer random mutation (at the points of divine interaction). No secular evolutionist would accept such intervention by an intelligent, purposeful Creator. But once a Christian agrees to some active, purposeful design by God, then there is no longer any need for randomness or any development emerging from random mutation. Thus we may as well have God immediately creating each distinct creature without thousands of attempts that fail.

2. Scripture pictures God's creative word as bringing immediate response. When the Bible talks about God's creative word it emphasizes the power of his word and its ability to accomplish his purpose.

By the word of the LORD the heavens were made, and all their host by the breath of his mouth....For he spoke, and it came to be; he commanded, and it stood forth. (Ps 33:6,9)

This kind of statement seems incompatible with the idea that God spoke and after millions of years and millions of random mutations in living things his power brought about the result that he had called for. Rather, as soon as God says, "Let the earth put forth vegetation," the very next sentence tells us, "And it was so" (Gen 1:11).

3. When Scripture tells us that God made plants and animals to reproduce "according to their kinds" (Gen 1:11,24), it suggests that God created many different types of plants and animals and that, though there would be some differentiation among them (note many different sizes, races, and personal characteristics among human beings!), nonetheless there would be some narrow limits to the kind of change that could come about through genetic mutations.

4. God's present active role in creating or forming every living thing that now comes into being is hard to reconcile with the distant "hands off" kind of oversight of evolution that is proposed by theistic evolution. David is able to confess, "You formed my inward parts, you knit me together in my mother's womb" (Ps 139:13). And God said to Moses, "Who has made man's mouth? Who makes him dumb, or deaf, or seeing, or blind? Is it not I, the LORD?" (Ex 4:11). God makes the grass grow (Ps 104:14; Matt 6:30) and feeds the birds (Matt 6:26) and the other creatures of the forest (Ps 104:21,27-30). If God is so involved in causing the growth and development of every step of every living thing even now, does it seem consistent with Scripture to say that these life forms were originally brought about by an evolutionary process directed by random mutation rather than by God's direct, purposeful creation, and that only after they had been created did he begin his active involvement in directing them each moment?

5. The special creation of Adam, and Eve from him, is a strong reason to break with theistic evolution. Those theistic evolutionists who argue for a special creation of Adam and Eve because of the statements in Gen 1-2 have really broken with evolutionary theory at the point that is of most concern to human beings anyway. But if, on the basis of Scripture, we insist upon God's special intervention at the point of the creation of Adam and Eve, then what is to prevent our allowing that God intervened, in a similar way, in the creation of living organisms?

We must realize that the special creation of Adam and Eve as recorded in Scripture shows them to be far different from the nearly animal, just barely human creatures that evolutionists would say were the first humans, creatures who descended from ancestors that were highly developed nonhuman apelike creatures. Scripture pictures the first man and woman, Adam and Eve, as possessing highly developed linguistic, moral, and spiritual abilities from the moment they were created. They can talk with each other. They can even talk with God. They are very different from the nearly animal first humans, descended from nonhuman apelike creatures, of evolutionary theory.

Some may object that Gen 1-2 does not intend to portray Adam and Eve as literal individuals, but (a) the historical narrative in Genesis continues without a break into the obviously historical material about Abraham (Gen 12), showing that the author intended the entire section to be historical, and (b) in Rom 5:12-21 and 1 Cor 15:21-22,45-49, Paul affirms the existence of the "one man" Adam through whom sin came into the world, and bases his discussion of Christ's representative work of earning salvation on the previous historical pattern of Adam being a representative for mankind as well. Moreover, the New Testament elsewhere clearly understands Adam and Eve to be historical figures (cf. Luke 3:38; Acts 17:26; 1 Cor 11:8-9; 2 Cor 11:3; 1 Tim 2:13-14). The New Testament also assumes the historicity of the sons of Adam and Eve, Cain (Heb 11:4; 1 John 3:12; Jude 11) and Abel (Matt 23:35; Luke 11:51; Heb 11:4; 12:24).

6. There are many scientific problems with evolutionary theory (see the following section). The increasing number of questions about the validity of the theory of evolution being raised even by non-Christians in various scientific disciplines indicates that anyone who claims to be forced to believe in evolution because the "scientific facts" leave no other option has simply not considered all the evidence on the other side. The scientific data do not force one to accept evolution, and if the scriptural record argues convincingly against it as well, it does not seem to be a valid theory for a Christian to adopt.

It seems most appropriate to conclude in the words of geologist Davis A. Young, "The position of theistic evolutionism as expressed by some of its proponents is not a consistently Christian position. It is not a truly biblical position, for it is based in part on principles that are imported into Christianity." According to Louis Berkhof "theistic evolution is really a child of embarrassment, which calls God in at periodic intervals to help nature over the chasms that yawn at her feet. It is neither the biblical doctrine of creation, nor a consistent theory of evolution."

c. Notes on the Darwinian Theory of Evolution: The word evolution can be used in different ways. Sometimes it is used to refer to "micro-evolution—small developments within one species, so that we see flies or mosquitoes becoming immune to insecticides, or human beings growing taller, or different colors and varieties of roses being developed. Innumerable examples of such "micro-evolution" are evident today, and no one denies that they exist. But that is not the sense in which the word evolution is usually used when discussing theories of creation and evolution.

The term evolution is more commonly used to refer to "macro-evolution—that is, the "general theory of evolution" or the view that "nonliving substance gave rise to the first

living material, which subsequently reproduced and diversified to produce all extinct and extant organisms." In this chapter, when we use the word evolution it is used to refer to macro-evolution or the general theory of evolution.

(1) Current Challenges to Evolution:

Since Charles Darwin first published his *Origin of Species by Means of Natural Selection* in 1859, there have been challenges to his theory by Christians and non-Christians alike. Current neo-Darwinian theory is still foundationally similar to Darwin's original position, but with refinements and modifications due to over a hundred years of research. In modern Darwinian evolutionary theory, the history of the development of life began when a mix of chemicals present on the earth spontaneously produced a very simple, probably one-celled life form. This living cell reproduced itself, and eventually there were some mutations or differences in the new cells produced. These mutations led to the development of more complex life forms. A hostile environment meant that many of them would perish, but those that were better suited to their environment would survive and multiply. Thus, nature exercised a process of "natural selection" in which the differing organisms most fitted to the environment survived. More and more mutations eventually developed into more and more varieties of living things, so that from the very simplest organism all the complex life forms on earth eventually developed through this process of mutation and natural selection.

The most recent, and perhaps most devastating, critique of current Darwinian theory comes from Philp E. Johnson, a law professor who specializes in analyzing the logic of arguments. In his book *Darwin on Trial* he quotes extensively from current evolutionary theorists to demonstrate that:

1. After more than one hundred years of experimental breeding of various kinds of animals and plants, the amount of variation that can be produced (even with intentional, not random, breeding) is extremely limited, due to the limited range of genetic variation in each type of living thing: dogs who are selectively bred for generations are still dogs, fruit flies are still fruit flies, etc. And when allowed to return to the wild state, "the most highly specialized breeds quickly perish and the survivors revert to the original wild type." He concludes that "natural selection," claimed by Darwinists to account for the survival of new organisms, is really a conservative force that works to preserve the genetic fitness of a population, not to change its characteristics.

2. In current evolutionary arguments, the idea of "survival of the fittest" (or "natural selection") is popularly thought to mean that those animals whose different characteristics give them a comparative advantage will survive, and others will die out. But in actual practice almost any characteristic can be argued to be either an advantage or a disadvantage. So how do Darwinists know which characteristics have given an advantage in survival to certain animals? By observing which kinds survive. But this means that natural selection is often at bottom not a powerful new insight into what happens in nature but simply a tautology (a meaningless repetition of the same idea), since it boils down to saying that the "fittest" animals are those who have the most offspring. In this sense, natural selection means: animals who have the most offspring have the most offspring. But this

proves nothing about any supposed mutations to produce different, more fit offspring over the course of many generations.

3. The vast and complex mutations required to produce complex organs such as an eye or a bird's wing (or hundreds of other organs) could not have occurred in tiny mutations accumulating over thousands of generations, because the individual parts of the organ are useless (and give no "advantage") unless the entire organ is functioning. But the mathematical probability of such random mutations happening together in one generation is effectively zero. Darwinists are left saying that it must have happened because it happened.

