

# God's Second Book: Adventist Education and the Sciences

In his brief biography of educational administrator Percy T. Magan, Maurice Hodgen states that "Adventists . . . have rarely, if ever, been at the forefront of scientific education."<sup>1</sup> While such factors as lack of financial and human resources have limited Adventist contributions, the denomination's philosophical stance has probably played the major role in shaping its relation to the sciences. While it is difficult to know just what has been taught in the classroom, it appears that for at least the first 50 years they operated an educational system, Adventists had relatively little interest in the sciences for their own sake. Rather, science served primarily as either a means of promoting healthful living or as a source of spiritual object lessons.

## Impressive Offerings, but Little Depth

When Battle Creek College opened its doors in 1874 in Battle Creek, Michigan, it offered little in the way of science education. Although the "Classical Course" announced in its first catalogue included a few science courses—physiology, natural philosophy, botany, chemistry, geology, and astronomy—few students pursued the program. The more popular "English Course," designed primarily to train teachers, required courses in botany, natural philosophy, and natural history.<sup>2</sup> While the catalogue mentioned that there would be "special inducements to those interested in Hygiene," no courses were available except some private lessons taught by John Harvey Kellogg, recently appointed director of the Western Health Reform Institute, in chemistry, anatomy, and other medical subjects.<sup>3</sup> Within a few years, the college introduced a "Scientific Course," although, as Emmett K. VandeVere comments, "On paper the science offerings appear impressive: physics, astronomy,

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geology, zoology, botany, physiology, and hygiene. But the courses had little depth to them."<sup>4</sup>

The health interest implied by the 1875 catalogue comments on hygiene soon led Kellogg to develop a School of Hygiene, which opened in 1878. Along with other physicians at the Battle Creek Sanitarium, Kellogg offered "elementary instruction in anatomy, physiology, chemistry, physics, and mental philosophy," which enabled students to teach others the principles of healthful living.<sup>5</sup> Although Kellogg discontinued the program after several years, he reactivated it in 1889, under the name Sanitarium School for Medical Missionaries, concentrating on preparing ministers, teachers, and missionaries to be effective advocates of his health principles.

Kellogg pursued a more professional goal when he began a three-month nursing program in 1883, which over time developed into a two-year program to train nurses. Drs. Kate Lindsay and Anna Stewart taught most of the courses in the Sanitarium Nursing School, although Kellogg did some lecturing. In 1895, Kellogg started the American Medical Missionary College, which was notable because it began clinical instruction during the student's first year. Kellogg stated that "the instruction will be largely textbook study, practical drills, clinical and other practical work with the sick, so that from the very beginning the student will be made familiar with disease in all its phases and with rational methods of treatment."<sup>6</sup>

## Science as Source Book for Spiritual Lessons

While the Seventh-day Adventist Church was moving toward the establishment of a medical-education program, it was also developing other aspects of its educational

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system, including elementary and secondary schools, as well as colleges. These efforts included considerable discussion of the kind of education that the church should be offering. As the young denomination's prophetic voice, Ellen G. White urged that teachers should approach nature as a resource for spiritual lessons. "Let the children learn to see in nature an expression of the love and wisdom of God;" she wrote, "let the thought of Him be linked with bird and flower and tree; let all things seen become to them the interpreters of the unseen, and all the events of life be a means of divine teaching."<sup>7</sup> Ultimately, in Ellen White's view, students in Adventist schools should be taught to understand that nature was sustained by God's power, rather than functioning as a system that could be explained naturalistically. "The deepest students of science are constrained to recognize in nature the working of infinite power," she wrote. "But to man's unaided reason, nature's teaching cannot but be contradictory and disappointing. Only in the light of revelation can it be read aright."<sup>8</sup>

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**A** number of Adventist educators attempted to put Ellen White's principles into practice. Probably the most outspoken was E. A. Sutherland, who as president of Battle Creek College sought to radically transform its curriculum, ultimately moving the school to the more rural location of Berrien Springs, Michigan, where it was re-established as Emmanuel Missionary College. Asserting that the Bible must serve as "the interpreter of nature and natural phenomena," Sutherland argued that, methodologically, teachers must begin with spiritual reality and then move to nature. "The spiritual law is the thing sought, and the corresponding physical law is compared with it. Once found, every fact which is learned, every observation made, but shows more clearly the working of that law in the spiritual world. For such teaching, faith is an indispensable attribute."<sup>9</sup>

