THE CREATION ACCOUNT—THE EVIDENCE FROM WHAT IS NOT THERE

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Abstract

A review of the scientific beliefs relative to origins found a considerable contrast between the ancient cosmological theories and the Genesis record. This contrast reveals that Genesis managed to avoid all of the erroneous ideas held by the most respected thinkers and philosophers of the pre-Christian era. With the advantage that researchers have today of accumulated data and wisdom, we are far better able to evaluate the simple straightforward account in Genesis which contrasts greatly to cosmological beliefs widely held by the ancients, almost all which we now see as totally erroneous. The implications of this contrast are discussed.

Introduction

The Scriptures are completely devoid of thousands of ideas and beliefs held by the ancients now shown to be false—even those that were commonly believed at the time by most of humankind (Thiessen, 1950; Smyth, 1892). It is significant evidence for their inspiration that not one of these found their way into the Biblical Canon. If the Bible writers personally believed some of these ideas—which is very likely because they would not have been omniscient—the fact that they were not included in their writings which became part of the canon provides evidence for the belief that divine guidance not only directed them to record certain things, but also prevented them from recording others. Although divine guidance operated in their work as God's writers and prophets, many historians have concluded from a study of contemporaneous extra-Biblical writings that they accepted many of the beliefs held by those around them in their other areas of life (Scott, 1946). Asimov, a self-proclaimed atheist who believes the Bible is of human authorship, admitted:

> The Biblical writers and editors were thoughtful men who borrowed selectively, choosing what they considered good and rejecting what seemed nonsensical or unedifying. They labored to produce something that was as reasonable and as useful as possible. In doing so they succeeded wonderfully. There is no version of primeval history, preceding the discoveries of modern science, that is as rational and as inspiring as that of the first eleven chapters of the Book of Genesis (1981, p. 3)

The traditional evidences of the plenary inspiration of the creation account and the entire Scriptural record almost invariably focus upon the view that the intellectual sophistication of the concepts they discuss are far advanced compared to those believed in the cultures existing around the original writers. A few of the more common examples include the expression in Isaiah 40:22 which mentions the "*circle* (for sphericity) of the earth" indicating the originator of these words knew that the world was round, and not flat as most people at that time believed. The Hebrew word translated circle here is *chuwg* which means *round, circle or circuit* (Strong, 1890). The many statements such as this which indicate a level of insight far beyond the level of contemporary knowledge are an important evidence of the Holy Scripture's inspiration.

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Another, probably equally important evidence, is that the creation account did not include many of the ideas that the ancients accepted without question and which *we now know are false.* Literally thousands of major false beliefs about cosmology were commonly held by the those living when the Scriptures were penned—including by most of the cultures living around the Hebrews, such as the Greeks and Romans and the Hebrews themselves—which did *not* find their way into the Scriptures (Barnstone, 1984; Charlesworth, 1983).

For example, the eminent Aristotle, whose teachings were viewed as almost inspired by many for over 1000 years after the birth of Christ, believed ideas which were not only wrong, but so contrary to experience that it is surprising that they were almost universally accepted in the ancient world for so long. He taught that the direction of the wind during conception influenced which sex the future child became—and, to insure healthy children, it was best to conceive them in the winter when the wind comes from the north. To insure a male child, he added, couples should conceive when they are older (Gardner, 1954, p. 243). Aristotle also taught that the color of the blood of females was black, and that of males red (Thorndike, 1923). Evidently, a woman who noticed that her blood was not black would not broadcast this fact for fear that others would think that she was different, possibly a male. Aristotle also concluded:

> . . . the heart was a source of fiery bodily heat, so that one had to breathe air and bring cold humours from the brain to cool and moderate it. For him the heart was also a seat of intelligence, distributing its influence through the arteries, which contained hot, bounding, mystic, airy pneuma. And at the same time, tendinous strings attached to the valves of the heart were in some way connected up, again rather mysteriously, to all the other tendons in the rest of the body, as in a marionette. (We still speak of things tugging at our heart-strings.) For Aristotle had noted that parts at which free movement occurred, such as the wrists, were well supplied with tendons, which he regarded as the prime movers. (He mistakenly took it that the muscles were concerned only with sensation.) In his books he divided animals into two groups—those With Blood, and those Without (Hackett, 1973, p. 84).

These Greek beliefs spread to most of the Middle East through the conquests of Alexander the Great, and most westerners held Aristotle's works as almost of

equal value as the Bible until as late as the middle 1700's (De Santillana, 1955).