An amusing example of the need for all the parts of a complex organic system to be put in place at once is pointed out by Robert Kofahl and Kelly Segraves in their book, *The Creation Explanation: A Scientific Alternative to Evolution*. They describe the "Bombardier beetle," which repels enemies by firing a hot charge of chemicals from two swivel tubes in its tail. The chemicals fired by this beetle will spontaneously explode when mixed together in a laboratory, but apparently the beetle has an inhibitor substance that blocks the explosive reaction until the beetle squirts some of the liquid into its "combustion chambers," where an enzyme is added to catalyze the reaction. An explosion takes place and the chemical repellent is fired at a temperature of 212 degree F at the beetle's enemies. Kofahl and Segraves rightly ask whether any evolutionary explanation can account for this amazing mechanism:

Note that a rational evolutionary explanation for the development of this creature must assign some kind of adaptive advantage to each of the millions of hypothetical intermediate stages in the construction process. But would the stages of one-fourth, one-half, or two-thirds completion, for example, have conferred any advantage? After all, a rifle is useless without all of its parts functioning....Before this defensive mechanism could afford any protection to the beetle, all of its parts, together with the proper explosive mixture of chemicals, plus the instinctive behavior required for its use, would have to be assembled in the insect. The partially developed set of organs would be useless. Therefore, according to the principles of evolutionary theory, there would be no selective pressure to cause the system to evolve from a partially completed stage toward the final completed system....If a theory fails to explain the data in any science, that theory should be either revised or replaced with a theory that is in agreement with the data.

In this case, of course, the amusing question is, What would happen if the explosive chemical mixture developed in the beetle without the chemical inhibitor?

4. The fossil record was Darwin's greatest problem in 1859, and it has simply become a greater problem since then. In Darwin's time, hundreds of fossils were available showing the existence of many distinct kinds of animals and plants in the distant past. But Darwin was unable to find any fossils from "intermediate types" to fill in the gaps between distinct kinds of animals—fossils showing some characteristics of one animal and a few characteristics of the next developmental type, for example. In fact, many ancient fossils exactly resembled present-day animals—showing that (according to the chronological assumptions of his view) numerous animals have persisted for millions of years essentially unchanged. Darwin realized that the absence of "transitional types" in the fossil record

weakened his theory, but he thought it was due to the fact that not enough fossils had been discovered, and was confident that further discoveries would unearth many transitional types of animals. However, the subsequent 130 years of intensive archaeological activity has still failed to produce one convincing example of a needed transitional type.

Johnson quotes noted evolutionist Stephen Jay Gould of Harvard as saying that there are two characteristics of the fossil record that are inconsistent with the idea of gradual change through generations:

1. Stasis. Most species exhibit no directional change during their tenure on earth. They appear in the fossil record looking pretty 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 arise gradually by the steady transformation of its ancestors; it appears all at once and "fully formed."

So difficult is this problem for Darwinian evolution that many evolutionary scientists today propose that evolution came about in sudden jumps to new life forms—so that each of the thirty-two known orders of mammals, for example, appeared quite suddenly in the history of Europe.

But how could hundreds or thousands of genetic changes come about all at once? No explanation has been given other than to say that it must have happened, because it happened. (A glance at the dotted lines in any current biology textbook, showing the supposed transitions from one kind of animal to another, will indicate the nature of the gaps still unfilled after 130 years of investigation.) The significance of this problem is demonstrated forcefully in a recent book by a non-Christian writer, Michael Denton, *Evolution: A Theory in Crisis*. Denton himself proposes no alternative explanation for the emergence of life in its present form upon the earth, but he notes that since Darwin's time,

neither of the two fundamental axioms of Darwin's macroevolutionary theory—the concept of the continuity of nature, that is the idea of a functional continuum of all life forms linking all species together and ultimately leading back to a primeval cell, and the belief that all the adaptive design of life has resulted from a blind random process—have been validated by one single empirical discovery or scientific advance since 1859.

5. The molecular structures of living organisms do show relationships, but Darwinists simply assume that relationships imply common ancestry, a claim that certainly has not been proven. Moreover, there are amazing molecular differences between living things, and no satisfactory explanation for the origin of those differences has been given.

Of course, similarity of design at any level (including levels above the molecular level) has often been used as an argument for evolution. The assumption of evolutionists is that similarity of design between two species implies that the "lower" species evolved into the "higher" species, but the proof for that assumption has never been given. Gleason Archer illustrates this well by supposing that one visits a museum of science and industry and finds a display of how human beings evolved from earlier apelike creatures into progressively more human-looking beings and finally into modern man. But he rightly notes that

a continuity of basic design furnishes no evidence whatever that any "lower" species phased into the next "higher" species by any sort of internal dynamic, as evolution demands. For if the museum visitor were to go to another part of that museum of science and industry, he would find a completely analogous series of automobiles, commencing with 1900 and extending up until the present decade. Stage by stage, phase by phase, he could trace the development of the Ford from its earliest Model-T prototype to the large and luxurious LTD of the 1970s.

Of course, a much better explanation for the similarities in various models of Ford automobiles is the fact that an intelligent designer (or group of designers) used similar structures in successively more complex automobiles—if a steering mechanism works well in one model, there is no need to invent a different kind of steering mechanism for another model. In the same way, similarities in design among all living things can equally well be taken as evidence of the work of an intelligent master craftsman, the Creator himself.

6. Probably the greatest difficulty of all for evolutionary theory is explaining how any life could have begun in the first place. The spontaneous generation of even the simplest living organism capable of independent life (the prokaryote bacterial cell) from inorganic materials on the earth could not happen by random mixing of chemicals: it requires intelligent design and craftsmanship so complex that no advanced scientific laboratory in the world has been able to do it. Johnson quotes a now-famous metaphor: "That a living organism emerged by chance from a pre-biotic soup is about as likely as that 'a tornado sweeping through a junkyard might assemble a Boeing 747 from the materials therein.' Chance assembly is just a naturalistic way of saying 'miracle.'"

At a common-sense level, a simple illustration will show this. If I were to take my digital watch, hand it to someone, and say that I found it near an iron mine in northern Minnesota, and that it was my belief that the watch had come together by itself simply through the operation of random movement and environmental forces (plus some energy from a few bolts of lightning, perhaps), I would quickly be written off as mad. Yet any one living cell on the leaf of any tree, or any one cell in the human body, is thousands of times more complex than my digital watch. Even given 4.5 billion years the "chance" of even one living cell arising spontaneously is, for all practical purposes, zero.

In fact, some attempts have been made to calculate the probability of life arising spontaneously in this way. Kofahl and Segraves give a statistical model in which they begin with a very generous assumption: that every square foot of the earth's surface was somehow covered with 95 pounds of protein molecules that could mix freely, and that are all replaced with fresh protein every year for one billion years. They then estimate the probability that even one enzyme molecule would develop in each one billion years of the earth's history. The probability is 1.2 times 10^{-11} ; or one chance in 80 billion. They note, however, that even with the generous assumptions and starting with fresh protein every year for a billion years, finding one enzyme molecule—for all practical purposes an impossible task—would not solve the problem at all:

The probability of finding two of the active molecules would be about 10 to the 22 nd power, and the probability that they would be identical would be 10 to the 70 th power. And could

life start with just a single enzyme molecule? Furthermore, what is the possibility that an active enzyme molecule, once formed, could find its way through thousands of miles and millions of years to that randomly formed RNA or DNA molecule which contains the code for that particular enzyme molecule's amino acid sequence, so that new copies of itself could be produced? Zero for all practical purposes.

Kofahl and Segraves report a study by an evolutionary scientist who formulates a model to calculate the probability for the formation, not just of one enzyme molecule but the smallest likely living organism by random processes. He comes up with a probability of one chance in 10 to the 340,000,000 th power—that is, one chance in 10 with 340 million zeros after it! But Kofahl and Segraves note, "Yet Dr. Morowitz and his fellow evolutionary scientists still believe that it happened!"

If someone were to ask me to entrust my life to ride on an airplane, and then explained that the airline company completed its flights safely once in every 10 to the 340,000,000 th power times—or even one in every 80 billion flights—I certainly would not get on board, nor would anyone else in his or her right mind. Yet it is tragic that the common opinion, perpetuated in many science textbooks today, that evolution is an established "fact," has continued to persuade many people that they should not consider the total truthfulness of the Bible to be an intellectually acceptable viewpoint for responsible, thinking individuals to hold today. The myth that "evolution has disproved the Bible" persists and keeps many from considering Christianity as a valid option.

