

## HISTORY OF SCIENCE

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### Biographical Sketches of Indiana Scientists Not Listed Elsewhere, I

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This is the first of a series of articles devoted exclusively to the presentation of biographical sketches of Indiana scientists whose work was completed in the nineteenth century or the early part of the present century. It is hoped that others will take up the work and thus make the Proceedings of the Indiana Academy an authoritative source for this biographical material. The source for most of this material is to be found only in newspaper obituaries, college yearbooks, county histories, memorials published at the time of decease, brief sketches in professional journals, and through copious correspondence with close relatives of biographees and others who might possess such information. Obviously such sources are not readily accessible and any one source is rarely complete or comprehensive. The value of the material is historical and should be of use in evaluating the role of science in the development of our educational institutions and our natural resources. No claim is made for completeness for at this late date completeness can come, if ever, only through the interest and cooperation of others who are aware of otherwise inaccessible information.

At the time that these men were active, Indiana colleges and universities had small enrollments and, individually, relatively were unimportant. In 1890 Indiana University had an enrollment of 321 students, not including preparatory students, and it was 1898 before the enrollment exceeded one thousand students when 1,049 were enrolled. Similarly Purdue University had an enrollment of 419 non-preparatory students in 1890 and its enrollment exceeded one thousand in 1900 when 1,012 were enrolled. The enrollments of the other colleges of the state were smaller in 1900. Also Volume I of "Who's Who in America" was published in 1899 with only 8,602 sketches, and Volume I of "American Men of Science" appeared in 1906 with about 4,000 sketches, so that most of the men considered here had virtually completed their careers before these directories became comprehensive enough to consider them.

THOMAS GREENE ALFORD. He was born at Alfordsville, Daviess County, Indiana, March 26, 1852, and died in Lagrange, Illinois, March 25, 1919. He was educated in the district schools and his family moved to Bloomington in 1866 where he entered Indiana University and received the A.B. degree in 1871. He taught three years in the district schools in Daviess County and then attended the Indiana State Normal School at Terre Haute for one term in 1874-75. He began teaching in high school and in 1881 he was Principal of Vevay High School and Superintendent of the City Schools of Vevay, Indiana. In 1888 he was Assistant Principal

of Indianapolis High School under Superintendent Lewis H. Jones, and he also received the A.M. degree that year. He came to Purdue in 1892 as Professor of Mathematics and held that position until his retirement in 1917. In 1913, at the request of President Stone, he began devoting half of his time to the student YMCA. He was appointed in January, 1917, Executive Secretary of the Purdue Union Committee to interview Purdue alumni and friends and solicit funds for a Purdue Student Union Building. He began work in September, 1917, but declining health prevented his doing a great deal, and he went to live with his only child and daughter, Muriel J. or Mrs. J. W. Dietz in Lagrange, Illinois. He was married to Miss Effie Wilson in 1881, and she died in 1899. He held membership in the Indiana State Teachers Association, Indiana Historical Society, Scabbard and Blade, and the Irving Literary Society. He was a 32° Mason and a member of the Scottish Rite and Mystic Shrine, and the Presbyterian Church. He became a member of Phi Kappa Psi while a student at Indiana and he helped to organize the Purdue Chapter in 1901. He set up the Alford Trophy, a Cup, in 1912, to be awarded each semester to the fraternity chapter on the Purdue campus having the highest scholarship. His Award was retired in 1920, after his death. (Principal source: Purdue Exponent, March 26, 1919.)

**JASPER ASAPH CRAGWALL.** He was born near Bean Station, Graininger County, Tennessee, on April 23, 1867, and died at Bean Station, October 29, 1937. He graduated from Vanderbilt University in 1886 with a degree in engineering and spent the next five years as a civil engineer on the Nashville, Chattanooga and St. Louis Railroad. He then took up teaching and in 1895 became Head of the Department of Mathematics in the Nashville, Tennessee, High School. In 1901 he came to Wabash College as Professor of Mathematics. During his six years in Nashville he received the Master's degree in mathematics and physics at Vanderbilt. At Wabash he also became Registrar in 1906 and became Chairman of the Faculty Athletic Committee through which he rendered outstanding service in insisting on and securing higher standards of sportsmanship in intercollegiate athletics. In 1919 he took a year off to go into business. After his return to Wabash he became a victim of arthritis which forced his retirement as Registrar in 1922. After spending two winters in Arizona and making other journeys seeking relief he was forced to resign in 1929. After his retirement he returned to his Tennessee home and then spent considerable time before his death seeking relief in the dry climate of Arizona. In 1932 he was able to attend the Wabash Centennial celebration at which time Wabash honored him with the Sc.D. degree. Professor Cragwall was a charter member of Mathematical Association of America which was organized in January, 1916. He was also a member of the Crawfordsville Rotary Club and the Presbyterian Church. He was the father of four children. An excellent and popular teacher, he was highly regarded by Wabash alumni and was considered a "Grand Old Man of Wabash." (Sources: Indianapolis Star, October 31, 1937; Osborne and Gronert, Wabash College, The First Hundred Years, 1832-1932; Correspondence.)

