SPECIAL SECTION

Questions on Faith and Science

Why Do Different Scientists Interpret Reality Differently? 5
Are the Bible and Science in Conflict? 11
What Does the Fossil Record Tell Us? 16
Sociobiology: Why Do Humans Behave the Way They Do? 22
Questions on Faith and Science

4 Introduction
5 Why Do Different Scientists Interpret Reality Differently?
   By Humberto M. Rasi
11 Are the Bible and Science in Conflict?
   By David B. Ekkens
16 What Does the Fossil Record Tell Us?
   By Roberto E. Biaggi
22 Sociobiology: Why Do Humans Behave the Way They Do?
   By Leonard Brand and Joe Galusha

28 The Joys and Challenges of Choosing a Bible Translation
   By Nikolaus Satelmajer

34 Exercising With Exergaming: Giving Physical Education a Technology Makeover
   By Seth Perkins and Robert K. Thomas

40 Implementing Christian Multicultural Education
   By Lydie Theodor and Ron Coffen

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Finding at the Foot of the Cross

In her 2009 article, “The Galilean Jesus: Creating a Borderland at the Foot of the Cross,”1 Sophia Park tells a gripping story of identity crisis and newfound hope. She asserts that the “Gospel’s invitation to join and participate in a ‘borderland community’ created by Jesus on the cross”2 provides this new hope and identity.

Although Park’s case study deals with Asian immigrant women, it has relevance for all women. She regards dislocation as the key to comprehending both identity crisis and hope. For Park, dislocation represents the experience of those who have relocated to an unfamiliar place and includes a person’s physical, mental, emotional, and social being. Overcoming dislocation means finding one’s place and operating successfully in more than one culture. This process “often implies suffering caused by receiving ‘multiple and opposing messages.’”3

In addition, dislocation often marginalizes individuals, leaving them “voiceless, invisible, and powerless.”4 This describes well the plight of women in most situations throughout the world, including in the church.

Girls and women experience this dislocation and powerlessness in educational and work settings. According to a recent study, although females comprise more than 50 percent of the workforce and fill nearly 50 percent of the entry-level professional positions, they make up only 21 percent of senior executives, 17 percent of members of the U.S. Congress, and 15 percent of board directors. In addition, with little change from decades ago, women earn about 19 percent less for full-time work in the United States than their male counterparts.5

Education statistics are dismal for girls and women in many developing countries. Reports from the United Nations indicate that two-thirds of the 120 million children who lack access to education are female; in 70 countries, no girls have access to education at any level in any formal setting.6

The fact that this is still true in the 21st century presents an imperative for teachers and educational administrators, particularly those who operate Seventh-day Adventist schools. Educators have a responsibility to actively resist gender stereotypes and to help girls realize their identity as children of God who are equal to their male counterparts. The church must work to ensure that all God’s children get appropriate education and encouragement in order to achieve God’s plan for their lives. As they collaborate to achieve this goal, educators will be a blessing to all of their students, the church, and to humanity in general.

Studies have demonstrated the value of women’s contributions—everything from children’s health to family economic status depends largely upon the education of the mother. Adventist education has an opportunity to make a real difference in the world by properly preparing girls for the roles and functions God has for them in the home, workplace, church, and community. Organizations with a significant number of women in leadership and gender-balanced work teams function more productively than those that favor either gender.7

In these last days, when the Lord wants to pour out His Spirit on all people and to accomplish marvelous works through both men and women, the contributions of both genders are needed in balance in the home and in the church, including in leadership. Recently, a male member of the General Conference Executive Committee pointed out the obvious gender imbalance in that body—the church’s second-highest decision-making entity. Similar disparities exist in many of the church’s other institutions, which tend to overlook or deny these contributions.

Continued on page 47
While theologically anchored in the Bible, Seventh-day Adventists are interested and involved in issues relating to the interaction of faith and science. We not only teach the sciences and conduct research in our educational centers around the world, but also operate a global network of hospitals and clinics that apply scientific principles to health care and prevention. It has been shown repeatedly that application of these principles prevents many illnesses and prolongs the human lifespan.

Adventists’ active engagement with the sciences—both theoretical and applied—frequently raises questions about the origin and meaning of the universe and life, as well as the laws under which they operate.

Using a question-and-answer format, a new book deals with 20 basic issues relating to creationism that teachers and students frequently encounter in the classroom, in the popular media, and while conducting research in various science fields. L. James Gibson and Humberto M. Rasi—co-editors of *Understanding Creation: Answers to Questions on Faith and Science* (Pacific Press, 2011)—assembled an international group of experienced, Bible-believing scientists and researchers who have addressed in accessible language these engaging questions. This issue of *The Journal of Adventist Education* includes three articles based on chapters of the book, which we believe will be valuable to teachers and students in our educational institutions.
Why Do Different Scientists Interpret Reality Differently?

It is generally assumed that well-educated people who dedicate their professional lives to the scientific study of nature are able to approach their subjects with a dispassionate attitude. Using sophisticated equipment, they make careful observations, conduct experiments, develop hypotheses, propose theories, and arrive at objective conclusions in their respective areas of expertise.

Nevertheless, scientists applying the scientific method while using similar equipment to study the same aspect of nature can and do arrive at different conclusions. Why does this occur? The answer to this question can be found at three levels.

Differences in Interpretation

Some of the common reasons why scientists reach different conclusions in their research include factors such as the size and reliability of the sample data gathered, the adequacy of design in the experiments conducted, the precision of the equipment used, or simple human error. These factors can usually be remedied as other scientists learn of the results, review the procedures, data, and findings, then attempt to replicate the observations or experiments, and finally determine which of the conclusions or discoveries is favored by the weight of the evidence. This process is what makes science one of the most exciting human activities.

In March 1989, two established electrochemists—Martin Fleischmann and Stanley Pons—announced they had produced nuclear fusion at room temperature using heavy water and a palladium electrode. The reaction of the international scientific community was immediate because the financial implications of producing low-cost energy...
Disagreements among scientists in several fields may be based on what rules should be applied in interpreting the origin of the natural world and its operating laws.

Different Paradigms

A deeper reason for disagreement among scientists on a particular issue may be differing scientific paradigms, a concept proposed by Thomas S. Kuhn. In his view, science is not an empirically autonomous and objective endeavor, but a collective activity influenced by social and historical factors. During periods of “normal science,” he argued, the scientific community operates on a generally accepted model or paradigm. However, results that don’t fit within those understandings gradually build up until a “paradigm shift” occurs. At that point, a new consensus and paradigm provide a new set of assumptions that serve as the basis for doing science. Kuhn provides the example of the paradigm shift that occurred when the ptolemaic geocentric view of the universe was replaced by Copernicus’ heliocentric model of the Solar System.

Another significant paradigm shift occurred in the earth sciences in the 1960s, when the weight of evidence confirmed ideas that Alfred Wegener (1880–1930) had advanced regarding the movement of the continents. Up to his time, it was thought that the various continents were immovable and had been connected by land bridges that had later submerged. But during a conference in 1912, Wegener proposed that the continents had first been part of a supercontinent (which he named Pangaea) and that later they drifted apart. In 1915, he published this theory in a book on the origin of continents and oceans. For a few decades, his proposed theory of continental drift was rejected by the pre-eminent geologists, due in part to intellectual inertia and, more importantly, to the lack of concrete evidence and an explanatory mechanism. But after substantial new data accumulated, Wegener’s idea that the continents have moved was accepted as valid and is now the working paradigm in geology, geophysics, oceanography, and paleontology.

The current debate surrounding climate change provides a prime example of a paradigm-based disagreement. For a number of years, a group of scientists has been analyzing data that suggest a recent steady increase in our planet’s temperatures. Computer model projections indicate that if global warming continues at the current rate, humanity will face a series of irreversible catastrophes. However, scientists disagree over the cause; hence the two contrasting paradigms at play. One group believes that the recent rise in temperatures is caused by natural climate cycles, which occur independent of human activity. Scientists using this paradigm emphasize the correlation between solar cycles and global temperatures. The other group believes that human activity is responsible for the increase in global temperatures.
**Worldviews and Their Implications**

All humans, including scientists, develop a worldview through which they understand, interpret, and explain reality at its most fundamental level. Since we all wish to make sense of our experiences, our personal worldview serves as a mental map that orients us in our decisions and actions. No philosophy degree is needed to possess a worldview. Even scientists are unable to approach the study of a particular object, organism, or phenomenon with a completely objective attitude—all bring to their investigation a particular set of understandings and assumptions regarding the universe and life—a worldview.

Our individual worldview begins to take shape during adolescence and matures in young adulthood. It is initially the result of various influences—family, studies, media, and the surrounding culture. We continue to adjust its contours throughout our life due to new information and experiences.

At its most basic, a worldview answers four questions:

- **Who am I?**—The origin, nature, and purpose of human beings.
- **Where am I?**—The nature and extent of reality.
- **What is wrong?**—The cause of injustice, suffering, evil, and death.
- **What is the solution?**—Ways of overcoming these obstacles to human fulfillment.

Of course, this set of basic questions could easily be expanded. Ultimately, our worldview provides the foundation for our values and is reflected in our decisions and behavior. It influences, for example, our choice of vocation or profession, our relationship with other humans, the way we spend our financial resources, our use of technology, our attitude toward the environment, and even our socio-political decisions regarding issues of justice and peace.

The answers we give to the questions listed above can be linked by an overarching story (a meta-narrative) that integrates concepts of origin, purpose, meaning, and destiny. Imagine, for example, how two well-trained scientists with different worldviews—for example, a Bible-believing Christian and a neo-darwinian evolutionist—would structure and articulate their overarching narrative from their individual perspectives.

It is worthwhile to note that the impact of the scientist’s worldview on research questions, methods, and results has been much more significant in the historical and cosmic sciences than in the experimental and mathematical sciences.

**Major Worldviews**

Through recorded history, humans have adopted three major worldviews, which can be summarized as follows:

- **Theism** posits the existence of a personal God who is Creator and Sovereign of the universe. This Supreme Being is separate from His creation but acts in its operation.
- **Pantheism** identifies an impersonal deity with the forces and workings of nature. Reality consists of the universe plus god. They are mutually interpenetrating and interacting.
- **Naturalism** assumes that reality consists of the material universe operating according to natural laws plus nothing else.

Although there are varieties and subsets of the three major worldviews, these can be outlined in Figure 1.

It is well-known that modern science emerged during the 1500s and 1600s within the context of a theistic culture that was predominantly Christian. Pioneer thinkers and scientists in various disciplines such as Copernicus, Galileo, Kepler, Pascal, Boyle, Newton, Halley, and others believed in a Creator God who had established operating laws in the universe and nature that could be discovered and applied for the benefit of humanity. In contrast, cultures in which pantheism predominated did not offer a favorable milieu for scientific endeavors because nature was seen as divine and therefore sacred.
<table>
<thead>
<tr>
<th>Key Concept</th>
<th>Biblical Christianity</th>
<th>Secular Humanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime Reality</td>
<td>A transcendent God who acts in the universe and can be known by human beings on the basis of His self-revelation.</td>
<td>Inanimate matter and energy.</td>
</tr>
<tr>
<td>Origin of the Universe and Life</td>
<td>Both were created by God by the power of His word to operate on the basis of cause-and-effect laws in a system He sustains and in which He freely acts.</td>
<td>The universe is eternal or began with a sudden cosmic explosion and operates on the basis of cause-and-effect laws in a closed system. Life appeared from nonlife by chance and natural laws.</td>
</tr>
<tr>
<td>Means of Knowing Truth</td>
<td>God’s self-disclosure perceived through His created works, in Scripture, and especially in the person of Jesus Christ. God also communicates with humans through their conscience and reason illuminated and guided by the Holy Spirit.</td>
<td>Through human reason and intuition, working through and confirmed by the scientific method. For others, truth is beyond human reach, if it exists at all. Ultimately, all knowledge and truth are relative to culture, time, and place.</td>
</tr>
<tr>
<td>Origin and Nature of Human Beings</td>
<td>Physical-spiritual beings created perfect in God’s image, capable of free moral decisions, now in an imperfect condition.</td>
<td>Humans are merely another form of living organism that originated through unguided evolutionary processes.</td>
</tr>
<tr>
<td>Human History</td>
<td>Ultimately, a meaningful sequence of events, guided by free human decisions, but supervised by God, who acts in fulfillment of His overall plan for the good of His creatures.</td>
<td>Unpredictable and without overarching purpose; guided both by human decisions and by natural forces beyond human understanding and control.</td>
</tr>
<tr>
<td>Basis of Morality</td>
<td>The unchanging character of God (merciful and just), revealed in the life of Jesus Christ and in the Scriptures.</td>
<td>The majority opinion, contemporary customs, particular circumstances, or a combination thereof.</td>
</tr>
<tr>
<td>Main Cause of the Human Predicament</td>
<td>Conscious rebellion against God and His principles; an attempt to enthrone humans as autonomous creatures; as a result, the image of God in humans has been defaced and the entire world suffers.</td>
<td>Ignorance of true human potential, bad laws, incompetent government, lack of human cooperation, a natural human flaw, among others.</td>
</tr>
<tr>
<td>Main Solution to the Human Predicament</td>
<td>A spiritual rebirth: trust in divine forgiveness through Jesus Christ, which leads to a life of loving obedience to God, proper self-understanding, inner peace, and harmonious relationships.</td>
<td>Improved education, more support for science, technological progress, just laws, competent government, improved human tolerance and cooperation, eugenics, stronger care of the biosphere, among others.</td>
</tr>
<tr>
<td>Death</td>
<td>An unconscious parenthesis until the day of God’s final judgment. (Other Christians: entrance into another conscious state.)</td>
<td>The final end of human existence in all its dimensions.</td>
</tr>
<tr>
<td>Ultimate Human Destiny</td>
<td>Transformed beings living eternally in a new earth or eternal annihilation. (Other Christians: eternal punishment.)</td>
<td>Nothingness and oblivion.</td>
</tr>
</tbody>
</table>
Some more recent approaches seek to establish connections among these basic worldviews. Theistic evolution, for example, attempts to bridge Christianity and naturalism, proposing that God operates in the world through the process of evolution. Neo-pantheism, on its part, suggests close links between scientific materialism and religious mysticism.11

Contrasting Worldviews

During the past 150 years, the scientific community has gradually moved away from its Christian roots and has assumed a naturalistic worldview that discounts any supernatural intervention or transcendent meaning. It is within this worldview that the sciences are generally taught, research is conducted, and articles are rejected or accepted for publication. The most popular current expression of this worldview is secular humanism.12 The contrast between the basic tenets of biblical Christianity and secular humanism—as representatives of theism and naturalism—can be summarized as shown in Figure 2.