But what if some day life were actually "created" in the laboratory by scientists? Here it is important to understand what is meant. First, this would not be "creation" in the pure sense of the word, since all laboratory experiments begin with some kinds of previously existing matter. It would not give an explanation of the origin of matter itself, nor would it be the kind of creating that the Bible says God did. Second, most contemporary attempts to "create life" are really just very small steps in the gigantic process of moving from nonliving materials to an independently living organism, even one consisting of only one cell. The construction of a protein molecule or an amino acid nowhere approaches the complexity of a single living cell. But most importantly, what would it demonstrate if the collective work of thousands of the most intelligent scientists in the world, with the most expensive and complex laboratory equipment available, working over the course of several decades, actually did produce a living organism? Would that "prove" that God did not create life? Quite the opposite: it would demonstrate that life simply does not come about by chance but must be intentionally created by an intelligent designer. In theory at least, it is not impossible that human beings, created in the image of God and using their God-given intelligence could someday create a living organism out of nonliving substances (though the complexity of the task far surpasses any technology that exists today). But that would only show that God made us to be "God-like—that in biological research as in many other areas of life we in a very small way can imitate God's activity. All such scientific research in this direction really ought to be done out of reverence for God and with gratitude for the scientific capability with which he has endowed us.

Many unbelieving scientists have been so influenced by the cumulative force of the objections brought against evolution that they have openly advocated novel positions for

one part or another of the proposed evolutionary development of living things. Francis Crick, who won the Nobel Prize for helping to discover the structure of DNA molecules, proposed in 1973 that life may have been sent here by a spaceship from a distant planet, a theory that Crick calls "Directed Panspermia." To the present author, it seems ironic that brilliant scientists could advocate so fantastic a theory without one shred of evidence in its favor, all the while rejecting the straightforward explanation given by the one book in the history of the world that has never been proven wrong, that has changed the lives of millions of people, that has been believed completely by many of the most intelligent scholars of every generation, and that has been a greater force for good than any other book in the history of the world. Why will otherwise intelligent people commit themselves to beliefs that seem so irrational? It seems as though they will believe in anything, so long as it is not belief in the personal God of Scripture, who calls us to forsake our pride, humble ourselves before him, ask his forgiveness for failure to obey his moral standards, and submit ourselves to his moral commands for the rest of our lives. To refuse to do this is irrational, but, as we shall see in the chapter on sin, all sin is ultimately irrational at its root.

Other challenges to the theory of evolution have been published in the last twenty or thirty years, and no doubt many more will be forthcoming. One only hopes it will not be too long before the scientific community publicly acknowledges the implausibility of evolutionary theory, and textbooks written for high school and college students openly acknowledge that evolution simply is not a satisfactory explanation for the origin of life on the earth.

(2) The Destructive Influences of Evolutionary Theory in Modern Thought

(2) The Destructive Influences of Evolutionary Theory in Modern Thought:

It is important to understand the incredibly destructive influences that evolutionary theory has had on modern thinking. If in fact life was not created by God, and if human beings in particular are not created by God or responsible to him, but are simply the result of random occurrences in the universe, then of what significance is human life? We are merely the product of matter plus time plus chance, and so to think that we have any eternal importance, or really any importance at all in the face of an immense universe, is simply to delude ourselves. Honest reflection on this notion should lead people to a profound sense of despair.

Moreover, if all of life can be explained by evolutionary theory apart from God, and if there is no God who created us (or at least if we cannot know anything about him with certainty), then there is no supreme Judge to hold us morally accountable. Therefore there are no moral absolutes in human life, and people's moral ideas are only subjective preferences, good for them perhaps but not to be imposed on others. In fact, in such a case the only thing forbidden is to say that one knows that certain things are right and certain things are wrong.

There is another ominous consequence of evolutionary theory: If the inevitable processes of natural selection continue to bring about improvement in life forms on earth through the survival of the fittest, then why should we hinder this process by caring for those who are weak or less able to defend themselves? Should we not rather allow them to die without

reproducing so that we might move toward a new, higher form of humanity, even a "master race"? In fact, Marx, Nietzsche, and Hitler all justified war on these grounds.

Moreover, if human beings are continually evolving for the better, then the wisdom of earlier generations (and particularly of earlier religious beliefs) is not likely to be as valuable as modern thought. In addition, the effect of Darwinian evolution on the people's opinions of the trustworthiness of Scripture has been a very negative one.

Contemporary sociological and psychological theories that see human beings as simply higher forms of animals are another outcome of evolutionary thought. And the extremes of the modern "animal rights" movement that oppose all killing of animals (for food, or for leather coats, or for medical research, for example) also flow naturally out of evolutionary thought.

d. The Theory of a "Gap" Between Genesis 1:1 and 1:2: Some evangelicals have proposed that there is a gap of millions of years between Gen 1:1 ("In the beginning God created the heavens and the earth") and Gen 1:2 ("The earth was without form and void, and darkness was upon the face of the deep"). According to this theory, God made an earlier creation, but there was eventually a rebellion against God (probably in connection with Satan's own rebellion), and God judged the earth so that "it became without form and void" (an alternative, but doubtful, translation proposed for Gen 1:2). What we read of in Gen 1:3-2:3 is really the second creation of God, in six literal twenty-four-hour days, which occurred only recently (perhaps 10,000 to 20,000 years ago). The ancient fossils found on the earth, many of which are said to be millions of years old, stem from the first creation (4,500,000,000 years ago), which is mentioned only in Gen 1:1.

The primary biblical argument for this theory is that the words "without form and void" and "darkness" in Gen 1:2 picture an earth that has suffered the effects of judgment by God: darkness elsewhere in the Old Testament is frequently a sign of God's judgment, and the Hebrew words

Tohû ("without form") and bohû ("void, empty") in verses such as Isa 34:11 and Jer 4:23 refer to places such as deserts that have suffered the desolating consequences of God's judgment.

But these arguments do not seem strong enough to persuade us that Gen 1:2 pictures the earth as desolate after God's judgment. If God first forms the earth (v. 1) and then later creates light (v. 3), there would have to be darkness over the earth in verse 2—this indicates that creation is in progress, not that any evil is present. In addition, each day there is an "evening," and there is "darkness" present during the six days of creation (vv. 5,8,13,18-19, et al.), with no suggestion of evil or of God's disapproval (cf. Ps 104:20). As far as the phrase "without form and void," the sense is just that it is not yet fit for habitation: God's preparatory work has not yet been done. Of course, when God curses a desert, it does become unfit for habitation, but we should not read the cause of that unfitness in one case (God's curse on a desert) into another case, the creation, where the cause of unfitness for habitation is simply that God's work is still in progress; the preparation for man is not yet complete. (It is not proper to read the circumstances that

surround a word in one place into the use of that word in another place when the meaning of the word and its use in the second context do not require those same circumstances.)

In addition to the fact that Gen 1:2 does not give support to this view, there are some other arguments that weigh strongly against the gap theory:

1. There is no verse in Scripture that explicitly talks about an earlier creation. So this theory is lacking even one verse of Scripture to give it explicit support.

2. In Gen 1:31, when God finished his work of creation, we read, "And God saw everything that he had made, and behold, it was very good." But according to the gap theory, God would be looking at an earth full of the results of rebellion, conflict, and terrible divine judgment. He would also be looking at all the demonic beings, the hosts of Satan who had rebelled against him, and yet be calling everything "very good." It is difficult to believe that there was so much evil and so many evidences of rebellion and judgment on the earth, and that God could still say that creation was very good.

Moreover, Gen 2:1 says, in an apparent summary of all that has happened in Gen 1, "Thus the heavens and the earth were finished, and all the host of them." Here it is not just God's work on the earth, but all that he made in the heavens, that is said to have been completed in the narrative in Gen 1. This would not allow for large parts of heaven and earth to have been finished long before the six creation days.

3. In a later description of God's work of creation found in the Ten Commandments, we read, "for in six days the LORD made heaven and earth the sea, and all that is in them and rested the seventh day; therefore the LORD blessed the sabbath day and hallowed it" (Ex 20:11). Here the creation of both the heaven and the earth, and the making of "all that is in them," is attributed to God's work in the six days of creation. Whether we take these to be twenty-four-hour days or longer periods of time, on either view the making of the entire heavens and earth and everything in them is put within these six days. But the proponents of the gap theory would have to say that there are many things in the earth (such as fossil remains of dead animals, and the earth itself) and in the heavens (such as the stars) that God did not make in the six days specified in Ex 20:11, a view that seems exactly contrary to what is affirmed in the verse.

Moreover, while some passages of Scripture do speak of God's judgment on rebellious angels or his judgment on the earth at various times (see Isa 24:1; Jer 4:23-26; 2 Peter 2:4), none of the passages places this judgment at a time before the creation narrative in Gen 1:2-31.