**RUFUS HAYMOND.** He was born in Clarksburg, Virginia (now West Virginia), on June 5, 1805, and died at Brookville, Indiana, July 29, 1886.

He came to Brookville in 1826 and was a practicing physician and a member of the National Association of Physicians. He entered actively into the civic affairs of Brookville and was President of the first Board of Trustees of the Corporation of Brookville. He served Franklin County as Clerk and also as its Representative in the State Legislature. He was deeply interested in nature and was a keen, careful observer of mammals and birds, noting their species, habits, abundance and distribution. His paper on "Birds of Southeastern Indiana," listing 138 species, was published in 1856 in the Proceedings of the Academy of Natural Sciences of Philadelphia. He served as an Assistant Geologist to State Geologist E. T. Cox and in the Eleventh Annual Report of the Indiana State Board of Agriculture and the Report of the State Geologist for 1869, Dr. Haymond published three reports, one on the geology of Franklin County, and two papers, "Mammals Found at the Present Time in Franklin County," and "Birds of Franklin County, Indiana." He gave lectures on natural history and influenced many young men to study nature, two of whom were Amos Butler and E. R. Quick, both of whom were active in founding the Brookville Society of Natural History in 1881 and later, in 1885, the founding of the Indiana Academy of Science. His last paper was published in Volume 13, *The American Naturalist*, 1870, "On the Drumming of the Ruffed Grouse." Dr. Haymond was recognized nationally as a student of vertebrate zoology and one of the pioneer naturalists of the Ohio Valley. (Sources: E. R. Quick, *Bulletin of the Brookville Society of Natural History* for 1887; W. S. Blatchley, B. W. Evermann, Vol. 26, *Proc. Ind. Acad. of Science* for 1916; *Amer. Naturalist*, Vol. III, April, 1869.)

FRANK RAWDON HIGGINS. He was born in Wolfville, Nova Scotia, on February 4, 1869, and died in an automobile accident at Brutus, Michigan, August 12, 1936. His father was Professor of Mathematics in Acadia College, a Baptist college in Wolfville. F. R. Higgins received the A.B. degree at Acadia College in 1891 and the A.M. degree from Cornell University in 1894. The following year he taught in a boys' school, and entered the University of Chicago for graduate study in the Fall of 1895. He came to the Indiana State Normal School, now the Indiana State Teachers College, Terre Haute, Indiana, in 1896 as Assistant Professor of Mathematics and retired as Emeritus Professor of Mathematics in 1935, but he continued to teach some the next year. He became a citizen of the United States some time before 1905. He did some research work at the University of Colorado in the summers of 1928 and 1930. Professor Higgins was married to Miss Hope Vickroy, of Terre Haute, in 1905. He was a quiet, retiring man but an effective teacher who, together with Professors Kelso and Baxter as his colleagues, influenced a number of men to do graduate study in mathematics, a number of whom became prominent educators. Professor Higgins was interested in politics. He enjoyed making furniture in his woodworking shop and he had his own darkroom for developing the many pictures he took on summer vacations. He was a member of the Indiana Academy of Science from 1898 to 1912 and a charter member of the Fort Harrison Country Club. He was active at one time in the Young Business Men's Club in Terre Haute. At the time of



his death he was working on a textbook in mathematics. (Sources: Terre Haute Star, August 14, 1936; Mrs. F. R. Higgins; Personal acquaintance.)

ALEXANDER KNISELY. He was born on a farm a half mile west of Columbia City, Indiana, on December 12, 1851, and he died on this same farm on September 29, 1931. He was a sickly child and as a result he read a great deal and also showed unusual ability in mathematics. He attended Valparaiso University, at that time primarily a private normal school, and received the B.S. degree, with a fine business training but little training in mathematics. In the Fall of 1879 he began teaching school at Mason City, Illinois, where he remained until 1885 when he returned to Columbia City to become County Superintendent of the Whitley County Schools. He served as County Superintendent for six years and then became associated as general agent with Warder, Bushnel and Glessner Company, manufacturers of Champion Mowers and Binders. He married Miss Mary Elizabeth More in 1892 and they lived in Lafayette. In 1896 they moved to Logansport, which was nearer the center of his territory. When his company became a part of the International Harvester Company about 1901 Mr. Knisely retired to his farms in Columbia City. During the next twenty years he refused the presidency of a bank, the managership of a mill, and the candidacy for County Treasurer, so that he could manage his farms and devote considerable time to problem solving which he loved. However, he made real estate appraisals and served on various county boards and commissions for road construction and other projects. In 1921 when the Farmers Mutual Insurance Company of Whitley County was having financial difficulties he was asked to take charge and he spent the last ten years of his life as its Secretary and Director. Mr. Knisely was an outstanding citizen of Whitley County and headed its Corn Exhibit for ten years. He was a 32° Mason and member of Eastern Star. For years he served as treasurer of the Columbia City Library Board.

