

# THE INTEGRATION OF FAITH AND SCIENCE

**Despite what much of the popular  
media today claim, faith and science are not  
mutually exclusive.**

**F**aith and science—can they live in the same house? Many say that scholars, especially scientists, must leave all religious influences out of their scholarly pursuits because to do otherwise would compromise the search for truth. Even many Christians are nervous about attempts to find a harmony between Scripture and science. Is this concern justified? This depends partly on how we understand the nature of inspiration and partly on our understanding of the scientific data.

There is great diversity of views

on the nature of inspiration and the origins of life as described in the Book of Genesis. Even in some seemingly conservative Christian circles, the conviction occurs that worthy scholars must move away from acceptance of Bible history as describing literal events, such as the six-day creation and perhaps even a literal Second Coming.

An understanding of inspiration,

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however, is well summarized by Ellen White: "The language of the Bible should be explained according to its obvious meaning, unless a symbol or figure is employed."<sup>1</sup> The Bible "was designed for the common people; and the interpretation given by the common people, when aided by the Holy Spirit, accords best with the truth as it is in Jesus."<sup>2</sup> "A sense of the power and wisdom of God, and of our inability to comprehend His greatness, should inspire us with humility, and we should open His word, as we would enter His presence, with holy awe. When we come to the Bible, reason must acknowledge an authority superior to itself, and heart and intellect must bow to the great I AM."<sup>3</sup>

This approach accepts the events described in the Bible as actual historical happenings, including creation in seven literal days, a global flood, Jesus' miracles, and God's literal communication of ideas and facts to at least some Bible writers, such as Moses, Daniel, Paul, and John (not through verbal inspiration, but communication of thoughts). This approach must be used with wisdom, prayer, and careful thought, or it can lead to such simplistic ideas as the common fundamentalist belief in verbal inspiration of Scripture.

The God of the Bible is the greatest scholar of all time, and Scripture deals in the highest levels of scholarship, not just in comforting inspirational themes. (When God arranged

to have Genesis written, He knew vastly more about radiometric dating than we will ever know.)

The application of this concept can be valuable not only in biology but even in what may seem like the most unlikely disciplines—paleontology and geology. Scholarly thinking based on confidence in a high view of Scripture does not need to be inferior to more liberal scholarship, and in fact can have advantages. We benefit from insights from the Creator of the universe—insights that others ignore.

## Challenges to Be Overcome

The attempt to integrate faith and scholarship introduces a tension. Can religion interject a bias into the scholarly search for truth? The answer, clearly, is yes. Some conservative Christians believe dinosaurs never existed, even though numerous dinosaur skeletons have been found, and they think their opinion is based on the Bible.

One suggested solution is to leave the Bible out of our scholarly pursuits, so religious biases will not trouble objectivity. An episode in the history of geology illustrates the shallowness of this solution.

The pioneering geologist Charles Lyell wrote a book that defined the field of geology for more than a hundred years.<sup>4</sup> Lyell rejected all the catastrophist geological interpretations common in his day and replaced

them with the theory that all geological processes occurred very slowly and gradually over eons of time (gradualism). Though analysts do not agree with the biblical views of some of the early geologists, they have concluded that they were more careful observers than Lyell, and their catastrophist views were reasonable interpretations of the data.

Lyell's strictly gradualistic theory was bad for geology because it closed geologists' minds to any interpretations that suggested rapid, catastrophic geologic processes. Though analysts prefer to explain geology in a "millions of years" scenario, they recognize the evidence that many sedimentary deposits are catastrophic in nature. Now that Lyell's serious bias has been recognized and at least partially abandoned, the minds of geologists have been opened to recognize more evidence for catastrophic processes. That evidence was there in the rocks before, but was not recognized because of Lyell's bias. If the prevailing paradigm says it isn't true, it will probably not be noticed.

Bias is not a solely religious problem. It must be contended with, no matter what philosophy one adopts. It can persist because of the inadequacy of information on complex topics, and a continued search for new evidence can help to reveal it. It is naive to assert that religion introduces bias but that scholarship is

totally objective. It is true that some people read pet ideas into the Bible and misunderstand how to relate Scripture to nature. But those who do not take Scripture seriously have their own problems with other biases, and these are no less significant than the biases that can result from religion.