Other absurdities taught by Aristotle include the idea that the only animal able to contract measles is the pig, and that a cure for insomnia in elephants is rubbing its shoulders with salt, olive oil and warm water. Even a conclusion which could easily be disproved, such as "women have fewer teeth than men" was believed by many respected, learned philosophers of the time, some that are even today considered "paragons of wisdom" for their other teachings. Many ideas that are still with us today, called superstitions, were at one time fully believed and taught as truth by those widely considered wise and consequently accepted as valid by the masses (Daniel-Rops, 1962). Most people recognize that walking under a ladder, breaking mirrors, and existing on Friday the thirteenth have no more effect on us than we cause them to have (Batchelor and DeLys, 1954; Berry, 1940). Nonetheless, these ideas were taught by those reputed to be very knowledgeable and were believed by the masses for eons (Heaton, 1956). Even the eminent Anaxorgoras, historian of science Sarton concluded, "his scientific knowledge was not only meager, but mostly wrong" (1959, p. 243).

The Ancient Greeks' View of the World

The views that various ancient peoples of Biblical times commonly accepted were very similar to many modern day "fairy tales." Archelaos of Miletos (Socrates' teacher), proposed that when life first emerged from the earth by some type of spontaneous generation, a milk-like fluid also appeared so that these first creatures would have a source of nourishment. Diogenes added that living things are generated from the earth when it is heated, and it also gives off milk then to serve as a sort of nourishment—and, he concluded, the earth produces humans in this same way.

The respect of these philosophers was such that their teachings were accepted as fully true by many of the Greek population, and most of their ideas were still very much in vogue at the time of Christ (Daniel-Rops, 1962). Since the Greek, Roman, and other ancient governments did not conduct scientific polls (such as Gallup), we cannot fully assess the thoughts of these people, nor do we know for certain the extent they were accepted as literally true. While enough evidence does not exist to reconstruct what the typical Greek or Roman probably believed, we do know that their ideas have permeated the extant ancient writings (Heaton, 1956). And this evidence supports the view that most of those philosophers whose works exist today were held in very high esteem, almost inspired, by the masses (De Santillana, 1955).

Aristotle's influence was especially strong. He was the son of Nicomachus, court physician to the father of Philip of Macedon, and worked with Plato for 20 years. Aristotle, Plato and the other Greek philosophers in this school were so widely respected that the early Christian writers went to great pains to try to "reconcile" Christian thought with it (Turner, 1913). St. Thomas Aquinas' *Summa* was partially an attempt to harmonize Christian revelation with Aristotelian thought (Barker, 1943). Extensive research by scholars has found some, but limited deviation from the views of this major school of thought, a fact which is probably true of most *dominant* beliefs throughout history. Today, the concept that the Earth is round and travels around the Sun is almost universally accepted.

Likewise, because the teachings of the ancient philosophers were commonly accepted does not mean that they were unequivocally believed by *all* Greeks, or even all ancient peoples. Some early Greek scientists recognized that the earth is round—noting evidence such as the circular shadow that the earth cast on the moon, and the way ships seemed to sink below the horizon as they sailed away from land (Sagan, 1980). An astronomer by the name of Aristarchus of Samos argued around 275 B.C. that the sun, not the earth, is the center of the solar system, and that the sun was much larger than the earth. Although many of his conclusions were correct, we do not fully understand how he reached them nor how widely his views were accepted. Conclusions such as these, though, *were rejected by most as incorrect and were never held by more than a small minority of scientists.* Sagan concludes that "for most of the 1,800 years between Aristarchus and Copernicus nobody knew the correct disposition of the planets" and "there were cries" that Aristarchus "be condemned for impiety" (1980, p. 189).

Sometimes the *more* respected philosophers were more apt to discuss ideas that we today conclude are totally fanciful. That these philosophers became well known indicates the level of the ancients' respect for their general views. Plato believed that humans were fashioned out of earth, air, fire and water by a deliberate creative act of the main deity (McMullin, 1965). Unfortunately, though, the major deity's "helpers" deviously, and against the will of the supreme God, placed an "irrational soul" in our bodies in addition to the rational soul previously placed in our head by the major deity. They then reasoned that the farther from the head that thinking occurred, the less rational it becomes because thoughts farther away from the brain utilized more of the irrational soul which tended to become stronger as the origin of one's "thought" moved away from the brain. The body itself became the battleground for the opposite personalities of these two souls.