4. This theory must assume that all of the fossils of animals from millions of years ago that resemble very closely animals from today indicate that God's first creation of the animal and plant kingdom resulted in a failure. These animals and plants did not fulfill God's original purpose, so he destroyed them, but in the second creation he made others that were exactly like them. Moreover, since Adam and Eve were the first man and woman, this theory must assume that there was a prior creation of God that existed for millions of years but lacked the highest aspect of God's creative work, namely, man himself. But both the failure of God to accomplish his purposes with the original plant and animal kingdoms, and

the failure of God to crown creation with his highest creature, man, seem inconsistent with the biblical picture of God as one who always accomplishes his purposes in whatever he does. So the gap theory does not seem an acceptable alternative for evangelical Christians today.

3. The Age of the Earth: Some Preliminary Considerations. Up to this point, the discussions in this chapter have advocated conclusions that we hope will find broad assent among evangelical Christians. But now at last we come to a perplexing question about which Bible-believing Christians have differed for many years, sometimes very sharply. The question is simply this: How old is the earth?

It is appropriate to treat this question after all the earlier matters, because it is really much less important than the doctrines considered above. These earlier matters may be summarized as follows: (1) God created the universe out of nothing; (2) creation is distinct from God, yet always dependent on God; (3) God created the universe to show his glory; (4) the universe God created was very good; (5) there will be no final conflict between Scripture and science; (6) secular theories that deny God as Creator, including Darwinian evolution, are clearly incompatible with belief in the Bible.

The question of the age of the earth is also less important than matters to be treated in subsequent chapters, that is (7) the creation of the angelic world and (8) the creation of man in the image of God (chapters 19, 21, and 22). It is important to keep these things in mind, because there is a danger that Christians will spend too much time arguing over the age of the earth and neglect to focus on much more important and much clearer aspects of the overall teaching of the Bible on creation.

The two options to choose from for a date of the earth are the "old earth" position, which agrees with the consensus of modern science that the earth is 4,500,000,000 years old, and the "young earth" position, which says that the earth is 10,000 to 20,000 years old, and that secular scientific dating schemes are incorrect. The difference between these two views is enormous: 4,499,980,000 years!

Before considering the specific arguments for both positions, we will examine some preliminary questions about the genealogies in the Bible, current estimates for the age of the human race, differing views on the date of dinosaurs, and the length of the six creation days in Gen 1.

a. There Are Gaps in the Genealogies of the Bible: When one reads the list of names in Scripture together with their ages, it might seem as though we could add together the ages of all the people in the history of redemption from Adam to Christ and come up with an approximate date for the creation of the earth. Certainly this would give a very recent date for creation (such as Archbishop Ussher's date of 4004 BC). But closer inspection of the parallel lists of names in Scripture will show that Scripture itself indicates the fact that the genealogies list only those names the biblical writers thought it important to record for their purposes. In fact, some genealogies include names that are left out by other genealogies in Scripture itself.

For instance, Matt 1:8-9 tells us that Asa was "the father of Jehoshaphat, and Jehoshaphat the father of Joram, and Joram the father of Uzziah, and Uzziah the father of Jotham, and Jotham the father of Ahaz." But from 1 Chron 3:10-12 (which uses the alternate name Ahaziah for Uzziah), we learn that three generations have been omitted by Matthew: Joash, Amaziah, and Azariah. So these texts can be compared in the following table:

Example of gaps in genealogies

1 Chron 3:10-12	Matt 1:8-9
Asa	Asa
Jehoshaphat	Jehoshaphat
Joram	Joram
Ahaziah (Uzziah)	Uzziah
Joash	
Amaziah	
Azariah	
Jotham	Jotham
Ahaz	Ahaz
Hezekiah	Hezekiah
(etc.)	(etc.)

Therefore, when Matthew says that Uzziah was "the father of Jotham," it can mean that he was the father of someone who led to Jotham. Matthew has selected those names that he wants to emphasize for his own purposes. A similar phenomenon is evident in Matt 1:20 where the angel of the Lord speaks to Joseph and calls him, "Joseph, son of David." Now Joseph is not directly the son of David (for David lived around 1000 BC), but Joseph is the descendant of David and is therefore called his "son."

Another example is found in 1 Chron 26:24 in a list of officers appointed by King David near the end of his life. We read that "Shebuel the son of Gershom, son of Moses, was chief officer in charge of the treasuries" (1 Chron 26:24). Now we know from Ex 2:22 that Gershom was the son born to Moses before the Exodus, sometime around 1480 BC (or, on a late date for the exodus, around 1330 BC). But these officials mentioned in 1 Chron 26 were appointed at the time that David made Solomon king over Israel, around 970 BC (see 1 Chron 23:1). That means that in 1 Chron 26:24 Shebuel is said to be "the son of Gershom," who was born 510 (or at least 360) years earlier. Ten or more generations have been omitted in this designation "son of."

It seems only fair to conclude that the genealogies of Scripture have some gaps in them, and that God only caused to be recorded those names that were important for his purposes.

How many gaps there are and how many generations are missing from the Genesis narratives, we do not know. The life of Abraham may be placed at approximately 2000 BC, because the kings and places listed in the stories of Abraham's life (Gen 12 ff.) can be correlated with archaeological data that can be dated quite reliably, but prior to Abraham the setting of dates is very uncertain. In view of the exceptionally long life spans reported for people prior to the flood, it would not seem unreasonable to think that a few thousand years have been passed over in the narrative. This gives us some flexibility in our thinking about the date that man first appeared on the earth. (It would seem to be quite another thing, however, and quite foreign to the sense of continuity in the narrative, to think that millions of years have been omitted, but that names and details of the lives of key persons have been remembered and passed down over such a long period of time.)

b. The Age of the Human Race: While current scientific estimates say that man first appeared on the earth about 2.5 million years ago, it is important to recognize what kind of "man" this is claimed to be. The following table is a rough guide to current scientific opinion:

homo habilis ("skillful man") 2-3.5 million years B.C. stone tools

homo erectus 1.5 million years B.C. variety of stone tools, used fire by 500,000 B.C. hunted large animals

homo sapiens ("wise man" 40,000-150,000 B.C. or "thinking man")(or perhaps 300,000 B.C.) buried their dead (example: Neanderthal man)

homo sapiens sapiens ("wise, 90,000 B.C. wise man") (example: Cro-Magnon man 18,000-35,000 B.C. cave paintings (example: Neolithic man) 19,000 B.C. cattle raising, agriculture, metalwork

Whether Christians hold to a young earth or old earth view, they will agree that man is certainly on the earth by the time of the cave paintings by Cro-Magnon man, paintings which date from about 10000 BC There is some variation in the date of Cro-Magnon man, however, since the dating of a Cro-Magnon burial site in Siberia is approximately 20,000 to 35,000 B.C. according to the geological evidence found there, but the Carbon-14 dating method gives a date of only 9000 BC, or 11,000 years ago. Earlier than the paintings by Cro-Magnon man, there is disagreement. Was Neanderthal man really a man, or just a human-like creature? How human were earlier man-like creatures? (Higher forms of animals, such as chimpanzees, can use tools, and burial of one's dead is not necessarily a uniquely human trait.) Moreover, dating methods used for earlier periods are very approximate with results that often conflict.

So how long ago did man first appear on the earth? Certainly by 10,000 B.C., if the Cro-Magnon cave paintings have been dated correctly. But before that it is difficult to say.

c. Did Animals Die Before the Fall? For young earth advocates, there is no need to ask whether animals died before the fall, because animals and man were both created on the sixth day, and there may have been only a short time before Adam and Eve sinned. This could have introduced death into the animal kingdom as well, as part of the curse of the fall (Gen 3:17-19; Rom 8:20-23).

But for old earth advocates, this is an important question. There are millions of apparently ancient fossils in the earth. Might they have come from animals who lived and died for long ages before Adam and Eve were created? Might God have created an animal kingdom that was subject to death from the moment of creation? This is quite possible. There was no doubt death in the plant world, if Adam and Eve were to eat plants; and if God had made an original creation in which animals would reproduce and also live forever, the earth would soon be overcrowded with no hope of relief. The warning to Adam in Gen 2:17 was only that he would die if he ate of the forbidden fruit, not that animals would also begin to die. When Paul says, "Sin came into the world through one man and death through sin" (Rom 5:12 a), the following phrase makes clear that he is talking about death for human beings, not for plants and animals, for he immediately adds, "and so death spread to all men because all men sinned" (Rom 5:12 b).

From the information we have in Scripture, we cannot now know whether God created animals subject to aging and death from the beginning, but it remains a real possibility.

d. What About Dinosaurs?: Current scientific opinion holds that dinosaurs became extinct about 65 million years ago, millions of years before human beings appeared on the earth. But those who hold to six twenty-four-hour days of creation and a young earth would say that dinosaurs were among the creatures created by God on the same day he created man (the sixth day). They would therefore say that dinosaurs and human beings lived on the earth at the same time and that dinosaurs subsequently became extinct (perhaps in the flood). Young earth advocates of course would differ with the methods used to arrive at such ancient dates for dinosaurs.

