What Triggered the Flood?

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Abstract

Sometime after the Fall but before the Flood, God set in motion a chain of physical events that produced a global Flood. Although we cannot be sure exactly how it began, that cataclysm had many consequences: layered fossils; coal, oil, and methane deposits; major mountain ranges; ice ages; and dozens of other global features. Our challenge is to show how all these are related and are consistent with the laws of physics and the biblical account. Recognizing that water was created under the earth's crust and understanding the second creation day clarify the Flood considerably and explain many major issues that befuddle evolutionists.

Introduction

God initiated the Flood as a result of man's sin. At the end of the creation week, all that God created was "very good" (Genesis 1:31), so the Flood was not inevitable at that time. In other words, the earth was not created with a "ticking time bomb." Nor was the universe created with killer comets, asteroids, or meteoroids aimed at earth. Indeed, their presence at the end of the creation week would not have been "very good." (The origin of comets, asteroids, and meteoroids—consequences of the Flood—are proposed in Brown, 2001, pp. 188–225.)

Later, because of the depth of man's sin (Genesis 6:5–6), God flooded the entire earth. We may never know just how the physical chain of events for the Flood began, but the Bible gives some intriguing clues.

A summary of the hydroplate theory (Brown, 2001, pp. 86–119) shows how a global Flood, corresponding in every detail to the Genesis Flood, easily explains 25 otherwise mysterious features of the earth and solar system. This theory requires two starting conditions: (1) a large volume of salty water contained in interconnected subterranean chambers, and (2) steadily increasing pressure in that subterranean water—enough to rupture the earth's crust. Although the Bible speaks in several places of considerable subterranean water (Brown, 2001, p. 257), why would its pressure increase sufficiently to form a globe-encircling crack in the earth's crust?

Rock Movement

First, visualize an important feature of the newly created, preFlood earth. Imagine the entire earth's surface covered by a sandwich arrangement in which a horizontal layer of rock (which will become the earth's crust) has a layer of water above and also below it. The rock layer is almost 10-miles thick; each water layer is about ¾ of a mile thick. The water above this rock layer is surface water; the confined water below is subterranean water. If the rock layer were perfectly uniform in thickness and density, everything would be in balance. Equilibrium would exist.

No doubt variations existed in the rock's thickness and density. The heavier parts would sag (bend) downward, like an overloaded floor, causing additional water on top to flow into each depression. That added weight would increase each sag. More surface water would flow into the growing depressions, driving each sag even deeper. The rock layer would have had some stiffness, because it was almost 10-miles thick. However, the plate's large area (basically the surface of the earth) would have given it an area-to-thickness ratio of about 20 million to one! This would be similar to a paper-thin sheet of tin, steel, or rock, 25 feet on each side. Consider its flexibility and how quickly it would sag downward just one-tenth of its thickness.

The effects of the rock sagging downward through water at one location on earth would spread laterally, but only at the speed of sound. Outside that expanding "ring of influence," other sags could occur simultaneously.

Some of the sagging rock would also be squeezed downward through the subterranean water, forming protrusions—or "pillars"—pressed against the chamber floor. This would happen because the rock's pressure at the bottom of the rock layer's thicker, denser portions would exceed the subterranean water's pressure pushing upward. If the pressure difference exceeded the rock's shear strength at that point, rock would "flow" downward, deforming like putty. High confining pressures would not allow cracks to

