TEACHING SCIENCE AS A CHRISTIAN: Faith, Evidence, Interpretation, Humility

BY JAMES L. HAYWARD

During the summer of 1993, *Jurassic Park*, the dinosaur adventure movie based on Michael Crichton's best-selling novel, took America by storm. Dinomania rocked Hollywood, Wall Street, and everything in between—including the *Adventist Review*. In June, I received a request from the *Review* to write a feature article on dinosaurs. As perhaps the only Adventist scientist doing research on these remarkable animals at the time, I agreed.

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My article appeared in the August 12 issue, complete with a colorful, dinosaur-packed scene on the cover. Inside, my short contribution (1) expressed faith in God's creatorship, (2) provided factual answers to seven common questions about dinosaurs, (3) described several interpretations of dinosaur history, and (4) argued that it is better to say "I don't know" than to fudge the facts about these creatures.[1]

The response from readers of all ages and backgrounds was heartening. Young and old, learned and unlearned, liberal and conservative—all expressed gratitude and intrigue. One pastor exclaimed, "Dinomania has hit the *Adventist Review*! And why not, if you can deal with it in such a forthright and balanced manner?" Another opined that the article's "candor and commitment to the facts ought to set new standards for denominational essays on topics of this nature."[2] Nine years later, I continue to receive positive feedback.

Why did readers react this way? For the same reasons, I believe, students respond positively to quality Christian teaching about science: (1) affirmation of faith, (2) candid presentation of evidence, (3) thoughtful discussion of competing interpretations, and (4) the humility to say "I don't know."

Faith

"Faith is the substance of things hoped for, the evidence of things not seen" (Hebrews 11:1, KJV). Faith, like hope and love, is a gift of the Spirit (1 Corinthians 13:13-14:1). Faith in

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the Creator is not something we hold because of scientific evidence. Rather, faith *precedes* the gathering of scientific evidence and *informs* our understanding of the meaning of that evidence. In short, science cannot be used to demonstrate matters of faith.

Sadly, many scientists reject God, not because Christians express faith in a *Creator*, but because those believers have made so many unfounded "faith" claims about what He *created*. Several centuries ago, one such claim was that the Solar System revolved around the Earth. Martin Luther and others offered "biblical proof" for this claim. Based on physical evidence, however, two Christian astronomers, Nicolaus Copernicus (1473-1543) and Galileo Galilei (1564-1642), presented today's Sun-centered model of the Solar System. Copernicus died just before his book on the topic was printed. Galileo, unfortunately, was not so lucky! After his book was published, he was charged with meddling in "high matters" and stood trial for heresy before the Inquisition. He spent the remaining 10 years of his life under house arrest.[3]

Johannes Kepler (1571-1630), another Christian astronomer, faced his own spiritual crisis while investigating the planetary orbits. To Kepler, a circle was a more perfect shape than an ellipse. He reasoned that because God creates only perfect things, the planetary orbits must be circles. But his carefully collected physical data consistently showed otherwise. Eventually, Kepler accepted the reality of elliptical orbits. But this happened only after some painful soul searching—and learning the value of faith in the *Creator*, not in unfounded "faith" claims about the *created*.[4]

Today we smile at these examples—none of us experiences spiritual discomfort knowing that the planets, including our own, revolve around the Sun in elliptical orbits. But as Christian teachers, we need to ask ourselves this question: What well-meaning claims about God and nature do we convey that someday may prove wrong? Will eventual falsification of these claims lead our students to abandon their faith? Rather than setting up our students for possible disappointment, we should be helping them to realize that faith in the Creator does not depend upon our limited and constantly changing views of the universe. We must accept and declare by faith the simple but profound biblical assertion: "In the beginning God created the heavens and the earth" (Genesis 1:1, KJV).

Once again, faith is "the substance of things hoped for, the evidence of things *not seen*." Our role as Christian science educators is to unequivocally declare faith in the *Creator—the Not Seen*. Once anchored in faith, we and our students are prepared for an open-ended exploration of the *created—the seen*. This open-ended exploration of the seen is the province of science.

Evidence

After completing his undergraduate degree in biology at an Adventist college in the 1950s, a friend of mine began pursuing a Ph.D. at a prestigious secular university. One evening, he came home, his mind swimming with contradictions and startling bits of evidence about life in the past. The new evidence was completely inconsistent with models he had been taught as an undergraduate. Totally frustrated by the misguidance of his well-meaning Adventist instructors on this issue, he pounded his fists on the wall and cried, "They lied to me! They lied to me!"

Happily, my friend completed his doctoral work and continues to serve the Adventist Church as one of its outstanding biology professors. But his story is not unusual. Commonly, the church—and Christianity—ends up losing its brightest young people because these earnest students do not feel they can live, integrity intact, within the confines of carefully screened information and less-than-candid perspectives. While purveyors of non-faith-based philosophies also filter information in order to sell their perspectives, this does not justify such a practice on the part of Christian educators and pastors. This approach is both dishonest and transparent, especially to thoughtful young people.

Several years ago, I received a call from a distraught mother who

asked if I could suggest some good books on science and faith for her precocious 12-year-old son. He had been an avid participant in his school's baptismal class until their pastor preached a series on the creation/evolution issue. Week after week, the son listened to carefully filtered information and misinformation—and experienced second thoughts about baptism. Frustrated and angry, the mom exclaimed, "If a 12-year-old sees problems in the pastor's sermons, we're in real trouble!"

