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Charter Members of the Iowa Academy of Science

L. H. Parmmel

CHARTER MEMBERS OF THE IOWA ACADEMY OF SCIENCE.

BY L. H. PARMMEL.

SAMUEL CALVIN AND J. E. TODD.

Two charter members of the Academy, Dr. Samuel Calvin and Professor J. E. Todd, were primarily geologists, both, however, had such good training in the old natural history courses given in our colleges forty and fifty years ago, that they became all-round naturalists. In the early days of teaching science in Iowa, when they did their pioneer work, they had the whole range of scientific instruction along the lines of natural history and natural science. In late years Dr. Calvin was primarily a geologist, never, however, losing interest in natural history. Several biographical sketches of the late Dr. Calvin have been published, as that by Dr. G. F. Kay.*

Of all the complimentary notices I have seen of Dr. Calvin, the tribute paid to him by Dr. Jordan in his retiring address as president of the American Association for the Advancement of Science, at the Minneapolis meeting, when he placed him in such company as Drs. Gray, Cope, and others who at the Dubuque meeting of this Association were live wires in that meeting, was perhaps the highest praise.

Samuel Calvin was born in Wigontshire, Scotland, Feb. 2, 1840; emigrated to America in an early day and settled in Iowa at the age of 14; received his college education in Lenox College; enlisted in the army where he saw service for a few months; became science teacher in Lenox College, later principal of a ward school in Dubuque, serving for seven years. He was elected professor of Natural Science in the University of Iowa in 1874 and continued to serve the University as an inspiring teacher and investigator until the close of his career. In the early days of his university work he was not only geologist, but botanist, zoologist and physiologist. This, no doubt, helped to give him that broad training so essential in his paleontological work. His contributions to geology have been numerous as the many splendid volumes of the Iowa Geological Survey show. His knowledge of Pleistocene Geology was perhaps unequalled by any of his contemporaries in the United States. Up until the very last he was an interested student in these problems, his last great contribution being on the Aftonian Mammalian Fauna and was characteristically thorough and painstaking. He was always concise and able to express himself in good English.

In glancing through the volumes of the Iowa Academy of Science I find that Dr. Calvin did not contribute many papers to the Academy reports. Of those contributed I may mention the following: A Notable Ride (7:72); The State Quarry Limestone (4:160); The LeClair Limestone (3:52); the Buchanan Gravels, an Interglacial Deposit in Buchanan County, Iowa, (3:58); Maquoketa

*G. F. Kay, Science. N. S. 34:106.

Shales in Delaware County (2:40). Many of the volumes of the Iowa Geological Survey contain valuable papers from his pen, which it will not be necessary to name in this connection.

His retiring address as president of the Iowa Academy was delivered at Iowa City on April 30, 1909. The title of his paper, "The Work of the Iowa Geological Survey," was a fitting close to his career as a member of the Academy and his work in Iowa, since his death occurred on April 17, 1911.

Prof. Calvin was one of my early acquaintances in the Academy. I always found him to be an inspiring friend and a lovable man, every inch a man who loved truth and justice, and who was always considerate. He was more than a scientist; he was a noble type of man for the University and the community. Of his membership in the Academy we may well feel proud. It has given us strength and dignity. When some future historian shall write a history of science in Iowa, a high place will be given to Samuel Calvin, teacher, investigator, and citizen.

Professor J. E. Todd, whose kind and genial presence was always welcome in the early days of the Academy, was well known by the older members. I knew of him while a student, through his publication of botanical papers on the pollination of flowers. His paper on The Cross-fertilization of *Solanum rostratum* elicited a commendatory letter from Charles Darwin, one of the last he ever wrote. His paper on "Directive Coloration in Animals" was very favorably commented on by Prof. Romanes. In those days I did not know that Prof. Todd was a geologist, I knew him as a botanist. Geology has been his chief life work.

Prof. J. E. Todd was born in Clarksfield, Ohio, Feb. 11, 1846, graduated from Oberlin, A. B., in 1867, A. M. in 1870; attended Sheffield Scientific School, Yale, 1870; Summer School of Geology, Harvard, 1875; professor of Natural Science, Tabor College, 1871-1892; State Geologist, South Dakota, 1893-'03; Adjunct Professor, Beloit College, 1881-1883; Assistant Professor, University of Kansas since 1907.