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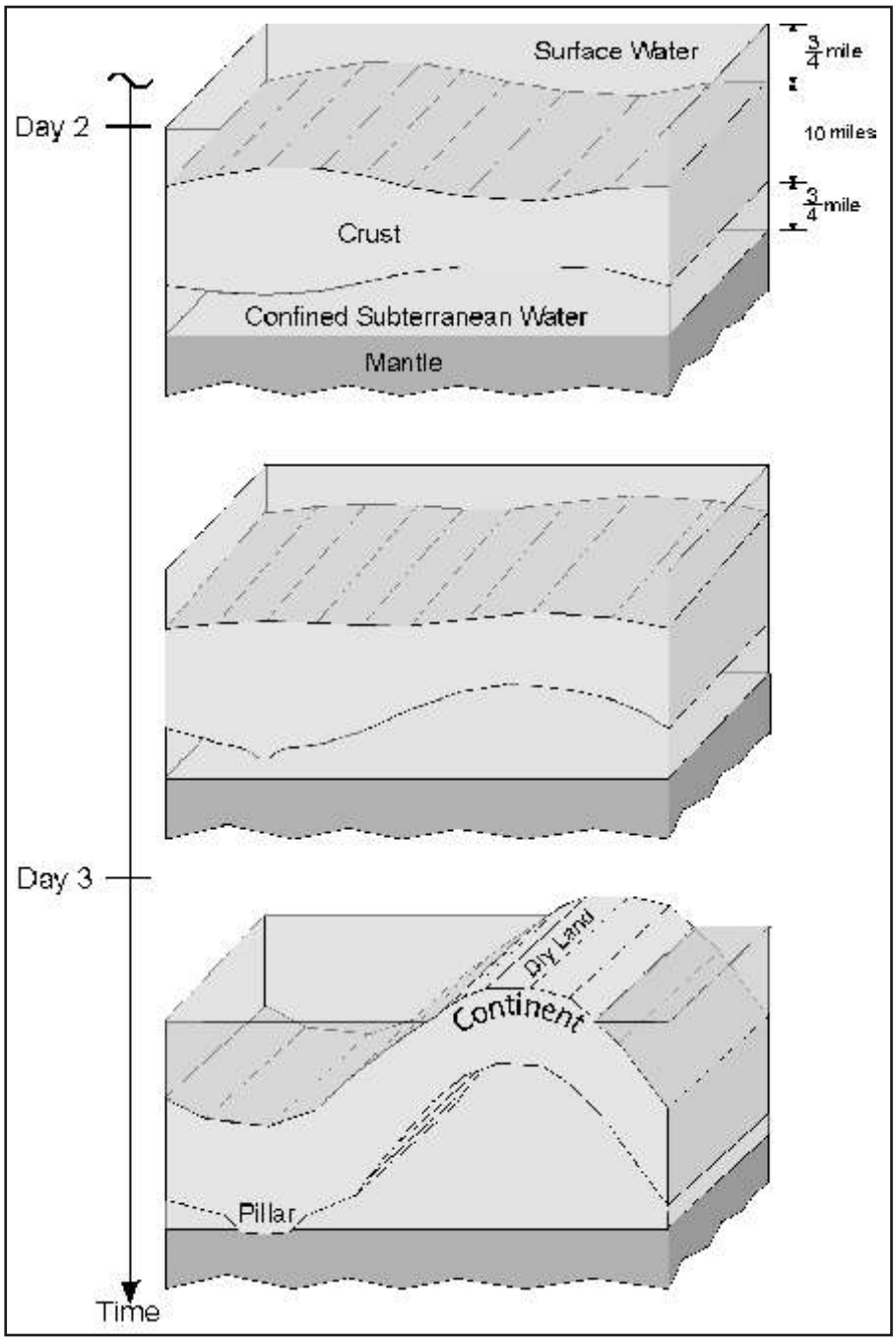

Figure 1. Dry Land Appears. At the end of the first creation day, Day 1, water covered the entire earth. On Day 2, God made a "raqia" that sharply separated ("badal") the liquid water ("mayim") above from the liquid water below. On Day 3, land rose out of the surface water, in preparation for the creation of plants, animals, and humans. (Water thicknesses are exaggerated to illustrate events of Days 2 and 3. Dimensions are estimates.)

open or rocks to break, as occurs with brittle material at the earth's surface. Compression tests on cylinders of rock subjected to high confining pressures, but larger axial loads, show that the rock cylinders deform like putty.