Testing a theory is easier in some fields than in others. Questions about whether faith and science can productively interact may seem almost irrelevant to those in biochemistry or physiology or engineering, because no conflict arises between their faith and their science. Those disciplines work with currently active biological, chemical, and physical processes. But paleontology, geology, and parts of evolutionary biology study historical events that cannot be observed but must be reconstructed from meager evidence. These disciplines, as practiced by most professionals, are heavily dependent on certain assumptions, especially the worldview of millions of years of evolutionary history without divine intervention. This naturalistic worldview can introduce extremely pervasive biases into scientific inquiry.

Nevertheless, the nervousness of Christian thought leaders about seeking a relationship between science and religion cannot be lightly brushed aside. It could arise for several reasons, and any method of integrating faith and science must

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have an answer for these. In addition to the possibility of bias, the issues most relevant here are: (1) the possibility that if we try to integrate science and faith, science may disprove a belief system; and (2) religious explanations (e.g., "God did it") may discourage scientific investigation.

#### **When Relating Faith and Science Doesn't Work**

One response to this challenge is simply to keep science and faith separate. This method can work in many disciplines that do not deal with the history of life or of the Earth, because Scripture may not speak to the issues those disciplines address. The result of this approach is that in the study of Earth history, when the Bible and science say opposite things, an alternative approach is adopted. Either Scripture is viewed as more reliable than historical science, or it is concluded that science reports facts, and Scripture provides only the spiritual meaning of those facts. This latter approach leaves one nagging ques-

tion: If God can't keep His facts straight, or at least doesn't know how or doesn't bother to communicate them, why should what He says about spiritual meanings have any importance? Why should He be trusted? This can be expressed as a strictly scholarly question: If a book claims to speak for some individual, and much of what the book says is mythical or just not true, is there reason to believe the rest of the book or to trust the person behind the book? There must be a better answer to the problem of relating faith and science.

Perhaps then the problem could be solved by keeping an open mind in scholarly study. That is a worthy goal, but as the example of Lyell's theory suggests, the facts are too limited to know what a truly open mind would be thinking. This is truer in geology, paleontology, and evolutionary science than commonly recognized.

#### **A Productive Approach to Relating Faith and Science**

Another solution is to know God

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as a personal friend, learn to trust His Word, and use it to assist in scholarly thinking. Meanwhile, interaction with other scholars of varying views can help prevent simplistic attempts to relate Scripture to the natural world. Many creationists write books or pamphlets on evolution or geology that are embarrassing even to a conservative Christian who is informed on these subjects. It may be that the problem isn't the use of biblical concepts, but a lack of scientific knowledge, combined with a lack of peer review.

Rather, a tried and proven approach utilizes the following steps: (1) Allow new scientific findings to challenge interpretation of Scripture, and vice versa; (2) actively search for and utilize insights from Scripture pertinent to the discipline, allowing them to help devise hypotheses that can be tested with

the methods of science, especially in areas of seeming conflict between science and Scripture; (3) be aware of the work and thinking of those who have a different worldview; (4) whenever feasible, submit work for publication and peer review; and (5) become friends with those with a different worldview and perhaps even do collaborative work with them. This requires the confidence and independence of thought not to accept everything collaborators think, while maintaining a constructive dialogue that can reduce the likelihood of superficial thinking.

#### Scientific Challenges to Scripture and Scriptural Challenges to Science

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understanding of Scripture. At that point, it may be tempting to bar the doors against all new ideas and defend personal beliefs against all challenges. A more constructive answer is to use methods of science to pursue the challenging area, while using the methods in religion to dig deeper in Scripture to determine if it actually says what was previously thought.

As this develops, it may become evident that Scripture surely does disagree with accepted scientific interpretations, thus challenging thought for new hypotheses that can explain the scientific data. This maintains a continuous mental interaction between religion and science, as each challenges the other to more careful thought. Further, Scripture contributes not just pleasant pastoral counsel, but also truths about events of Earth history.

This approach does not discourage research, but can stimulate more careful research in both science and religion. Scripture can suggest hypotheses to be tested by the methods of science. For example, the biblical framework predicts that the fossil-rich portion of the geological record formed in a much shorter time frame than most geologists think. This can be translated into specific testable scientific hypotheses about individual rock formations.

This may sound good on paper, but is there evidence that it can truly work?