Among those who hold to an old earth view, some would want to say that dinosaurs were among the creatures that Adam named in Gen 2:19-20, and that they subsequently perished (perhaps in the flood). They would admit that dinosaurs may have existed earlier, but would say that they did not become extinct until after the time of Adam and Eve. Others would say that the sixth day of creation was millions of years long, and that dinosaurs had already become extinct by the time Adam was created and named the animals. In this case, Adam did not name dinosaurs (the Bible does not say that he did), but he only named all the creatures that were living at the time God brought him all the animals to name (Gen 2:19-20; see NIV). Of course, this view would require that there was death in the animal world before there was sin (see previous section).

e. Are the Six Days of Creation Twenty-four-Hour Days?: Much of the dispute between "young earth" and "old earth" advocates hinges on the interpretation of the length of "days" in Gen 1. Old earth supporters propose that the six "days" of Gen 1 refer not to periods of twenty-four hours, but rather to long periods of time, millions of years, during which God carried out the creative activities described in Gen 1. This proposal has led to a heated debate with other evangelicals, which is far from being settled decisively one way or another.

In favor of viewing the six days as long periods of time is the fact that the Hebrew word *yôm*, "day," is sometimes used to refer not to a twenty-four-hour literal day, but to a longer period of time. We see this when the word is used in Gen 2:4, for example: "In the day that

the LORD God made the earth and the heavens," a phrase that refers to the entire creative work of the six days of creation. Other examples of the word day to mean a period of time are Job 20:28 ("the day of God's wrath"); Ps 20:1 ("The LORD answer you in the day of trouble!"); Prov 11:4 ("Riches do not profit in the day of wrath"); 21:31 ("The horse is made ready for the day of battle"); 24:10 ("If you faint in the day of adversity, your strength is small"); 25:13 ("the time [yôm] of harvest"); Eccl 7:14 ("In the day of prosperity be joyful, and in the day of adversity consider; God has made the one as well as the other"); many passages referring to "the day of the LORD" (such as Isa 2:12; 13:6,9; Joel 1:15; 2:1; Zeph 1:14); and many other Old Testament passages predicting times of judgment or blessing. A concordance will show that this is a frequent sense for the word day in the Old Testament.

An additional argument for a long period of time in these "days" is the fact that the sixth day includes so many events that it must have been longer than twenty-four hours. The sixth day of creation (Gen 1:24-31) includes the creation of animals and the creation of man and woman both ("male and female he created them," Gen 1:27). It was also on the sixth day that God blessed Adam and Eve and said to them, "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" (Gen 1:28). But that means that the sixth day included God's creation of Adam, God's putting Adam in the Garden of Eden to till it and keep it, and giving Adam directions regarding the tree of the knowledge of good and evil (Gen 2:15-17), his bringing all the animals to man for them to be named (Gen 2:18-20), finding no helper fit for Adam (Gen 2:20), and then causing a deep sleep to fall upon Adam and creating Eve from his rib (Gen 2:21-25). The finite nature of man and the incredibly large number of animals created by God would by itself seem to require that a much longer period of time than part of one day would be needed to include so many events—at least that would be an "ordinary" understanding of the passage for an original reader, a consideration that is not unimportant in a debate that often emphasizes what an ordinary reading of the text by the original readers would lead them to conclude. If the sixth day is shown by contextual considerations to be considerably longer than an ordinary twenty-four-hour day, then does not the context itself favor the sense of day as simply a "period of time" of unspecified length?

Related to this is one more consideration. The seventh day, it should be noted, is not concluded with the phrase "and there was evening and there was morning, a seventh day." The text just says that God "rested on the seventh day from all his work which he had done" and that "God blessed the seventh day and hallowed it" (Gen 2:2-3). The possibility, if not the implication, suggested by this is that the seventh day is still continuing. It never ended but is also a "day" that is really a long period of time (cf. John 5:17; Heb 4:4,9-10).

Some have objected that whenever the word day refers to a period of time other than a twenty-four-hour day in the Old Testament the context makes it clear that this is the case, but since the context does not make this clear in Gen 1 we must assume that normal days are meant. But to this we may answer that whenever the word day means a twenty-four-hour day, the context makes this clear as well. Otherwise, we could not know that a twenty-four-hour day is meant in that context. So this is not a persuasive objection. It simply

affirms what everyone agrees to, namely, that the context enables us to determine which sense a word will take when it has various possible meanings.

Another objection is that the Bible could have used other words if a period longer than a twenty-four-hour day was intended. However, if (as is clearly the case) the original readers knew that the word day could mean a long period of time, then there was no need to use some other word, for the word *yôm*, conveyed the intended meaning quite well. Furthermore, it was a very appropriate word to use when describing six successive periods of work plus a period of rest that would set the pattern for the seven days of the week in which people would live.

That brings us back to the original question, namely, what does the word day mean in the context of Gen 1? The fact that the word must refer to a longer period of time just a few verses later in the same narrative (Gen 2:4) should caution us against making dogmatic statements that the original readers would have certainly known that the author was talking about twenty-four-hour days. In fact, both senses were commonly known meanings in the minds of the original readers of this narrative.

It is important to realize that those who advocate long periods of time for the six "days" of creation are not saying that the context requires that these be understood as periods of time. They are simply saying that the context does not clearly specify for us one meaning of day or another, and if convincing scientific data about the age of the earth, drawn from many different disciplines and giving similar answers, convinces us that the earth is billions of years old, then this possible interpretation of day as a long period of time may be the best interpretation to adopt. In this way, the situation is something like that faced by those who first held that the earth rotates on its axis and revolves about the sun. They would not say that the passages about the sun "rising" or "going down" require us, in their contexts, to believe in a heliocentric (sun-centered) solar system, but that this is a possible understanding of the texts, seeing them as only speaking from the standpoint of the observer. Observational evidence taken from science informs us that this is in fact the correct way to interpret those texts.

On the other side of this question are the arguments in favor of understanding "day" as a twenty-four-hour day in Gen 1:

1. It is significant that each of the days of Gen 1 ends with an expression such as, "And there was evening, and there was morning—the first day" (Gen 1:5 NIV). The phrase "And there was evening, and there was morning" is repeated in verses 8,13,19,23, and 31. This seems to imply the sequence of events marking a literal twenty-four-hour day and suggests that the readers should understand it in that way.

This is a strong argument from context, and many have found it persuasive. Yet those who hold to a long period of time for these "days" could respond (a) that even evening and morning do not constitute an entire day, but only the end of one day and the beginning of another, so the expression itself may be simply part of the author's way of telling us that the end of the first creative day (that is, long period of time) occurred, and the beginning of the next creative "day" had come; and also (b) that the first three creative "days" could not have been marked by evening and morning as caused by the sun shining on the earth, for

the sun was not created until the fourth day (Gen 1:14-19); thus, the very context shows that "evening and morning" in this chapter does not refer to the ordinary evening and morning of days as we know them now. So the argument from "evening and morning," though it may give some weight to the twenty-four-hour view, does not seem to tip the balance decisively in its favor.

2. The third day of creation cannot be very long, because the sun does not come into being until the fourth day, and plants cannot live long without light. In response to this, it might be said that the light that God created on the first day energized the plants for millions of years. But that would suppose God to have created a light that is almost exactly like sunlight in brightness and power, but still not sunlight—an unusual suggestion.

3. It is hard to avoid the conclusion that in the Ten Commandments the word day is used to mean a twenty-four-hour day:

Remember the sabbath day, to keep it holy. Six days you shall labor, and do all your work; but the seventh day is a sabbath to the LORD your God;...for in six days the LORD made heaven and earth, the sea, and all that is in them, and rested the seventh day; therefore the LORD blessed the sabbath day and hallowed it." (Ex 20:8-11)

Certainly in that text the sabbath "day" is a twenty-four-hour day. And must we not say that verse 11, which in the same sentence says that the Lord made heaven and earth in "six days," uses "day" in the same sense? This is again a weighty argument, and on balance it gives additional persuasiveness to the twenty-four-hour day position. But once again it is not quite conclusive in itself, for one could respond that the readers were aware (from a careful reading of Gen 1-2) that the days there were unspecified periods of time, and that the sabbath commandment merely told God's people that, just as he followed a six-plus-one pattern in creation (six periods of work followed by a period of rest), so they were to follow a six-plus-one pattern in their lives (six days of work followed by a day of rest; also six years of work followed by a sabbath year of rest, as in Ex 23:10-11). In fact, in the very next sentence of the Ten Commandments, "day" means "a period of time": "Honor your father and your mother, that your days may be long in the land which the LORD your God gives you" (Ex 20:12). Certainly here the promise is not for "long" literal days (such as twenty-five- or twenty-six-hour days!), but rather that the period of one's life may be lengthened upon the earth.