The Biblical Worldview Narrative

The existence of God and whether He created the universe and life are, by definition, questions beyond the scope and the capability of naturalistic science. The answers to such questions rely on worldview assumptions, which are based on evidence that may or may not be satisfactory to equally competent scientists. Yet, these answers influence the development of hypotheses and theses and the interpretation of data in many scientific endeavors.

From the beginning of modern science, Christian scientists have operated on the premise that the Creator of the universe and life is the same God that communicated with humans through the Scriptures. Christians who anchor their convictions in the Bible develop a worldview and narrative that, as interpreted by Seventh-day Adventists, include seven key moments in cosmic history:

- **Creation in Heaven.** At some time in the remote past, God creates a perfect universe and populates it with intelligent and free creatures.
- **Rebellion in Heaven.** An exalted creature rebels against God’s principles and, after a struggle, is banished to Earth with his followers.
- **Creation on Earth.** During six days in the recent past, God makes this planet inhabitable and creates plant and animal life, including the first pair of humans, who are endowed with free will.
- **Fall on Earth.** Tempted by the rebel creature, the first couple disobeys God, and the entire web of life on this planet suffers the consequences, including a devastating global flood.
- **Redemption.** Jesus Christ, the Creator Himself, comes to Earth to rescue fallen humans, offering them free salvation and power to live a transformed life.
- **Second Coming.** At the end of time, Christ returns in glory as promised and grants immortality to those who have accepted His offer of forgiveness and salvation.
- **Consummation.** After a millennium passes, Christ returns to execute final judgment, eliminates evil, and restores the entire creation to its original perfection, which will last forever.

The biblical worldview and its overarching narrative are attractive because they provide an internally coherent answer to key worldview questions. This worldview offers a satisfactory explanation for what we learn, discover, or experience in real life, and gives meaning and transcendent hope to humanity’s deepest desires. At the same time, our Christian worldview is always in development, under the guidance of the Holy Spirit, because our understanding of God’s revelation is limited and progressive.13

Conclusion

As we have seen, equally capable scientists arrive at different conclusions
Those who accept the biblical narrative as true and reliable enjoy the advantage of having at their disposal additional options and insights provided by the Creator.

due to methodological factors, to working within different paradigms, or to the contrasting worldviews they have embraced. Nevertheless, Christian scientists who conduct research from the biblical worldview perspective can comfortably work alongside other scientists who may not share their assumptions and yet jointly achieve meaningful findings and respectable conclusions. Those who accept the biblical narrative as true and reliable enjoy the advantage of having at their disposal additional options and insights provided by the Creator in the Scriptures, which can generate research questions that may lead to fruitful hypotheses, explanations, and discoveries.14

Humberto M. Rasi received his college education in his homeland, Argentina, completed a Ph.D. in Hispanic literature and history at Stanford University, and a postdoctoral fellowship at Johns Hopkins University. He served as professor and dean of graduate studies at Andrews University, as editorial vice president at the Pacific Press Publishing Association, and world director of the Education Department of the Seventh-day Adventist Church. He co-founded the Institute for Christian Teaching, launched the journal College and University Dialogue, and has published many articles and edited several books. Now retired in Loma Linda, California, he continues to lecture, publish, and coordinate projects in international higher education.

NOTES AND REFERENCES
3. Clusters of scientific fields tend to operate within a shared paradigm, which Thomas Kuhn called a “disciplinary matrix” in the postscript to the 1970 edition of his book (ibid.). Consider the assumptions, methods, and preferred research questions that are common, for example, to the historical sciences (archaeology, geology, palaeontology), or to the cosmic sciences (astronomy, astrophysics, space science), or to the experimental sciences (biology, chemistry, physics), or to the behavioral sciences (psychology, psychiatry, sociology).
9. In The Universe Next Door: A Basic Worldview Catalogue, 3rd ed. (Downers Grove, Ill.: InterVarsity Press, 1997), James W. Sire suggests seven worldview questions: What is prime reality—the really real? What is the nature of external reality, that is, the world around us? What is a human being? What happens to a person at death? Why is it possible to know anything at all? How do we know what is right and wrong? What is the meaning of human history?
10. In addition, the unpredictable gods of pagan cultures could not provide the cause-and-effect relationship essential for science. See Ariel A. Roth, Science Finds God (Hagerstown, Md.: Autumn House, 2008).
11. In The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism (1975), Fritjof Capra asserts that physics and metaphysics are interconnected.
12. Paul Kurtz has been a pre-eminent spokesman of this worldview perspective through his many books, including A Secular Humanist Declaration (1980) and In Defense of Secular Humanism (1983), and as editor of Humanist Manifestos I and II (1984).
In discussions of science and faith, one often gets the impression that either science or Scripture can be believed—not both. In the secular world, science is by default seen as the true source of knowledge. The Bible, if considered at all, is seen as useful only as a source of spiritual insight—as long as it presents no conflict to the current scientific consensus. This article will examine the question: Are the Bible and science in conflict? Then we will explore how a believer who is also a scientist can relate to the issue.¹

Before proceeding, let us define what is meant by science in this article. In using this term, I refer to a systematic process that attempts to explain phenomena in terms of the physical mechanisms that cause them. Other definitions are possible, but this definition will suffice for our purposes. In a similar vein, a miracle is an event that cannot be explained solely by naturalistic scientific means.

Experimental and Historical Sciences

In discussing science and faith, it is useful to distinguish between experimental (or empirical) science on the one hand and historical science on the other. Sciences that are mainly experimental (e.g., chemistry, physics, anatomy, ecology) involve the manipulation of physical conditions in order to isolate and identify causal factors that will explain an event. Those sciences that are mainly historical (e.g., archaeology, paleontology) study the results of some past event and attempt to explain what occurred in order to produce the observed evidence.

Most sciences include both empirical and historical aspects. However, only the empirical aspects are open for experimentation—the historical parts are not. Normally, there is no conflict between Scripture and experimental science. Difficulties arise when attempting to understand historical events for which the Bible provides a supernatural explanation, while science assumes a naturalistic explanation.

Different Types of Bible Passages

Before considering further the ways in which science and Scripture seem difficult to reconcile, let us note that there are many areas where we find no conflict. For example, although the Bible is not primarily a science text, it nevertheless describes many phenomena of a scientific nature. Various Bible authors mention mammals, birds, and plants. Aspects of anatomy, physiology, and behavior—plant, animal, and human—are mentioned by Bible authors. The Bible describes the creation of life forms, implying that God designed and fabricated the living systems available for us to study today. Science today confirms the appearance of design at all levels of complexity, al-

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though considerable disagreement exists over the cause of the design.

Some passages in the Bible were written in symbolic terms or using figures of speech. Thus, one might mistakenly interpret an expression as literal when it is, in fact, figurative. For example, Habakkuk 3:3 says that God came from Teman. Perhaps some people would conclude from that text that God lives in Teman, but most of us consider this to be a figure of speech. Here, God is represented as coming from the south, or Sinai, where the Ten Commandments were given. Other passages may be poetic, illustrative, or expressions of common understanding not written to convey scientific explanations.

On the other hand, there are many portions of Scripture that are clearly intended as historical narrative. These include passages such as Genesis 1-11; the Gospel accounts of Jesus’ miracles; and of His virgin birth, death, and resurrection. The clearly expository prose does not support attempts to “spiritualize” them or otherwise categorize them as allegorical or poetic.

Some Christians interpret Genesis 1-11 and miraculous events in Scripture as figurative and/or poetic, not to be understood literally. Many of these Christians assume that the authors of these parts of the Bible described their own understanding of the events or recorded the traditions that were handed down to them. These authors were not sophisticated enough to understand that the events didn’t really happen in the way they described them—and presumably God did not try to correct the misunderstanding. This low view of biblical inspiration seems to undermine belief that “All Scripture is given by inspiration of God, and is profitable for doctrine, for reproof, for correction, for instruction in righteousness” (2 Timothy 3:16, NKJV). It also appears to destroy faith in Jesus and the apostles since their references to Genesis indicate that they believed the events really happened.

**Natural and Supernatural Explanations**

We are able to offer two possible explanations of phenomena (or events): natural or supernatural. The two explanatory systems may be in conflict or may complement each other. As the Bible primarily describes God’s activities in the course of human history, it almost always proffers supernatural explanations. As mentioned above, explanations of past events are inherently not directly testable by scientific methods. For a given phenomenon that the Bible describes as supernatural, a materialistic (or naturalistic) scientist may give a naturalistic explanation. In some instances, both explanations may apply. In other words, God may well have used ordinary physical processes in a supernatural way to accomplish His will.

Many of the great scientists of the past were believers and saw no conflict between the Bible and science. In the 17th century, scientists were divided into two camps in regard to religion and science (or philosophy, as it was then called). Francis Bacon and Galileo Galilei belonged to the “separatist” group who felt that the book of Scripture and the book of Nature were best kept separate, while recognizing that both had the same author. During the past half-century, American scientist Stephen Gould has extended the idea of separation with his NOMA (nonoverlapping magisteria) proposal, which declared that science and religion occupy separate realms that do not interact. According to Gould, religion deals with spiritual and ethical ideas, while science deals with the real world. Accepting NOMA thus seems to necessitate rejection of Scripture as the inspired Word of God. The other group of 17th-century scientists, the pansophists, viewed science and Scripture as being ultimately in harmony.

Thus, both groups arrived at a “no conflict” answer—the separatists because they compartmentalized the fields of study, and the pansophists because they saw science as reinforcing Scripture. Both groups saw God as Author of Scripture and Creator of the world. Any apparent conflict lay in a disagreement between interpretations of the Bible and/or interpretations of science. We might take the same approach today with one additional caveat—not all of our questions will be answered. Since we are in a sinful world and have only an incomplete understanding of science and Scripture, we will not arrive at complete answers to all questions.

**Areas of Conflict**

Conflict is especially prominent in the study of origins, which is a historical question, not an experimental one. Those with a naturalistic worldview prefer evolutionary theory because it posits explanations in terms of purely physical mechanisms. Those with a worldview based on biblical revelation prefer creation theory because it accepts biblical accounts of supernatural activity in the creation and maintenance of the natural world. Both views cite evidence to support their position. Because that evidence is so incomplete and open to different explanation, the scientist’s worldview comes to play a major role in interpretation. We will now turn to areas where conflict is very much in evidence.

One of the best known examples is found in the experience of Galileo Galilei (1564-1642), considered by many to be the father of modern observational astronomy, modern physics, and ultimately the individual most responsible for the birth of modern science.

In the late 16th century, leaders of the Roman Catholic Church endorsed the idea that the Earth was the center of the universe. While a pious believer, Galileo was nevertheless a scientist. He advocated Copernicus’ idea that the Earth revolved around the Sun. Since the church considered itself the supreme authority, Galileo was deemed a heretic. In this example, it is important to note that Galileo’s problem was not strictly a Bible/science conflict, but reflected a difference between religious leaders and some scientists over how to...
interpret the Bible and scientific data.

In the eyes of most materialistic scientists, conflict has always existed between secular scientists and those who hold a theistic worldview. Books have been written on the topic of the so-called “war” between “science and religion.”6 Unfortunately, overzealous Christians share in the responsibility for this conflict. Serious thinkers were often alienated by superstition, suppression, and coercion (associated with the dominant church), and this led to distrust of the Bible itself.

The Bible chronicles the occurrence of numerous miracles, which are almost invariably interpreted differently by the two groups. A person not persuaded of the Bible’s divine inspiration (i.e., a “nonbeliever” in this discussion) concludes that the miracle did not in fact occur and that the biblical account is fallacious. The nonbeliever arrives at one of the following conclusions: (1) The writer thought it happened the way he wrote it but was wrong; (2) he knew it was wrong but was trying to fool his audience; or (3) he wanted to make a point and merely told an illustrative story to do so. In any of these cases, the biblical report is regarded as unreliable, or at the least, not to be taken literally. In contrast, the person who accepts the Bible as divinely inspired (a “believer” in this discussion) accepts the miracle by faith. Because the occurrence was placed in the Bible, and the Bible is God’s Word, the believer accepts that God used His power to cause the miracle.

**Miracles With No Available Physical Evidence**

Now we will turn our attention to miracles for which we have no physical evidence. An example included by Gospel writers is Jesus walking on the water (see Matthew 14:25-32). Skeptics might suggest that Jesus may have known the location of rocks just under the surface so that He could walk from land to the boat, thus appearing to walk on water. Peter, not knowing the location of these rocks, lost his footing and had to be rescued. Believers may rightfully regard such explanations as strained, but since no direct physical evidence is available to us today, we cannot conduct any test. Thus, we either accept or reject the story based on our personal presuppositions.

A second example is Jairus’ daughter, a young girl who died, and whom Jesus brought back to life (see Luke 8:49-56). The nonbeliever may observe that Jesus Himself declared the girl was only asleep (Matthew 9:24), and that He merely awoke her. Matthew’s and Luke’s reports are thus discounted as wrong. We have no direct physical evidence to know for sure whether the girl was in fact dead or not. One’s response to the account will depend on one’s confidence in the reliability of Scripture.
Miracles With Physical Effects Observable to Us

Miracles for which physical evidence does exist today seem to present more problematic issues. At times, it appears that scientific evidence strongly disagrees with our most careful interpretation of Scripture. These are issues that we might call “no conflict, but . . .” issues. Our belief is that the Bible and science are not in conflict. Nevertheless, they do appear to be so. To resolve these issues, evidence must be very carefully evaluated, as it can be interpreted in many different ways.

