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# INTEGRATING FAITH AND LEARNING IN THE PHYSICAL SCIENCES

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BY G. WILLIAM MUTCH

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**I**saac Newton, considered by Albert Einstein to be the greatest physicist who ever lived, worked in both science and theology. He believed that the methods of science could and should be used to demonstrate the existence of God. He expressed it this way: "When I wrote my treatise about the [solar] system, I had an eye upon such principles as might work with considering men for the belief in a Deity, and nothing can rejoice me more than to find it useful for that purpose."<sup>1</sup>

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*Dr. G. William Mutch is Associate Professor of Chemistry, Andrews University, Berrien Springs, Michigan, and serves on the faculty of the Department of Interdisciplinary Studies in the graduate school at the university.*

Indeed, many early scientists were devout believers who pursued their science from the perspective of their belief in God and saw little, if any, problem mixing the two. Gradually, however, the early, apparent linkage between science and religion in the Western world has eroded.

Today many scientists regard any connection between the two disciplines as unnatural and demeaning to science. Yet the rapid advances made by early scientists in the Western world strongly support the idea that their belief in a Supreme Being was an asset rather than an impediment to progress.

The tension that exists between science and religion is a natural outcome of the scientist's goal of explaining nat-

ural phenomena in terms of physical reality. This tendency has been strongly influenced by rapid advances in technology. Thus, explanations of natural phenomena that rely on supernatural intervention or statements such as "because God made it that way," imply behavior outside natural law, which does not allow nature to be described by purely scientific models. Such explanations are, therefore, considered unacceptable by many of today's scientists.

Consequently, we have moved from perceiving the commingling of science and religion as mutually beneficial, to viewing any mixing of the two as mutually destructive. This is especially true in the Creation-evolution debate, which,

in the legal battles, focuses on decisions about acceptable scientific models and what can and should be taught in high school science classes. Limiting such curricula to legally defined scientific models could jeopardize the preparation of university science students by encouraging and developing a more proscribed thinking process, based on a limited number of accepted options rather than the open, broad range of ideas from which the scientist should work.

In a Christian institution, the integration of faith and learning helps make religious faith relevant in the context of the various disciplines taught by the school. The more religiously neutral a discipline—that is, the fewer obvious interfaces between that discipline and religion—the more challenging it is to find ways of incorporating aspects of faith into the curriculum without the connections appearing artificial and forced. There can and should be differences in how science is taught in a Christian college. However, careful study must be given to identify opportunities for integrating faith into the curriculum so that it will be done effectively.

### Preparing to Serve the Church

The mission of the church is spreading the gospel to all people. But how is the church to reach the scientist or professional who is unlikely to attend a conventional evangelistic service? These people can often be influenced by a colleague with similar training and areas of common interest. Our church needs a strong cadre of committed Christian scientists and professionals who can influence secular people, whom the church does not reach through traditional channels.

How and where will these young people be trained? Undergraduate science programs in SDA colleges and universities provide an excellent opportunity for inspiring students to develop their talents for use in the church's outreach. These young people need to interact with role models who know how to integrate their scientific skills with the Christian world view and the needs of the church. Since many of our graduates will find themselves thrust into secular work environments, Adventist science faculties ought to identify individuals who can

spend some time talking with students about the relationship between their careers and witnessing.

At Andrews University, the department of chemistry provides dedicated

Christian chemists as speakers for departmental chapels and assemblies. In one instance, a retired chemist from Dow Chemical Corporation came to the university for two quarters as an adjunct professor. As he taught some specialized courses and interacted with students, he was able to provide unique insights about how a Christian scientist can work for the church while on the job.

### Making SDA Science Programs Distinctive

In what ways can and should science departments in SDA schools differ from their secular counterparts?

Prayer, both in the classroom and in the office, offers an effective witness of our personal dependence upon God and our belief that He can and will help our students. This, combined with a caring attitude toward students, conveys in a powerful way the commitment of the Christian teacher. The following excerpts from notes received by one faculty member testify to his impact on students' lives:

I want to thank you for being such a Christian that it spills over into your teaching. Never have I encountered a teacher like you that genuinely is

Christian every day in class without effort. Thank you for the brief provoking thoughts you share before classes and in your prayers. You do not realize what hope and inspiration you have been to my Christian life.

When I was discouraged about my \_\_\_\_\_ course, you gave me a source of new strength and the will to keep trying. . . .

Students who have transferred to Andrews after attending a public university repeatedly state that the caring and patient attitude of faculty members was the first difference they observed. Young people notice more about their teachers than the expertise they display in their disciplines. They also expect a strong correlation between their professors' Christian beliefs and their practices that translates into positive relationships with students and colleagues. Adventist schools can and should be as well known for their exemplary treatment of students as for academic excellence.

### Applications

In seeking to integrate faith and learning, science teachers can also look for applications of subject matter that relate to Christian beliefs and practices. For example, the study of polycyclic aromatic hydrocarbons in organic chemistry provides an opportunity to support the reasons we discourage the use of tobacco products. Many aspects of health and the SDA life-style can be emphasized from an applications approach. Most disciplines provide numerous opportunities for presenting such illustrations.