In 1891 when the New York Mathematical Society opened its membership on a national basis, Alexander Knisely was one of nine Indiana men to join. The total membership of the Society at that date was 227. The Society became the American Mathematical Society in 1894 and is now one of the leading and largest mathematical societies in the world. Mr. Knisely was a member until his death. Likewise when the Mathematical Association of America was founded in January, 1916, Mr. Knisely was a charter member and kept his membership to the end. Here was a man with an intense love for mathematics who doubtless possessed considerable innate mathematical ability, but who received little encouragement to pursue the subject. Occasionally some of his solutions to problems were published. That he possessed unusual ability did not go entirely unrecognized for in 1927 Professor Joseph K. Hart of Columbia University and a native of Columbia City dedicated his book "Light from the North" to Alexander Knisely. (Sources: Reports of State Superintendents of Public Instruction, 1885-91; Mathematical Society Directories; Ex-Governor Ralph F. Gates; Daughter, Mrs. Ilene K. Winkelman, Akron, Ohio.)

REUBEN S. LAWRENCE. He was born in Canaan, Connecticut, on September 20, 1858, and died at Hanover, Indiana, January 30, 1919. His

family moved to Sandisfield, Massachusetts, when he was one year old and then to Wichita, Kansas, in 1872. He graduated from Wichita High School and completed his preparation for college under Rev. Darwin Cook, of Merryall, Pennsylvania, a Presbyterian minister noted for the large number of boys he prepared for successful college careers. He entered Princeton University and received the A.B. degree in 1885 and the A.M. degree in 1887. Following his graduation from Princeton in 1885 he went to Emporia College as Professor of Mathematics and remained there fifteen years. While at Emporia he was Acting-President for one year and he served on the Kansas State Board of Education for eight years. Emporia College conferred the Ph.D. degree on him in 1894. He was called to Hanover College in 1900 as Professor of Mathematics. In 1906 he went to Wichita, Kansas, as Principal of Lewis Academy, at that time a flourishing secondary school which the Presbyterians proposed to develop into a college. Later it merged with Emporia College. He returned to Hanover College in 1915 as Professor of Mathematics and before his death in January, 1919, he served two years as Secretary of the Hanover College Board of Trustees. Dr. Lawrence was active in the Presbyterian Church as an Elder, Trustee and Sunday School teacher. An excellent, dedicated teacher of mathematics, he was a Charter Member of the Mathematical Association of America. His wife, Mrs. Arline Lawrence, died in 1956 at the age of ninety-six. They were the parents of two daughters, Mary Abigail (Mrs. J. F. VanAntwerp) and Helen Arline (Mrs. V. C. Taff), both graduates of Hanover College. (Sources: Prof. Ned Guthrie; Mrs. James VanAntwerp, Ottumwa, Iowa; Hanover Alumni Directory.)

JOSEPH MOORE. He was born in Washington County, Indiana, of Quaker parentage, on February 29, 1832, and died on July 9, 1905, in Richmond, Indiana. He spent his early years on his father's farm and received his formal education in Blue River Seminary in southeast Washington County. He began teaching at the age of 18 and taught in district schools in Washington, Jackson and Bartholomew Counties. In the spring of 1853 he entered the Friends Boarding School, now Earlham College. That Fall he began teaching science and continued teaching at the Boarding School for five years. The years 1859-61 were spent at Harvard University where he worked under Agassiz, Wyman, Horsford and Cook, prominent scientists of their day. Earlham College was chartered by the State in 1859 and Joseph Moore returned to Earlham in 1861 as Professor of Geology, Botany and Zoology. He had taught some chemistry in 1858 before going to Harvard. He left Earlham in 1865 because of poor health and went to North Carolina at the invitation of the Baltimore Association of Friends "to advise and assist Friends in the Southern States." For three years he traveled over North Carolina, Virginia and Tennessee, "arousing interest in education, holding normals for the training of teachers, securing money for the building of schoolhouses and, in general, leading the people to rally from the destruction of war and to take up again and more thoroughly the task of training themselves for life." He incidentally made a collection of minerals. In 1868 Haverford College conferred the honorary A.M. on him and he returned to Earlham the

following year as President of the College. He received the LL.D. degree from Indiana University in 1871.