#### Biblical Anchor Points

Application of the process described above leads to the following list of Earth history concepts (biblical anchor points) that are supported by Scripture:

1. In a literal week of six consecutive, 24-hour days, God prepared the Earth's surface and created living things (Genesis 1, 2).

2. At the end of that creation week, a complete ecosystem was in place, including invertebrates (creeping things), birds, aquatic animals, mammals (cattle), and plants (Genesis 1). Not much detail is given as to exactly what animals and plants were present, but the list includes some that do not appear until fairly late in the fossil record, like fruit trees (angiosperms) and humans. Thus the list of organisms present at creation week includes both invertebrates and also higher forms of life, which indicates that the major life forms were created and did not result from evolution.

3. At some time since creation week there was a catastrophic flood of global proportions.

4. The creation week occurred only a few thousand years ago. There are uncertainties about the completeness of genealogical lists and differences among ancient biblical manuscripts, but although we don't know the exact time span, Scripture clearly portrays a short history of life on this Earth, measured in thousands—not millions—of years. It is

evident that many Bible writers accepted the Creation, the Flood, and the early biblical record of human history as accurate. Many biblical passages make no sense whatever if the fossil record represents millions of years of time.

5. Jesus demonstrated in His miracles that God is eminently capable of instantaneously creating animal or plant tissue, or in restarting biochemical processes in tissue that is no longer living, e.g., turning water to wine (John 2:1-10), creating food to feed thousands from a handful of fish and bread (Mark 6:30-44, 8:1-9), raising someone dead for several days (John 11:38-44), restoring sight to blind eyes (John 9:1-11), restoring tissue destroyed by leprosy (Luke 17:11-17), restoring a withered hand (Mark 3:1-6), etc. God is very capable of creating life as described in Genesis.

6. After sin, the biological world began to change (Gen. 3:14-19). Thorns and thistles began to appear, and apparently some large mammals became carnivorous that were not carnivorous before (Isa. 11:6-9).

From a careful reading of Ellen White's writings,<sup>5</sup> the following concepts could be added:

7. A strong reaffirmation of the literal creation week, a few thousand years ago.

8. In connection with the Flood, mountains disappeared, new mountains appeared, coal and oil were

formed, and, in fact, the entire crust of the Earth was changed.

#### Examples of Research Resulting From Biblical Insights

The following are a few examples—and more could be given—of successful scientific research that used scriptural insights to suggest new questions to be asked or hypotheses to be tested.

1. *Grand Canyon Geology.* Arthur Chadwick of Southwestern Adventist University in Keene, Texas, has been studying the Tapeats Sandstone near the bottom of the Grand Canyon. He and his collaborators found a geological deposit that clearly changes the interpretation of the Tapeats Sandstone in the Grand Canyon area.<sup>6</sup> Others have interpreted the Tapeats Sandstone as an accumulation of sand in shallow water along an ocean shore, with the water level and sand deposit gradually rising along an existing cliff face over eons of time.

The findings of Chadwick and Elaine Kennedy require accumulation of sand in deep water by processes different from those in shallow water. They presented their data and conclusions to a professional meeting of geologists, including some who had conducted much previous research on that formation, and they concurred with Chadwick and Kennedy's conclusions.

When asked afterward why he had seen these things that other geologists

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have missed, Chadwick answered that the creationist's worldview prompts questions that others are not asking, questioning conclusions that others take for granted, and seeing things that are likely to be overlooked by someone working within conventional naturalistic scientific theory. The questions scholars ask have a strong controlling influence on what features of rocks or fossils will catch their attention, for example, and what data they will collect.

Careful scientists who allow Bible history to inform their science will not use a different scientific method from that of other scientists. At a rock outcrop all use the same scientific method, the types of data potentially available are the same, and all use the same scientific instruments and logical processes to analyze data. To the creationist, the differences are in (1) the questions asked, (2) the range of hypotheses considered, and (3) which of the potential types of data are likely to arrest attention.

If research begins from what cre-

ationists believe to be a more correct beginning point (such as starting with divinely revealed history), that starting point does not *guarantee* that the hypotheses developed will be correct, since God has not given that much detail. It just initiates a search in a particular direction, and a number of course corrections (based on scientific data) may be needed before the correct answer is found. The advantage in beginning from a more correct starting point is that it can greatly speed up the process by eliminating gross errors in interpretation. A God who has witnessed all of Earth history can give insights about history that would be difficult or impossible to discover by science alone, at least in a time frame consistent with the human lifespan. If researchers trust divine insights, this viewpoint can expedite progress in some areas of science by suggesting things that would otherwise be less likely perceived.