He has published reports in the Minnesota, Missouri, South Dakota and U. S. Geological surveys. Prof. Todd considers the Elk Point, the Aberdeen and Redfield folios his best geological work. In addition, Prof. Todd has published many other papers, among which are New Light on Origin of Loess, and Recent Alluvial Changes in Southwestern Iowa. These papers are valuable for the thorough-going manner in which the subjects are considered.

The Academy is grateful to Prof. Todd who stimulated science in Tabor College in the early scientific days of Iowa; he has added to the influence of genuine scientific work in South Dakota, and is now inspiring the young geologists in the University of Kansas.

The merits of the work of Professors Calvin and Todd are recognized in Cattell's American Men of Science as both are starred because of their achievements in geology.

HERBERT OSBORN.

Of the charter members of the Academy no one gave more of his time and energy to the work than did Professor Herbert Osborn. He was president of the Academy in 1887, and secretary-treasurer from 1890-1898. His chief work has been along entomological and zoological lines, although at one time, while

connected with the Iowa State College, he gave instruction in geology. Prof. Osborn is one of the starred men in Dr. Cattell's Men of Science. He has been connected in various ways with the Bureau of Entomology of the U. S. Department of Agriculture since 1885. This story was related to me. Some years ago when R. P. Clarkson, formerly publisher of the Register and Leader and at one time trustee of the college, was in Washington he met Norman J. Colman, who was then secretary of agriculture. The secretary inquired about Prof. Osborn, stating that he was a valuable man and that the state could not afford to lose his service. Mr. Clarkson came back with a profound respect for the work Osborn was doing in Iowa.

Herbert Osborn was born in Lafayette, Wisconsin, March 19, 1856; B. S. Iowa State College, 1879; M. S. in 1880; attended the Harvard University, working with Dr. Hagen 1881-1882; Naples Zoological Station 1894-1895; Assistant in Zoology and Entomology, Iowa State College, 1879-1883; Assistant Professor 1883-1885; Professor 1885-1898; since 1898 Professor of Zoology in Ohio State University.

It has been my pleasure to have been closely associated with Prof. Osborn as a neighbor on the college campus and in teaching and experiment work. I owe my coming to Ames largely to Prof. Osborn. He is an inspiring teacher, a thorough master of his work. There are few entomologists in the country who have inspired more men to seek entomology as a profession than has Prof. Osborn. Many of the men who have taken entomological work under him are holding responsible positions in American colleges, experiment station, and government work. Prof. Osborn is quiet and unassuming, but his fund of entomological knowledge is great and he knows how to put his material together in good shape for both the scientist and the practical man. It is difficult for me to give you in a few words the amount of important work he has accomplished. His chief entomological work has been perhaps along the lines of Jassidae, insects important to the farmer because of the damage they do to our forage plants. In the Ohio State University Bulletin, Volume 12, Number 12, issued in 1908, are seven pages of titles of papers by Prof. Osborn beginning with publications in the Transactions of the Iowa State Horticultural Society for 1878. The college paper Aurora for May, 1879, contains one of his papers, "A Grub with Legs on its Back." The forerunner of the present Academy published in 1880 contains a paper on Native Rhopalocera and Sphingidae. Running through the various reports of the Iowa State Horticultural Society up to the time that his labors in Iowa ceased will be found papers dealing with the various insects injurious to horticulture. One of the early College Bulletins, 1884, contained several papers on economic insects; a subsequent bulletin issued in 1888 contains more economic notes. His interest in animal parasites began quite early in his entomological career. In 1882-1883, in the Proceedings of the Iowa Improved Stock Breeders' Association, he published a paper on Life Histories of Internal Parasites of Domestic Animals; subsequently he published many other contributions culminating in the most important treatise on the subject which has appeared in this country, namely, Insects Affecting Domestic Animals*. He has published many monographs, among them papers on The Genus Scaphoideus**; Review of the North American Species of Athysanus, Jassidae***, with Dr. E. D. Ball; The Jassidae of New York State****. Prof. Osborn has published

