The Influence of Quakers on Science in Indiana

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Since the two largest Yearly Meetings of the Society of Friends have the greater part of their area in Indiana, this denomination has exerted an influence in the state out of proportion to its total membership. Thruout their three hundred year history Friends have emphasized education. Quakers came to Indiana early in the past century, migrating largely from North Carolina, where they found slavery inconsistent with the principles of the Society. At that time the public school system of Indiana was not well developed; so when Friends set up a local meeting and built a meetinghouse, a monthly meeting school quickly appeared beside it. At first there were only elementary schools, but as communities became more stable and the demand for more education developed, a series of Academies, of high school rank, were built up. Some of these lasted for only a short time, but others, such as those at Spiceland, Plainfield, Bloomingdale, Fairmount and Westfield in Indiana and Vermillion Grove, in Illinois, became stable and well-recognized schools. Usually there was cooperation with the public school system and the academy was the only high school in its community. Quaker academies in the east, particularly in New England and the Middle Atlantic States continue to flourish, and some, like Westtown and George School, rank very high; but as the public high schools of Indiana improved, and as the financial burden of maintaining private schools increased, the Friends Academies were laid down, one at a time, in the first quarter of the present century. New state legislation, aimed at private schools, made their continuance difficult; but Friends in the midwest now regret that at least one of the academies was not retained.

These academies acted as feeders for Earlham College, established as a Friends Boarding School in 1847. Thruout its history Earlham College has been outstanding in the teaching of science. Men of broad education, attractive personality and scientific and religious devotion were on the teaching staff thruout their teaching careers and during the formative period of the college. Students interested in science were attracted to the college from the academies, as well as from the public schools.

The second president of Earlham College was Joseph Moore, born at Washington, Indiana. He was on the staff of the college from 1861 to 1905; was president 1869-1883, and remained as professor of geology until 1900 and curator of the museum until his death in 1905. With quiet persistence he built up the college museum, which started in one small room, called the Cabinet. Many of the specimens he secured and prepared himself, prominent among which were the mastodon, the most spectacular exhibit, and the fossil beaver, the most valuable one, and until recently the only existing complete skeleton. The museum became one of the best in the state and the best college museum in the midwest. It has been appropriately named the Joseph Moore Museum, and has recently been more safely and adequately housed in David Worth Dennis Hall, the new science building of the college.

One of the men whom Joseph Moore attracted to the college was Allen D. Hole, born at Bridgeport, Indiana, in 1866, and receiving the B.S. at Earlham in 1897. He became Joseph Moore's successor as Professor of Geology and later as Curator of the Museum. Building upon the foundations laid by Joseph Moore, he developed both department and museum. He became interested in glacial geology. Year after year, small groups of students, of whom I was fortunate to be one, accompanied him in the summer, as he worked out the glaciology of areas of southwestern Colorado in the preparation of his doctoral thesis for the University of Chicago.

He also became interested in the U. S. Soil Survey. So many of his students were attracted to this field that at one time ten of the fifty members of the Soil Survey were Earlham men. Prominent among them were James Thorp, now head of the Department of Geology, Earl Fowler, and the late Mark Baldwin. Allen Hole's son, Dr. Francis Hole, is Assistant Professor of Soils at the University of Wisconsin. Ten years ago a research program on soils, supported by the Kettering Foundation and by personal grants from the late Charles Kettering, has been conducted by members of the present science staff in Geology, Biology, Chemistry and Physics, assisted by undergraduate students. Prominent among the projects has been the investigation of soil organisms, particularly earthworms, and the study of fossil pollen. A detailed geological survey of the Whitewater Valley, particularly as to its glacial history, is in progress.

In Volume I, 1900, of the Proceedings of the Indiana Academy of Science, I find Joseph Moore and David Dennis listed as members. They were charter members, along with many other men whom the Academy has honored. In the Proceedings for 1895, the second year in which lists of Fellows of the Academy are published, David Dennis is listed as a Fellow; in 1896, the name of Joseph Moore appears.