According to a believer, the origin of life on Earth is an example of a miraculous event in which the Bible and science are not in conflict. The believer sees no conflict on this issue because he or she feels that the many “life-from-chemicals” experiments that have been performed in the past 60 years have provided strong evidence that life could not have originated by natural means. All such experiments have relied heavily on the intelligence of the investigator—if life originated from these types of experiments, it could hardly be described as “spontaneous.”

Because it is possible to generate organic molecules from inorganic gases in the laboratory, secular scientists have concluded that spontaneous generation of a living cell could occur. They believe that given enough time and the right conditions, life could arise by natural (random) means. Therefore, they see conflict between the results of their experiments and the assertion by Christians that God made the first living things.

The area where the “no conflict, but . . .” questions are perhaps the most vexing is the amount of time required for accumulation of the fossil-bearing sediments in the Earth’s crust. There seems to be a conflict between the relatively short time implied in the Bible and the long time inferred by science.

Ice cores offer another example. In places on the world’s surface like Greenland, a thick layer of ice has formed. When the ice is drilled into and a core is pulled out, one sees that there are different layers, like rings in a tree. Some ice cores may contain 160,000 layers, while the lower ones which have been identified by chemical means. Since the layers are presumably laid down one layer per year, this presents a conflict with the Bible’s timetable. Of course, there are no dates in the Bible, but most conservative biblical scholars have used genealogies mentioned in the text to conclude that not much more than 10,000 years are represented by biblical history.

Many other examples can be given of conventional dating techniques that suggest the Earth is much older than 10,000 years. Many Bible-believing scientists see no conflict in old dates for rocks. God certainly could have created the rocks of the Earth millions of years ago and then organized the Earth’s crust during a more recent Creation week. However, many examples of fossils have been found in rocks dated by standard techniques as much older than 10,000 years.

Even considering these problems, we have evidence that the last chapter in age dating has not yet been written. In some cases, new scientific evidence may cast doubt on current conventional age dating. For example, soft tissue was recently discovered inside fossil dinosaur bones thought to be about 67 million years old. No one has a good idea to explain how soft tissue could survive that long. Another example is the discovery of the catastrophic nature of the Yellowstone fossil forests, once thought to represent long ages of ordinary processes. Other evidence for rapid deposition of sediments includes the rapid underwater deposition of turbidites (geological formations that were caused by a type of underwater avalanche) and the rates of erosion of the continents, which seem to be too rapid for the supposed great age of the Earth.

Regarding the Bible as Myth Creates More Problems

Some people solve the conflict by concluding that the biblical miracles are myths—traditional stories that serve to express a worldview. For these individuals, no conflict exists since the event didn’t happen the way it was described. For example, there really wasn’t a man named Daniel who spent the night in a lions’ den. This is merely a story told to show that God takes care of those who believe in Him.

However, this approach undermines the inspiration of Scripture. Some people see the ages obtained by conventional dating as so strongly indicating an old Earth that they conclude a literal
reading of the Bible to be absurd. Such individuals may accept the ideas of some biblical scholars who believe that parts of Genesis (chapter 1, for example) were written after other sections. If we take this view of Scripture, we might well end up denying Christ’s life and ministry. The evidence against the bodily resurrection of Christ is comparable to that against a literal reading of Genesis 1.

If we are going to be consistent in our understanding of the inspiration of Scripture, we need to be ready to accept that miracles did occur and that, using conventional means, we cannot prove how they happened. Thus, the conflict remains.

Conflict May Be Unavoidable in Some Cases

For most believers, it is no surprise for there to be conflict between faith and secular science. Christian doctrines are based on faith and are supported by evidence that appeals to reason, including personal experience, documentary evidence, and eyewitness testimonies. Empirical evidence is also important but is not the only factor as it is in secular science.

When interpreting Scripture, we must always do so in humility. Are other interpretations possible that do not destroy the original meaning? We may accept alternate views if the passage allows for them while not losing sight of the event’s miraculous nature. The same principle should apply to interpreting science—a humble attitude and consideration of alternative hypotheses. Maintaining this attitude can help keep conflicts between the Bible and science in perspective.

If we are consistent in our understanding of Scripture’s inspiration, we must be ready to accept that miraculous events did in fact occur and that, using conventional means, we cannot prove how they happened. Thus, the potential for conflict remains—as it will as long as the world does, in its present iteration.

Conclusion

Perhaps God will someday reveal to us the kind of science He employs, the laws within which He has chosen to operate. Only then will we understand that there was no conflict after all. For the present, we must live with the tension, which for a scientist, can at times be considerable.

From the above, we can conclude that there will always be some conflict between science and the Bible. Some apparent conflicts may be resolved as science makes new discoveries, but others will only be resolved in eternity. Conflict between the Bible and science arises for several reasons, including: (1) differing philosophical understandings of the role of God in nature; (2) the difficulty of interpreting the history of the world scientifically; (3) the inability of science to explain in scientific terms what God did miraculously; and (4) the brevity and incompleteness of the biblical information about the history of nature.

All of these questions and conflicts should present opportunities for scientists and theologians to grow together in their understanding. The tragedy is that both often seem limited by and locked into their own perspective and fail to communicate in a common language.

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NOTES AND REFERENCES

1. For helpful suggestions on how to deal with tension, see Chapter 20, “How Can I Live Without Having All the Answers?” by Gary Burdick in Understanding Creation (Nampa, Idaho: Pacific Press Publ. Assn., 2011).


What Does the Fossil Record Tell Us?

The fossil record is an archive showing the history of life on Earth. It includes related data—for example, the nature of the rock layers in which it is found. Researchers have developed an impressively large database containing not only raw data, but also interpretations about the remains, rocks, processes, time involved, and the supposed ecology of those organisms. It is important to keep in mind that the database contains both objective data and interpretations of it.

How well known is the fossil record?

A recent study has shown that when the fossil collector’s curves are analyzed, the number of fossil vertebrate and invertebrate families described during the past 200 years have shown a continuous increase to more than 3,000 families at present. On the other hand, the number of families with both fossil and living representatives has leveled off at about 1,600 families. This suggests that the global Phanerozoic (that is, current geologic era) record of fossil metazoans (multicellular organisms) is still fairly incomplete; however, it is believed that the known record is quite representative. When considering the available data, great care should be taken in making interpretations and constructing arguments to support our views. In the next section, we will discuss some widely held views that are not supported by the data.

Dispelling Erroneous Conceptions

As Christian scientists, students, and teachers, we need to be on the lookout for “bad science”—claims that are unsupported by either data or the Scriptures. Examples of erroneous ideas that have been promoted by some creationists are listed on the next page.
Misconception 1:

Because the geologic or stratigraphic (rock layer) column is a construct/theory based on an evolutionary paradigm, it is false and likely to mislead us. We noted earlier that the record is real, the data are real, and in spite of problems with some interpretations, the overall stratigraphic sequence is real. Problems arise from differences in interpretation regarding the origin of the observed sequence or the nature of the processes that produced the sequence. How could there be order, some ask, if everything resulted from a major catastrophe such as a global flood? However, experience in the field consistently shows that order is present in the fossil record. This very consistency in the ordered sequence is the reason for the success of various geological exploration technologies that are used in the exploitation of mineral and fossil resources.

Misconception 2:

Fossil reconstructions are full of errors. In the first years of paleontology as a science, many errors were committed as organisms were reconstructed based on very few fossil bones, or when parts that had been discovered were assigned to a particular organism. However, today’s reconstructions have become quite accurate due to the development of various subspecialties and the discovery of vast numbers of remains on all continents.

Misconception 3:

Dinosaurs are not real. Today, nearly everyone recognizes that dinosaurs really existed.1 Paleontologists as well as dinosaur enthusiasts have found thousands of dinosaur fossils, including eggs and embryos, and recently, organic molecules, such as the protein collagen, and what appear to be well-preserved blood and bone cells and blood vessels.

Misconception 4:

There are human footprints along-side those of dinosaurs. This notion became very popular (and in some places remains so) based on claims of such a discovery in the bedrock at Paluxy River, Texas. What is not well-known is that Seventh-day Adventist creation scientists were the ones who put the evidence to the test and discovered the fraudulent nature of the human track claims. As Christians, we must be wary of claims publicized as “proofs” that are necessary to sustain our beliefs.

Misconception 5:

The entire fossil record or geologic column was laid down during the one year of the biblical flood. Some may have envisioned the formation of the geologic column as the result of a single catastrophic event, but we now know that the record is more complex than a single event could produce. Based on the data, a reasonable scenario suggests that part of the lower portion of the record consists of pre-Flood rocks that were not completely altered or eroded away by the catastrophe. In the same way, an upper part of the section most likely represents the strata and processes that occurred after the Flood. In this way, a significant amount of geological activity would be represented in the “pre-Flood” and the “post-Flood” rocks.

Misconception 6:

Marine fossils high in the mountains are proof that the floodwaters covered the highest peaks and therefore the whole earth. Those fossils were not strewn around the mountain peaks as the water covered them, but were produced when organisms died in a body of water (or were washed in) and were then covered with layers of sediment. Later, those layers were uplifted during mountain-forming processes. The fossils or the sediments that buried them could have been a direct result of the Flood or a consequence of Flood-related events.

Misconception 7:

The fossil record proves evolution (or proves the biblical flood). We like certainty—the knowledge that we have the right answers or beliefs. Unfortunately, science, because of its methods and limitations, does not provide ultimate truth, especially regarding theories such as evolution or Creation, which have a metaphysical component. What it can do is provide evidence for aspects of evolutionary theory, such as the ways in which similar organisms are adapted for different environments, or for catastrophic processes that led to the extinction of some life forms.

Evidence Consistent With a Short-Age Geological Model That Considers Data From the Biblical Record

We will now consider some of the arguments that earth scientists have proposed in attempting to develop a degree of harmony between the biblical record and the scientific evidence. At present, we still experience serious problems with some unresolved questions.

First, we don’t yet have a satisfactory overarching detailed model for the development of the geologic column and its fossil record. Hypotheses have been proposed (for example, trying to fit all the geologic column in the year of the Flood, or in an extended Flood model), but each one has numerous problems and raises more questions than it answers. Nevertheless, some attempts have been made, and this remains an area of active research.

Second, some major features of the fossil record are difficult to interpret within a short time frame. These include (1) the existence of fossils with characteristics that appear to be intermediate between recognized groups of species (however, some of these “forms” may have been part of the original creation); (2) the existence of an overall fossil sequence, and even some sequences within certain groups of fossil organisms; (3) the number of
Evidence 2:

Fossil preservation and occurrence.

The preservation of abundant organisms, their remains, or evidence of their activities (such as tracks and burrows) is very difficult to explain using present-day processes (that is, in actualistic terms), particularly when we consider the nature of the fossiliferous deposits. Many features of the fossils themselves support catastrophic events or rapid burial processes. A description of these features follows.

- Abundance of mass mortality events throughout the record. Currently, paleontologists recognize that the majority of these deposits formed catastrophically. An example of this is the massive burial of dinosaur remains. Thousands of bones and complete skeletons have been discovered. In many cases, sediments in which these remains are found contain a significant amount of volcanic material.

- Worldwide extinction events. Throughout the fossil record, there are many (not only the popular “big five”) strata that record the sudden disappearance of numerous taxa. For example, when discussing extinctions, we usually refer to popular species like di-

fossil families with living representatives, which increases as one moves upward through the geologic column; and (4) some biogeographic distribution patterns that prove difficult to explain.

In spite of these problems, there is abundant evidence suggesting an alternative view to that of conventional geology and paleontology, as described below.

Evidence 1:

Geological and paleontological data demonstrate sediment and fossil accumulation through catastrophic processes. There is increased recognition among mainstream earth scientists that many rock strata have formed catastrophically. Until only a few decades ago, the dominant principle for geological interpretation was that of uniformitarianism—the idea that processes in the past occurred at the same rates as they do in the present. However, many scientists have recognized the problems of this influential paradigm and have come to accept the occurrence of many catastrophic events in the geologic past. Examples of catastrophic features include recognition of well-documented megaflood events (Lake Missoula, Mediterranean Sea, and British Channel, among others); recognition of turbidites (rock units resulting from high-speed subaqueous flows); rapid accumulation of rhythmites—layers of sedimentary rock laid down with an obvious periodicity—which were previously interpreted as a result of slow multiyear deposition or attributed to yearly seasonal deposition, such as varves (layers of sediment deposited in a body of still water in a single year); the influence of large-scale volcanism in rapid burial events (for example, sedimentary accumulation of volcanic ash); the large-scale effects of bolide impacts—from meteors that hit the Earth (an amazing number of asteroids have hit the Earth and exploded, causing environmental disruption and destruction of life). One must keep in mind that the fossil record is embedded in rock units possessing these features, showing that the fossils accumulated in catastrophic conditions.

Associated with this evidence of rapid geological activity are many non-uniformitarian features, such as large-scale sedimentary processes (for example, Jurassic Morrison Formation and associated rock units); global distribution of marine rocks (with extensive strata bearing fossils such as trilobites and ammonites); continent-scale patterns of paleocurrents (for example, Chinle Formation); discontinuities in the stratigraphic record, such as paraconformities—gaps in the record with no apparent evidence for the amount of time supposedly represented; large-scale volcanism (for example, Deccan basalts, India; Columbia River basalts, northwestern U.S.); global/regional tectonic events (for example, mountain uplifting, plate movements, basin subsidence, massive sediment supply for basin infilling); and bolide impacts—more than 150 structures of possible extraterrestrial impact origin since the Precambrian, some of which measure up to 250-300 kilometers in diameter (for example, Vredefort in South Africa; Chicxulub in Yucatan, Mexico).
nosaurs, trilobites, and ammonites, but in reality, there are hundreds of genera and many more species that not only have become extinct, but more significantly have been preserved, something that is extremely uncommon in present-day conditions.