Downward protrusions (pillars) would grow like the downward flow in a lava lamp, except the rock, being a solid instead of a liquid, had internal strength due to atomic bonding. The deeper the pillars went, the greater this pressure difference would become, so rock would "flow" even deeper until all pillars pressed against the chamber floor. Pillars carrying an excessive load would thicken and penetrate slightly into the chamber floor.

The same effects, but in the opposite direction, would have lifted thinner, less-dense portions of the rock layer up out of the water, forming continents. Keep in mind that the confined subterranean water had essentially a fixed volume. Therefore, as rock sagged downward and as pillars were squeezed downward, this fixed volume of subterranean water had to displace thinner parts of the rock layer, forcing them upward.

If, on Day 2 of the creation week, our "sandwich" encircled the earth like the outer three rings of an onion, water would cover the entire earth. In the following hours, the thinner rock would rise out of the surface water and become dry land. Water would drain into depressions. This seems to be what happened on Day 3 (Genesis 1:9–10). Water covered the entire earth, then "God said, 'Let the waters below the heavens be gathered into one place, and let the dry land appear'; and it was so. And God called the dry land earth, and the gathering of the waters He called seas;" (Further support for this interpretation of Day 2 is given in Brown, 2001, pp. 260–268.)

Genesis 1:9 says the waters below the heavens were gathered into one place (i.e., one big ocean). Why, then, in the next verse did God call the collected waters "seas"—plural? Answer: Multiple seas were honeycombed below the crust. *The Interpreter's Bible* explains:

> "Seas" embraces more than the waters upon the face of the earth; it includes also the (supposed) subterranean waters upon which the earth was believed to rest … and the circumfluent ocean, upon which the pillars of the firmament stood (Bowie, 1952, p. 473).

Psalm 24:2a specifically states that God "founded it [the earth] upon the seas." Recognizing that a large amount of

water was under the preFlood crust, as the Bible also states in Psalms 33:7, 104:3, and 136:6, is essential to understanding the Flood. Our failure to understand basic physical aspects of the Flood opened the door to evolution and a belief, by some, in a multibillion-year-old earth.

Interestingly, Day 2 was the only creation day in which the Bible does not expressly say God saw that day's work was "good." Certainly, nothing bad was done on the second day, because at the end of the creation week, God saw that all He had made was "very good." Apparently, the second day's activity was not completed until Day 3.

Now we can see why. On Day 2, after the crust was created with liquid water above and below it, the crust began to deform. Thicker portions sagged and squeezed down pillars, while thinner portions rose out of the water. Thus, Psalm 104:3, in describing Day 2—the connection of Psalm 104:3 with Day 2 is made clear by Keil and Delitzsch (1981, p. 128)—states (with my interpretations in brackets), "He lays the beams [pillars] of His upper chambers [the crust] in the [subterranean] waters." By Day 3, surface water had drained into depressions, forming dry land—a "good" condition (Genesis 1:10) necessary for the life God would create next.

Peter also seems to describe these events in II Peter 3:3–6. He states that in the latter days mockers will not understand that, "the earth was formed out of water and by water, through which the world at that time was destroyed, being flooded with water."

This is consistent with the following interpretation: On Day 2, a nearly horizontal crust, or "expanse," was formed in the midst of the liquid water covering the earth (Genesis 1:2,6,7,9). On Day 3, thinner portions of the crust rose out of the water, causing water above the crust to flow into depressions (Genesis 1:10). In other words, the earth (its crust) was formed *out of* (rose out of) surface water and was formed *by* pressure from subterranean water. Some might incorrectly think "forming the earth out of water" implies alchemy—water (H_2O) was changed into SiO_2, $(Mg,Fe)_2SiO_4$, and a host of other minerals that comprise rock. Actually, "out of" is used in a spatial sense. The King James translation conveys this idea more clearly: "… the earth standing out of the water … ."