4. Those who argue for "day" as a twenty-four-hour day also ask whether anywhere else in the Hebrew Bible the word "days" in the plural, especially when a number is attached (such as "six days"), ever refers to anything but twenty-four-hour days. This argument is not compelling, however, because (a) a plural example of "days" to mean periods of time is found in Ex 20:12, discussed in the previous paragraph and (b) if the word clearly takes the sense "period of time" in the singular (which it does, as all admit), then to speak of six such "periods" of time would certainly be understandable to the readers, even if the Old Testament did not elsewhere have examples of such a meaning. The fact that such an expression does not appear elsewhere may mean nothing more than that there was no occasion to use it elsewhere.

5. When Jesus says, "But from the beginning of creation, 'God made them male and female'" (Mark 10:6), he implies that Adam and Eve were not created billions of years after the beginning of creation, but at the beginning of creation. This argument also has some force, but old earth advocates may respond that Jesus is just referring to the whole of Gen 1-2 as the "beginning of creation," in contrast to the argument from the laws given by Moses that the Pharisees were depending on (v. 4).

I have given an answer to each of the five arguments for a twenty-four-hour day, but these answers may not persuade its advocates. They would respond to the "period of time" position as follows: (1) Of course, it is true that day may mean "period of time" in many places in the Old Testament, but that does not demonstrate that day must have that meaning in Gen 1. (2) The sixth day of creation need not have been longer than twenty-four hours, especially if Adam only named major representative kinds of birds and of "every beast of the field" (Gen 2:20). (3) Though there was no sun to mark the first three days of creation, nonetheless, the earth was still rotating on its axis at a fixed speed, and there was "light" and "darkness" that God created on the first day (Gen 1:3-4), and he called the light "day" and the darkness "night" (Gen 3:5). So God in some way caused an alternation between day and night from the very first day of creation, according to Gen 1:3-5.

What shall we conclude about the length of days in Gen 1? It does not seem at all easy to decide with the information we now have. It is not simply a question of "believing the Bible" or "not believing the Bible," nor is it a question of "giving in to modern science" or "rejecting the clear conclusions of modern science." Even for those who believe in the complete truthfulness of Scripture (such as the present author), and who retain some doubt about the exceptionally long periods of time scientists propose for the age of the earth (such as the present author), the question does not seem to be easy to decide. At present, considerations of the power of God's creative word and the immediacy with which it seems to bring response, the fact that "evening and morning" and the numbering of days still suggest twenty-four-hour days, and the fact that God would seem to have no purpose for delaying the creation of man for thousands or even millions of years, seem to me to be strong considerations in favor of the twenty-four-hour day position. But even here there are good arguments on the other side: To the one who lives forever, for whom "one day is as a thousand years, and a thousand years as one day" (2 Peter 3:8), who delights in gradually working out all his purposes over time, perhaps 15 billion years is just the right amount of time to take in preparing the universe for man's arrival and 4.5 billion years in preparing the earth. The evidence of incredible antiquity in the universe would then serve as a vivid reminder of the even more amazing nature of God's eternity, just as the incredible size of the universe causes us to wonder at God's even greater omnipresence and omnipotence.

Therefore, with respect to the length of days in Gen 1, the possibility must be left open that God has chosen not to give us enough information to come to a clear decision on this question, and the real test of faithfulness to him may be the degree to which we can act charitably toward those who in good conscience and full belief in God's Word hold to a different position on this matter.

4. Both "Old Earth" and "Young Earth" Theories Are Valid Options for Christians Who Believe the Bible Today. After discussing several preliminary considerations regarding the

age of the earth, we come finally to the specific arguments for old earth and young earth views.

a. "Old Earth" Theories of Creation: In this first category we list two viewpoints held by those who believe in an old earth with an age of about 4.5 billion years and a universe about 15 billion years old.

(1) Day-Age View:

Many who believe that the earth is many millions of years old maintain that the days of Gen 1 are extremely long "ages" of time. The arguments given above for long days in Gen 1 will apply here, and, as we argued above, the words of the Hebrew text do allow for the days to be long periods of time. The evident advantage of this view is that, if the current scientific estimate for an earth 4.5 billion years old is correct, it explains how the Bible is consistent with this fact. Among evangelicals who hold to an old earth view, this is a common position. This view is sometimes called a "concordist" view because it seeks agreement or "concord" between the Bible and scientific conclusions about dating.

Many have been attracted to this position because of scientific evidence regarding the age of the earth. A very helpful survey of the views of theologians and scientists regarding the age of the earth, from ancient Greece to the twentieth century, is found in a book by a professional geologist who is also an evangelical Christian, Davis A. Young, *Christianity and the Age of the Earth*. Young demonstrates that in the nineteenth and twentieth centuries, many Christian geologists, under the weight of apparently overwhelming evidence, have concluded that the earth is about 4.5 billion years old. Although some "young earth" proponents (see discussion below) have claimed that radiometric dating techniques are inaccurate because of changes that occurred on the earth at the time of the flood, Young notes that radiometric dating of rocks from the moon and of meteorites recently fallen to the earth, which could not have been affected by Noah's flood, coincide with many other radiometric evidences from various materials on the earth, and that the results of these tests are "remarkably consistent in pointing to about 4.5-4.7 billion years."

Some of Young's most forceful arguments for an old earth, in addition to those from radiometric dating, include the time required for liquid magma to cool (about 1 million years for a large formation in southern California), the time and pressure required for the formation of many metamorphic rocks that contain small fossils (some apparently could only be formed by the pressure of being buried twelve to eighteen miles under ground and later brought to the surface—but when could this have happened on a young earth view?), continental drift (fossil-bearing rock fields near the coasts of Africa and South America were apparently previously joined together, then separated by continental drift, something that could not have happened in 20,000 years at the present rate of two centimeters per year), and coral reefs (some of which apparently would have required hundreds of thousands of years of gradual deposits to attain their present state). Several other arguments, especially from astronomy, have been summarized by Robert C. Newman and Herman J. Eckelmann, Jr., in *Genesis One and the Origin of the Earth*. These arguments favor an old earth view, and the day-age theory is an attractive position for old earth advocates.

The day-age view is certainly possible, but it has several difficulties: (1) The sequence of events in Gen 1 does not exactly correspond to current scientific understanding of the development of life, which puts sea creatures (Day 5) before trees (Day 3), and insects and other land animals (Day 6), as well as fish (Day 5), before birds (Day 5). (2) The greatest difficulty for this view is that it puts the sun, moon, and stars (Day 4) millions of years after the creation of plants and trees (Day 3). That makes no sense at all according to current scientific opinion, which sees the stars as formed long before the earth or any living creatures on the earth. It also makes no sense in terms of the way the earth now operates, for plants do not grow without sunlight, and there are many plants (Day 3) that do not pollinate without birds or flying insects (Day 5), and there are many birds (Day 5) that live off creeping insects (Day 6). Moreover, how would the waters on the earth keep from freezing for millions of years without the sun?

In response, those who hold the concordist view say that the sun, moon, and stars were created on Day 1 (the creation of light) or before Day 1, when "in the beginning God created the heavens and the earth" (Gen 1:1), and that the sun, moon, and stars were only made visible or revealed on Day 4 (Gen 1:14-19). But this argument is not very convincing, because all the other five days of creation involve not revealing something that was previously created but actually creating things for the first time. Moreover, the creative statements are similar to those of other days, "And God said, 'Let there be lights in the firmament of the heavens to separate the day from the night...to give light upon the earth.' And it was so" (Gen 1:14-15). This is the form of language used in verses 3,6,11,20, and 24 for creating things, not revealing them. Furthermore, the creation (not the revealing) of the sun, moon, and stars is made explicit in the next sentence: "And God made the two great lights, the greater light to rule the day, and the lesser light to rule the night; he made the stars also" (Gen 1:16). Here the word "made" (Heb. \pm^1s^1h) is the same word used when God made the firmament, the beasts of the earth, and man (Gen 1:7,25,26)—in none of these cases is it used to speak of revealing something previously made. The Hebrew \pm^1s^1h , is also the word used in the summary in verse 31: "And God saw everything that he had made, and behold, it was very good." This frequent use throughout Gen 1 makes it very unlikely that Gen 1:16 merely refers to the revealing of the sun, moon, and stars.