One of Sutherland's teachers sought to apply this perspective. In a textbook written for elementary schools, Marion Ernest Cady explained that "true science" interprets "the handwriting of the Creator in the natural world." He organized such topics as "light and heat," "plants," and "land animals" according to their order of creation as given in Genesis and indicated that each should be studied under four areas: its origin, nature, utility, and "laws of spiritual truth."<sup>10</sup> Although he wrote the book largely in the form of lesson outlines with frequent links to Bible texts, Cady occasionally explained more fully the approach he was advocating. For example, he pointed out that the Bible often uses plants to teach spiritual lessons, as when Psalm 1 represents the spiritual man as a tree, observing that "the Bible is filled with these symbols borrowed from Nature to illustrate divine truths, and these the pupils need more, yea, infinitely more, than they need the facts which minister only to the temporal life."<sup>11</sup>

It appears that science teachers struggled over this spiritualized approach to their subject. In 1910, Harland U. Stevens, who taught

at Union College in Lincoln, Nebraska, argued that while true education must emphasize spiritual truths, it also must address "temporal life." "Natural science . . . is largely concerned with the present life and man's temporal interests," he wrote. "It teaches him how to enjoy life in a fuller, a deeper, and a broader, because a more understanding sense." Suggesting an opposite methodology from that of Sutherland and Cady, Stevens observed that "study of nature leads finally to an acquaintance with the master mind in nature, the Infinite Father, the Creator of all. Thus natural science becomes a study of God through his created works. We come to know the Creator by his creation."<sup>12</sup>

### **Science—Content Subject or Tool Subject?**

As late as 1923, however, the interpretation that Sutherland and Cady gave to Ellen White's principles echoed in the comments of Warren E. Howell, secretary of the General Conference Department of Education. Describing science as a "content" subject that provides spiritual food, in contrast to "tool" subjects that offer skills, Howell argued that "when properly spiritualized, science and history both belong to the class of sacred studies pursued in the schools of the prophets. . . . [They] are second only to the Bible and the Spirit of prophecy [sic] in spiritual nurture—in fact, afford a kind of spiritual culture not enlarged upon by the Bible, though both are largely dependent upon the Bible for their spiritual efficiency."<sup>13</sup>

## Accommodating the Demands of Medical Education

Howell's spiritualized approach to science, however, collided with the needs of Adventist health education. Because of Kellogg's departure from Adventism in the early 20th century, the denomination no longer had control of American Medical Missionary College, which in 1910 merged with the Medical School of the University of Illinois. The church, therefore, began a new medical training institution in southern California, which by the 1920s had developed into the College of Medical Evangelists. When the American Medical Association threatened in the 1920s to remove the school's "A" rating (which was necessary in a number of states for a school's graduates to practice medicine) because it accepted students who had graduated from unaccredited colleges, pressure began to build for the accreditation of Adventist colleges. Additional pressures for accreditation arose from licensing requirements for nurses and certification of secondary teachers. In addition to the opposition of denominational leaders such as Howell toward "outside" accreditation, among the issues standing in the way of such approval were the lack of faculty with graduate training, as well as inadequate science facilities.

**A**ddressing the issue of advanced faculty education, the colleges began sponsoring various teachers to attend graduate school, some during the summers and others taking leaves for sustained study. Walla Walla College, for instance, sent George Kretschmar to the University of Chicago, where he completed a Ph.D. in physics, and George Bowers to the University of Nebraska for a doctorate in chemistry.<sup>14</sup> Whereas in 1931, two teach-

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ers had covered all of Walla Walla's courses in mathematics, physics, biology, and chemistry, the various fields began to take on more specific identities when the college created separate departments of biology and chemistry in 1938 and began offering a biology major two years later.<sup>15</sup> Presumably, there was a connection between faculty earning doctorates and the more specialized development of their disciplines within the schools.