Almost 2,000 years later,[1] the water below the crust burst forth as "the fountains of the great deep," combined with the surface water, and, as Peter wrote, flooded and destroyed earth in a global cataclysm. The Greek word "katakluzo," from which we get our word "cataclysm," is translated as "flooded" in II Peter 3:6. In describing Noah's Flood, the Bible never uses the normal Greek or Hebrew words for flood. Noah's Flood was much more; it was an unparalleled, global cataclysm.

[1]According to the Masoretic text of the Old Testament, this time period was 1,656 years. (Brown, 2001, p. 272)

The complex Hebrew word "raqia" is usually translated in modern times as "expanse" or "firmament." Raqia is sometimes identified with "heavens" but in other contexts refers to earth's preFlood crust (Brown, 2001, pp. 260–268).

Rock Pillars

Compressed subterranean water supported most of the crust's weight;[2] pillars supported the rest. Every 12 hours, tidal effects, caused primarily by the Moon's gravity, lifted the subsurface water (and, therefore, the earth's crust) a few feet, just as tides lift ocean surfaces today. At low tides, the crust settled. Therefore, the pressure each pillar exerted on the chamber floor increased and decreased twice daily. These loose, or flexible, contacts could be described as "sockets." Tides also occur in the solid earth (Brown, 2001, p. 306).

The Bible says the earth was founded on pillars. Psalm 75:3b says, "It is I [God] Who have firmly set its [the earth's] pillars." In Job 38, God demonstrates His authority by giving Job the most difficult science examination of all time. In verses 4–6, God asks Job, "Where were you when I laid the foundation of the earth! Tell Me, if you have understanding, … On what were its bases sunk?" This word, "bases," is translated in all 54 other places in the Bible as "pedestals" or "sockets," which held pillars.

Ancient extrabiblical writings, although not having the authority of biblical passages, also describe this structure within the subterranean water. As one example, the British Museum's *The Book of the Cave of Treasures* (1927), dated at about 300–599 A.D., states:

> And on the Third Day God commanded the waters that were below the firmament to be gathered together in one place, and the dry land to appear. And when the covering of water had been rolled up from the face of the earth, the earth showed itself to be in an *unsettled and unstable state*, that is to say, it was of a damp or moist and *yielding nature. And the waters*

[2]Some have asked, "How could rock float on water?" The crust did not float on water; water was trapped and sealed under the crust. It was like a thin slab of rock resting on and covering an entire waterbed. As long as the water mattress does not rupture, a dense slab will rest on top of less-dense water. Unlike a waterbed's seal, which is only a thin sheet of rubber, the chamber's seal was compressed rock almost 10-miles thick. Pressures in the crust 5 miles or more below the earth's surface are so great that the rock, if not rigidly contained, will flow like highly compressed, extremely stiff putty. The slightest crack or opening, even around a small chunk of rock, could not open from below.

> *were gathered together into seas that were under the earth and within it*, and upon it. And God made the earth from below, *corridors and shafts, and channels for the passage of the waters*; … Now, as for the earth, *the lower part of it is like unto a thick sponge, for it resteth on the waters*. [emphasis added]

The Bible often speaks of "the foundation(s) of the earth." On Day 3, the earth's crust was literally established, or set, on its foundation. Only by understanding some basic physics and the role of subterranean water, will this—and the Flood—be clear.

When the earth's crust ruptured *on one day*, the Flood began (Genesis 7:11). Water from the fountains of the great deep fell as rain. Subterranean water flowed with unimaginable force horizontally through the subterranean chambers and up through the rupture. Pillars were crushed into fragments by the increasing crustal loads they carried. Each pillar's collapse generated huge waves in the surface water and pressure pulses in the subterranean water. Rock fragments, accelerated into space by astounding energy sources in the fountains of the great deep, became meteoroids (Brown, 2001, pp. 188–225). Thus, the pillars or "foundations of the world" were "laid bare." This may be what Psalm 18:15 refers to when it says, "Then the channels of water appeared, and the foundations of the world were laid bare."