2. *Fossil Whales of the Miocene/Pliocene Pisco Formation of Peru.*



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The Pisco Formation is a diatomite deposit containing numerous well-preserved fossilized whales. Microscopic diatoms are organisms that float near the surface of lakes and oceans. Upon death, their silica skeletons sink, and in modern oceans they form accumulations of diatomite a few centimeters thick in a thousand years. It is assumed that fossil diatomite deposits formed at the same slow rate—a few centimeters per thousand years.

Among publications in scientific research journals on the geology of the Pisco Formation and on the systematics and evolution of the whales, apparently no one had previously asked how it can be that sediment accumulating at the slow rate of a few centimeters per thousand years can contain complete, well-preserved whales, which would seem to require rapid burial for their preservation.

This was another case in which a

creationist worldview opened eyes to see things that others have not noticed. It was an opportunity to test whether a working hypothesis (derived initially from Scripture) of a shortened geological time scale could be applied to the Pisco Formation. Such slow diatom accumulation does not seem compatible with well-preserved whales, and further research could evaluate this.

Research there during three summers, with graduate student Raul Esperante-Caamano and other geologists and paleontologists, has indicated that the whale carcasses were not in any type of special situation that would favor preservation of animals over extended time periods before burial. Evidence points to rapid burial, probably within a few weeks or months for any given whale, or a few years at an extreme maximum, and suggests some processes that can help to explain how ancient diatomites may have accumulated much

more rapidly than usually assumed. Other scientists are studying decay of modern whale carcasses on the ocean floor, and their data provide information on the timing of decay of modern whales.

In this research, we presented papers at the annual meetings of the Geological Society of America and other scientific meetings,<sup>7</sup> interacting with other scientists who deal with these phenomena, and have published one article, and more manuscripts are in preparation. The best scientists in the field have opportunity to evaluate this work and will be eager to point out its mistakes. That is a powerful incentive against carelessness. Of course, we do not discuss biblical insights at the geology meetings or in our publications, as that would not be appropriate. We discuss scientific work only, and if the data support our conclusions, our work will stand up to the criticisms of scientific reviewers.

In this research and other similar research projects, I have spent time in the field with—and even collaborated with—other paleontologists and geologists who have a non-creationist worldview. There is value in working with someone from a different point of view. I discover things they would probably never even consider, and they notice things I would likely overlook. This can help each of us to not be misled by our inherent biases. The Loma Linda University researchers

found data that raise serious questions about applying the radiometric time scale to these geologic formations, and these questions exist in regard to other formations as well. There are geological reasons to think that something is wrong with the radiometric time scale. On the other hand, our findings indicate that the sediment in these formations apparently could not have accumulated in a few weeks or months, and thus it could not have formed in a one-year global flood—it was deposited rapidly, but the sedimentary data are consistent with a timeframe of perhaps tens to hundreds of years, not a few weeks or months.

3. *Fossil Vertebrate Trackways in the Permian Coconino Sandstone, Northern Arizona.* The Coconino Sandstone is generally interpreted as a deposit of windblown desert sand, and its only fossils, vertebrate trackways, have been considered supporting evidence of this interpretation. Because I wondered how this desert interpretation could fit into a biblical Earth history model, and because of superficialities in previous research on the fossil trackways, I have been doing research on these tracks for some years.

At present, it is not clear what the ultimate conclusion from this research will be. The trackways have features that seem virtually impossible to explain unless they were made with the animals completely under-

water, while the sedimentary evidence, as interpreted by sedimentologists, seems to point to wind-blown sand. This seeming contradiction indicates that some unknown pieces of the puzzle remain to be discovered. When these pieces are found, they may provide new insights into processes of sand deposition or into how trackways are made under unique conditions. Whatever the outcome will be, understanding of the Coconino Sandstone and its fossil tracks will be on a stronger footing (no pun intended) because of the questioning of the accepted interpretation of these tracks. We will then know what course corrections are needed in sedimentological interpretations of cross-bedded sand deposits or in understanding of some extra-biblical details of Earth history.