- Exquisite preservation of organisms. Complete articulated skeletons have been found as well as preserved soft body parts (for example, whale baleen; internal organs such as those in the Santana Formation fossilized fish; articulated shells in both clams and ostracodes [tiny shrimplike crustaceans]). These parts would have decayed rapidly had they been exposed for long on the surface (on land or under water). All point to rapid burial and/or rapid mineralization.

- Opisthotonic posture of many well-preserved articulated vertebrate skeletons. An extreme, dorsally hyperextended posture of the spine, where the skull and neck are curved over the back, and strong extension of the tail, is attributed not to postmortem processes but rather “death throes”; in turn, the consequence of unusual chemical changes in the environment (for example, hypoxia, asphyxiation, environmental toxins) that could be reasonably expected in a catastrophic scenario.

Evidence 3:
Appearance and distribution of fossil remains. Many types of data relating to the first occurrence of a fossil organism or group of organisms, and the subsequent distribution of those species in the record, support the biblical model well, and in turn present problems for an evolutionary interpretation.

- The Cambrian explosion. The sudden appearance of more than 20 phyla or different types of organisms poses a major problem for evolutionary theory, which proposes that all forms of life came from a single common ancestor. With no real ancestors farther down in the geologic record, the evidence supports a polyphyletic origin of life, something one would expect in a model of creation including different “kinds.”

In fact, while evolutionary theory has proposed the development of life forms from a “universal common ancestor,” the fossil biodiversity trend data in the fossil record depicts precisely the opposite—an “inverted tree of life.” Several other sudden “explosions” present in the fossil record suggest the existence of different lineages with separate origins. The diversity we see today may have come from diversification of the originally created kinds through a process of “descent with modification,” to use darwinistic terminology. (In fact, the biblical record is not incompatible with eventual evolutionary change such as microevolution and speciation.)

- The sudden appearance of complex body plans and structures. An example of this is the classic complex optical nature of the trilobite compound eye, with no “simpler” eye structures found in the underlying strata.

- The lack of intermediate forms between major phyla groups. Claimed “evolutionary links” turn out not to be such even for the paleontologists studying these fossils. In the past few years, several purported “evolutionary links” have been shown not to be such (for example, Archaeopteryx and the origin of birds). The presence of these morphological gaps among higher taxonomic categories actually serves to document the lack of evolutionary continuity.
• The occurrence of a number of successive strata containing allochthonous fossil remains (that is, remains that did not live there but were transported into place) deposited catastrophically. The famous Yellowstone “petrified forests” are an example—trees that first appeared to be in growth position turned out to have been transported from elsewhere.

• Record of animal activity: The presence of “ichnofossils” (that is, trace fossils such as trackways and burrows, larval cases, and reptile and bird eggs). This data is very valuable for the development of a depositional model since it means that, throughout the formation of the fossil record, some organisms remained alive and active. Even though this data implies that a certain length of time has elapsed, it also suggests that abundant sediment input is needed, as well as rapid burial processes. In addition, the abundance of some of these remains (for example, thousands of dinosaur tracks and eggs in many different parts of the world), as well as the nature of the sediments in which they are preserved, suggest unusual, possibly stressed, environmental conditions that would correspond to a worldwide catastrophic scenario.

A survey of 25 reported fossil patterns and trends in the fossil record has been published, with an evaluation of them in relation to evolutionary and biblical accounts of earth history. The study concluded that more research is needed, but, by comparing the Scriptures and the fossil record, a better understanding can be developed of the geologic column.

**Conclusion**

There is broad agreement among Christian earth scientists who trust the biblical account that the general aspect of the fossil record is catastrophic—one of destruction and death. Much data in the fossil record point to dramatically different physical conditions existing in the past and do not support a naturalistic evolutionary history of life on Earth. The sudden appearance of a diversity of complex life forms and the lack of morphological continuity affirm the biblical account of creation of many different kinds of organisms. Although there are still many questions, when the different types of data (that is, from geology and paleontology among others) are considered, there is significant evidence to support an interpretation of earth history that is consistent with the biblical record.

Many data in the fossil record point to dramatically different physical conditions existing in the past and do not support a naturalistic evolutionary history of life on Earth.
tuce Partners in the Search for Origins? (Nampa, Idaho: Pacific Press Publ. Assn., 2006), pages 120 and 121. Brand here describes in his Model 2 a "wholistic geology" model, in which the Earth records geological processes that “have been operating from the time of the Fall [entrance of sin in the world] to the present.”

6. Recent literature by Adventist scientists who discuss many of the issues relating to Earth history include Leonard Brand, Faith, Reason, and Earth History; A Paradigm of Earth and Biological Origins by Intelligent Design, 2nd rev. ed. (Berrien Springs, Mich.: Andrews University Press, 2009); H. G. Coffin, R. H. Brown, and L. James Gibson, Origin by Design (Hagerstown, Md.: Review and Herald Publ. Assn., 2005); R. M. Ritland, A Search for Meaning in Nature: A New Look at Creation and Evolution (Mountain View, Calif.: Pacific Publ. Press, 1970); A. A. Roth, Origins: Linking Science and Scripture (Hagerstown, Md.: Review and Herald Publ. Assn., 1998); ________, Science Discovers God: Seven Conving Lines of Evidence for His Existence (Hagerstown, Md.: Autumn House Publishing, 2008). Keep in mind that when this article refers to the biblical record (of creation week and the worldwide flood), it is referring to the traditional Seventh-day Adventist interpretation of the events recorded there. On the other hand, the evolutionary view implies a materialistic atheistic explanation of history.

7. Brand, Beginnings (2006), op cit., p. 120.
8. Ibid., p. 76.
23. There are more than 15,000 species of trilobites, all of them extinct, to mention only one example.
26. See A. A. Roth, Science Discovers God, op cit., Chapter 5. Roth points out the major problem of explaining the origin of 19 different body plans in the phyla of the “Cambrian Explosion,” when in the underlying Precambrian, and in very close stratigraphic proximity, there are only three.
27. See Brand, Beginnings (2006), op cit., page 73, Figure 7.7 (A and B), for a description of the actual pattern found in the fossil record, in which the diversity of phyla (major category of organisms), contrary to what one would expect in an evolutionary model, is higher at the bottom of the record and decreases upwards in the geologic column.
29. For more on the question of microevolution and speciation within an interventionist (biblical) framework, see Brand, Beginnings (2006), op cit., page 53, and ________, Faith, Reason, and Earth History (2009), op cit., pages 162-179.
30. Roth, Science Discovers God, op cit., Chapter 6, discusses at length this famous “intermediate” and all the controversy among the paleontologists studying the origin of birds, feathers, and flight.
31. For more than a hundred years, scientists interpreted these layers as a succession of about 48 fossil forests. A body of data exists now (much of it a result of research stimulated by biblically shaped geohistorical paradigms) that suggests a catastrophic scenario of transported trees and vegetation such as the one documented after the eruption of Mount St. Helens. See W. J. Fritz, “Interpretation of the Depositional Environment of the Yellowstone ‘Fossil Forests,’” Geology 8 (1980):309-313. For a detailed discussion, see Coffin, et al., Origins by Design, op cit., Chapter 18, and for a brief summary, see Brand, Beginnings (2006), op cit., page 156. These results might very well apply to other similar petrified forests.
32. Brand, Beginnings (2006), op cit., pages 133 to 136, discusses the implications of trace fossils and fossil eggs in the fossil record. While many of these activities require time (and any model should account for it), the preservation of these remains indicates unusual and catastrophic conditions.
33. See James Gibson, “Fossil Patterns: A Classification and Evaluation,” Origins 23:2 (1996):68-96. These reported patterns found in the fossil record are classified into four categories: fossil diversity patterns, fossil morphological patterns, fossil ecological patterns, and depositional patterns. Gibson concludes that these patterns, catastrophic activity, global patterns, sudden, abrupt appearance of morphological disparity among marine animals in the “Cambrian Explosion,” widespread extinction events, lack of ancestors in Precambrian rocks, and morphological gaps among higher taxa throughout the fossil record are all evidences expected within a biblical framework for the history of the Earth.
34. Almost 20 years ago, Ager, in The Nature of the Stratigraphical Record (op cit.), suggested that “we are beginning to see a somewhat ‘catastrophic’ picture.” It is evident that he has been proven right. In addition, this overall nature of the record might be directly related to the strong imprint of the taphonomic processes that led to the preservation of remains of organisms in the fossil record, what has been termed the “taphonomic megabiases” of the record (Kalmar and Currie [2010]; for reference, see endnote 2).

http://jae.adventist.org
Why Do Humans Behave as They Do?
or a large part of the 20th century, there was much discussion about evolution’s difficulty in explaining altruism. This was an important, unsolved problem. An altruistic act is any behavior that benefits another animal or person at the expense of or risk to the one performing the act. A personal example occurred a few years ago when the 11-year-old nephew of one of the authors jumped between a vicious attacking dog and his little sister. He saved his sister but received some nasty bites. If he had died from this heroic act, he would never have produced any offspring to carry his genes to the next generation. In evolutionary terms, he would have been a success. Success according to the evolutionary definition results from behavior focused on producing one’s own successful offspring instead of doing things that put oneself at risk by helping someone else. In other words, evolution is expected to encourage selfish behavior, and reduce or eliminate altruistic behavior.

This seems at odds with many observations of both human and animal behavior. For example, the ground squirrel that gives an alarm call when a hawk appears thereby warns others to hide, but it also draws attention to itself and thus increases the chances that it will be caught by the hawk. Can evolutionary theory explain this altruistic act, which may decrease the probability that the calling squirrel will survive to reproduce? A squirrel whose genes predispose it to cheat, by benefiting from the alarm calls that it will be accordingly, he would have never produced any offspring to carry his genes to the next generation. In evolutionary terms, he would have been a success. Success according to the evolutionary definition results from behavior focused on producing one’s own successful offspring instead of doing things that put oneself at risk by helping someone else. In other words, evolution is expected to encourage selfish behavior, and reduce or eliminate altruistic behavior.

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In 1975, Harvard professor Edward O. Wilson published Sociobiology: The New Synthesis. In this book, he claimed to have solved the problem of altruism and offered an explanation for its origin in human and animal behavior. Before pursuing that topic, we need to back up a little and explore the background for the theory of sociobiology.

Natural selection produces small changes in animals. For example, faster rabbits can outrun more coyotes and thus produce more offspring than slower rabbits. This is natural selection. Can this process also influence behavior? We can understand natural selection favoring faster rabbits, but can it explain changes in more complex behavior?

Sociobiology attempts to account for adaptations in behavior. It even claims to explain behavior that appears altruistic. To understand this theory, we need to discuss a few simple concepts.

The ability of an organism to reproduce successfully and to pass on its genes through its offspring is described as personal fitness. Faster rabbits have higher levels of personal fitness because they produce more offspring. Logically speaking, a ground squirrel that gives alarm calls or any species that engages in altruistic behavior would have lower fitness—a reduced likelihood of producing offspring or at least producing fewer offspring to perpetuate its genes.

When there appears to be exceptions, sociobiology theory explains these through the concept of inclusive fitness. For instance, two sisters will have many genes that are the same. On the average, 50 percent of their genes will be identical. If one sister helps the other to successfully raise her offspring to reproductive age, she assists in the passing on of many genes that are the same as those in her nephews and nieces. Inclusive fitness includes both the genes that an individual passes on to his or her own children, as well as the indirect passing on of identical genes by a relative.

Sociobiological theory predicts that altruistic behavior should exist only if it is not truly altruistic; that is, if it increases the inclusive fitness of the animal. Biologist J. B. S. Haldane is reputed to have once said that he would lay down his life for two brothers or eight cousins. The reason for this choice was that, on the average, half of a man’s genes will be identical to his brother’s genes, while first cousins will have one-eighth of their genes identical. If Haldane died for one brother, thus eliminating his own chance to reproduce, his brother could pass on only half as many of J. B. S. Haldane’s genes as he himself could have done. However, if Haldane died to save two brothers, he would, statistically speaking, at least come out even. This kind of evolution is called kin selection. Favorable traits are often shared by close relatives, and a family that helps its members survive will have more reproductive success than other families. Their behavioral traits will thus become more common.

The processes of mutation and kin selection and their effects on inclusive fitness are parts of the mechanism by which sociobiology proposes to explain the origin of apparent altruism and
all other unselfish social behaviors. Sociobiology theory asserts that there is no such thing as truly altruistic behavior. Some apparent exceptions, in which unrelated animals help each other, are explained as reciprocal altruism—you scratch my back, and I’ll scratch yours.

For example, olive baboon males solicit help from an unrelated male in an aggressive interaction against a third male. Often, the roles are later reversed, and the original solicitor helps the same male, who is now the solicitor.¹

Research under the guidance of sociobiology theory has led ethologists (scientists who study the natural behavior of animals) to recognize the role of some animal behaviors previously thought to be only bizarre abnormalities. For instance, a male African lion sometimes kills all the cubs in his pride. This happens during a battle between males when the current patriarch of the pride is deposed. The new dominant male generally kills all of the young that are still suckling from their mothers and are the genetic offspring of his rival. Within a short time, the mother lions come back into heat. Consequently, he is able to mate and produce his own offspring much more quickly than if the females were occupied with caring for offspring of his former rival.² Such infanticide is also known to occur in Hanaman langurs, mountain gorillas, chimpanzees, African wild dogs, and rodents.³ This illustrates why sociobiology theory claims that the entire focus of life is reproductive success.

Implications for Human Behavior

Sociobiology has provided the prevailing synthesis in the study of the natural behavior of living creatures and has been very successful in understanding and predicting animal sociality. Frequently, sociobiological reasoning provides useful and testable scientific predictions in animal behavior studies.⁷ What are its implications for human behavior?

Recently, psychologists have begun to apply the ideas of sociobiology to their own species. They call this new discipline “Evolutionary Psychology.” An example of their thinking that draws on the sociobiology of lion infanticide mentioned above is the observation that the homicide rate of young children is 70 times greater in living arrangements where the male is not the biological father of the child. Specifically, live-in boyfriends are dangerous to the safety of children.⁸

Most Christians believe that humankind was given a set of moral rules for behavior. These rules tell us what is right and what is wrong, and what should be avoided because it is damaging to human relationships and/or harmful to ourselves or others. However, in some extreme situations, a commitment to the values and moral rules of the Bible can result in persecution or even death.