### Coping With Inadequate Facilities

Descriptions of the science laboratories and classrooms of this time period that appear in several college history books share a common theme. Of Pacific Union College, Walter Utt writes: "For years the science departments had shared the administration building with nearly everyone else. Professor Wolfkill had several of the rear rooms and part of a hallway back in Irwin's day. Laboratories were hard on tender nonscientific olfactory nerves and crowding grew progressively worse."<sup>16</sup> Regarding Union College, Everett Dick states: "The sciences had been expanding until now instead of a science department there was a chemistry department in the south basement of the

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Administration Building . . . a physics department at the north end, and a biology department on the second floor at the north end. These growing departments were cramped for space and, furthermore, the chemistry department was more or less a fire hazard, not to mention the sources of the gas attacks which other people in the building had to endure."<sup>17</sup> And in 1946, Southern Missionary College—just advanced to senior college status—had a biology department that Dennis Pettibone portrays as "sharing half of a partitioned room in Lynn Wood Hall. This area served as office, library, and lecture room for small classes. Microbiology supplies were kept in a shoe box stored under a stairway, necessitating a walk through the chemistry area to retrieve them."<sup>18</sup>

### Upgrading for Accreditation

In the drive to achieve accreditation, several schools built new facilities. Walla Walla College erected a new science building in the early 1920s, probably in anticipation of an accreditation effort. Responding to an inspection by the newly established denominational Board of Regents, which for a time the church hoped would substitute for regional accreditation, Pacific Union College constructed its new science hall in 1930. According to Utt, this structure housed "physics on the ground floor, chemistry on second, and biology on the third floor. Through the efforts of Ernest Booth and Donald Hemphill, a biology museum was formed." Apparently independent of the accreditation effort, PUC also boasted two astronomical observatories built in 1930 and 1932 through the work and influence of Professor M. W. Newton, who had retired a few years earlier.<sup>19</sup> In 1931, Emmanuel Missionary College launched a drive to raise \$20,000 in 30 days, erecting a three-story science building that was completed in 1932. Although Union College did not erect a new home for the sciences until 1946,<sup>20</sup> it purchased additional equipment and upgraded its physics and biology laboratories during the 1930s.

These various efforts were successful. In 1933, PUC became the first Adventist school to receive senior college accreditation and dur-

ing the next several years, others followed: Walla Walla College (1935), Union College (1937), Emmanuel Missionary College (1939), Washington Missionary College (1942), and Atlantic Union College (1945).<sup>21</sup>

### New Programs

After World War II, some of the schools ventured into new ground. Ernest Booth, teaching at Walla Walla, began a Biological Field Station on Puget Sound in 1946 (it was moved to Rosario Beach in 1954) and developed an M.A. program in biology.<sup>22</sup> And at Pacific Union College, Harold W. Clark, who between 1929 and the early 1940s had led field schools in natural history at various places on the Pacific Coast, opened a field station at Albion in 1947 which, among other things, featured a glass-bottomed boat built by the college woodwork shop.<sup>23</sup>

### Creative Approaches to Geology

During the debate over accreditation, church leaders expressed concerns that if Adventist science teachers attended secular graduate schools, they might imbibe the theory of evolution. Although the denomination had opposed Darwin's theory ever since the publication of *Origin of Species* in 1859, it was not until George McCready Price began publishing his anti-evolution writings in the 20th century that an alternate model began to emerge. The most important of Price's works was *The New Geology* (1922), a college textbook. Rejecting the idea of a consistently ordered geological column, Price claimed that rocks containing fossils appear in many sequences and therefore could not be used for dating. In contrast to the reigning uniformitarian approach to geology, which assumed that observable natural processes such as sedimentation could explain geological phenomena, Price offered a "new catastrophism" where the flood of Genesis 11 accounted for all stratified deposits.<sup>24</sup>