4. *Biological Origins and Intelligent Design.* The application of naturalism to the origin of life and of the diversity of organisms is being challenged by scholars in the Intelligent Design movement. There is much opportunity for significant scholarly work in this area. Darwinian theory is very successful in explaining biological change in species or subspecies of organisms, but quite unsuccessful in accounting for the origin of larger novelties like the origin of life or new classes or phyla of plants or animals.

It is time for a different approach to have a hearing. If science is going

to be an open-minded search for truth, it cannot arbitrarily exclude some hypotheses. Advances in molecular biology make it increasingly difficult to justify excluding the hypothesis that life requires an intelligent inventor—that idea at least must be open for candid discussion. The primary task is to get the philosophy of naturalism onto the table for open discussion. If naturalism can be openly discussed and challenged, its weaknesses and arbitrariness will become evident.

Michael Behe has been applying the hypothesis of Intelligent Design in his study of molecular biology.<sup>8</sup> He finds biomolecular structures (biomolecular machines) that seem to require construction and assembly of several complex parts before they can work at all (irreducible complexity), just like a mousetrap must have all its parts before it will work. He presents this as evidence requiring a designer, since natural selection will work in evolving complex structures only if it can gradually “invent” one part at a time. Others attempt to challenge Behe’s conclusions, but his work is like other scientific research programs. His initial attempt is unlikely to disprove the opposing view once and for all. Everyone can now all watch the interaction among viewpoints as they pursue research to support or disprove the implications of biomolecular complexity for intelligent design.

***How scientists get their ideas cannot be analyzed objectively and is irrelevant to the scientific process. No matter where their ideas come from (even from the Bible), those ideas and hypotheses are valid science if they can be tested against data. Science, of course, has nothing to contribute to evaluating much of the content of Scripture.***

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#### Implications for Science and for Faith

These are just a few examples of what must certainly be a wide field of opportunities for constructive integration of religious insights and scholarly work. Alan Wolfe concluded an article on intellectual contributions by Christians by stating, “There are not, and in all likelihood there never will be, similar developments [a serious intellectual contribution by conservative Christians] in the natural sciences.”<sup>9</sup> If that prediction can be proved wrong, science as well as religion will benefit.

How scientists get their ideas cannot be analyzed objectively and is irrelevant to the scientific process. No matter where their ideas come from (even from the Bible), those ideas and hypotheses are valid science if they can be tested against data. Science, of course, has nothing to contribute to evaluating much of the content of Scripture. Whether Jesus actually changed water to wine or bodily raised Lazarus from the

dead is beyond scientific scrutiny. Many scholars will claim it is unscientific to believe such things, but that conclusion is based on untested and untestable philosophical assumptions (biases), and in reality has nothing to do with science. What experiment would you do to test biblical miracles? Unless science can conduct such a test, it cannot properly claim to have anything to say about such matters.

When a biblical worldview can suggest testable hypotheses, those are valid contributions to science. This claim is supported by the examples from geology and paleontology cited earlier. Others could be given. It is also interesting to see certain general trends in the geological sciences and in biology that are going in the direction predicted by a conservative reading of Scripture. Examples would be the trend of increasing recognition of catastrophic processes in geology and the growing number of voices who doubt that Darwinian processes can produce life from non-living material

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or can produce major new life forms. The latter example still involves a minority of individuals. (A well-entrenched theory like abiogenesis or Darwinian macroevolution dies hard.) But growing knowledge of the intricacies of molecular mechanisms in living cells makes belief in a naturalistic origin of life forms increasingly difficult, and the usual lack of fossil intermediates between phyla and classes of organisms compounds the difficulty.

A point made earlier needs to be emphasized: The research cited above does not use a different process from that used by other scientists. We have access to the same types of data; we use the same observation techniques and laboratory instruments for analyzing rock or fossil samples. Everyone uses X-ray diffraction to identify minerals and scanning electron microscopy or polarized light microscopy for close examination of rocks and small fos-

sils. We use the same type of logic in deriving conclusions from data.

So what is different? The differences are in (1) the questions that we tend to ask, (2) the types of hypotheses we are willing to consider, and (3) which of the potential types of data are likely to catch our attention. Biblical insights indicate there are important scientific discoveries to be made if we ask questions about, for example, how much time it truly took to form various rock formations with their fossil deposits, instead of assuming that the standard geological time scale is correct.