David Worth Dennis was born at Dalton, Wayne County, Indiana, did preparatory work at Spiceland Academy, and was Joseph Moore's student at Earlham. He was a teacher from 1873 until his death in 1916. At one time or another and sometimes simultaneously, he taught biology, geology, chemistry and physics. I have heard him say that he did not occupy a chair, but a settee. As the college grew, he was able to devote his whole time to biology. A student of Strasburger at Bonn, and with his Ph.D. from Syracuse, he attracted many students who went on to medical schools or to the study of pure science.

At a time when the study of biology consisted almost entirely of lectures and the dissection of pickled specimens, David Dennis espoused with enthusiasm the use of "outings," as field trips were called. With the gusto of a Linnaeus he led his students into the field for the study of birds and trees. Really interested students were his pride and joy; but woe betide the slacker or the bluffer. One experience in standing before a large class to reveal his ignorance was real humiliation. He was much in demand as a speaker at teachers' institutes, where he preached the gospel of study out of doors. It was at such an occasion that I first knew him. His little book "One Hundred Lessons about Plants," was widely known. He was an enthusiastic student of birds and a member of the committee of the Academy which set up the Indiana Audubon Society. Among his bird students was Alden Hadley, who was for many years associated with

another Quaker, Gilbert Pearson, on the staff of the National Audubon Society, and whose collection of mounted birds and study-skins now forms an important part of the Joseph Moore Museum.

David Dennis was an ardent photographer and made many lantern slides to illustrate his lectures. With Dr. Charles Bond, of Richmond, who recently died at the age of 102, he bought an elaborate German photomicrographic appartus, on which the two men spent many long evenings.

At the twenty-fifth anniversary banquet of the Indiana Academy of Science, Dr. A. L. Foley, then president of the Academy, said of David Dennis, "There is no man in Indiana who has had more influence upon the teachers of the state, upon the schools of the state; there is no man who has been closer to the hearts of his pupils. There is no man who had had more to do with the development of science in Indiana than has Professor David W. Dennis."

The new science building at Earlham College is appropriately named David Worth Dennis Hall.

Two Quakers have influenced the teaching of chemistry at the college. Dr. E. A. Wildman was head of the department from 1919 until his retirement in 1956, with a special interest in organic chemistry. He was the teacher and inspirer of Wendell Stanley, '26, winner of the Nobel Prize for his pioneer work on viruses, a field in which he is now active at the University of California at Berkeley.

Associated with Dr. Wildman was Dr. Martha Doan, who at the same time was Dean of Women at the College. She is undoubtedly the member of the Academy of longest tenure. I find her listed in the Proceedings for 1896, so she has been a member for sixty-three years. She lives at Westfield, Indiana and retains the quick wit, the vivacious personality and the intellectual keenness which were hers as teacher and dean.

In 1861 the college erected Indiana's first astronomical observatory, with an excellent telescope, which has been in continuous use. Dr. Clifford Crump, '12, has retired from Ripon College and returned to his alma mater to teach mathematics and to use the observatory with students.

Recently in order to ascertain the undergraduate origins of American scientists, the members of the science faculty of Wesleyan University made a survey of American colleges and universities. The index used was that of the male graduates of the years 1924-34 who continued their education to the doctoral level and were listed in American Men of Science. Earlham ranked fourth.

Science flourished at Earlham to a greater extent than in most church-related colleges because of the recognition from the beginning of the fact that there is no discord between scientific education and religion. This came about not so much because of an announced policy as thru the educational contributions of the administrative and instructional staffs of the college, who combined in their own lives and teaching an appreciation of nature thru a knowledge of science and a simple and sincere worship of the Creator. While he was on leave for graduate study at Harvard University, Joseph Moore wrote, "In my pursuit of science may I be constantly inspired by the highest motive—that of learning more of God as He has displayed himself in all that He has made. God is the author of truth and how can we be better employed than in searching into such things as he

has given us the power to investigate. The universe is the work of the divine mind. Since omniscience is one of his attributes, the man who knows the most is in this respect most like his Maker."

The fact that this synthesis of science and religion was recognized by teachers in the Department of Religion, as well as those in science, made it possible for students to go from classes in either department to those of the other without being confronted by the mutual ridicule and antagonism that have characterized these two departments in many institutions. Evolution and "higher criticism" may have troubled some of the patrons of the college, but not the students.