*Bull. Div. Ent. N. S. U. S. Dept. Agr. 5:302. 1896.
**Jour. Cincinnati Soc. Nat. Hist. *19*:189-209, 2 *pl.* 1900.
***Ohio Naturalist. 2:231-256.
****Report of the State Entomologist of New York. *1905*:498-540.

a somewhat smaller number of papers since going to Ohio than before, because his time has been occupied with executive duties and developing the Lake Laboratory, Cedar Point, Sandusky; but the more recent papers are monographic in character and show the accumulation of entomological knowledge. In addition to entomological papers he has found time to write an excellent economic zoology and some general scientific papers. Prof. Osborn is a member of various scientific bodies. He has been president of the Iowa Academy of Science, Association of Economic Entomologists; Ohio Academy of Science; Entomological Society of America, and Editor of its Annals. He has attended and contributed papers to two International Congresses, Boston, 1907, and Graz, 1910, and to the International Congress of Entomology, Brussels, 1910, of which Congress he is a member of the permanent Committee.

It is a pleasant duty both as a member of the Iowa Academy and as an old associate of Prof. Osborn, to accord to him this word of praise for the work he has accomplished as teacher, and investigator, not only for Iowa but for Ohio, in saying that his research work has broadened and enriched science and has benefited agriculture and horticulture in the United States.

PROF. C. C. NUTTING.

It is not an easy matter to write about the charter members especially about the work they have accomplished in fields which are more or less unfamiliar to a specialist in another and an entirely different field. It has been a great pleasure and satisfaction to me in the period that I have been connected with the educational work of Iowa to have known Professor Nutting more or less intimately. I have followed his scientific career with more than usual interest. I met him when I first attended the Academy meetings. I do not think he has changed any in his attitude toward scientific matters or in his geniality. He is always the same and ready to say a nice thing about his fellow workers. It is a noteworthy fact that Professor Nutting not only has accomplished much in the way of bringing together a large amount of museum material at Iowa City and arranging it in a thoroughly modern up to date way, but that he has found time to publish a large number of scientific papers. Prof. Nutting's own estimate of his most important papers is as follows: Narrative of the Bahama Expedition, from the State University of Iowa, 1895; American Hydroids, Part I, "The Plumularidae", Special Bulletin, U. S. National Museum. Quarto, with 31 plates, 1900; American Hydroids, Part II, same publication, with 41 plates, 1904; Gorgonaceae of the Siboga Expedition, Six Parts, quarto, 58 plates, Leiden, 1910. These splendid monographs have brought to him a reputation far beyond the borders of Iowa. He is in fact recognized the world over as an authority on Hydroids. His papers on Hydroids and Alcyonarians are numerous. Professor Nutting has also published several interesting papers dealing with evolution*, such as the paper on Pinnepedia and the Significance of the Crests of the Fly-catcher. In addition there are papers on animal intelligence and those dealing with morphology**.

Others of his papers are: The Color of Deep Sea Animals***, Notes on Plymouth Hydroids****, Contribution to the Anatomy of Gorgonidae*****, and Original Significance of Sex******.

*Proc. Ia. Acad. Sci. 1:196, Pro. Ia. Acad. Sci. 1:242.
**Proc. Ia. Acad. 1½:115. Proc. Ia. Acad. Sci. 1½:119.
***Bull. Lab. Nat. Hist. ½:1.
****Bull. Lab. Nat. Hist. 1:97.
*****Proc. Ia. Acad. of Sci. 3:32.
******Proc. Ia. Acad. Sci. 6:27.

I have read also with much interest the report on zoological exploration of the lower Saskatchewan. The notes on animal life are of particular interest to the general naturalist. This paper recalls also that splendid monograph, "Explorations in the Far North," by Frank Russell, which no doubt owed its inception to Professor Nutting. I read this with much interest some years ago and I am glad that Iowa has taken part in northern explorations.