All the research examples described above resulted in new scientific insights because biblical insights opened minds to see things that had previously not been noticed. This gives reason to believe many more such discoveries are awaiting the biology or Earth science researcher who uses this approach. It

also gives reason to be skeptical about judging the Book of Genesis on the basis of current scientific interpretations.

### The Other Side of the Coin

Awareness of the thinking of those who disagree with us and collaboration with such can help us notice things that would otherwise likely be overlooked in religion as well as in science. Geological study has raised awareness of conflicts on both ends of the spectrum of geological interpretations. In many situations it is difficult to reconcile the actual data in the rocks and fossils with millions of years of geological time. That theory fits well in a general way, but problems arise when careful attention is focused on detail. The devil is in the details!

On the other hand, it is equally difficult to see how the details of many deposits can be reconciled with the theory that most of the geological record was produced in a one-year flood. (The devil is still in the details.) Over the past hundred years, most theories of "flood geology" that attempt to explain how the Flood formed the rocks and fossils have made one big assumption not supported by the Bible (or the Spirit of Prophecy). This assumption is that most of the geological record was produced in the one-year Genesis flood (perhaps with some forming after the Flood, as catastrophic

conditions gradually settled down to the more stable conditions of today), with no geological processes forming rocks and fossils between Creation and the Flood. Genesis reports a Flood that heavily impacted life on Earth, but it does not describe what parts of the geological record formed during that event—speaking only of the fossil-rich part of the geological record. The origin of the Earth and of the universe is a different question altogether. All explanations of such things are extra-biblical theories.

Perhaps the Phanerozoic portion of the geological record began forming in ocean basins or lowland areas after sin and continued before, during, and after the Flood. If the geological record, from Cambrian to the present, took several thousand years to form instead of much of it forming in one year, it is a very different kind of geological challenge. The rocks and fossils seem to indicate a genuine series of consecutive events that took some time, but there is also evidence of much catastrophe and rapid sedimentary processes. The choice is not only between (1) the geological record forming in one year, or (2) 540 million years for the geological column with its fossil record of complex organisms. Other options need to be considered, and allowing Scripture as well as science to introduce things that others overlook will continue to lead to produc-

tive science as the search continues for answers to the big questions about origins. This type of interaction between science and Scripture can yield insights in other fields as well.

#### Living With Unanswered Questions

As research is aimed at answering the give and take of challenges between science and religion, many unanswered questions will persist, even for those who do not accept Scripture, if they honestly face the conflicts between data and theory. It is unrealistic to think that science will prove or disprove either Creation or the Flood. Christians have trusted too much in science to prove these events from the distant past. Lacking direct observation, science can investigate hypotheses about such ancient historical events but not provide proof. God has also given evidence on which to base faith but not proof.

Faith cannot be based on science, but must be founded on knowing Jesus and learning to trust Him, even when there are questions without answers. He knows much more than we do about Earth history, and if we know Him and trust His Word, we can benefit from scriptural insights. All will at some point decide (consciously or unconsciously) which worldview they will accept and live by. They can't be continuously evaluating all beliefs, but if they main-

tain a constructive interaction between science and faith, they can test whether their faith is based on Scripture or on personal biases.

Those who depend on faith must not ignore science. Even though there may be conflict between interpretations of Scripture and interpretations of science, the two sources will not ultimately contradict each other. Willingness to learn from science, understanding its limits, and a commitment to its highest quality are important complements to faith. Elton Trueblood set an inspiring objective when he stated that "the religious scientist has more reason to be careful of his evidence than has the nonreligious scientist, because he is handling what is intrinsically sacred. Shoddiness, for him, is something to spurn because it is a form of blasphemy."<sup>10</sup>

One who accepts the Bible as a reliable record of events is not hampered by that worldview, as many would claim, but actually has an advantage. Most scientists are familiar with only one basic understanding of Earth history and do not actively ask critical questions of their paradigm. That is not true of scientists who accept Bible history and are also active in the biological or earth sciences. They cannot escape becoming knowledgeable about the prevailing theories of Earth history, as well as their own, and thus are constantly evaluating the options.

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They want to know truth. They don't need to be afraid of data, but there is also no virtue in naively accepting whatever interpretations of the data conventional science offers, including a liberal interpretation of Scripture that is ultimately dependent on the prevailing scientific theory of the history of life in contrast to the Genesis account.