Rupture Mechanisms

But why might the pressure in the subterranean water increase enough to rupture the crust? Tides. Each "tidal lift" transferred energy from the Moon to the crust. As the massive crust settled between lifts, most of that enormous energy[3]was converted by friction into heat. For almost 2,000 years, cyclic compression of pillars and viscous movement of subterranean water generated heat, expanding the subterranean water's volume and increasing its pressure in the confined chamber. While some heat was conducted up into the crust and down through the subterranean chamber floor, it is difficult to calculate just how much. Nevertheless, almost 2,000 years of slow thermal expansion of the subterranean water could easily have increased its pressure enough to rupture the crust. (For a small rise in temperature, cool liquid water expands about ten times more than rock. Water's expansion rate, relative and absolute, is even greater as temperatures increase.)

If, as estimates indicate, thermal expansion from tidal heating ruptured the crust, the hydroplate theory's two starting conditions are reduced to one: the presence of a large volume of salty, subterranean water. The Bible speaks clearly of preFlood, subterranean water. (Brown, 2001, p. 257)

How hot might the high pressure water have become? Mineral structures in meteorites show that most were at one time at least 750°F, a fact that perplexes meteorite experts. Two common mineral structures in meteorites show that they were once very hot—iron meteorites, once 1,300°F and chondrules, once about 3,000°F (Brown, 2001, pp. 222–223). Also, the matrix material encasing chondrules shows thermal metamorphism requiring temperatures of at least 750°F (Norton, 2002, p. 92). While the heat-generating mechanisms for each are different, all three would heat pillars using gravitational potential energy. This heating throughout meteorites occurred before they were launched into supercold space, where temperatures are almost absolute zero, -460°F. (Heating due to impacts, launch, or reentry would not be throughout the meteorites.) If meteorites came from the subterranean chamber, the subterranean water was extremely hot.

Would such hot, erupting water kill all life, including life on Noah's Ark? Not necessarily. It depends on how much subterranean water escaped and where the Ark and various sea creatures were relative to the rupture and hot water currents. Today, the rupture is marked by the Mid-Oceanic Ridge that encircles the earth like the seam of a baseball. At the time of the Flood, about 60% of the earth's surface would have been at least 1,000 miles from the rupture. Certainly, in those regions the Ark and its cargo would have been relatively safe. In addition, water escaping from the subterranean chamber would rapidly cool as its pressure quickly dropped and as explosive evaporation, then mixing, occurred.

Sinking Continents

All subterranean water did not have to escape to Flood the entire earth. Remember, the thinner (and higher) portions of the crust were supported entirely by subterranean water, so as that water escaped, primarily the continents sank. Therefore, *the flooded earth resulted as much from sinking continents as from rising water*.

Genesis 7:20 says that the Flood waters covered all preFlood mountains by 15 cubits (about 22½ feet). Today, mountain heights vary by thousands of feet, so why did many, if not all, preFlood mountains have about the same

[3]The energy added to the earth's crust every 12 hours by the gravitational pull of the Moon, and to a lesser extent the Sun, is proportional to the crust's weight times the average lift distance. While the lift distance is small, the mass lifted before the Flood was so gigantic that the total energy was huge. Most of this energy became heat inside the subterranean chamber as the crust settled between lifts. Today, ocean tides have comparable lift, but only a relatively insignificant mass is lifted.

elevation? (Some commentators, adding words not in the Bible, have said that "at least" 15 cubits of water were above all the earth's mountains. Others have said that the text means the Ark, whose height was 30 cubits, must have been only half submerged and did not run into mountain peaks.) The explanation becomes clear if we recognize that the earth was founded on and spread out above waters (Psalms 24:2, 104:3, and 136:6).

On Day 3 of the creation week, the higher a continent rose out of the water, the more pressure it exerted on the subterranean water directly below. Therefore, as the land rose higher, it would have risen more slowly, giving pre-Flood mountains similar heights. (To demonstrate this buoyancy effect, support a large rock under water with one hand. Notice how the pressure on your hand increases as you lift the rock out of the water.)