President Moore spent the winter of 1874-75 on a religious and scientific visit to the Hawaiian Islands where he observed scientifically the volcanoes and coral reefs. He shipped home twenty barrels of specimens for the Earlham Museum. He remained at Earlham as President until 1883 when he again suffered from ill health, but during this period he set the policies and standards that have characterized Earlham College. He again went to North Carolina to work with the North Carolina Yearly Meeting in the interest of the New Garden Boarding School and the following year he became its Principal. In 1888 this institution became Guilford College and Dr. Moore was offered the presidency but he preferred to return to Earlham as Professor of Geology and Curator of the Museum.

He was deeply interested in paleontology and during the next twelve years he secured a complete skeleton of the fossil beaver, *Castoroides ohioensis*, until recently the only complete skeleton in existence, and he also prepared a skeleton of the mastodon, both of which are now in the Joseph Moore Museum at Earlham. In 1900, because of his health, he gave up all teaching but continued until his death to be Curator of the Museum.

Joseph Moore was a charter member of the Indiana Academy of Science and he presented thirteen papers, two of them joint papers, to the Academy of which eight were published in the Proceedings. He also published other scientific papers.

"Joseph Moore was a man of singularly winning disposition. Gentle, sincere, sympathetic, he was a true teacher and a genuine, noble man." (Sources: Memorial Number, Earlham College Bulletin, August, 1905; Daughter Lucille H. (Mrs. B. H. Grave), Richmond, Indiana; Earlham catalogues and year books.)

**ERASTUS TEST.** He was born in Richmond, Indiana, of Quaker parentage, on November 12, 1836, and died after six months of illness, on April 21, 1917, in West Lafayette, Indiana. In his youth he assisted his father in a woolen mill and on the farm. In 1856 he entered Friends Boarding School, now Earlham College. Earlham College received its charter in 1859 and its first two graduates three years later. Erastus Test graduated the next year, 1863, the only one in his class and the first Earlham graduate to receive the B.S. degree. He was Principal of Richmond High School during the year 1864-65 and in the Fall of 1865 he was called to Earlham as Professor of Higher Mathematics to serve during the year's leave of absence of the regular professor, William B. Morgan. In 1866 Professor Test was awarded the first M.S. degree given by Earlham. Because of the disability of Joseph Moore, Professor Test was Professor of Natural Philosophy during the summer of 1866 and then Professor of Chemistry and Botany from 1867 to 1872. However, during this period he took two half-year leaves of absence to attend medical lectures at the University of Michigan where he received the M.D. degree in March, 1868, and later, in 1873, he received the M.D. from Indiana Medical College.

He left Earlham in 1872 to take up the practice of medicine in Dundee, Illinois, and three years later, on account of the health of his family, he

accepted the professorship of chemistry in the Medical Department in Willamette University, Salem, Oregon, for one year, and then, in 1876, returned to Adrian, Michigan, to take charge of Raisin Valley Seminary, an endowed Friends academy, where he remained five years. In 1881 he was invited to establish Central Academy at Plainfield, Indiana, which to his great satisfaction he was able to do in one year, but he remained there one more year. He returned to Richmond in 1883 to teach chemistry and other sciences at Earlham during a year's leave of absence of David W. Dennis, and to assist in the founding of the Richmond Normal School, a private school for the training of teachers directed by Cyrus W. Hodgkin. Professor Test gave high school instruction until the Normal School closed in 1886. He then became Principal of Union High School, at Westfield, Indiana, where his work attracted the attention of President Smart of Purdue University who invited him, in 1888, to become Principal of the Preparatory Department at Purdue. When the Preparatory Department was abolished at Purdue in 1894 he was appointed Professor of Mathematics. He retired in 1910 as the first member of the Purdue Faculty to be regularly retired under the provisions of the Carnegie Foundation Retirement Plan. While he was still active the editors of the College Year Book put out a Dr. Test Edition, calling him the "Grand Old Man of Purdue," of which he was tremendously proud.

Professor Test was always interested in alumni affairs. He helped to organize the Earlham Alumni Association in 1877-78 and during the years served as vice-president, member of its Executive Board, and finally president in 1886-87. At Purdue he was active in alumni work and contributed to the support of the Purdue Alumnus.

Dr. Test was a dedicated scientist. He was the father of three sons, Frederick C., who became an M.D., and twin sons, Louis Agassiz and Charles Darwin, both chemists and college professors. Louis was Professor of Chemistry at Purdue for many years. (Sources: The Purdue Alumnus, April, 1917; The Purdue Exponent, June 3, 1910; Mrs. Louis A. Test, Ann Arbor, Michigan; Earlham College Catalogues.)

Biographical sketches have been written for Ryland T. Brown, Oscar L. Kelso, Moses Cobb Stevens, Joseph Tingley, and others, which the author hopes will be published in the Proceedings for 1961.