One of Price's students was Harold W. Clark, who in 1933 became the first Adventist to obtain an M.A. in biology. Unlike his mentor, Clark visited geological sites and as a result began departing from Price's version of orthodoxy. As early as 1929, he concluded, in contrast to Price, that an ice age had indeed occurred; and then in 1938, when he visited Oklahoma and Texas oil fields at the invitation of a student, determined that there was indeed a definite order to the rock layers. Clark incorporated these conclusions into a new version of Flood geology in which he argued that the fossil record reflected the ecological zones of the pre-Flood world. He also allowed for considerable biological change since the Flood. Price accused

Clark of heresy after the publication of the latter's *Genes and Genesis* (1940) but was unable to get the church to issue an official condemnation. A few years later, Clark further developed his ecological zonation theory in *The New Diluvialism* (1945).<sup>25</sup>

**A**nother of Price's students was Frank Lewis Marsh, who while an academy teacher took graduate work in biology at the University of Chicago and in 1935 earned an M.S. in zoology at Northwestern University. After moving to Union College in 1940, he completed a Ph.D. in biology, thereby becoming the first Adventist to earn a doctorate in that field. Publishing *Evolution, Creation, and Science* in 1944, Marsh also allowed for limited evolution within the context of a literal six-day creation, an approximately 6,000-year chronology, and the Noachian flood.<sup>26</sup> Contrary to the fears of church leaders and despite the assertions of Price, it was apparent that some of the first Adventist scientists to attend graduate school used their new learning to develop more sophisticated defenses of the creationist faith rather than adopt naturalistic evolution.

### Recent Developments

Over time, of course, much was to change, but it seems that the 1930s and 1940s were the key period in the development of Seventh-day Adventist science teaching, at least at the college level (unfortunately, there is little research on the history of Adventist secondary education). After this period, the Ph.D. became virtually a requirement of appointment as a college instructor. Also, facilities continued to improve. For instance, Andrews University, formerly Emmanuel Missionary College, built a large science complex in the early 1970s, raising about one-quarter of the money from non-Adventist sources in the region.<sup>27</sup> Benefit from this investment is now returning to the community as Andrews conducts an advanced science program for high school students from throughout Berrien County.

The offering of graduate programs in biology, begun at Walla Walla College in the 1950s, expanded when Andrews University developed an M.A.<sup>28</sup> and Loma Linda University began to offer both an M.A. and a Ph.D. in biology. Research frequently became a significant element in the science programs. In the 1960s, for example, Ray Hefferlin began bringing government grant money into the physics department at Southern Missionary College.<sup>29</sup>

Although the science programs no longer approached nature as a sourcebook for spiritual object lessons, the traditional Adventist

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concern with evolution has remained a constant in the denomination's science education. In 1957, the General Conference created the Geoscience Research Institute to help the church respond to the issue of evolution.<sup>30</sup> At PUC in the 1970s, Ervil Clark, son of Harold W. Clark, even established a mobile creation museum.<sup>31</sup> The denomination gave serious academic attention to these issues by starting first a graduate and then an undergraduate program in geology

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at Loma Linda University, beginning in the late 1970s. When the program closed in 1989 for financial reasons, one of its four faculty transferred to the Department of Biology so that LLU could continue to offer an M.S. in Paleobiology, the area in which the geology program had originated. When the La Sierra and Loma Linda campuses split into separate institutions in 1990, the graduate biology program moved to Loma Linda University, which within a few years began to offer a Master's degree in geology and, beginning in 1998, again offered a B.S. in the field.<sup>32</sup>

### Conclusion

But most significantly, the fact that most biology programs in Adventist colleges require a course that addresses the issue of origins, carrying such titles as "Philosophy of Origins and Speciation," "Origins," and "Historical and Philosophical Biology," suggests that understanding the relationship of the Creator to His creation has remained a defining element of Adventist science. As Terrie Dopp Aamodt writes, because of the Adventist concerns for both health and creationism, "the teaching of science is as crucial as the teaching of theology on an Adventist campus."<sup>33</sup>

But times change. As teachers have become more specialized, as research has increased in importance, and as growing numbers of graduates are moving into fields outside the health professions, science on Adventist campuses is becoming important in its own right, rather than principally serving other purposes. While they build on the base established throughout the past century, Adventist scientists face the challenge of redefining what it means to be an Adventist in science and the role science is to take in Adventist education. ☞

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