Plato popularized both the belief that humans have an immortal soul and the idea that after one died, what type of creature one became in the next reincarnation depended upon the type of life one lived or the person he/she was while alive. Plato believed that reasoning was a far more important source of truth than learning through one's senses. He termed experimentalists "dim-witted but harmless," and felt those whose knowledge was obtained largely through the evidence of their eyes became birds in the reincarnation (Eslick, 1965). Those who became land animals after death were persons who had no use for philosophy and had let their lives be governed by their instincts instead of their reason. The ignorant and foolish became fish because they were "unworthy" even of breathing air.

Air was one of four elements, and was the basis of the mind and the source of many personal qualities such as intelligence. They reasoned that because humans and other living creatures live by means of breathing air, if air is removed, their intelligence will depart and they will die. Diogenes argued that variations in internal

temperatures was the cause of most all of the different types of animals—bats are different than lions, for example, only because their temperature was different. Other philosophers, including Socrates' mentor, Archelaos, concluded that one makes dirt (soil) simply by heating water—the fire causes the water to "stick" together, forming a semi-solid mass (as opposed to dry sand) and this process generates air as a by-product (Russell, 1950).

The Ancients' View of the Solar System and Universe

The ancients were little aware of the true nature of the solar system (Bok and Jerome, 1975). Many then understood the world as consisting of a small patch of land bounded by distant hills beyond which was the sea. Not far overhead, they believed, was the sky across which "rode" the beneficent sun. The sun was seen as a parent god who provided his children with light and warmth and the moon and planets were "lesser gods" that rode at night with the stars. Beyond this, few of the ancients had an accurate picture of what else actually existed in the universe—actually neither did moderns until the last few decades (Bok and Jerome, 1975; Coleman, 1967). The belief that the stars were "living beings" was evidently accepted by many of the most brilliant thinkers who ever lived, including Plato and Aristotle (Clark, 1977).

The beliefs many of the ancients held about the shape and structure of the universe were generally "remarkably uniform" (Reichen, 1963, p. 10). Many concluded that the earth was a flat disk, or close to a fairly flat hemisphere, surrounded by a great river on which the earth floated. The river was surrounded by a "hollow," or space, part of which formed the heavens. Above this was believed to be an immense reservoir containing the "upper waters" which was the source of rain. Everything below was "sheol," a land of darkness where everybody went when they died. One reason ancients buried their dead in the ground was to give them a head start on their journey to sheol. (The gods then took them the rest of the way.) The living dare not take their dead *too far* underground—six feet was assumed safe—because no one wanted to get too close to the other world for fear they would "fall" into sheol. This is also why many of the ancient civilizations mined metal ores only in caves or mountains—and in caves the workers dug forward, sideways or upward but never downward.

Many romantic ideas about the earth were commonly espoused by the ancients. To the Hindus, it was supported by four elephants whose feet stood on giant tortoises swimming in a river of mild milk (Beiser, 1962). The Egyptians and Mesopotamians envisioned the earth as a solid, flat object which was the main object in the universe in terms of mass, size and importance. The Egyptians taught that the cosmos was encompassed by a star-studded, female sky goddess who swallowed the sun each evening and vomited it up each morning (Sagan and Leanard, 1972, p. 10). The Greek Thales taught that the earth was a "disc" floating in the waves of a huge pool of water. Air was mere vapor and the stars were a series of "thoughts" floating on the "higher waters," those in the heavens which produced the rain (Russell, 1950). Anaximander of Miletus saw the earth as a cylinder—three times as broad as deep, inhabited only in the upper part. He envisioned his cylinder stood *without support* in the center of a perfectly spherical sky. The stars were the open ends of enormous tubular wheels filled with fire—and when they were blocked, an eclipse occurred.

Until the early 1700's, the Greeks and many other civilizations believed that the sun, moon, planets and stars were kept from falling to the earth by invisible plastic-like concentric spheres that rotated and carried with them the various planets (De Santillana 1955). The sun, moon and the six known planets were in turn each supported by their own spheres. The planets and our moon were each embedded in a "plastic" sphere and each one was smaller than the next so as to form a set of organized layers. The moon was thought to be a feminine creature because of "her waxing and waning on a 29 day cycle." She continually but regularly changed from full to half size, then to only a "slit of light." The Greeks knew of nine different types of heavenly spheres—five planets, the earth, moon, sun and the fixed stars—but nine was an imperfect number, so they reasoned the number must be ten, a "perfect" number. To obtain ten spheres, they invented another planet which "always stayed on the far side of the world where it could never be seen" (Bergamini, 1962, p. 12).