Sociobiology posits that there are no morally right or wrong behaviors; behavior is the result of the selection pressures that have created human beings. Anderson summarized the concept this way: “The type of man who leaves the most descendants is the one who cuts his reproductive costs on all sides, by keeping a close watch on his mate and making sure he has no rivals; supporting his mate, if it seems that all her children were sired by him; and mating with other females—additional wives, single women, other men’s wives—whenever a safe opportunity arises.”⁹

Some researchers have even suggested that evolution has programmed humans so that babies don’t look too much like their fathers in order to make adultery more difficult to detect.¹⁰ Other researchers claim that women are naturally more likely to have multiple sexual partners during the times in their menstrual cycle when they are fertile, so that sperm from different men will compete and the most viable will succeed in conception.¹¹

Certain sociobiologists suggest that morally offensive behaviors like rape are not really immoral, but are simply alternate reproductive strategies that are adopted by some individuals who have been unsuccessful in producing offspring in more traditional ways. Interestingly, it has been shown that the pregnancy rate as a result of rape is more than twice as high as that of consensual intercourse (6.4 percent vs. 3.1 percent).¹² Nevertheless, sociobiologists continue to offer conflicting reasons for this offensive behavior.

What happens in nature and in human relationships is not necessarily morally right. But then, if human behavior is the result of evolution, who gets to say what is right or wrong?

Sociobiology: An Alternative to Religion

In sociobiology theory, right or wrong behavior doesn’t exist in a moral sense, only behavioral strategies with differing effects on inclusive fitness. Sociobiology can thus be considered a Darwinian alternative to a Christian value system.¹³ Wilson does not deny that religion and moralism have value. He believes they can encourage reciprocally altruistic behavior by discouraging cheating. But he maintains that the origin of moral values should be determined by science, which offers the “possibility of explaining traditional religion by the mechanistic models of evolutionary biology. . . . If religion, including the dogmatic secular ideologies, can be systematically analyzed and explained as a product of the brain’s evolution, its power as an external source of morality will be gone forever.”¹⁴

Wilson feels human concepts of sexual morality should be more liberal. He bases this conclusion on a survey of the behavior of humankind’s presumed nonhuman ancestors and on his conviction that Christianity’s moral laws did not come from God. These opinions apparently are based on his conclusion

In sociobiology theory, right or wrong behavior doesn’t exist in a moral sense, only behavioral strategies with differing effects on inclusive fitness. Sociobiology can thus be considered a Darwinian alternative to a Christian value system.
that with continuing research, “we will see with increasing clar-
ity that the biological god does not exist and scientific materi-
alism provides the more nearly correct perception of the
human condition.”

Is Sociobiology Theory True?

Assumed Evolution of Humans, Apes, and Salamanders From
Common Ancestors

Sociobiological theory, as proposed by Wilson, is built on
the assumption of the naturalistic evolutionary descent of all
organisms from a common ancestor, including the evolution
of human beings. Does sociobiology provide evidence for that
type of evolution?

Production of scientific theories always involves a mix of data,
theses, and worldviews. Data almost never directly dictate
how to interpret or explain them, but must be interpreted.16 For
instance, humans and chimpanzees both smile in similar con-
texts. Which hypothesis is the correct explanation of this simi-
larity in behavior—it evolved from a common ancestor, or chim-
panzees and humans were both genetically programmed with
that behavior by the same Creator God? How we answer ques-
tions like that is influenced by our worldview.17 The Christian’s
scriptural based worldview is based on the conviction that God
is real, He has communicated with human beings through the
Bible, and He created the different groups of animals separately.
The evolutionary worldview, which is dominant in modern sci-
ence, assumes that the Bible must be interpreted in light of mod-
ern scientific understandings, that all life evolved from a common
ancestor, and that religion gives us only subjective values, not
facts. The worldview we adopt is of critical importance.

Kin Selection and Microevolution of Behavior

Is kin selection and the evolution of behavior, at the level of
species or genera of animals, contrary to a creationist world-
view? The alarm-calling female ground squirrels and a host of
other examples certainly fit very well into sociobiology theory.18
Whether future research will continue to support its explana-
tory power remains to be seen. But since mutations cause ran-
dom change to the genes that influence behavior, it does seem
likely that behaviors could change, just as fur thickness can alter
in response to climate change. It also seems that behaviors like
altruism could be weakened or eliminated in a sinful world if
they are not favored by natural selection. The Bible doesn’t con-
tradict this level of change within created groups of animals.

Kin Selection and Its Genetic Influence on Human Behavior

Even those who believe humans evolved from other pri-
mates need to answer another question—is most human be-
behavior (1) controlled by genes, as claimed by sociobiology; (2)
determined mostly by culture (i.e., learned, rather than inher-
ited); or (3) shaped by a combination of the two? This debate
has raged ever since (and even before) sociobiology was intro-
duced. Wilson recognized that culture was an important com-
ponent of human behavior, but maintained that other impor-
tant themes of primate behavior also occur in humans through
inheritance.19 Others disagree. This group includes scientists
who believe Wilson’s sociobiology theory goes too far in pre-
suming biological determinism. They argue that there is no ev-
idence for specific genes that determine human behavior and
believe Wilson’s theory is not testable.20 However, some other
scientists carry the concept of genetic control of human behav-
or even farther than Wilson does.21

Clearly, evidence does exist for genetic control of behavior in
non-human animals.22 For example, some bird calls and songs—
and the behavior that goes with those songs—don’t have to be
learned; they are genetically determined.23 This suggests that even
though most of human behavior seems to be modifiable by cul-
ture, there is the possibility that some behavioral tendencies in
humans are genetically controlled (such as sucking behavior by
infants). If so, there is a strong possibility that mutations could
alter that behavior. Since random genetic damage to genes occurs
over time, it would be difficult not to conclude that some human
behaviors can be altered or eliminated by mutations and would
thus be subject to the processes of natural selection, including
kin selection. Does that mean sociobiological explanations of
human behavior are correct? What does that say about morality?
We will now give further attention to that topic.

Does Sociobiology Really Explain Human Behavior?

Some sociobiologists emphasize that their theories don’t try
to indicate what human behavior “ought to be,” but instead
what people “should do in order to be reproductively success-
ful.”24 Psychologist Robert Plutchik asserts that human emo-
tions are best understood in the context of the history of their
evolution from other animals, and that this view of emotions
will benefit clinical practice in psychology.25

Some ethics textbooks explicitly base their system of ethics
on the principles of sociobiology.26 Alexander concluded that
conscience is “the still small voice that tells us how far we can
go without incurring intolerable risks. It tells us not to avoid
cheating but how we can cheat socially without being caught.”27

In contrast, right and wrong for Christians are understood
as elements of an eternal moral code given to humanity. The
Ten Commandments and the teachings of Christ provide a
standard for human behavior. Clearly, humans do not follow
these principles very well. Perhaps we have fallen so far from
our original created condition partly because mutations have
affected our behavior. It may be that both humans and non-
human animals were created with well-balanced behaviors as
well as morphologies that since have undergone generations of
change driven by mutations and natural selection. If that is
true, then perhaps certain aspects of human character reflect
this unfortunate change, which has strengthened and empha-
sized the selfish side of human nature.

The influence of worldviews must also be considered in eval-
uating sociobiological claims for human behavior. Earlier, we de-
scribed claims that, for example, humans are designed to be adul-
terous and that rape can be considered a normal alternative
reproductive behavior. How are these conclusions reached? The
evidence doesn’t demand these conclusions; the evidence can be
interpreted in more than one way. The philosophy of these au-
thors begins with a commitment to an evolutionary worldview,
which is the basis for their chosen interpretations.
The creationist view presented here differs from conventional evolutionary thinking. We propose that the basic process of kin selection and its effect on inclusive fitness may operate within the human species and within other created “kinds” of organisms. However, it has not transmitted behaviors from one such group to another, since these groups have not evolved from a common ancestor. Christians also accept by faith (and by logical reasoning, even though not scientifically testable) that human behavior is not biologically destined but has a measure of free will that enables people to seek empowerment from God to act in ways that are truly altruistic and not just the product of gene modification and biological determination. Observations of human behavior make it difficult to believe that some behavior is not genuinely altruistic because abundant examples of human altruism have been documented. And, of course, many Christian martyrs stood up for truth, even though they were killed because of it, and perhaps did not leave offspring.

This highlights a very big difference between Christianity and sociobiology. The promise of eternal life with Jesus in the New Earth, when God makes all things right, eliminates the urgency of passing on one’s genes here on earth. For a Christian, the importance of obedience to God takes precedence over the survival instinct and reproduction.

The Value of Sociobiology in Scientific Inquiry

Even though some biologists are raising questions about the validity of sociobiology theory, the discipline has, for a number of years, been very successful in suggesting productive areas for research. However, we must be careful to evaluate sociobiological ideas before uncritically applying them to humans. In some cases, morally reprehensible behaviors seem to be directly advantageous to the successful reproduction of a variety of species of animals. But that does not make such behavior morally right for humans. Promiscuity, rape, and infanticide are never right, even if there are scientifically logical reasons for their existence in animals. This line of reasoning (“Because it occurs in nature, it must be OK”) is often referred to as the “naturalistic fallacy.”

It is true that scientists have found a strong similarity between basic types of behavior in animals and humans (learning theory, some aspects of reproductive behavior, development of food preferences), as well as in basic body functions at the cellular and system levels. We appropriately require doctors and other health-care workers to learn about animal physiology and anatomy before we let them care for our bodies. Research indicates that humans and other mammals were clearly designed on the same body framework. However, major differences exist in such areas as humans’ higher reasoning ability, spiritual sensitivity, and the originally settled by non-damaging ritualistic displays like those still common in a number of creatures. Examples include male rattlesnake wrestling matches and lizard tail lashing or headbutting “battles.” Such behavior settles disputes without anyone getting hurt. Truly altruistic behavior may have been much more common in both animals and humans at Creation.

We suggest that in God’s original plan, living creatures were somehow protected from the mutation-driven decay of selfless behavioral tendencies. If so, then harmonious behaviors would not have been subject to unfavorable competition from mutated creatures that benefited from “cheating.” In a sinful, damaged world, these harmonious behavioral mechanisms began to break down because of mutations. Natural selection, including kin selection, has no power to invent new animals, but these mechanisms could act as a brake to slow down the destructive effects of random mutations and in some situations even favor the retention of some altruistic behaviors, like alarm calls to warn one’s neighbors or little boys protecting their sisters.

God could choose to invent an ecological system whose natural balance is based on harmony rather than on competition and survival of the fittest. In contrast, mutation and natural selection cannot analyze the “big picture” to see what is best for overall ecological balance. Natural selection is very shortsighted—it favors any change that increases successful reproduction right now. The ultimate result of the rule of natural selection and kin selection is the triumph of the competitive, vicious side of nature.

We believe humans were created to be altruistic and responsible but fell into a sinful condition that has affected the rest of nature as well. “We know that the whole creation has been groaning as in the pains of childbirth right up to the present time” (Romans 8:22, NIV). In their fallen state, humans still can choose to seek the God who loves them and desires to empower them to be like Him, and to behave unselfishly and treat their fellow humans and animals as they wish to be treated. They can even choose to follow the example of Daniel and his three companions, John the Baptist, and many others who have risked their lives and their opportunity to produce children in order to be true to God. Because of their faith in God’s prom-

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In their fallen state, humans still can choose to seek the God who loves them and desires to empower them to be like Him, and to behave unselfishly and treat their fellow humans and animals as they wish to be treated.
sustaining ecosystem. Humans can also choose to reach out and protect the environment in which they live, for the good of themselves and the plants and animals that share this earth and make up its life-sustaining ecosystem.

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REFERENCES
The Joys and Challenges of Choosing a Bible Translation

You are a new teacher who is assigned to teach a Bible class, and you need to decide which Scripture translation to use. Or perhaps you are an experienced teacher who was recently urged by a group of church members to use a different translation than the one you have been using. They adamantly declare that the version they use is the only reliable one.

The purpose of this article is to help you understand the development of Bible versions and become more aware of the challenges of translating the Scriptures, as well as to offer some guidelines to help you choose the translation best suited for various situations.¹

The Journey of the Bible

People often refer to the Bible as a book, but it is really a collection of 66 “books,” letters/epistles, and documents by numerous writers. The writing of the original manuscripts stretched over some 1,500 years—the earliest material was probably written 1,400 to 1,500 years before Christ, and the last part of the New Testament, late in the first century A.D. Adding to those complexities is the fact that the Bible was written in three languages—Hebrew (most of the Old Testament), Aramaic (portions of Daniel, Ezra, and some sentences in other books), and Greek (the New Testament). These languages have changed dramatically over the centuries. Bible translators thus face many technical challenges in producing a reliable version in modern vernacular. Some have also faced religious or political persecution. William Tyndale was put to death because of his work as a Bible translator, but he is not the only one. Other translators have been accused of heresy because they did not uphold certain theological po-
sitions. Bible translating can be very dangerous work, and in a field where so much is at stake, teachers and administrators may be criticized for using a particular translation.

In addition to the difficulties listed above, translators face at least two other challenges.

First of all, what do they translate? There are no original manuscripts to use. You may have seen the original of your country’s constitution at a museum, but no such documents exist for any biblical writings. The thousands of ancient manuscripts that have been discovered over the centuries contain varying amounts of material, ranging from a few sentences or words to several books. Many are incomplete, so Bible translators must compare different manuscripts and make choices about the most reliable wording.

For many centuries, the question of choosing which manuscripts and Bible translations was not an issue—the decision was made by the controlling church, often backed by political leaders. Beginning in the fourth century, the Latin Vulgate translation was the accepted Bible although, until the start of the 1500s, few translations of this version had been made. Neither the Roman Catholic Church nor the Orthodox churches were willing to commission translations in the vernacular, and church leaders condemned as heresy any unauthorized translation of the Bible. Some of Wycliffe’s followers worked on an English translation, but the Vatican vigorously suppressed the enterprise. Wycliffe’s version was translated from the Vulgate, which itself was a translation from the Hebrew, Aramaic, and Greek, and other Latin versions.