It is pleasant to observe in this connection that Professor Nutting is a believer in the old way of training the naturalist. Naturalists are developed from students who become interested in the fauna and flora of a country and in general zoological questions before attempting to solve the many intricate problems dealing with the cell; such questions are interesting enough and have helped to solve many of the important problems of evolution, but they do not create an interest in nature as a whole. Really, when we look at it, it is evident that the men who have made great marks as naturalists in the world, have been collectors, first: illustrations of this kind may be cited in the splendid work of Charles Darwin, Alfred Russell Wallace, and others.

Nutting's zoological work has been varied, among the most important of the zoological papers is The Narrative of the Bahama Expedition*, a book of 253 pages and many plates, which is a splendid account of a naturalist's visit to the famous Bahamas with their interesting plant and animal life. The notes on animal life are particularly full and will give one a splendid idea of the fauna of the region. More than this, it contains an account of the peculiarities of the people, with glimpses of the parks and buildings. I certainly have been greatly interested in the narrative.

I find that Nutting's* name is starred in Cattell's American Men of Science, and that he was a member of the following exploring expeditions: Zoological Explorations in Central America for the U. S. National Museum, Naturalist Hawaiian Cruise of Albatross.**

PROFESSOR H. W. PARKER.

I have been unable to get much about Prof. H. W. Parker, who was connected with Grinnell College from 1864-1870, as Professor of Chemistry and Natural Sciences, and again from 1879-1889, as Professor of Natural Sciences. From 1870-79 he was in Massachusetts Agricultural College. He was a member of the Executive Council when the Academy was organized in 1887. He came to Iowa from a pastorate in New Bedford, Mass. He removed to Yonkers, New York, where he was engaged in literary and educational work until his death in 1904. He was the real editor, though not in name, during a considerable part of this time of the Journal of Popular Science, Prof. Norris writes me.

I find a single paper (abstract) on Animal Intelligence (Proc. Ia. Acad. Sci. 1:8, Pt. I) which shows him to have been a psychologist. He was also an abolitionist of a pronounced type**. Prof. Norris has been kind enough to give me the following information:

*C. C. Nutting was born in Jacksonville, Illinois, May 25, 1858. A. B., Blackburn University 1880; A. M., 1882. Curator, Museum Natural History, Iowa 1886-1890. Made Professor of Zoology, 1890; Fellow of the American Association, Secretary Section F., 1897, Vice-President 1902. Member Society of Zoologists and President of Central Branch 1906, Naturalists of Central States, Washington Academy, Fellow of the Iowa Academy of Science and President 1891, Iowa Anthropological Association, President 1906.

**On Dec. 28th, 1862, The Rev. Parker preached a sermon, The Despised Race, in the Salem Baptist Church, New Bedford, Mass. At this time he was pastor of North Congregational Church, New Bedford, Mass. Mercury Press, 1863.

Prof. Norris writes that Professor Parker was naturalist of the old school, a collector and classifier. Of anatomy and morphology he knew but little. During his service for Iowa College he built up three museums; the first destroyed by fire in 1870, the second destroyed by the tornado of 1882, the third remains. He was an enthusiast. He gave freely and largely of time and strength that most teachers claim for their own private right.

He was a poet by nature, as one of his colleagues said of him in derision. I find that at the opening of the Iowa State Agricultural College on March 17, 1869, he read a poem, "The Ideal Farmer and His Wife."

His scientific writings were not of great importance, being mostly short, paragraph-like articles for the papers. Prof. Macy writes that he contributed to the North American Review a series of articles on natural and ethical philosophy, which were highly commended by men of authority on such subjects. In 1888 he published a volume of essays, scientific and aesthetic, entitled "The Spirit of Beauty." He was on the editorial staff of the Standard Dictionary. He made a defence to Prof. Bourne's attack upon Marcus Whitman, entitled "How Oregon was Saved to the United States" (Homiletic Review, July, 1901). Professor Norris says:

"He was an inspiring teacher, I can personally testify, to those who were willing to be inspired, but for the average student he had little of practical value. He was too ideal and poetical for the common herd to appreciate. Measured by present standards he was not much of a scientist, but in the time of the height of his physical powers he was an up-to-date naturalist." He taught by the textbook method rather than lectures.