It is significant that none of these ideas—all which were radically different from our modern concept of the Universe, and commonly believed by the Greeks at the time when the New Testament was written—found their way into the Bible (Heaton, 1956). Probably one of the most well known—and most highly defended—ancient concepts was the belief that the earth was the physical "center" of the solar system and Universe. Yet nowhere in the Bible does even a single Scripture directly teach this view. Although it does not teach that the earth is *not* the *physical* center, the very absence of this almost universally believed concept is significant in view of present day astronomy conclusions. In an extensive human authored document the length of the Bible, it would be likely that this world view, or parts of it, *would be mentioned somewhere.* In the over 2,000 times that the Scriptures refer to the creation, never once does the document even reflect these beliefs. The few alleged cases of this such as the "firmament" controversy or Lamarckian biology inference are covered adequately elsewhere (Morris 1976).

Astrology Beliefs of the Babylonians

The Babylonian priests studied the heavens for the purpose of learning about the gods, whose actions they believed were intimately connected with the movements of stars (Thorndike, 1923). This common view was close to universal in this part of the world, yet never once do the Scriptures link star movements with God's actions. They do relate the incident of the three astrologers (Magi in the Greek; actually, according to Herodotus, Magi were a tribe of Medes) who located the child Jesus by "following" a "star." The star, though, was only for the purpose of direction—this passage nowhere teaches that the star itself was a god or an intelligent being. Using stars for direction was common in the days of both Moses and Jesus, and even today—and because a "star appeared to move" does not alter

its purpose, i.e. direction. Whether the star or planet actually physically moved is another paper (Chester, 1993). Nonetheless, although the Scriptures mention star groups (Job 9:9; 38:31) they never teach the art of astrology which was widely practiced and a core belief in much of the biblical lands, especially the Babylonians and the Chaldeans (Lindsay, 1971).

The Scriptures do make use of comparisons with the stars in the heavens, or grains of sand on the seashore, to emphasize size or amount. These illustrations are appropriate and very meaningful, actually more so today than in the past. We are now far more aware of the truly awesome number of stars in the universe. The ancients knew of only those they could see with the naked eye, about 6,000, a minuscule amount compared to the number now known to exist—about 100-billion galaxies, each with about 100-billion stars (Ross, 1993). Of the many times that the stars are discussed in the Scriptures, not once is the inference made that we can learn the will of God or our future by observing star movements or even a particular star; in fact, the Scriptures condemn such practices—Deut. 18:10-12; Isa. 47:13-15; Daniel 2-8 (Lindsay, 1971).

Examples of Creation Beliefs of the Ancients in the Middle East

The Phoenicians believed that violent thunderstorms were the source of the many differences now so evident in living things. The Babylonian creation stories are highly fanciful compared to the Genesis account. In one account, the god Apsu displeased Ea, the god of wisdom, so Ea killed Apsu which made his consort, Tiamat, extremely angry. To avenge Apsu's death, Tiamat gathered together the evil gods to fight Ea. In defense, the good gods appointed Marduk as their leader and successfully destroyed Tiamat. Her body was then cut in two, one half formed the heavens, the rest the earth. Humans were later created from the blood of Tiamat's former followers who were killed in the battle (Thorndike, 1923). This fanciful story has little similarity with the Genesis account, and is even farther removed from all modern scientific theories of origins than Genesis. The theme of Genesis is primarily simply that God created the plants, animals and humans in an orderly way out of nothing or existing matter, depending on the section of Genesis. This is not to say these people were less intelligent than moderns, only that we have the benefit of 6,000 years of research and experience.

The Greeks taught the source of light for the earth is not the sun, but the god Apollo (the Egyptians gave this role to his counterpart, Amon Re) who provided light by driving blazing chariots across the skies. Many of these beliefs were not held by a few individuals but, according to the best historical estimates, were firmly and almost totally accepted by the vast majority of Egyptians (Erman, 1971). This imagery, although picturesque, does not even resemble our modern understanding of reality. These beliefs are absent from the Bible account of creation, even though it was written contemporaneously to when they were widely accepted. Most of the Bible writers were common people who were unlikely to question the wisdom of their culture if it did not contradict the Scriptures. This contrast in non-biblical accounts and the Scriptures was noted by Ross when he first read Genesis. In his words:

> In the first several holy books I examined, my initial hunch was confirmed. I found statements clearly at odds with established history and science. I also noted a writing style perhaps best described as esoteric, mysterious, and vague. My great frustration was having to read so much in these books to find something stated specifically enough to be tested. The sophistry and the incongruity with established facts seemed opposite to the Creator's character as suggested to me by nature . . . [When] I picked up a Bible. . . . The book's distinctives struck me immediately. It was simple, direct, and specific. I was amazed with the quantity of historical and scientific references and with the detail in them. It took me a whole evening just to investigate the first chapter. Instead of another bizarre creation myth, here was a journal-like record of the earth's initial conditions—correctly described from the standpoint of astrophysics and geophysics—followed by a summary of the sequence of changes through which Earth came to be inhabited by living things and ultimately by humans. The account was simple, elegant, and scientifically accurate. From the stated viewpoint of an observer on Earth's surface, both the order and the description of creation events perfectly matched the established record of nature. I was amazed (Ross, 1993, p. 15).