But a modification of the day-age view in response to these objections seems possible. The verbs in Gen 1:16 can be taken as perfects, indicating something that God had done before: "And God had made the two great lights, the greater light to rule the day, and the lesser light to rule the night; he had made the stars also." Grammatically this is possible (this is how the NIV translates the same verb form in 2:8 and 2:19, for example). This view would imply that God had made the sun, moon, and stars earlier (in v. 1, the creation of heavens and earth, or in v. 3, the creation of light) but only placed them near the earth on Day 4, or allowed them to be seen from the earth on Day 4 (vv. 14-15, 17-18). This allows the word made (\pm^1s^1h) to mean "created" and thus avoids the difficulty mentioned above with the view that it means "revealed" in verse 16. This option remains as a genuine possibility for the day-age view, and in fact this view is the one that seems most persuasive to the present author, if an old earth position is to be adopted. With regard to light needed for the plants and warmth needed for the waters, there was light available from Day 1—even if we are not sure whether this light was light from the sun and stars or the light of God's glory (which will replace the sun in the New Jerusalem, Rev 21:23).

Another answer from the day-age view might be that the fourth day is not exactly in sequence, though an overall outline of progressive work of God is given. Yet once we begin changing the sequence of events that is so prominent in this progression of six creative days, it is doubtful that we need to allow the text to tell us anything other than the bare fact that God created things—but in that case, the whole inquiry about the age of the earth is unnecessary. (Further discussion of disruption in the sequence of days is given in the next section.)

(2) Literary Framework View:

Another way of interpreting the days of Gen 1 has gained a significant following among evangelicals. Since it argues that Gen 1 gives us no information about the age of the earth, it would be compatible with current scientific estimates of a very old earth. This view argues that the six days of Gen 1 are not intended to indicate a chronological sequence of events, but are rather a literary "framework," which the author uses to teach us about God's creative activity. The framework is skillfully constructed so that the first three days and the second three days correspond to each other.

Days of forming

Day 1: Light and darkness separated

Day 2: Sky and waters separated

Day 3: Dry land and seas separated, plants and trees

Days of filling

Day 4: Sun, moon, and stars (lights in the heaven)

Day 5: Fish and birds

Day 6: Animals and man

In this way a parallel construction is seen. On Day 1 God separates light and darkness, while on Day 4 he puts the sun, moon, and stars in the light and in the darkness. On Day 2 he separates the waters and the sky, while on Day 5 he puts the fish in the waters and the birds in the sky. On Day 3 he separates the dry land and the seas and makes plants to grow, while on Day 6 he puts the animals and man on the dry land and gives the plants to them for food.

According to the "framework" view, Gen 1 should not be read as though the author wanted to inform us about the sequence of days or the order in which things were created, nor did he intend to tell us about the length of time the creation took. The arrangement of six "days" is a literary device the author uses to teach that God created everything. The six "days," which are neither twenty-four-hour days nor long periods of time, give us six different "pictures" of creation, telling us that God made all aspects of the creation, that the pinnacle of his creative activity was man, and that over all creation is God himself, who

rested on the seventh day and who calls man therefore to worship him on the sabbath day as well.

In the words of a recent advocate of this position, "Chronology has no place here." The attractions in favor of this hypothesis are (1) the neat correspondence between the pairs of days as shown in the table above, (2) the fact that it avoids any conflict with modern science over the age of the earth and the age of living creatures (since no chronology at all is implied), (3) the way it avoids the conflict of sequence between Gen 1 and 2 in which man (Gen 2:7) seems to be formed before plants (Gen 2:8) and animals (Gen 2:19), a sequence different from Gen 1, and (4) the fact that Gen 2:5 shows that the "days" of creation were not literal twenty-four-hour days, for it says that there were no plants on the earth because it had not yet rained, something that would not make sense in a six day creation, since plants can certainly survive three or four days without rain.

Several points may be made against the framework theory.

1. First, the proposed correspondence between the days of creation is not nearly as exact as its advocates have supposed. The sun, moon, and stars created on the fourth day as "lights in the firmament of the heavens" (Gen 1:14) are placed not in any space created on Day 1 but in the "firmament" (Heb. *raqia*±

) that was created on the second day. In fact, the correspondence in language is quite explicit: this "firmament" is not mentioned at all on Day 1 but five times on Day 2 (Gen 1:6-8) and three times on Day 4 (Gen 1:14-19). Of course Day 4 also has correspondences with Day 1 (in terms of day and night, light and darkness), but if we say that the second three days show the creation of things to fill the forms or spaces created on the first three days, then Day 4 overlaps at least as much with Day 2 as it does with Day 1.

Moreover, the parallel between Days 2 and 5 is not exact, because in some ways the preparation of a space for the fish and birds of Day 5 does not come in Day 2 but in Day 3. It is not until Day 3 that God gathers the waters together and calls them "seas" (Gen 1:10), and on Day 5 the fish are commanded to "fill the waters in the seas" (Gen 1:22). Again in verses 26 and 28 the fish are called "fish of the sea," giving repeated emphasis to the fact that the sphere the fish inhabit was specifically formed on Day 3. Thus, the fish formed on Day 5 seem to belong much more to the place prepared for them on Day 3 than to the widely dispersed waters below the firmament on Day 2. Establishing a parallel between Day 2 and Day 5 faces further difficulties in that nothing is created on Day 5 to inhabit the "waters above the firmament," and the flying things created on this day (the Hebrew word would include flying insects as well as birds) not only fly in the sky created on Day 2, but also live and multiply on the "earth" or "dry land" created on Day 3. (Note God's command on Day 5: "Let birds multiply on the earth" [Gen 1:22].) Finally, the parallel between Days 3 and 6 is not precise, for nothing is created on Day 6 to fill the seas that were gathered together on Day 3. With all of these points of imprecise correspondence and overlapping between places and things created to fill them, the supposed literary "framework," while having an initial appearance of neatness, turns out to be less and less convincing upon closer reading of the text.

2. Since all proposals for understanding Gen 1 attempt to provide explanations for scientific data about the age of the earth, this is not a unique argument in favor of the framework theory. However, we must recognize that one aspect of the attractiveness of this theory is the fact that it relieves evangelicals of the burden of even trying to reconcile scientific findings with Gen 1. Yet, in the words of one advocate of this theory, "So great is the advantage, and for some the relief, that it could constitute a temptation." He wisely adds, "We must not espouse the theory on grounds of its convenience but only if the text leads us in that direction."

3. Those who have not adopted the framework theory have seen no conflict in sequence between Gen 1 and 2, for it has been commonly understood that Gen 2 implies no description of sequence in the original creation of the animals or plants, but simply recapitulates some of the details of Gen 1 as important for the specific account of the creation of Adam and Eve in Gen 2. The NIV avoids the appearance of conflict by translating, "Now the LORD God had planted a garden in the East, in Eden" (Gen 2:8) and "Now the LORD God had formed out of the ground all the beasts of the field and all the birds of the air" (Gen 2:19).

4. Gen 2:5 does not really say that plants were not on the earth because the earth was too dry to support them. If we adopt that reasoning we would also have to say there were no plants because "there was no man to till the ground" (Gen 2:5), for that is the second half of the comment about no rain coming on the earth. Moreover, the remainder of the sentence says that the earth was the opposite of being too dry to support plants: "streams came up from the earth and watered the whole surface of the ground" (Gen 2:6 NIV). The statement in Gen 2:5 is simply to be understood as an explanation of the general time frame in which God created man. Gen 2:4-6 sets the stage, telling us that "no plant of the field was yet in the earth and no herb of the field had yet sprung up—for the LORD God had not caused it to rain upon the earth, and there was no man to till the ground; but a mist went up from the earth and watered the whole face of the ground." The statements about lack of rain and no man to till the ground do not give the physical reason why there were no plants, but only explain that God's work of creation was not complete. This introduction puts us back into the first six days of creation as a general setting—into "the day that the LORD God made the earth and the heavens" (Gen 2:4). Then in that setting it abruptly introduces the main point of chapter 2—the creation of man. The Hebrew text does not include the word "then" at the beginning of verse 7, but simply begins, "And the LORD God formed man" (Gen 2:7 KJV).

5. Finally, the strongest argument against the framework view, and the reason why comparatively few evangelicals have adopted it, is that the whole of Gen 1 strongly suggests not just a literary framework but a chronological sequence of events. When the narrative proceeds from the less complex aspects of creation (light and darkness, waters, sky, and dry land) to the more complex aspects (fish and birds, animals and man) we see a progressive build-up and an ordered sequence of events that are entirely understandable chronologically. When a sequence of numbers (1-2-3-4-5-6) is attached to a set of days that correspond exactly to the ordinary week human beings experience (Day 1, Day 2, Day 3, Day 4, Day 5, Day 6, Day 7, with rest on Day 7), the implication of chronological sequence in the narrative is almost inescapable. The sequence of days seems more clearly

intended than a literary framework which is nowhere made explicit in the text, and in which many details simply do not fit. As Derek Kidner observes:

The march of the days is too majestic a progress to carry no implication of ordered sequence; it also seems over-subtle to adopt a view of the passage which discounts one of the primary impressions it makes on the ordinary reader. It is a story, not only a statement.