Martin Luther and William Tyndale did not wholly depend on the Vulgate; rather, they used biblical manuscripts in the original languages. The Dutch Catholic scholar, Erasmus, provided a Greek New Testament text based on available Greek manuscripts. His translation, referred to as the Textus Receptus, was regarded as the standard Greek text for many years, and was used by the translators of the Authorized (KJV) Bible. He translated the Old Testament from the Hebrew version known as the Masoretic Text, dating back to about the 10th century A.D.

The Dead Sea Scrolls, an extraordinary find in caves near the Dead Sea shortly after World War II, provided translators with manuscripts that were about a thousand years earlier than other available biblical manuscripts, but the scrolls were not made available to scholars until recently. Thus, because today’s translators have access to better collections of manuscripts than their earlier counterparts, their translations are often closer to the original.

The second difficulty that translators face is how to translate the available manuscripts. This challenge has to do with the characteristics of human language and can be described as a two-edged sword:

1. The translator must translate from ancient languages that still exist today but have changed over the centuries (Aramaic, Hebrew, Greek). How does the translator know what the writer meant two thousand or more years ago? Scholars learn more and more about these languages through ongoing study and exposure to a variety of documents. Also, the discovery of ancient manuscripts helps to clarify the meaning of previously obscure words. Translators use the results of their study and the new information to revise current translations and produce new ones. Thus, as translators come to better understand the ancient languages, they can produce better translations.

2. The translator has to deal with the changes that occur in the language into which the Bible is being translated. The focus of this article is English versions, but changes occur in all languages. The translator has to decide if the language changes are transitory or lasting, and if the words chosen will be understood by speakers of the language in different parts of the world. Thus, the translator not only has to be an expert on the original biblical languages, but also must have a thorough understanding of the modern vernacular.

Types of Translations

With this background, we move to consider the kinds of translations that exist. In general, translations can be sorted into four categories, based on...
the intent of the translator.11

1. Doctrinally or polemically motivated translations: These translations are created to fill a doctrinal or polemical need or to defend a theological position. An example of such a translation is the Roman Catholic Douay-Rheims translation.

With his 1522 New Testament translation, Martin Luther initiated a pattern of providing a Bible in a modern language so that it could be understood by a broad group of readers.12 These translations were popular, and many reprints were made. Many other languages followed, until the predominant Western church, Roman Catholic, could no longer ignore the Reformation movements or the popularity of the Bible translations. It reacted to the Protestant Reformation, in part, by convening the Council of Trent (1545-1563). About the same time, the Catholic Church also recognized organizations such as the Society of Jesus (Jesuits), which became a driving force in the Counter-Reformation. In part, the Catholic response was a recognition that the Latin Vulgate Bible was no longer sufficient. Thus, the Vulgate was translated into English as the Douay-Rheims Version. One of its goals was to uphold Roman Catholic doctrine.13

A contemporary example of a doctrinally or polemically motivated translation is the New World translation by Jehovah’s Witnesses, who do not accept the eternal nature of Jesus Christ, believing instead that He was created. This translation reveals a gross misunderstanding of the Greek syntax. For example, the critical part of John 1:1 reads as follows:

KJV: “In the beginning was the Word, and the Word was with God, and the Word was God.”

New World: “In [the] beginning the Word was, and the Word was with God, and the Word was a god.”14 In this translation, the phrase “… was a god” has no basis in the original Greek, reflecting instead the theological position of Jehovah’s Witnesses.

Another example of doctrinal motivation is the translation of Revelation 1:10a. Most translations read, “I was in the Spirit on the Lord’s day . . . ” (RSV). Two paraphrase versions15 interject the theological views of the authors. The Kenneth N. Taylor paraphrase states “It was Sunday . . . ;” and The Clear Word states, “One Sabbath morning . . . .” In expressing their theological views, Taylor and Blanco (Clear Word) deviate from the original text. It does not always create a theological problem when the creators of doctrinally motivated versions follow such a practice, but too many readers regard such versions as exact translations, which they are not.

2. Paraphrases: Paraphrases are interpretations of the Bible. Depending on the theological orientation of the writer and the reader’s theological perspective, the paraphrases may or may not be helpful for doctrinal study. The creation of Bible paraphrases can be compared to someone translating a lecture who states, “What the speaker really means is this . . . . ” When you hear that phrase, you are not getting a translation of the lecture but an interpretation.

Recently a church member told me, “I love using paraphrases because when I can’t understand a passage, I can read a paraphrase of the Bible to discover the real meaning.” Perhaps the translator actually did provide the correct meaning, but we must remember that it is an interpretation, not a translation. Paraphrases are like fast food—convenient but not always spiritually nutritious. Spiritual growth and comprehension of the biblical message require study, reflection, prayer, and the leading of the Holy Spirit.

Some Christians think that young people will find paraphrase versions easier to understand. However, these Bibles do not necessarily use “easier” or more succinct wording; in fact, they often use more words, and usually communicate the theological perspective of the writer.

Some versions, such as the Good News Bible, while using “easy English” vocabulary, are not paraphrases. Many schools use the International Children’s Bible, an edition of the New Century Bible. Although these two versions are translations, not paraphrases, their intent is to make the text easy to understand for children and non-native speakers of English.

3. Dynamic translations: Two examples of this type of translation are the Good News Bible and the New English Bible. The foreword in the Good News Bible says that it is a “. . . new translation that seeks to state clearly and accurately the meaning of the original texts in words and forms that are widely accepted by the people who use English as a means of communication.”16 Furthermore, the publisher states that “it attempts in this century to set forth the Biblical content and message in standard, everyday, natural form of English.” This is a translation rather than a paraphrase, with the emphasis being placed on readability.

In 1970, while I was researching at the American Bible Society (publisher of the Good News Bible), I was invited to attend a ceremony where the society presented the 20 millionth copy of the New Testament to one of their major donors—James Cash Penney, the founder of the department store chain. At the ceremony, we were told that, originally, one of the purposes of this translation was to provide an easy-to-read translation for the large immigrant population in the United States. As an immigrant myself, I thought this was a positive goal. Soon after the version went on sale, the society found that it was also very popular with non-immigrant Americans!

What is the quality of this translation? Two experts state that, “The GNB is an honest attempt by skilled translators to clothe the message of the Bible in language that is simple, plain, and meaningful to modern people.”17 The same authors point out that in this translation, for example, instead of referring to “deacons,” the text refers to “church helpers,” and “Antichrist” is translated as “enemy of Christ.” Some readers may be surprised at these expressions, but the words used throughout the translation are easy to comprehend.
Another feature of the Good News Bible is its simple, but appealing, line drawings. This version has also been very well received in other languages. In the German version, Gute Nachricht fuer Sie, a line drawing of Mary carrying the baby Jesus shows a determined and protective young woman cradling her newborn in her arms.

4. Formal or conventional translations: The focus of these translations is on using the best manuscripts available and translating the text faithfully. However, the translators recognize that some expressions (such as ancient measures, money values, etc.) may not be easy for modern readers to understand and thus provide modern equivalents.19

Another characteristic of formal or conventional translations is that they are usually created in collaboration by groups of individuals. The King James Version,20 for example, was translated by some 50 scholars, and the New Revised Standard Version (NRSV) was revised by a group of 30. This approach holds each translator accountable to the group and generally results in a better translation. Usually, though not always, the groups represent various religious denominations; thus, individual attempts to advance a particular doctrinal view are more likely to be challenged by the group. This provides a system of checks and balances that helps ensure the authenticity of the translation.21

A number of Bibles fall into this category: the King James Version (KJV) and the New King James Version (NKJV), the American Standard Version (a revision of the KJV), the New International Version (NIV), the Revised Standard Version (RSV), and the New Revised Standard Version (NRSV).

Choosing a Translation

How should an educator choose a translation for study purposes and for classroom use? I suggest you consider the following points:22

1. No matter which translation you choose, there will be those who will disagree with you. While some individuals are certain that the translation they use is the best, the reality is that no one translation is superior for every purpose. Remember, Bible translation is often fraught with danger (remember Tyndale), and your choice may be challenged.

2. For study and classroom presentations, choose a translation rather than a paraphrase or doctrinally motivated version. In the “Formal or Conventional Translations” section of this article, you will find references to several quality translations.

Should you ever use paraphrase versions? Yes but use them cautiously, as commentaries, not as a basis for doctrine. As you read, continually compare the passages to the text of a formal or conventional translation. Jack J. Blanco, in his preface to The Clear Word, writes, “This is not a new translation but an interpretive paraphrase of the Scriptures. It is not intended for in-depth study or for public reading in churches.”

3. Read the introduction to the translation. In it, you will find the following information: whether it was created by one person or many, which approaches were used, and what the goals of the translators were. This is probably one of the most helpful ways of choosing a translation.

4. Realize that even the best translations will contain passages that are difficult to understand. Use several translations to determine the consensus of the translators. Serious study of the passages takes time—the “fast food” approach does not provide true understanding. Because Bible versions are the Word of God, they are worthy of research, reflection, and a request for guidance by the Holy Spirit. When teachers discuss secular books in their classes, they often spend considerable time discussing the meaning of a passage. Surely, we should take time to discuss the meaning of God’s Word as well.

5. You may want to consult guides that categorize translations and make recommendations. However, some guides contain a built-in bias, so you should seek to identify the individual or group that created them (however, this may be difficult, as many guides do not provide this information). A helpful source is the Kubo and Specht book mentioned in this article, which gives a reliable analysis of various translations. The Internet contains numerous guides, but all too often they are either promotional or polemical or contain a bias that may not be immediately evident. If you visit http://www.cokesbury.com/FreeDownloads/BibleTransGuide.pdf, you will find a short, helpful guide. Whatever source you use, remember that it is only a guide; use your God-given critical thinking faculties to aid in decision making.

The Joy of Reading the Word of God

Choosing a translation is only the first step in using the Bible. Studying the Word of God under the guidance of
the Holy Spirit is necessary for spiritual direction and development. Before you discuss the Bible with others, its message must become a part of your life. Take your translation, or better yet translations, and travel back, in your imagination, to the time the original was written. Ask yourself these questions: What was God’s message then? What is His message for me today? How can I help my students to understand and apply the Word of God?

This article has been peer reviewed.

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NOTES AND REFERENCES

1. A number of Bible publishers have created study Bibles for their translations. Space limitations do not allow for an evaluation of study Bibles in this article.

2. A related topic is the Biblical canon—in other words, how the materials that currently form a part of our Bible were chosen for inclusion. For a helpful discussion, see John C. Peckham, “The Biblical Canon: Do We Have the Right Books?” Ministry 80:6 (June 2008):16ff.

3. At the time the Vulgate was translated (end of the fourth century), Latin was used extensively. A thousand years later, few lay people and not even all priests could read it.

4. The Orthodox churches did not use the Vulgate, but neither did they use a translation in their contemporary languages.

5. While we refer to Wycliffe as a Bible translator, in reality his students did the translating.

6. Luther’s New Testament was published in 1522, Tyndale’s in 1526. Luther became a hero (though persecuted by some); Tyndale, whose translation eventually formed about 80 percent of what was the King James Version, was put to death because he dared to translate the Bible into English.

7. In some instances, he relied on the Latin Vulgate; nevertheless, his Greek text was a major advance. Only when he did not have a Greek text did he use the Latin text and translate it back into Greek.

8. The Dead Sea Scrolls, which date from between 150 B.C. and 70 A.D., contain 972 texts from the Old Testament, with materials from every book except Esther, as well as non-biblical manuscripts.

9. The Bible societies are a major source of translations and also of Bible editions in the original languages.

10. Translation of gender pronouns is also a challenge, but that is another study.

11. My goal is to provide descriptive categories though they may not always match the terms used by translators.

12. Wycliffe was earlier, but his followers used the Vulgate, and the English in his translation was rather difficult to understand because it followed the Latin pattern.

13. Recent Roman Catholic translations such as The Jerusalem Bible depend more on original manuscripts.


15. Paraphrase versions will be discussed in the following section.

16. Italics supplied.

17. Sakae Kubo and Walter F. Specht, So Many Versions? Twentieth-Century English Versions of the Bible (Grand Rapids, Mich.: Zondervan, 1983), p. 197. Though dated, it is an excellent source. In spite of the favorable comment about the Good News Bible, I would not suggest that it be used as a primary version for study or teaching.

18. This is a challenging process because even the oldest manuscripts are copies of copies. We do not have the original editions of any of the manuscripts.

19. The current monetary equivalents in some translations are often only guesses, and of course, monetary values change over time.

20. Though a new translation, the translators used Tyndale extensively.

21. The KJV, for example, was a work of the Church of England, though the translators included both “mainline” and Puritan scholars.

22. A recent promotional article about a recording of The Clear Word states, “Now you can listen to the distinctly Seventh-day Adventist translation . . . .” (Beth Michaels, “MPC3s> The Clear Word Read by Lonnie Melashanko,” The Columbia Union Visitor [May 2011], p. 6.) This paraphrase was done by an individual and is not an “official” Seventh-day Adventist Church version. Furthermore, as Blanco writes, it is not a translation, but rather an “interpretative paraphrase.”

23. Posted by Cokesbury, a United Methodist publisher (May 24, 2011).

http://jae.adventist.org

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EXERCISING WITH EXERGAMING
Kids love to play! At any age and in all stages, children want to have fun. Unfortunately, when many young people are searching for ways to have fun, they don’t think of activities that involve physical exertion. Now, a relatively new tool on the market gives fun a creative flair, while at the same time promoting physical fitness. This new tool is called “exergaming.” It can be used by innovative teachers to create fun-filled physical activities for their students.

Definition

The term exergaming encompasses video games, educational software games, online virtual worlds, social media games, and exercise-driven games. The newer systems are flexible enough to be used by either individuals or groups. This article will focus on exergaming console systems and games that promote exercise and physical activity and are well suited for use in the school environment.