Not only in their conception of the universe did the ancients believe some clearly erroneous ideas, but especially in areas such as the structure and the function of the human body and its organs.

Spontaneous Generation Ideas of The Ancients

The spontaneous generation of life idea was almost universally believed among the ancients until it was disproved by Louis Pasteur and others in the middle 1800's (Farley, 1979). The Greek historian Diodorus of Sicily, while visiting Egypt stated:

> Even at the present day the soil at Thebes at certain times generates mice in such size as to astonish all who have witnessed the phenomena: for some of them are fully formed as far as the breast and front feet, and are able to move, while the rest of the body is unformed, the clod of earth still retaining its natural character . . . for even at the present time, when the soil of no other country generates any such thing, in it alone certain living creatures may be seen coming into being in a marvelous fashion . . . forms of animal life can clearly be seen taking place in the pools which remain the longest: for example, whenever the river has begun to recede, and the sun has thoroughly dried up the surface of the slime, living animals come, they say, take shape, some of them fully formed, but some only half so, and still actually united within the earth (Diodorus, 1962).

In contrast, the Scriptures teach that the only source of plant and animal life is from life (called biogenesis) and abiogenesis is never even implied.

Another belief held by a number of extremely prominent ancient philosophers, including Aeritus, Hippolytus, Censorius and Plutarch, was that humans could spontaneously generate inside of certain large fish, often sharks (Rostovtzeff, 1928). And once generated, they lived inside of the fish until grown. The fish then burst, and adult men and women who now could feed themselves came forth, went ashore, and lived on their own. The writings of many of the ancients indicated that they concluded that marine and land animals were in most respects identical—the major difference was that marine animals were covered with a "prickly bark," enabling what was essentially a land animal to survive in the water.

Some ancient peoples, though, believed in a different abiogenesis theory. Anaximander (610-546 BC), a major sixth century Greek thinker called the founder of astronomy, concluded that air was the material substance from which all things originate and, when rarefied, become fire. He taught that the entire universe was made up solely of different concentrations of air. When it condensed, it first exists as wind, and as it condenses further it turns into clouds, then water, later dirt and, last, stones. This logical but naive view was commonly accepted and taught by some of the most eminent philosophers then (Sarton, 1959). Aristotle modified this and taught that *four* element existed — *earth, air, fire and water* — and from these emanated everything in the universe. These four substances all are, of course, not elements or even compounds, but mixtures. Oxygen is the primary component of both air and water, and is a fuel for combustion, a reaction involving primarily oxygen and some other element. They failed to recognize the many gross differences in physical properties between what we recognize today as the elements. Arsenic and oxygen are both elements, but are very different in many physical and chemical ways.

Anaximander not only reduced all matter to air, but concluded that living creatures were primarily "homogeneous air and wind" (Ovid, 1916). He noted that when humans breathed in air, it was cold, but when it came out, it was warm. Since he believed hot and cold are fundamental qualities of matter (all matter has temperature, even absolute zero is a "temperature") and both of these qualities owed their existence to air, he concluded that the physical stuff of life must owe its existence to air, the most basic of all substances. Anaximander also concluded that life originated naturally in water, and the first forms resembled sea urchins. On the other hand, Thales of Miletos (b. 624—c. 548) and many others concluded that *water* is the source of all things (Sarton, 1959, p. 172). Others felt that fire was the primary element, even speculating that earth and water were essentially fire that had been extinguished or changed in some way, but was still fire at its core.

The well known Greek writer, Pliny the Elder, who lived when the writing of the Greek Scriptures was being completed, described the chameleon as "the only animal that receives nourishment neither by meat nor drink nor anything else, but from the air alone" (Button, 1977, p. 12). He described a tribe of half-men and half-women who alternately performed the function of each sex called *Androgyny*. Then there were the *Troglodytae*, a tribe that lacked necks and had eyes in their shoulders (Woodruff, 1979). The *Desdemona* were normal men except that their feet were turned the wrong way and they "eat" simply by smelling the fragrance of certain flowers and fruits. The umbrella foot men *(Sciapodae)* laid on their backs to use their huge feet to protect themselves from the sun. Pliny probably picked up many of these tidbits from his extensive travels—and many of these creatures that he described were believed by the people of his day to actually exist (Thorndike, 1923; *The Encyclopedia Britannica*, Vol. 18, p. 78, 1945 ed.).