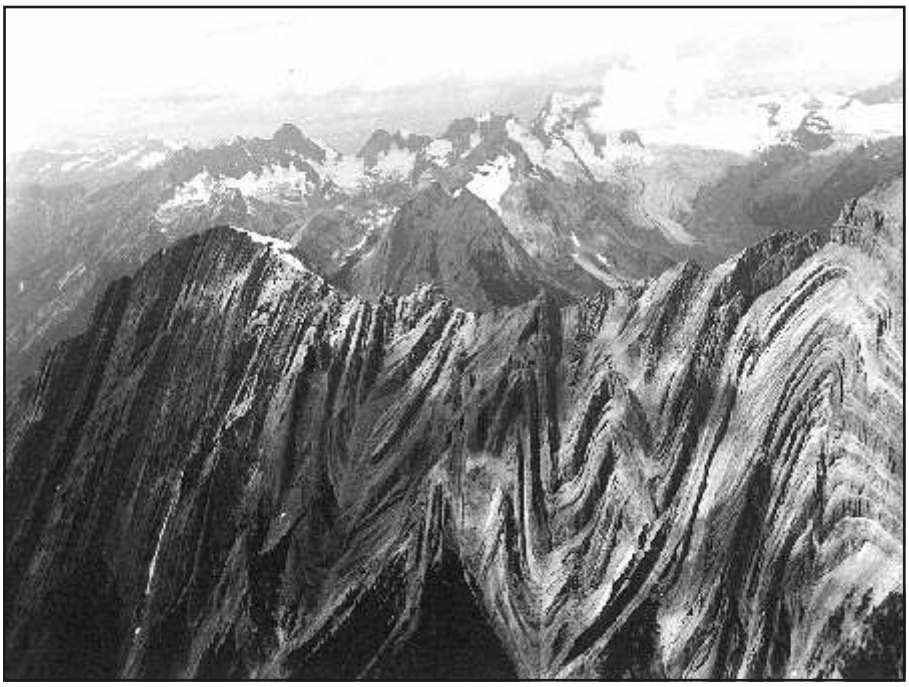

Figure 2. A buckled mountain is exposed here along the Sullivan River in British Columbia, Canada. (Photograph courtesy of the Geological Society of Canada, number GSC 180345.) Obviously, these layers were soft, like wet sand, at the time of compression. Today, surface rocks are brittle. Standard explanations for buckled mountains, and mountain formation in general, are seriously flawed (Brown, 2001, p. 311).

Almost 2,000 years later, as the Flood waters rose and continents sank, another effect equalized mountain elevations even more. To visualize that effect, place the finger tips of your hand on a table. Now slowly push the palm of that hand (representing a sinking continent) toward the table (representing the subterranean chamber floor). Notice how the finger tips (representing pillars) in contact with the table must slide away from each other. Now imagine many hands with their finger tips resting on a large globe, but with each finger tip connected to one or more finger tips of an adjacent hand. If one palm were pushed down with greater force because it was higher than all others, its finger tips would push outward against the fingers of all adjacent hands, pushing their palms up. Likewise, the greater pressure exerted by higher, thereby less buoyant, mountains would tend to lift lower mountains, further equalizing their heights above the rising water—just as Genesis 7:20 states.

As the first days and weeks of the Flood passed, more and more of the crust rested on the subterranean chamber floor, increasingly restricting the water's escape. The vertical walls on each side of the rupture were almost 10 miles high. Because the rock's pressure in the bottom half of each wall exceeded its crushing strength, the unsupported, unconfined walls continually crumbled—for 150 days (Genesis 7:28). During that time, the upward-jetting, supersonic fountains of the great deep removed that rubble, widening the rupture hundreds of miles, like falling dominoes, all around the earth.

Mass deep in the mantle shifted slightly toward these relatively unloaded portions of the chamber floor. Suddenly, the chamber floor buckled upward beneath the widened rupture, first forming the Mid-Atlantic portion of the Mid-Oceanic Ridge. The crust slid on lubricating water, downhill and away from that Atlantic-Ridge segment. Sliding continental plates—the hydroplates—crashed and compressed, in what is called the "compression event."