6. A sequence of days is also implied in God's command to human beings to imitate his pattern of work plus rest: "Remember the sabbath day, to keep it holy. Six days you shall labor, and do all your work; but the seventh day is a sabbath to the LORD your God...for in six days the LORD made heaven and earth, the sea, and all that is in them, and rested the seventh day" (Ex 20:8-11). But if God did not create the earth by working for six days and resting on the seventh, then the command to imitate him would be misleading or make no sense.

In conclusion, while the "framework" view does not deny the truthfulness of Scripture, it adopts an interpretation of Scripture which, upon closer inspection, seems very unlikely.

b. "Young Earth" Theories of Creation: Another group of evangelical interpreters rejects the dating systems that currently give an age of millions of years to the earth and argue instead that the earth is quite young, perhaps 10,000 to 20,000 years old. Young earth advocates have produced a number of scientific arguments for a recent creation of the earth. Those who hold to a young earth generally advocate one or both of the following positions:

(1) Creation With an Appearance of Age (Mature Creationism):

Many who hold to a young earth point out that the original creation must have had an "appearance of age" even from the first day. (Another term for this view is "mature creationism," since it affirms that God created a mature creation.) The appearance of Adam and Eve as full-grown adults is an obvious example. They appeared as though they had lived for perhaps twenty or twenty-five years, growing up from infancy as human beings normally do, but in fact they were less than a day old. Similarly, they probably saw the stars the first night that they lived, but the light from most stars would take thousands or even millions of years to reach the earth. This suggests that God created the stars with light beams already in place. And full-grown trees would probably have had rings (Adam and Eve would not have had to wait years before God told them which trees of the garden they could eat from and which they could not, nor would they have had to wait weeks or months before edible plants grew large enough to provide them food). Following this line of reasoning, might we go further and suppose that many geological formations, when originally created, had a similar appearance to formations that would now take thousands or even millions of years to complete by present "slow" processes?

This suggestion has currently found many supporters, and, initially at least, it seems to be an attractive proposal. Those who hold this position often combine it with certain objections to current scientific dating processes. They question how we can be certain of the reliability of radiometric dating beyond a few thousand years, for example, and how scientists can know that the rates of decay of certain elements have been constant since creation. They also suggest that events such as the fall and the subsequent cursing of nature (which

altered the productivity and ecological balance of the earth, and caused man himself to begin to age and decay, Gen 3:17-19), or the flood in Noah's time (Gen 6-9), may have brought about significant differences in the amount of radioactive material in living things. This would mean that estimates of the age of the earth using present methods of measurement would not be accurate.

A common objection to this "appearance of age" view is that it "makes God an apparent deceiver," something that is contrary to his nature. But is God a "deceiver" if he creates a mature man and woman in a day and then tells us explicitly that he did it? Or if he creates mature fish and animals and full-grown trees and tells us that he did it? Or if he allows Adam and Eve to see the stars, which he created in order that people might see them and give glory to him, on the first night that they lived? Rather than manifesting deception, it seems that these actions point to God's infinite wisdom and power. This is particularly so if God explicitly tells us that he created everything in "six days." According to this position, those who are deceived are those who refuse to hear God's own explanation of how the creation came about.

The real problem with the appearance of age view is that there are some things in the universe that it cannot easily account for. Everyone will agree that Adam and Eve were created as adults, not newborn infants, and therefore had an appearance of age. Most who hold to twenty-four-hour days in Gen 1 would also say there was an appearance of age with plants and trees, and with all the animals when they were first created (the chicken came before the egg!), and probably with light from the stars. But the creation of fossils presents a real problem, for responsible Christians would not want to suggest that God scattered fossils throughout the earth to give an added appearance of age! This would not be creating something "in process" or in a state of maturity; it would be creating the remains of a dead animal, not so that the animal could serve Adam and Eve, but simply to make people think the earth was older than it really was. Furthermore, one would have to say that God created all these dead animals and called them "very good."

While the creation of stars with light beams in place or trees that are mature would be for the purpose of enabling human beings to glorify God for the excellence of his creation, the depositing of fossils in the earth could only be for the purpose of misleading or deceiving human beings regarding the earlier history of the world. More problematic is that Adam, the plants, the animals, and the stars all would have appeared to have different ages (because they were created with mature functions in place), whereas modern geological research gives approximately the same age estimates from radiometric dating, astronomical estimates, rock formations, samples of moon rocks and meteorites, etc. Why would God create so many different indications of an earth that is 4.5 billion years old if this were not true? Would it not be better to conclude that the earth is 4.5 billion years old, and that God left many indications there to show us this fact rather than in any way imply that he deceived us? So it seems the only credible explanations for the fossil record that Christians can adopt are: (a) current dating methods are incorrect by colossal proportions because of flawed assumptions or because of changes brought about by the fall or the flood; or (b) current dating methods are approximately correct and the earth is many millions or even billions of years old.

(2) Flood Geology:

Another common view among evangelicals is what may be called "flood geology." This is the view that the tremendous natural forces unleashed by the flood at the time of Noah (Gen 6-9) significantly altered the face of the earth, causing the creation of coal and diamonds, for example, within the space of a year rather than hundreds of millions of years, because of the extremely high pressure exerted by the water on the earth. This view also claims that the flood deposited fossils in layers of incredibly thick sediment all over the earth. The flood geology view is also called "neo-catastrophism" because its advocates attribute most of the present geological status of the earth to the immense catastrophe of the flood.

The geological arguments put forth by advocates of this view are technical and difficult for the nonspecialist to evaluate. Personally, though I think the flood of Gen 6-9 was world-wide, and that it did have a significant impact on the face of the earth, and that all living people and animals outside the ark perished in the flood, I am not persuaded that all of the earth's geological formations were caused by Noah's flood rather than by millions of years of sedimentation, volcanic eruptions, movement of glaciers, continental drift, and so forth. The controversy over flood geology is strikingly different from the other areas of dispute regarding creation, for its advocates have persuaded almost no professional geologists, even those who are Bible-believing evangelical Christians. By contrast, the books objecting to evolution that we mentioned above chronicle 130 years of cogent objections to Darwinian evolution that have been raised by a significant number of biologists, biochemists, zoologists, anthropologists, and paleontologists, both Christian and non-Christian, because evolution has so many problems in explaining facts evident from observation of the created world. If present geological formations could only be explained as the result of a universal flood, then would this not be evident even to non-Christians who look at the evidence? Would not the hundreds of Christians who are professional geologists be prepared to acknowledge the evidence if it were there? It may be that the flood geologists are right, but if they are, we would expect to see more progress in persuading some professional geologists that their case is a plausible one.

5. Conclusions on the Age of the Earth. How old is the earth then? Where does this discussion leave us? Young's arguments for an old earth based on many kinds of scientific data from different disciplines seem (to the present writer at least) to be very strong. This is particularly true of arguments based on fossil-bearing rocks, coral reefs, continental drift, and the similarity of results from different kinds of radiometric dating. Newman and Eckelmann's arguments from astronomy indicating a very old universe give significant added weight. It is understandable, on the one hand, that God may have created a universe in which stars appeared to have been shining for 15 billion years, Adam appeared to have been living for 25 years, some trees appeared to have been living for 50 years, and some animals appeared to have been living for 1 to 10 years. But, on the other hand, it is difficult to understand why God would have created dozens or perhaps hundreds of different kinds of rocks and minerals on the earth, all of which actually were only one day old, but all of which had an appearance of being exactly 4.5 billion years old—exactly the apparent age that he also gave the moon and the meteorites when they, too, were only one day old. And it is difficult to understand why the evidence of star life cycles and the expansion of the universe would make the universe appear to be 15 billion years old if it were not. It is

possible, but it seems unlikely, almost as if God's only purpose in giving these uniform apparent ages was to mislead us rather than simply to have a mature, functioning universe in place. So the old earth advocates seem to me to have a greater weight of scientific evidence on their side, and it seems that the weight of evidence is increasing yearly.

On the other hand, the interpretations of Gen 1 presented by old earth advocates, while possible, do not seem as natural to the sense of the text. Davis Young's own solution of "seven successive figurative days of indeterminate duration"