One of the more interesting early theoreticians was Empedocles of Acragas (c. 490-431 B.C.). Like many of his contemporaries, he accepted the theory that the universe was made up of four elements, fire, air, earth and water. Believing that motion was not an innate characteristic of matter, an idea which some in his day accepted, he proposed two basic natural forces—love and strife. The former was the uniting force, the latter the divisive one. All that was needed for the universe to function, Empedocles felt, was the four elements and these two energy sources. The origin of life was very simple—life arose spontaneously from the growth of trees as a result of the action of both love and strife upon the four basic elements. Empedocles also proposed a "first generation" of incomplete animals and plants—separate limbs and other body parts not joined together. These "faces without necks, arms wandering without shoulders, unattached, and eyes strayed alone, in need of foreheads" were united in the second stage (Burnett, 1930, p. 40). The process of joining, though, was somewhat happenstance and things, "fell together as each chanced to meet the other." This random coming together resulted in mismatchings—creatures with faces and legs on their trunks, and others having, for example, an ox's head and a man's body (Russell, 1950).

All of this supposedly occurred in the eon when love was predominant and strife was prevented from exerting its influence. The next eon was governed by strife and functioned similar to Darwin's natural selection idea. During this stage, the functional combinations would win or survive, and the nonfunctional ones would not, resulting in everything turning out "as it would have if it were happening for a purpose."

Empedocles also envisioned a fourth stage where the species of both sexes were attracted to each other because of being "alike" or, as he explained, "sweet seized on sweet, bitter rushed towards bitter, sour moved towards sour, and hot settled upon hot." This highly picturesque explanation of sexual selection was evidently accepted literally by the ancients—even Aristotle incorporated rudiments of Empedocles theory in his writings:

> Where everything turned out in a way which simulated purpose, these creatures survived because by chance they were so constituted in a certain way, whereas all that were not so constituted perished, and continued to perish . . . like the oxen with human faces [which Aristotle believed existed]" (1952, p. 146).

This imaginative explanation for the origin of plant and animal life likely doesn't have a single defender today. Because Empedocles' ideas regarding natural

selection as well as his general outline of development resembled evolution, he is sometimes called "father of evolution" (Osborn, 1929). Many in Empedocles' day accepted this view, yet not even a semblance of it has crept into the inspired Scriptures. Exclusion of this idea and countless others, some of which are mentioned above, would seem incredible if the compilation of the Scriptures was determined by human direction alone. Since these ideas were undoubtedly entertained by the Jews and early Christians, and the Bible writers would not have any special knowledge of the physical structure of the universe if God did not specially reveal reality to them, they would likely have included some of these fanciful ideas in their writings. Considering the fact that their world view was very different from ours today, it is amazing that we today are still able to closely relate to the Scriptures.

A study of recent history indicates that many of these clearly incorrect beliefs were tenaciously held by vast numbers of people until very recently. For example, in the middle 1800's the French still subscribed to the doctrine of "maternal impressions" which held that if a pregnant woman saw an unpleasant sight or was frightened in some way, this experience could deform in some way her unborn child. (Dimmer, 1973, p. 29).

The Problem of Interpretation

Some persons today feel that many concepts such as the idea that the sun is a living "god" was believed only metaphorically by the Ancients. In other words, they did not understand this idea as literal, but only spoke of the sun as a god much as we today speak of the earth having four corners. This, though, was not the case with ideas in many cultures. For example, the Ionian, Anaxagoras (500-428 B.C.) was once overheard asserting that the sun was not really a god, but only an incandescent stone somewhat larger than the region of Peloponnesus. This event, and evidently also his irreverent attitude, caused the citizens to become incensed to the extent that he was imprisoned. If it was not for his friend, the powerful Pericles who arranged for his escape (eventually he lived in exile in the Milesian colony of Lampsacus), Anaxagoras would surely have been put to death by the Athenians just as Socrates was a few years later (Rostovtzeff, 1928). In Sagan's words, Anaxagoras:

> was the first person to state clearly that the Moon shines by reflected light, and he accordingly devised a theory of the phases of the Moon. This doctrine was so dangerous that the manuscript describing it had to be circulated in secret, an Athenian *samizdat*. It was not in keeping with the prejudices of the time to explain the phases or eclipses of the Moon by the relative geometry of the Earth, the Moon and the self-luminous Sun. Aristotle, two generations later, was content to argue that those things happened because it was the nature of the Moon to have phases and eclipses—mere verbal juggling, an explanation that explains nothing. The prevailing belief was that the Sun and Moon were gods [and in contrast] Anaxagoras held that the Sun and stars are fiery stones. . . . [As a result] Anaxagoras was convicted and imprisoned for the religious crime of impiety—because he had taught that the Moon was made of ordinary matter, that it was a place, and that the Sun was a red-hot stone in the sky. Bishop John Wilkins commented in 1638 on these Athenians: "Those zealous idolaters [counted] it a great blasphemy to make their God a stone, whereas notwithstanding they were so senseless in their adoration of idols as to make a stone their God" (Sagan, 1980, p. 182).

Often little tolerance existed for anyone then who did not accept what was believed to be a firm reality, which in this case was the idea that the sun was literally a god, as was thunder and virtually everything else in the natural world. True, the New Testament was not written until 500 or so years later, but the Greeks clearly influenced the Hebrews, even though the Hebrews tenaciously tried to keep their beliefs pure from Gentile views.

The Greeks' influence upon the early Christians, most of which were Hebrews, is clearly evident in their writings (Heaton, 1956). Paul spent a great deal of time debating and discussing their philosophers, trying to help Christians from being dominated by certain Greek ideas. Further, we know that many of the early Christian writers were very familiar with Greek philosophy (Daniel-Rops, 1962). Many were trained extensively in this area, and the early Christian writers spent a great deal of time either refuting or "accommodating" Christianity to the various Greek philosophical ideas (see *The AnteNicene Fathers*, 10 volumes, Eerdmans; Grand Rapids, Michigan).

Exactly how much the Greeks deviated from our modern understanding of the universe is illustrated by the common belief stressed by both the Atomists, headed by Leucippos and Democritus of Abdera in Thrace, and the Milesians. They believed that motion was an innate characteristic of all matter, but why or how matter was imbued with endless movement was never adequately explained. Consequently plants "grow" because they are made out of matter, and movement is a characteristic of matter. The wind "blows" because it is made up of air, and air is matter which contains the "drive" to move. In contrast to this belief, Newton's now confirmed laws of motion and inertia demonstrated that an object will remain motionless forever until acted upon by some outside force, and will continue to move forever unless again acted on by an outside force to cause it to slow down until it stops.

Christianity's Influence in the Development of Science

The major laws of modern science, namely that the universe exists by a set of unchangeable laws, and these laws are knowable and understandable to humans, were not developed in the pagan world. Nor was this view a cornerstone of its belief system, but some historians conclude was essentially a result of Christian theology (Hooykaas, 1972). These laws are partly responsible for much of the scientific progress in western society, and are one reason why, for example, the Egyptians and Babylonians never progressed as far scientifically as did the west. True, the Egyptians and Babylonians collected and cataloged a great deal of information from careful observation, but they developed few

broad *generalizations* or *concepts.* They recorded facts, but produced few valid physical laws that could be generalized to new circumstances or conditions. Thus Able concluded:

> For the most part, the major impediment to scientific progress in the Near East followed from the assumptions that these people held about the universe. While we today assume that events in nature can be fully explained as a result of specifiable causal factors, the Egyptians and Babylonians assumed that the course of events in nature was indeterminant and therefore beyond the understanding of mankind. Consequently, they made no effort to seek lawful relationships between various recurrent events, nor did they ever gain a deep insight into the events that they observed and recorded (1973, p. 22-23).

Many argue that a belief in the existence of a creator, and specifically the teachings of Scripture, was critically important in the rise of science (Jaki, 1978). Jaki (1988) actually concludes and that science was stillborn in the great ancient cultures, including Greek, Moslem and much of the rest of the ancient world, and that Christianity was the "savior of science" specifically the teachings of Paul in the New Testament. Critical in the development of science was the teaching that the universe was designed and obeyed created laws, and that this order was knowable to mankind. Christianity taught that this reality was produced by the sovereignty of God who is not subject to any other law or being other than Himself (Isa. 45:9; Romans 9:20,21). Consequently, humans could unlock many of the secrets of the universe, a factor which motivated many early researchers. The importance of this motivation is adequately illustrated by such individuals as Isaac Newton and Johann Kepler (Sagan, 1980). George Washington Carver as a young man "developed a strong desire to learn more about God's creation" which he stated motivated him throughout his life (Tiner, 1994, p. 6). In his words, "I love to think of nature as an unlimited broadcasting system through which God speaks to us every hour, if we will only tune in" (quoted in Tiner, 1994, p. 6).