Weaker portions of the hydroplates crushed, thickened, and buckled. In doing so, new postFlood continents rose out of the Flood waters, allowing water to drain into newly opened ocean basins. Buckled mountains also formed, as shown in Figure 2. For each cubic mile of land that rose out of the Flood waters, one cubic mile of Flood water could drain. (Note: today the volume of all land above sea level is only one-tenth the volume of water on earth.) Other dramatic consequences in the Pacific, including formation of gigantic oceanic trenches, are discussed in Brown, 2001, pp. 120–137.

Sliding rock-on-rock contacts quickly became molten rock-water mixtures. This explains why magma contains a surprising amount of dissolved water, why a thin saltwater layer appears to be under all continents at the depth predicted by the hydroplate theory[4], and why a thick layer of water appears to be under the Tibetan Plateau.[5]

Other Questions

For centuries, hundreds of sincere questions concerning the Flood have been asked; they deserve thoughtful answers. Without clear answers, a "vacuum" has existed into which evolutionists have placed faulty theories. Telling nonbelievers to simply believe the Bible accomplishes little. While some may feel this is a proper response, it usually angers nonbelievers unnecessarily.

One philosophical question, partially answered in the introduction, lurks in the background: "Was the Flood 'programmed' from the beginning?" In my opinion, the answer is, "no." Sin has physical consequences (Genesis 3). What might they be when every intent of all humans except Noah was evil continuously (Genesis 6:5, 7:1)? Man's sin might have directly caused any of a million physical changes within the earth that either (1) allowed the subterranean water's pressure to exceed a high threshold and rupture the crust or (2) produced a flaw, such as a unique microscopic crack, at the earth's surface.

Of course, God could simply have commanded the earth's crust to crack after the subterranean pressure had risen. God spoke the universe into existence, so commanding a microscopic crack to form at the right place—which is all it would take—is not difficult to imagine.

Conclusion

Day 2—a key to explaining the Flood—has been poorly understood. As Peter wrote, people would not understand that earth's crust was formed out of and by water which later flooded the earth. This proposed interpretation of Day 2 helps us appreciate the presence of so much subterranean water, the power of "the fountains of the great deep," why they erupted so quickly (on one day), and where the Flood waters came from and where they went. Had the Flood been better understood before Charles Darwin popularized evolution, that "idea vacuum" would never have formed, and many more would have recognized evolutionary explanations as obviously inferior. Evolution would not have flourished. Our task, then, is to fill this "vacuum" by explaining to others what we now know about the Flood.

[4]"Magnetotelluric measurements show the lower continental crust to be electrically conductive globally … The most probable candidates for the conduction mechanisms are small amounts of interconnected saline pore fluids and interconnected thin films of graphite. … We favor the supercritical saline fluid model … . " (Hyndman et al., 1993, pp. 325–344)

While these authors favor the saltwater explanation for this electrical conductivity, they visualize this salt water contained in so many microscopic pockets that they are electrically connected horizontally. This puzzles the authors, because with so much horizontal connectivity, they reason there should also be vertical connectivity. Over long geological ages, this water should have leaked up to the earth's surface.

The hydroplate theory resolves this problem. The saltwater layer began with worldwide connectivity. High compression in the rock immediately above the subterranean water allowed no vertical porosity. The subterranean water layer simply became thinner as water escaped during the Flood.

[5]"A layer of aqueous fluids could produce the conductance observed in Tibet with a lower fluid fraction and/or layer thickness than considered above for partial melt. For example, a layer only 1.6 km thick containing 10% of 100 S/m brine would be needed to yield the observed 10,000-S conductance." (Wei et al., 2001, pp. 716–718.)

The hydroplate theory makes 34 explicit predictions. This prediction that large volumes of pooled salt water are beneath major mountains was first made in 1980. Salt water appears to be about 10 miles below the Tibetan Plateau, which is surrounded by the largest mountain range on earth.