"I have so far found nothing of his antecedents or early life, but he was of choice New England stock."

He was born in Yonkers, New York, in 1822, and died in 1904; he was the son of Samuel Parker who became a missionary to Oregon in 1833, and who is said to have persuaded Whitman to go to Oregon in 1835; he was graduated from Amherst College.

DR. CHARLES WACHSMUTH.

For some reason unknown to me Dr. Charles Wachsmuth though appearing on the first list of charter members of the Iowa Academy of Science, did not qualify, though in 1875 he was Vice President of the Old Iowa Academy. Later he was associated with the Iowa Academy. I believe, however, that the distinguished geological work of this prince of collectors and student of crinoids should be mentioned at this anniversary programme. A memorial prepared in his honor by Prof. Calvin and Dr. Keyes (Proc. Ia. Acad. Sci. 4:13, and Annals of Iowa 2:349-359) will give the details of a life rich in its achievements for geology and science of Iowa.

He was born in Hanover, Germany, Sept. 13, 1829; came to America in 1852, settled in Burlington in 1855; always frail in health; spent a lifetime studying fossils of Burlington and other deposits rich in crinoids. Honored by various scientific institutions of Europe and North America. It is fitting and appropriate that we should speak of him today.

It is interesting to chronicle that one of the greatest authorities on Crinoids in America attended school up to the age of sixteen only, and then because of failing health entered a mercantile career. He settled in Burlington in 1855.

It was during his early days in Burlington that he met Dr. Barris and became interested in geological studies, in particular the crinoids. His collection attracted the attention of Louis Agassiz, who came to see it and induced him to dispose of the collection to Harvard Museum, Wachsmuth becoming an assistant. He made two trips to Europe and on returning from his second trip started with Mr. Springer to make a second collection. These geologists worked together not only in making collections, but also in their publications. The monograph of Wachsmuth and Springer, published by the Museum of Comparative Zoology, stands not only as a monument to the indefatigable labors of these crinoidal students, but also as a worthy production creditable in the highest degree to Science and Geology of Iowa. He died in Burlington on Feb. 7, 1896.

T. H. MACBRIDE AND B. D. HALSTED.

An Iowa audience needs no introduction to the work of Dr. Macbride who is the nestor of botanical instruction in Iowa if not of the whole range of subjects usually taught under the head of Natural History. I asked Dr. Macbride for information so that it would be easier for me to write this sketch. Because of his modesty the information furnished me was meager. I have no doubt overlooked some of his important work. Dr. Macbride is a naturalist of the old school, trained not only in botany but in zoology and geology as well. We find that he has published not only much that is first class in botany, but has published geological papers, as the Geology of Humboldt, Hamilton, Wright, Sac and Ida Counties.

Besides having received a good training in natural history he is an excellent linguist, not only in the old classics, but in modern languages as well. He can speak German like a German, and writes it with ease. As to his English diction it is perfect. There are very few scientists who write with such ease and perfect English as Dr. Macbride. It is unique among botanists, and may be termed Macbridesque. He stands foremost among the Iowa botanical lecturers in being able to present the subject to a layman in an intelligent manner and yet with scientific accuracy. Dr. Macbride has been connected with the University of Iowa since 1878.

Dr. Thomas H. Macbride was born in Rogersville, Tenn., July 31, 1848; received the degree A.B. from Monmouth College in 1869 and A.M. in 1872; honorary Ph.D. Bonn in 1891; was Professor of Mathematics and Modern Languages at Lenox College 1870-78; Assistant Professor of Natural Sciences University of Iowa 1878-87; Professor of Botany 1887 to the present time.

From the very first Dr. Macbride has taken a deep interest in the Iowa Academy. His idea has been to bring Iowa science to the teachers in the public schools. So we find that Dr. Macbride has advocated the establishment of parks, and the rural upbuilding of the state. He has been an efficient director and the moving spirit of the Lakeside Laboratory at Okoboji, so that the teachers might find some inspiration in the woods, prairies and waters of Iowa, and its beauties. He was also a moving spirit in the Iowa Park and Forestry Association which I hope may be revivified. The splendid volumes issued, the best of any reports of their kind, in the country, should be continued along the same line. Dr. Macbride also was a moving spirit in the publication

of the Bulletins of Natural History of the State University which should be continued along the same lines.