Summary

The beliefs the ancients had about the plant and animal world around them—the universe, the earth, the planets, the sun, the wind, rain, the structure and function of the body and the process of life itself—were all very different from our views today. Unless the Bible writers received special revelations about the nature of the world, they probably held the same incorrect beliefs as did those around them. Because a first century man was a Christian would not mean that he had a proper understanding of the germ theory, the number of satellites hovering around Jupiter, or the function of the pituitary gland. In these matters, the Christian and Hebrew writers probably believed much like everyone else.

Although to fully understand the Genesis account of creation requires that one understand the language usage and culture of the time, the fact that many commonly held beliefs which are radically opposed to our modern picture of the entire natural world were not found in the writings of the Holy Scriptures constitutes powerful evidence for their inspiration. Modern Biblical research, instead of being almost totally preoccupied with what the Scriptures contain, would profit from an examination of comparisons of the beliefs of the ancients and with that found in the Scriptures. The contrast is, indeed, most striking and reveals that in the area of science, the creation account stands far above most other contemporaneous writings (Morris, 1984). God gave us a dual revelation, the Scriptures and the creation, both of which can teach us much about Him. As a person can learn about a painter by studying his paintings, or a musician by studying his music, likewise one can learn much about the creator by studying the creation. A major motivation for medieval scientists in studying the creation was to learn about, and know more intimately, the Creator. In the words of Reichen "It has been rightly said that all science begins as metaphysics and ends as metaphysics. This is especially true of astronomy, which, as one might say, places man directly in the presence of God's miraculous work. Yet perhaps the greatest miracle of all is that man has the capacity to understand this work and to profit from it" (1963, p. 7).

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PANORAMA NOTES

Much Thinner Laurentide Ice During The Ice Age

A new analysis of an old problem often shows how-much scientists really do not known about the past. This was recently demonstrated in a re-analysis of the past thickness of the Laurentide ice sheet during the ice age.

For many years scientists have preferred to use what is called the CLIMAP max model in modeling the climate of the ice age. This model assumes that the Laurentide ice sheet was 3.5 km thick over a large area. Since the thickness of the ice is related to the drop in sea level, sea level was believed to have been 163 m below, present sea level during ice age maximum. Another model, CLIMAP min has thinner ice thickness, which reduced sea level 127 m.

Richard Peltier of the University of Toronto has re-calculated the thickness of the Laurentide ice sheet based on new past sea level data from the Caribbean island of Barbados. The maximum sea level drop is postulated to have been only 105 m, which corresponds to a maximum ice sheet height of 2 km. This is more than 55% less ice than most scientists believe.

This new result shows how tenuous previous ice thickness calculations have been. The CLIMAP model was based on an ice sheet in dynamical equilibrium. The application of the steady-state ice mechanical equations with the areal boundary of the Laurentide ice sheet resulted in a thickness and shape similar to Antarctica. Even from a uniformitarian perspective, there is no reason to believe the ancient ice sheets were in dynamical equilibrium. From their perspective, once the ice sheet started to form, the central parts should dry out and become a polar desert similar to Antarctica. This would reduce the amount of snow accumulating each year in the interior, so that equilibrium likely would never occur. A post Flood ice age (Oard 1990) would surely not have been in dynamical equilibrium as the uniformitarian scientists envision the Laurentide ice sheet.

The new results of Peltier (1994) are also based on many assumptions. Although I believe his downward trend is heading in the right direction, creationists should not assume his estimates are accurate. He bases his model primarily on the new results of sea level lowering, deduced from Barbados corals. Multiple coral reefs on the island are presumed related to various events during many Pleistocene ice ages. As the island rises, these reefs are left high up on the island. However, reefs forming during the past ice age in the uniformitarian model have not had time to become exposed. So, the scientists had to collect the coral by cores from off the southern coast. The corals are dated by a refined U-Th disequilibrium method (Fairbanks, 1989; Bard, Hamelin, and Fairbanks, 1990; Gallup, Edwards, and Johnson, 1994). Thus, the resultant sea level curve depends upon the accuracy of the U-Th disequilibrium method, that the corals have remained in a closed system, and a presumed uplift rate for the island. These assumptions are developed or determined by other results, such as the astronomical theory of the ice age, and so on it goes. This makes it difficult to determine what is an accurate conclusion and what is not. For certain, old age is built into the conclusion.

Peltier also used a certain rebound rate of the earth's crust from unloading during deglaciation. This rebound rate is determined by sea level histories, dated by C-14. Again old age is built into this assumption, and the