For the past few decades, childhood obesity and inactivity have been blamed on a whole host of causes, ranging from family influences to concerns about safety and lack of opportunity for kids to exercise. More recently, the blame has been directed toward technology—too much “screen time” (TV, Internet, and electronic games), and consequently, less time spent in active pursuits. But technology may actually offer a creative solution, not only for small schools without a physical education teacher, but also for any teacher who wishes to promote health and exercise in a way that will appeal to students. This article will describe exergaming, tell who will benefit from it, offer tips on how to choose the right system for your classroom, and suggest ways to get started using it.

The benefits of exergaming include the following:

• It can be used in a variety of settings with a variety of users.
• Its versatility makes it readily adaptable for students with disabilities.
• Students with poor coordination will find it both comfortable to use and less humiliating than regular team sports (especially for one-person practice).
• It provides an excellent solution for schools that lack a gymnasium and thus cannot schedule physical education outdoors in bad weather.
• It is a great resource for the classroom teacher who must provide physical education instruction without having had much formal training.
• It motivates students to be more active, while enhancing their skills.
• Teachers can use the games to stay fit, too! Although exercise technology has developed over the past few decades, complex interactive video games have only recently become more available and affordable. A few years ago when I was teaching elementary/middle school, only a few video games focused on exercise.

In connection with my work as a physical education teacher, I (Perkins) conducted an unpublished study for my graduate program using Sony PlayStation’s Eye Toy, pedometers, heart...
rate monitors, and interest surveys. Thirty subjects participated in four separate trials. Two trials were conducted on students in regular physical education classes; the other two trials used exergaming software and equipment. The study compared physical activity in a “virtual world” versus activity in the “real world” of a physical education class.

I found that exergaming exercise was statistically equal both in steps taken (measured by pedometers) and in elevating heart rate (using heart rate monitors). The most intriguing finding of the study was that interest levels for engaging in physical activity using exergaming were noticeably higher than for “real world” exercise (based on interest surveys). I concluded that this technology could be an invaluable tool in physical education classes and that exergaming would also interest teachers in elementary classrooms.

Bonnie Mohrman, for a number of years the foremost advocate for using technology in physical education, has extensively researched exergaming technology and reached similar conclusions about its usefulness. She says: “I believe that the next big technology to hit physical education will be virtual reality or lifelike simulations where students have the opportunity to practice motor skills and cognitive understanding and even experience motivational fitness activities.”

Judy Shasek, creator of Footgaming and author of “Exerlearning: Movement, Fitness, Technology and Learning,” has also written about using technology in exercise programs. She says that the excitement about computers and electronic games spans school settings and generations: “The game part of exergaming is undeniably compelling to students. They will come to school early, and come to school more often. When absenteeism drops, especially among the most challenged learners, a teacher is better able to do what he/she does best—teach!”

In addition to aiding students in developing coordination, muscle tone, and endurance, exergaming can generate interest and excitement about physical activity. It also provides mental training skills and helps students learn the rules of various games.

Physical educators have known for more than a century that good choices—such as an active lifestyle—are essential to improving and maintaining the health of individuals and nations. The physical educator’s job is critical in helping children learn to become active and to incorporate exercise into their lifestyle. Exergaming technology can play a role in motivating and establishing healthy behaviors in both children and adults by providing opportunities for individual and cross-generational play.

Using Exergaming in the Classroom

I (Perkins) gained insight into exergaming’s potential for educators when I taught in elementary/middle school. Because the school lacked a gymnasium, rainy days presented a challenge. Until I introduced exergaming, when the weather was bad I had to take my students into a multipurpose room and “dial down the activity.” But this made it difficult to consistently provide the recommended 60 minutes of physical activity that children should have on most days of the week. I successfully experimented with the Play 2 videogame called Home Run using Sony Playstation’s Eye Toy (released 2005). In this game, a participant’s image is projected onto a screen depicting a baseball environment—complete with an infield, outfield, and cartoon opponents. As the virtual pitcher throws the ball, the batter moves his or her arms as if holding a bat, attempting to make a hit. Then he or she runs in place to simulate running to first base. The video camera senses the player’s activity and moves his or her onscreen image around the bases. Each base gained adds points to the batter’s score. At the end of an inning, the player advances to the next level.

In preparation for having my students “play ball,” I set up a

Dr. John Ratey’s book SPARK: The Revolutionary New Science of Exercise and the Brain is a must-read for those interested in how physical activity can substantially enhance academic performance and reduce behavioral problems in students.

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Exergaming for Students With Special Needs

One great game to use with a student who is temporarily or permanently disabled is the Wii Sports video game by Nintendo Wii (released 2006). This game uses virtual-reality “Mii” characters designed by the game player to engage in five different sports: baseball, bowling, boxing, golf, and tennis. These games are fun for all ages, can be a great way to learn the rules of each sport, and offer an alternative for children and adults who cannot participate in group activities. In fact, Wii bowling leagues are becoming popular with senior citizens. Using the Wii bowling game, individuals can compete against classmates or in online leagues. These Wii tournaments can be scheduled during breaks or as part of a class activity, using a station rota-
tion strategy. Wii bowling is especially well suited for at-risk and physically challenged students.

Multigrade schools may well be the venues that benefit most from incorporating exergaming into their curriculum because many of these schools do not have a gymnasium or a physical education teacher. Exergaming’s greatest benefit in a small-school setting is its capacity to adjust for ability, age, and physical size of players.\(^{16}\)

Usually, even students who do not participate in traditional sports show an interest in exergaming activities, and exercise time can be divided evenly among students. Also, the teacher can set up multiple stations to be used both for instruction and after-school activities. Most systems allow up to four players to be active at the same time, so small-group assignments work well. Multiple stations require additional technology and setup time but, depending on the game, can be helpful in getting more students involved.\(^ {17}\) Teachers using exergaming stations can coordinate the game with the physical education lesson.

This does not, of course, imply that computer games should replace the physical education teacher! This would be no more logical than having Google replace the history teacher. What I am suggesting is that exergaming can help students behaviorally, academically, and—especially—physically. According to Judy Shasek: “Regular participation in physical activity delivered in the exergame form benefits students and in turn teachers in a very positive way. At risk students and those challenged by engagement and focus in the learning process improved through regular physical activity breaks.”\(^{18}\) The ideas listed above for multigrade classrooms will also work for teachers in larger schools.

My prior success using exergaming at the elementary and middle-school levels encouraged me (Perkins) to try it with older students. I have integrated exergaming units into the curriculum for small physical education classes at both the high school and collegiate levels. I also developed a self-directed college-level physical education class that included the use of exergaming technology. Students wrote their own exercise programs (complete with activity levels), reported weekly over the Internet on agreed-upon milestones, completed a research paper, and made a presentation about their accomplishments. Interest levels were high because students chose what they wanted to do (with teacher approval). Exergaming’s Wii Fit program was used in the self-directed class both because of personal choice and circumstances that necessitated creative solutions for at-risk and special-needs students. The self-directed physical education class incorporated the Wii Fit program.

I have seen firsthand, as Shasek claims, that exergaming excites and motivates students.\(^ {19}\) Its versatility is a major asset.
Physical activity stations can be set up for students to rotate through during free time or when the teacher is giving instruction to another class.

Finally, rules and techniques can be adjusted to the learner’s and teacher’s capability. As many limitations as a student may have, there are probably twice as many exergaming compensations. If a student can’t walk either temporarily or permanently, the game can be adjusted. The mentally challenged can play developmentally appropriate games. The list goes on . . . making it possible to accommodate a wide range of students.

**Exergaming Options**

An ever-increasing and more-affordable range of exergaming options are becoming available. As previously mentioned, Sony Playstation’s Eye Toy, one of the first options on the market, is now one of the more affordable devices. Both Playstation 2 consoles and Eye Toy games are available and reasonably priced online and in many stores. One very nice feature is that the console is also a DVD player. However, games are sparse for the Eye Toy. The Sony Playstation combines Move Motion Controllers and a faster Eye Toy camera, a Blu-ray player, more hard-drive space, and better graphics. The new features make this system a credible option but give it a heftier price tag.

The system that has received the most publicity for its age-appropriate exercise games is the Nintendo Wii. While this console has the most games and accessories available at the current time, and a price that falls between Playstation 2 and 3, it does not have DVD capability.

Xavix, a cartridge-based system that is comprised of sports games with peripherals, is probably the least-known of the game systems I’ve investigated. It is also the least expensive to purchase, with a recommended price of $79.99. It is a good system, but I have misgivings about its longevity in the exergaming market. (See the photos above at right.)

Probably the newest system is Microsoft’s Xbox 360’s multi-sensor camera accessory, Kinect. Microsoft has produced some remarkable and amazing games. Kinect games have some of the best graphics available, and its cost is comparable to that of Playstation 3. Several of Kinect’s sports games do not require controllers; the user becomes the controller through his or her body movements. For example, in playing volleyball in the Kinect system, the player jumps and uses arm motions to “spike” the ball.

When buying exergaming hardware and software, plan to spend between $200 and $500 for a new system with exercise components and games. (The equipment is coming down in price as new technologies emerge.) If this price tag is too high for your school’s budget, used equipment is available. Companies may be willing to provide equipment at a reduced cost for educational institutions or on a promotional basis. Given these options, exergaming can be affordable for all.

The exergaming products with accessories can be played on most TVs and video projectors. If you use a projector, you will also need a large, reflective screen or light-colored wall on which to project the images. Be sure to provide a sufficiently large, nonskid, obstacle-free space for students to perform the actions required by the games.

Setup usually takes only about 30 minutes or less, but don’t underestimate the time needed to acquaint yourself with the system and to plan activities. Adequate preparation time will ensure a smoother implementation and more quality instruction time. Be sure to consider the ratings on games and their subject matter prior to purchasing them.

With the rapid advances in exergaming technology, the available exercise options are also expanding. Researching what is available and affordable is an essential part of integrating this device into your curriculum.

Exergaming can be an effective tool for fighting obesity and
in stimulating student interest in exercising, while enriching the teacher’s options for integrating physical activity in the curriculum. Teachers who integrate exergaming into the overall curriculum can bring the benefits of exercise, activity breaks, improved interest, and versatility out of the physical education realm and into the classroom.\(^\text{26}\)

Exergaming’s flexibility will spark interest even in the activity-resistant student and provide broader options for teaching young people with special needs. When you see how students’ interest and excitement about exercise and learning can be stimulated by exergaming, you will surely want to include this versatile tool in your classroom planning.\(^\text{26}\)

This article has been peer reviewed.

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Robert K. Thomas, Ed.D., earned his doctorate at Boston University in Human Movement. He has taught for 27 years (four in K-12, and 23 at the college/university level). He enjoys exergaming and has attended several national conference presentations and workshops on using exergaming with school-aged and senior populations. Since 2001, Dr. Thomas has chaired the Health and Exercise Science Department at La Sierra University (Riverside, California) and recently served as the Coordinator for the Physical Education and Fitness issue of the Journal of Adventist Education. He has 14 years of experience teaching at the elementary through tertiary level in California and Nebraska. While at Union College (Lincoln, Nebraska), he was Lead Professor/Advisor for the Exercise Science Program. Mr. Perkins is currently teaching at Redlands Adventist Academy in Redlands, California. For several years, he has been proactive in integrating exergaming into the curriculum for group physical education classes as well as individual activities for elementary, high school, and college students, including those with special needs.

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16. Evaluations of exergaming programs for various uses, including education, as well as studies of their use with children can be found on various Internet sites, such as the Exergame Network: http://www.exergamenetwork.org; and MedPage Today (“Exergaming Provides Real Exercise for Kids”): http://www.medpagetoday.com/Pediatrics/General Pediatrics/25226. Accessed September 22, 2011.
18. Ibid.
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22. Ibid.
24. Xavix®PORT’s console has a variety of sports games, each of which has its own cartridge. Some games also have their own peripherals, which must be purchased separately.
26. The rating system for exergaming programs is as follows: E (Everyone), E 10+ (10 years of age or older), T (Teen), and M (Mature). While the ratings for these types of programs are primarily related to physical ability, some games (particularly the Mature and some Teen ones) may contain content, themes, or language that are objectionable. E and E (10+) games are usually OK. Teachers should preview all games before buying them, although most sports games are safe. To evaluate a game, go to YouTube, and type in its name. Watching the preview will help you make an informed decision about the game’s suitability for your students and your curriculum.
Implementing Christian Multicultural Education

From the moment Manuel stepped into his new classroom, he knew it was going to be a tough year. He looked different in many ways. His parents were not wealthy, so he did not have the most stylish clothing. Because he was a member of a different ethnic group than his classmates and had a "peculiar" way of speaking, this made him conspicuous. Not once did anyone initiate interaction with him except for the teacher—who simply introduced Manuel to the class on the day he arrived and told him to make himself comfortable. No one, including the teacher, understood why it was hard for Manuel to raise his hand in class before speaking, and he was often ignored, or worse, laughed at, when he did speak up.

Manuel's classmates had trouble relating to him because his culture seemed so different from theirs. In their eyes—and even in the view of the teacher—he was an impoverished, intellectually deficient student who could not keep up with the academic requirements of the curriculum. In reality, Manuel was one of the brightest students in the class, but his struggle to be accepted interfered with his achievement.

His parents could not understand why Manuel did not perform well at his new school. The institution boasted of its facilities and high-quality academics, and before enrolling there, Manuel had been a well-liked student who ranked at the top of his class. Now that he no longer earned straight A's, he felt socially inferior and unmotivated.

In this article, we will define multicultural education, explore the spiritual mandate to incorporate multicultural education in Adventist classrooms, explain how children develop multicultural understandings, and finally describe classroom applications grounded in developmental theory that teachers can implement right away.

The Purpose of Education

We believe that an important goal of education at all levels is self-actualization—to achieve one's full potential. Multicultural education fosters self-actualization by teaching critical and organized thinking and encouraging students to adopt a receptive attitude that leads them to respect themselves and others. But, as Seventh-day Adventist educators, we want our students to go beyond self-actualization to God-actualization—achieving the Creator's lofty goal for His children, which is "higher than the highest human thought can reach."