Dr. Macbride was president of the Iowa Acadamy, 1897-98. His address, "The Academy and the People" (6:16) is inspiring, indicating the importance of the Academy in this empire of the Great Mississippi Valley, where the wealth of this republic "shall be within 150 miles of where we are gathered this evening." Dr. Macbride's prediction, though it has not as yet been entirely fulfilled, will be in the not distant future.

Dr. Macbride is the leading American authority on Slime Moulds, a group which most students neglect. He has found time to publish a work of great merit, which botanists have found necessary in a study of these plants. Aside from this work Dr. Macbride has been especially interested in Hymenomycetes. Several papers of importance and of local interest have been publishd.

His popular addresses, "The Alamagordo Desert"*, and "The Botany of Shakespeare", "Iowa Parks", "The Lakes of Iowa", "Schools and Scholars", "What is Education," "The Plant Responsive," "The Plants that Serve," "The City Beautiful", "Plants and the Yosemite", "The Sonora Desert", "The Valley of the Rhine", "Cemeteries, Old and New", "Mr. Burbank's Gardens", "Life and Light", "Plant Life; the Living Cell" are charming for their simplicity and beauty of style. They must be counted among the classics of this kind of literature. They represent the reflection both of a scholar and of the student.

*Proc. Am. Ass. Adv. Sci. *1901*:507.

Dr. Macbride is a member of the Botanical Society of America, American Association for the Advancement of Science, American Phytopathological Society, Davenport Acadamy of Science, Botanists of the Central Western States, having been President in 1907; St. Louis Academy of Science, National Geographic Society, and of the American Forestry Association.

Dr. Byron D. Halsted came to Iowa as the successor of Dr. C. E. Bessey, at Iowa State College. He was second Vice President in 1888-89, but no papers of his were published in the Proceedings. Dr. Halsted went to Rutgers College in 1889. He was, however, active along botanical lines in Iowa, issuing two bulletins in 1886 and 1888, covering a wide range of botanical observations, and a paper on an investigation of apple twigs which was later elaborated in Memoirs of the Torrey Botanical Club.

Dr. Halsted was born in Venice, New York, June 7, 1852; received the degree of B. S., Michigan Agricultural College in 1871, M. S. in 1874; Sc. D. Harvard University in 1878; a student of Dr. W. G. Farlow, was editor of the American Agriculturist 1879-1885; Professor of Botany, Iowa State College, 1885-1889; Professor of Botany and for a portion of the time Botany and Horticulture, Rutgers College, New Brunswick, from 1889 to the present time; Associate Editor of Bulletin Torrey Botanical Club; Fellow, American Association for the Advancement of Science; President, Botanical Society of America, 1901, also of the Society for the Promotion of Agricultural Science, 1899. Member also of other societies; Massachusetts Horticultural Society, Society of Horticultural Science, etc.

Dr. Halsted is a splendid teacher, a thorough student and a painstaking investigator. He did much to encourage botanical work among his students. While at Ames and in the early days at Rutgers he did all of the botanical work. Now there have developed great departments in these institutions. His

work has been along the lines of economic botany, chiefly along the line of diseases of plants.

Investigation, it might be said, was the main work and for some years this was confined to a study of various plant diseases, at the outset—particularly the rots of the sweet potato and of the cranberry, and later the truck crops generally were considered. The results have been published annually in a report averaging a hundred pages fully illustrated; while bulletins upon single subjects appeared from time to time, as upon (1) Diseases of Spinach, (2) of Cabbage, (3) of Beets, (4) of Potatoes, (5) of Asparagus, (6) of Celery. Along with these, attention was paid to weeds, and some bulletins were issued concerning these pests; while subjects like Poisonous Plants, Irrigation, etc., were considered, and he even went so far as to compile for a special purpose a bulletin upon Forest Trees, and another upon Live Covers for Country Homes, etc. Of late years his work has been largely in the improvement of plants through selection and breeding, and the annual reports and bulletins of the past seven years are chiefly upon this general subject. The crops worked with have been the vegetable fruits, as tomatoes, eggplants, beans, sweet corn, etc.