I'd like to offer some suggestions about candor for those of us who teach and talk about science. First, we should celebrate the evidence, even the evidence we don't like and can't explain within our traditional frameworks. We should present this evidence honestly and as fully as time permits.

Second, we should resist the temptation to appear knowledgeable regarding evidence about which we know little. Each of us is familiar with only the tiniest fraction of available information. We must be prepared to help students search out evidence pertinent to the questions we cannot answer.

Finally, we should remember that any attempt to protect students from evidence, for whatever reason, is fear-based and typically backfires. We should help students understand that God created a universe open to investigation, then provide them with the tools to carry out that investigation.

Interpretation

During the Middle Ages, Christian scholars took pronouncements by classical Greek philosophers like Aristotle and Plato to be absolute truths about nature, even though the validity of these statements was never tested. This practice deeply annoyed Francis Bacon (1561-1626), who insisted that scientific understanding needs to be based on inductive generalizations about observed pieces of evidence. Bacon went so far as to suggest that theorizing and speculation have no place in science.[5]

While scientists today agree that observation and testing play fundamental roles in their work, they reject Bacon's strict inductivism. They believe that deductive, interpretive elements like prediction also play crucial roles in the scientific process.[6] These interpretive elements make science messy, disorganized, and unruly but also contribute to its undeniable success in today's world. Students should be taught to value careful scientific interpretation as much as the evidence itself.

Interpretation is a creative process in which one's presuppositions, prior observations, religious values, and temperament all play crucial roles. Given the huge diversity of people, it is possible that no two interpretations of the same set of events will be exactly alike. For a teacher to provide students with only one interpretation of a given set of evidence is irresponsible and unethical.

As Christian teachers of science, then, it is our responsibility to introduce students to a variety of interpretations of evidence regarding the natural world. While it is proper—even desirable—for us to let students know that we personally favor one interpretation over another, competing interpretations should be given fair, even-handed treatment. Students should come to understand that different people of good will, even within the Christian community, support different interpretations of the natural world.

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Offering students a choice of interpretations, of course, involves risk. What if students choose an interpretation inconsistent with our own Christian beliefs and values? What if they lose their faith in the process?

These are sobering questions. Keep in mind, however, that these students are likely to learn about other interpretations in later classes or contexts. Wouldn't it be better for them to learn about such ideas within a context supportive of faith? Moreover, if we fail to inform them about competing interpretations, when they confront these later, they may question not only our trustworthiness as teachers but also the trustworthiness of the faith we espouse.

God created a universe open not only to investigation, but also to a variety of interpretations. We must help students explore these interpretations, then encourage them to develop their own interpretations based on the evidence they can observe and evaluate.

Humility

In addition to facts and interpretation, speculation can play a

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significant and positive role in science. Like interpretation, speculation is a creative process. But speculation is based in imagination, not evidence. Speculation is good because it allows us to think about possibilities beyond the evidence and encourages us to explore scientific pathways we might not otherwise travel.

Speculation can be a problem, however, when it is substituted for the often unpopular phrase, "I don't know." This is a common pitfall for Christians and non-Christians alike. Among Christians, speculation dressed in religious garb can play a role in the formation and maintenance of faulty belief structures. Eventual collapse of these belief structures can be psychologically and spiritually devastating.

Philip Henry Gosse (1810-1888), a prominent British biologist and contemporary of Charles Darwin, was troubled by geological evidence that seemed to favor long ages and evolutionary change. A devout Christian, Gosse felt compelled to provide a rational explanation for this puzzling evidence. This he did in a book entitled *Omphalos; an Attempt to Untie the Geological Knot* published in 1857. Gosse speculated that things looked old because God had created the world and everything in it with the appearance of age—that trees had been created with annual rings, that Adam was fashioned with a navel, and that the geological column was established complete with fossilized organisms in its various layers.[7]

Gosse believed that the ideas in his book would "fling geology into the arms of Scripture," that he alone "held the key which could smoothly open the lock of geological mystery." But despite his optimism, *Omphalos* was roundly rejected by both Christians and non-Christians. Readers could not believe that God had "written on the rocks one enormous and superfluous lie."[8]

Faced with bitter rejection, Gosse descended into a deep depression. He broke off relationships with scientific colleagues and became rigid and morose. His son, once very close, distanced himself from his father and his father's religion.[9] We can only wonder how things might have been different had Gosse (1) declared that resolution of this problem was unnecessary for faith in the Creator, (2) admitted that ultimately he didn't know why the world appeared

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the way it did, and (3) acknowledged his views for what they were—sheer speculation.

Tragically, Gosse's experience is hardly unique. Many Christians misunderstand the nature of faith and attempt to prop it up with empty speculation. While speculation may further our search for answers and guide us in new directions, we must remember that we, the *created*, are profoundly ignorant of the ways of God, the *Creator*. C. S. Lewis wrote that our concept of the Creator "is not a divine idea. It has to be shattered time after time. He shatters it Himself." Even our questions, Lewis notes, belie this great ignorance: "How many hours are there in a mile? Is yellow square or round? Probably half the questions we ask—half of our great theological and metaphysical problems—are like that."[10]

We must help our students realize that ultimately the humble admission, "I don't know," is the most noble and truthful response to many human queries.

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Conclusion

God has created an amazingly complex and often puzzling universe. Fortunately, it is a universe open to scientific investigation. As Christian teachers of science, we bear a privilege and a responsibility to acknowledge our total commitment to faith in the Creator, to present available scientific evidence fairly, to encourage thoughtful examination of various interpretations of that evidence, and to demonstrate humility in the face of the vast array of intriguing mysteries that surrounds us.

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