Extracurricular events that involve faculty and students such as home vespers, social evenings, and field trips also provide numerous opportunities for informal discussions. Here students can question and debate in less intimidating settings than in the classroom. Such encounters should be more frequent in a Christian college.

### Identifying the Limitations of Scientific Models

Many of the problems in the Creation-evolution controversy stem from a failure to understand the inherent limitations of scientific models. For example, many books and magazines suggest that evolution is as established a fact as gravity. Biologists—creationists and evolutionists alike—observe variability and descent with modifications or microevolution. However, the term

*evolution*, as generally used, also encompasses macroevolution and the mechanisms leading to the origin of life. The *theory* of evolution is a scientific model whose function is to explain observations and to predict the outcome of untried experiments.<sup>2</sup>

The validity of any scientific theory or model stands or falls on the outcome of testing, which requires the occurrence and observation of repeatable events. At this point creationists and evolutionists reach an impasse in talking about Earth's beginning, because both agree that it occurred only once!

Scientific models or portions thereof that cannot be tested are speculative and can be accepted only on the basis of faith. In actuality, the physical sciences are no better equipped to describe the origin of life than is a chemist able to predict whether a pure sample of Vitamin C originated in an orange, a rose hip, or a chemical laboratory.

### Integrating Science and Religion

Every student needs to learn that the physical sciences are a collection of scientific models, each of which has a limited range of validity. Our schools need to provide a forum for science students to learn how to deal with controversial problems in both science and religion. One approach would be to design a course taught by several teachers from the physical sciences and religion departments that would examine evidence on both sides of controversial issues.

### Promoting the Search for Truth

What does the search for scientific truth have to do with the search for religious truth? Both are authored by the same God, and it is logical to expect that correct interpretation of nature and revelation will lead to agreement rather than contradiction.

Scientists are trained to be analytically critical, a necessary skill in the search for truth. The process of filtering out error is long and tedious. In science, experimental results, new theories, and ideas are challenged and tested via the means of further experimentation, debate, argumentation, and refutation.

The founders of the SDA Church engaged in analytically critical study of the Scriptures. However, a number of church members now consider this approach to be unacceptable. As a

result, young people receive the distinct impression that truth is not progressive. Like trigonometry, it can only be repackaged—nothing new can be discovered.

As a church we cannot train students to examine nature with a microscope and religion with a telescope. The discovery techniques used by the scientist can help the church separate religious truth from error.

### Commitment to Ethical Values and Behaviors

In today's world, scientists are often blamed for making possible the exploitation of the Earth's limited resources. They are charged with designing technologies that destroy the environment and then expected to devise ways to solve the problems they have created.

Society is surrounded by moral dilemmas based on scientific progress. Abortions can now be performed safely, but under what circumstances should they be done? When the supply of kidneys or human hearts is less than the demand, who receives them? How do we decide whether to "pull the plug" on a comatose or terminally ill patient? On what basis could a Christian scientist decide for or against working on the Star Wars or other defense projects? If a scientist is asked to "doctor" the data on chemical experiments or drug tests before passing it along to the government or a competitor, what should he or she do?

The areas of ethics, moral responsibility, and value judgments are usually passed over in the formal undergraduate training of scientists. However, helping students to reason through

some of the moral and ethical challenges they will face may be the most important aspect of integrating faith and the science curriculum. Far too often cases of fraud and deceit are reported that involve undergraduates, graduate students, and even seasoned researchers.<sup>3</sup>

Adventist science faculties have a moral responsibility to provide a setting where students can examine how moral judgments are made. This could become a component of the team-taught course recommended earlier.

In an attempt to introduce students to the process of ethical evaluation, the Andrews chemistry faculty recently invited two staff scientists from the Whirlpool Corporation Research and Engineering Center to present a departmental assembly on the topic of scientific integrity and moral responsibility. The scientists presented a hypothetical scenario in which a company employee was faced with making a moral decision. The students, faculty, and guests then discussed possible responses. The effects of this assembly spanned several days as students continued informal, small-group discussions on the issues that were raised.

It may be that an in-depth study of ways to integrate faith and learning will lead to the conclusion that this can be done in the most satisfying way by helping young people take responsibility for their *own* integration of faith and learning. Perhaps students should be taught that a productive and exciting life is really a set of experiments that test the many hypotheses that emerge during growth and observation.

The author hopes that this article will form the basis for continued study to discover ways of preparing Adventist graduates to contribute to their chosen field and to the mission of the church. □

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### FOOTNOTES

<sup>1</sup> Robert E. D. Clark, *Science and Christianity — A Partnership* (Mountain View, Calif.: Pacific Press Publishing Assn., 1972), p. 12.

<sup>2</sup> L. R. Brand, "Can Science and Religion Work Together?" *Origins*, 12:2 (1985), p. 74.

<sup>3</sup> William Broad and Nicholas Wade, *Betrayers of the Truth* (New York: Simon and Schuster, 1982), pp. 225-232.