#### Answers to Challenges

Three concerns about efforts to integrate faith and science must be answered by any valid integration method.

First is the concern that trying to integrate faith and science will expose one's belief system to the possibility of being disproved by science. But if we believe something that is false, wouldn't we want to know that? And are we so unsure of our Christian beliefs that we are afraid they will be disproved? We may believe some things that are not truly biblical, such as the assumption that all geological formations

must be explained by the one-year Flood. If we hold such non-biblical beliefs, it is better to find out. On the other hand, truly God-given truths will not be disproved.

It is important to understand that science is a human activity, all scientific interpretations are subject to correction and change, and a willingness to readily abandon basic religious beliefs because of science will not be constructive. At times, commitment to spiritual truth must be firm in spite of unresolved conflicts to wait for more evidence. Non-religious scientists must do that frequently: trust that data yet to be discovered will provide better answers. A balanced approach would be a willingness to learn from science, but not be over-awed by it.

Second is a concern that religious answers (God did it) will discourage research. But the method for integrating faith and science outlined earlier does not discourage research. In fact, it stimulates more careful research in both science and in reli-



gion, yielding insights and hypotheses that can benefit research in both domains.

Third is the concern that the effort to integrate faith and science may introduce bias into science. Yet *any* philosophical approach can introduce biases. Avoiding integration is not an answer and just introduces its own serious biases. The integration method described here encourages both science and religion constantly to challenge each other, raising awareness of possible biases. The other important antidote to superficial thinking and biases is awareness of the thinking of others and working with those who disagree. This encourages the ability to see things that others are likely to miss, and this acts as an important quality control process.

The effort to integrate faith and science will work best if we: (1) allow new scientific findings to challenge our interpretation of Scripture, and vice versa; (2) develop and carefully evaluate our biblical anchor points; (3) utilize insights from Scripture to open our minds to ask new questions, open our eyes to see things that others don't see, and devise hypotheses that can be scientifically tested, especially in areas of seeming conflict between science and Scripture; (4) be aware of the work and thinking of those who have a different worldview; (5) use the scholarly methods of quality control whenever feasible—publi-

cation in scholarly journals and working with friends whose worldview differs from ours; and (6) above all, remember that none of this is important unless we maintain our personal friendship and trust in the greatest and most knowledgeable biologist and geologist of all time—Jesus Christ. □

## REFERENCES

- <sup>1</sup> *The Great Controversy*, pp. 599, 600.
- <sup>2</sup> *Testimonies for the Church*, vol. 5, p. 331.
- <sup>3</sup> *Steps to Christ*, p. 110.
- <sup>4</sup> Charles Lyell, *Principles of Geology, Being an Attempt to Explain the Former Changes of the Earth's Surface, by Reference to Causes Now in Operation* (London: John Murray, 1892).
- <sup>5</sup> *Spiritual Gifts*, vol. 3, pp. 76-79; *Patriarchs and Prophets*, pp. 107, 108.
- <sup>6</sup> E. G. Kennedy, R. Kablanow, and A. V. Chadwick, "Evidence for Deep Water Deposition of the Tapeats Sandstone, Grand Canyon, Arizona," in C. Van Riper, III and E. T. Deshler, eds. *Proceedings of the 3rd Biannual Conference of Research on the Colorado Plateau*, Transactions and Proceedings Series NPS/NRNM/NRTP. 97/12, U. S. Dept of the Interior, pp. 215-228.
- <sup>7</sup> Raul Esperante-Caamano, L. R. Brand, A. V. Chadwick, and O. Poma, "Taphonomy of Whales in the Miocene/Pliocene Pisco Formation, Western Peru," Geological Society of America, annual meeting, October 1999. Abstracts with programs, 31(7): A-466.
- <sup>8</sup> Michael Behe, *Darwin's Black Box* (New York: Free Press, 1996).
- <sup>9</sup> See [http://www.bc.edu/offices/mission/pdf/academy/wolfe\\_evangelical.pdf](http://www.bc.edu/offices/mission/pdf/academy/wolfe_evangelical.pdf), p. 8, accessed July 10, 2007.
- <sup>10</sup> Elton Trueblood, *The Yoke of Christ* (New York: Harper and Brothers, 1958), p. 170.