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Note: This article will appear in the eighth edition of *In the Beginning: Compelling Evidence for Creation and the Flood*. Center for Scientific Creation, Phoenix, AZ.

Book Review

The Right Questions: Truth, Meaning, and Public Debate by Phillip E. Johnson
InterVarsity Press, Downers Grove, IL. 2002, 191 pages, $16

The modern intelligent design (ID) movement began in 1991 with the publication of *Darwin on Trial* by a then-obscure Berkeley law professor, Dr. Phillip Johnson. The ID movement and Johnson have come a long way since then. The idea that life originated from an intelligent cause has become respectable once again, and Darwinian evolution is receiving strong challenges on many fronts.

Before Johnson started his work, creationists of various persuasions fought with each other over such issues as the age of the earth, Flood geology, and the meaning of the fossil record. While these issues are important, Johnson argued that these are not the key questions with regard to public debate. Johnson launched a new strategy; it might be called "unite and win" (p. 9).

What Johnson did was to ask the right questions: "Is nature all there is? Can natural forces alone explain the universe and everything in it? Did life arise by blind, materialistic Darwinian processes, or does the evidence point to other forces?" (p. 9) Christians may argue about *how* God created, but they all agree that the universe is the work of a personal, all-powerful God. The beauty of Phillip Johnson's approach is that it has the ability to unite Christians across a broad spectrum. Indeed, many believe the ID movement has largely achieved this goal, and naturalistic philosophy is feeling intense pressure as a result.

This latest book by Phillip Johnson is considerably different from his earlier works, which concentrated on the logic and science associated with the Darwinian evolution vs. intelligent design controversy. *The Right Questions* is an intensely personal account in which Johnson talks more about his personal faith and less about evolution and design.

Johnson spends a fair amount of time discussing how science is defined, a fundamental question in the evolution/design debate. Is science limited to exploring *natural* explanations for natural phenomena, or should *all logical* explanations (naturalistic or not) be considered?

In today's world "a credulous public is taught to accept philosophical naturalism/materialism as inherent in the definition of science" (p. 33). *Naturalism* is the philosophy that nature is all there is. That is, it's the belief that there is no supernatural aspect to existence. Naturalism says that everything can be explained by the laws of chemistry, physics, and random chance.

At the same time, however, modern discoveries in biochemistry and other branches of science are providing new compelling evidence that nature is *not* all there is to reality. The discoveries that DNA has a complex *code* (information), and that many biological systems have the property of "specified complexity" provide strong support for the intelligent design of life.

Nevertheless, the science establishment, due to its naturalistic bias, continues to suppress and dismiss this compelling evidence. Johnson says that most people "instinctively recognize that a supernatural intelligence must be at work in the wonder of biology. It takes years of indoctrination to learn to ignore the evidence of intelligent design that is so apparent before our very eyes" (p. 35).

Interestingly, while the science establishment holds fast to its naturalistic philosophy, most Americans aren't buying it. For example, a *Cleveland Plain Dealer* poll (May 2002) found that only 8 percent of Ohioans accept naturalistic evolution as the best explanation for the origin and development of life. Most of the rest believe that an intelligent cause was involved.

The debate between evolution and design/creation usually focuses on the first chapter of Genesis: "In the beginning God created…." Johnson says it is time to focus instead on the first chapter of John: "In the beginning was the Word…." The Word (God) implies *information* and *intelligence*. Johnson argues that "the evidence of science shows that 'in the beginning was the Word' is as true scientifically as it is true theologically, spiritually and in every other way" (p. 141).

In July of 2001 Dr. Johnson suffered a debilitating stroke that hampered him physically, but his mind remained sharp and focused. In the process of his recovery, Johnson's faith in God was strengthened and entered a new dimension. His newly found, deeper trust in God is reflected in *The Right Questions*. Phillip Johnson has been asking (and answering) the right questions for a dozen years now, and in the process he has transformed the evolution/design debate in ways that will have repercussions for years to come.

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