Jesus modeled multicultural education through His deliberate interactions with diverse people. He invited disciples and welcomed followers from different backgrounds and cultures (fishermen, tax collectors, Jewish ac-
When students experience isolation, alienation, and hostility at school, they fail to gain the skills, ethics, and knowledge necessary to succeed in society.

Multicultural Education: Character Development

Three aspects of human development are targeted by multicultural education: developing a sense of achievement in all students, promoting positive intergroup attitudes, and instilling in each person a sense of worth associated with his or her heritage. Successful achievement of these goals inevitably involves the development of personal identity, appreciation of diversity, and critical thinking and analytical skills. When students experience isolation, alienation, and hostility at school, they fail to gain the skills, ethics, and knowledge necessary to succeed in society, which perpetuates negative stereotypes of minority groups and results in a great loss of human potential.

Multicultural education not only empowers students in marginalized groups, but also helps those in more favored populations. This liberating process occurs when teachers encourage students to better understand themselves and to develop empathy for others by viewing themselves and the world from various perspectives.

Teachers promote critical thinking by incorporating different perspectives in classroom curricula and by helping students see how race, gender, ethnicity, and socio-economic status affect the experiences of individuals in minority and majority groups. Critical thinking skills are strengthened as students learn to step outside of their individual experiences to achieve greater understanding and a transformation of their personal beliefs and values. The resulting cognitive skills are an important foundation in developing effective and engaged citizens with a commitment to promote social justice.

When students grasp the variation in others’ experiences, struggles, and successes, and realize that other groups have made significant contributions to society, they are more likely to form friendships with students from diverse backgrounds and to appreciate similarities and differences between themselves and others. Positive personal interactions diminish stereotypes and discrimination, thereby promoting a
sense of self-worth and self-identity, as well as more receptive attitudes. Multicultural misunderstanding results from a development process with four phases: (1) Undifferentiated: Prior to age 3, children ascribe little meaning to racial cues. (2) Ethnic awareness: About age 3, children begin to attribute symbolic meaning to physical differences. (3) Ethnic preference: Gradually, children develop a preference for their own group. (4) Ethnic prejudice: Focus shifts to rejection of other groups.

While the final stage is not inevitable, three factors increase the chances that children will shift from ethnic preference to prejudice: (1) when ethnic prejudices are reinforced at home, in the community, and/or in the broader society, (2) when the social environment promotes rivalry between groups, and (3) when the dominant group perceives its social standing or status as under attack. Although prejudice is unlikely to occur before 7 or 8 years of age, children are still influenced by earlier experiences and observations. Therefore, in order to promote effective multicultural understanding, early and deliberate action are essential.

One study revealed that when social studies materials for black 4-year-olds portrayed people from a variety of ethnic backgrounds, the children developed significantly more positive attitudes toward both blacks and whites during the 30-day study, compared to peers who were not exposed to the multiethnic materials. In another study, researchers divided 3rd graders into two groups whose status was based on the color of their armbands (orange or green), which were worn for an entire day. Two weeks later, children in the experimental groups (who had experienced prejudice on the basis of an uncontrollable, arbitrary feature) were less prejudiced about whom to associate with in a real-life situation. The authors concluded the change in attitudes resulted from the students’ experience of discrimination, which increased their empathy with minority groups and reduced prejudicial attitudes.

These studies illustrate that (1) racism and prejudice can exist even in young children, (2) youngsters recognize the importance of membership in a group perceived as having positive features, and (3) teaching multicultural understanding at a young age can reduce racism and prejudice.

**Suggested Classroom Interventions**

Teachers and professors thus can play an important role in promoting the development of positive attitudes by providing opportunities for cross-cultural interactions. For instance, when learning about indigenous groups (e.g., Native Americans or Aborigines), the teacher can schedule a field trip to a nearby indigenous community so that students can meet and interact with members of the group and learn about their history. Videos and guest appearances can promote intercultural understanding.

Six types of interventions can be instigated at all levels (primary through tertiary) in order to overcome social,
Encounters that reveal prejudice (e.g., in the media, in the classroom, on the playground) can be used as learning opportunities. After such an incident, have students sit in a circle and review the “-isms” (e.g., racism, sexism, ageism). Allow time for them to recall occasions when they witnessed some type of injustice or oppression, and what action they took. Follow up with discussions about what helped them to intervene (or prevented them from speaking up), and schedule role plays or discussion illustrating ways to take action against oppressive statements and behaviors.

One expert suggests that teachers train students to use a three-element response:

1. When students hear a prejudicial comment (or observe an oppressive behavior), they should respond in a way that preserves the dignity and self-respect of the person making the statement. For example, “I know that you’re a really good person and wouldn’t want to hurt anyone...”
2. Next, they should challenge the behavior or prejudicial statement. For example, “But I’m really uncomfortable with jokes about [Native Americans].”
3. Finally, they should provide factual information to counter inaccurate statements. For example, “And it’s also not true that they get everything paid for by the government and that they’re all lazy and alcoholics.”

To help establish a warm and welcoming school environment that genuinely values diversity, teachers can educate students about different ethnic cultures. Dramatic plays that deal with the heritage and lifestyles of ethnic groups have been shown to reduce prejudice by helping students gain greater knowledge about specific ethnic cultures. Books such as the American Girl History Mystery series and the Mysteries Through Time series provide engaging stories that promote multicultural understanding, and enhance personal identity development and self-esteem for girls (e.g., Trouble at Fort La Pointe).

Role plays have also been found to be effective in the educational process because they are highly motivating and allow students to put themselves in situations they have not experienced. This approach can be used to teach simple communication skills, to help students recognize their tendencies toward stereotyping, and to teach them better ways to interact with others. In the process, students can explore strong emotions and personal blocks. Role plays can be used in history, literature, and even religion courses to help students better understand the past and present, to increase their awareness of their influence on others, as well as to encourage them to consider diverse viewpoints. It is especially important to debrief the students after the role play sessions to discuss emotional reactions.
and prevent misunderstandings (sometimes children don’t learn what we thought they would learn).

The following strategies can help to reduce prejudice and promote multicultural understanding: (1) Incorporate materials into the curriculum that present positive and realistic depictions of diverse groups in a natural and consistent way; (2) use films, DVDs, children’s books, recordings, and other types of materials that include diverse viewpoints and show characters from a variety of backgrounds making positive contributions; and (3) through verbal and non-verbal cues, communicate positive definitions for “loaded words” like black, brown, immigrant, and foreigner.21

As educators, what we teach and how we teach have a tremendous impact on our students. Particularly at the secondary and tertiary levels, questions like “Whose intellectual tradition is taught?” “Whose definition of a field shapes a syllabus?” and “Whose experience shapes situations presumed in a course?” are crucial for policy makers and teachers to tackle.22

Here is a suggested model for an inclusive curriculum:

1. Begin the lesson by focusing on the dominant culture and academic perspectives.
2. Shift toward the contributions of other groups to add a broader and more inclusive perspective.
3. Promote consideration of an “outsider’s point of view” (based on the experiences of people from minority groups) through critical analysis of alternative perspectives; and finally,
4. Conclude by showing the similarities and common ground found in different perspectives.23

For example, a lesson about the exploration and settlement of the Americas would be told quite differently from the indigenous people’s point of view as compared to the standard story of conquest and settlement by Europeans/white Americans, although both groups use the past (history) to make sense of the present, and to shape the future. This process brings different perspectives to the classroom and fosters mutually respective engagement.

Other possibilities: Integrate real-life issues or stories into the curriculum and use literature to supplement textbooks. For example, educators can choose a current political issue that might affect a community, and use news articles written from different perspectives to promote empathic and critical thinking about multiple viewpoints (e.g., Israel and Palestine). Or, if the class is studying World War II, students may gain greater empathy if textbook material is supplemented with personal narratives of the wartime experiences of people from various ethnic groups.

When confronting sensitive topics, some students will find it difficult to identify with viewpoints dissimilar from theirs or may feel uncomfortable discussing those issues. Discussions from multiple perspectives may stimulate strong emotions based on experiences of oppression. Experts recommend responding to these challenges by promoting open discussions about racial issues, and emphasizing confidentiality, empathy, and open-mindedness. It is critical that as teachers we encourage and promote a safe and welcoming environment in class. We must thoughtfully consider our students’ characteristics, emotional reactivity, and life experiences as we choose curriculum materials and guide class discussions.

Table 1 provides a sample multicultural lesson curriculum celebrating diversity. While the focus is on ethnic

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Table 1. Sample Multicultural Lesson Curriculum to Teach Diversity in All Subjects

<table>
<thead>
<tr>
<th>Key Concept</th>
<th>Ethnic diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizing Generalization</td>
<td>Most societies are ethnically diverse.</td>
</tr>
<tr>
<td>Intermediate-Level Generalizations</td>
<td>Ethnic diversity is an important characteristic of the United States.</td>
</tr>
<tr>
<td>Lower-Level Generalizations</td>
<td>Social Studies: The new wave of immigration to the United States since the 1960s has increased ethnic diversity within the nation. Discuss demographic changes in different parts of the country.</td>
</tr>
<tr>
<td></td>
<td>Music: Ethnic diversity in the United States is reflected in its folk, gospel, and popular music.</td>
</tr>
<tr>
<td></td>
<td>Science: The diverse physical characteristics of the people in the United States reinforce ethnic diversity. Highlight examples of individuals from a variety of ethnic backgrounds who have made significant contributions to science.</td>
</tr>
<tr>
<td></td>
<td>Mathematics: Mathematical notations and systems in the United States reflect the contributions of many different ethnic, racial, and cultural groups. Cite examples.</td>
</tr>
</tbody>
</table>
diversity, similarities among groups should be highlighted to avoid the attitude that “different is bad.” For example, (1) the majority of individuals from different backgrounds and ethnicity who immigrate to the United States (including European Americans) come in search of a better life, freedom, and liberty; (2) music is a universal language—people from different groups use music to express themselves and share experiences; (3) celebrating important family and community events is common to every culture; and so on.

Conclusion: Multicultural Education and Democratic Education

As the population of most nations becomes more and more diverse, Seventh-day Adventist schools and institutions also reflect this diversity in their classrooms. Although implementing a multicultural school environment and curriculum requires time and commitment, the end product—self-actualized and God-actualized students who understand the value of all people as being equally loved and respected children of God—makes the effort worthwhile.

In fact, this is why we are teachers. Youth like Manuel in the opening vignette, as well as his classmates, will grow toward actualization when teachers

• take deliberate steps to include all students in classroom activities;
• expose students to multiple perspectives that require them to employ critical thinking skills;
• point out significant contributions made by a variety of people groups;
• employ materials that display positive images of people from diverse groups;
• directly comment on similarities in fundamental psychological and physiological needs among all people in spite of variations in how different groups meet those needs;
• train students to stand against prejudicial statements and actions by giving specific guidance on words and actions to use; and
• model genuine care and appreciation for diverse people and perspectives.

Acknowledging the need for multicultural training and implementing multicultural strategies will help ensure a well-rounded education for all students and a brighter future for our community and society.

This article is adapted by permission from a manuscript that will soon be published by The Center for Research on Adventist Education (CRAE).

This article has been peer reviewed.

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4. __________, Counsels to Parents, Teachers, and Students (Mountain View, Calif.: Pacific Press Publ. Assn., 1913), p. 61; see also Herbert E. Dou-


8. Ibid.


11. Ibid.

12. Ibid.

13. Ibid.


19. Kathleen Ernst, Trouble at Fort La Pointe (Middleton, Wisc.: Pleasant Company Publications, 2000). Additional books such as Yukio Tscheppa’s Faithful Elephants: A True Story of Animals, People and War (English translation: Houghton Mifflin, 1988) regarding the events at the Tokyo Zoo in 1943, and Margaret Barbalet’s The Wolf (Ringwood, Victoria: Puffin, 1994), about an Australian family’s life, can be used to help introduce students to the realities of hardship and poverty, and help them take a stand against prejudice and discrimination. Mara Sapon-Shevin’s book, cited in Endnote 17, contains a variety of creative ideas.


23. Ibid.


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**Editorial continued from page 3**

membership to women, who comprise the majority of the church’s membership and could contribute richly to church, school, and administrative boards at all levels. Ensuring that they receive appropriate training to fill these roles will help ensure a more appropriate balance, thereby illustrating our belief in the equality of all people in Jesus Christ. Cindy Tutsch, in her book, Ellen White on Leadership, describes the “clarion call” that “is threaded throughout [Mrs. White’s] counsels to educators, administrators, parents, and pastors” for the restoration of God’s image in humanity. She notes that Ellen White’s progressive social voice and her egalitarian views of leadership caused her to reject personal attributes, including gender, as “predictors or limitations to God’s leadership calling.”

Two Seventh-day Adventist emphases have far-reaching implications for recognizing and developing the gifts and talents of every young person: the belief that all our children shall be taught of the Lord, and the current focus on revival and reformation. These require that the church recognize and empower all, male and female, to answer God’s call to service, no matter where it may lead.

Park asserts that “Galilee in Jesus’ time was a place where various Mediterranean cultures intersected. From the dominant religious perspective, Galileans were seen as impure and var[ious Mediterranean cultures intersected. From the dominant religious perspective, Galileans were seen as impure and suspect. The Galilean Jesus represents the dislocated who live in liminal space and for whom he envisions new life.” We must catch that vision for new life in 21st-century Adventism as well.

Truly, Adventist education must be available to all of our children and youth, and genuine revival and reformation must include organizations as well as individuals. When we consciously endeavor to empower all to fulfill their God-given potential in the ministry to which God calls them, He can bless without restraint and will empower the church to finish His work.—Ella Louise Smith Simmons.

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2. Ibid., p. 420.

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Ella Louise Smith Simmons, Ed.D., serves as a General Vice President of the General Conference of Seventh-day Adventists in Silver Spring, Maryland.
Established scientists and scholars committed to the authority of the Bible and to the Adventist message have collaborated in the preparation of this book, which contains concise and persuasive answers to some of the common questions on science and faith. Understanding Creation will strengthen the faith of young adult members around the world.