During late years Dr. Halsted has been handicapped owing to the loss of good eyesight. In his letter to me he says: "The misfortune of disability demanded so great a change in the work that I am at a loss to name any line as the main one of my work years. Had my eyes and nerves permitted, something might have been brought nearer to completion in vegetable pathology. The start was made too late with great handicap to get much done in plant breeding and allied subjects that have kept me out of doors and in touch with plants during late years."

LAUNCELOT ANDREWS.

It is safe to say that the Iowa Academy of Science would not have been a well rounded Academy without some representatives from the chemists and physicists who identified themselves with the Academy in its early day. There were not many at this time, although recently they have been quite active in the work of the Academy. The old Iowa Academy of which this is a child had several members who were physicists. I find among these the names of Dr. G. Hinrichs, Profs. Nipher and Macomber; of chemists in the old Academy I find the names of Profs. Pope and Hinrichs. It is gratifying that the present Iowa Academy has enlisted among its active workers men of this profession from nearly every institution of higher learning in the state. Among the older chemists in the state no one did more for chemistry in the Academy than Dr. Andrews, who attended many of its meetings and presented papers which embodied the results of his investigations carried on at the University. It was my pleasure to have made his acquaintance at one of the early meetings of the Academy in Des Moines. I have worked with him on various committees of the Academy, and it was always a pleasure to do so.

Dr. Andrews has published many scientific papers, the more important being the following: Volumetric Determination of Minute Amounts of Arsenic; Volumetric Determination of Combined Sulphuric Acid; The Use of Iodates in Volumetric Analysis; A New Volumetric Method for the Determination of Mercury; On the Nascent State; Study of Iodide of Starch; Refractive Indices of Alcohol-Water Mixtures; Quantitative Separation of Bromides from Chlorides; Density Curve of Bromine-Chlorine Mixtures.

At the present time he is engaged in seeing through the press a work of some 2,000 pages on volumetric analysis. I have been told by some of his students that he was an excellent teacher. He has turned out some excellent chemists which speaks well for his ability as a teacher and coordinator of work.

He published the following papers in the Iowa Academy of Science: The Reduction of Sulphuric Acid by Copper as a Function of the Temperature, (Proc. Ia. Acad. Sci. 1895:37-40); Recent Advances in the Theory of Solutions. (Proc. Ia. Acad. Sci. 1894:13-19); and L. W. Andrews and Ende, C, A Study of the Physical Properties of Solutions of Lithium Chloride in Amyl Alcohol, (Proc. Ia. Acad. Sci. 1894:95-103).

The chief points in his life are as follows: He was born in London, Ontario, June 13, 1856, received the degree of Ph. B. from Yale in 1875; teacher of physics in Springfield, Mass., High School, 1876; Ph. D. University of Gottingen, 1882; Professor of Chemistry Iowa State College, 1884; University of Iowa, 1885-1904. His name is starred in Cattell's American Men of Science. He belongs to many scientific societies, American Chemical Society, president St. Louis Section, 1908-'10; Chemical Society of London, Deutsche Chemische Gesellschaft; Academy of Science of St. Louis, vice-president, 1909; fellow, American Association for the Advancement of Science, and Iowa Academy of Science, president in 1894; member Iowa Engineering Society; and honorary member of Davenport Academy of Science.

From 1904-1909 he had charge of the research department of the Mallinckrodt Chemical Works at St. Louis, Mo. Dr. Andrews is now president of the Andrews Chemical Works of Davenport, Iowa, which makes a specialty of manufacturing oxalic acid and allied products.

HOBBY, HILL, SCHAEFFER AND WILLIAMS.

I have been unable to get much information about Dr. C. M. Hobby, formerly of Iowa City, who was a resident physician of that place when the present Iowa Academy was founded. In the proceedings published 1875-1880, I find that Dr. Hobby attended quite regularly and at the Fifth Annual Meeting held in Iowa City, he was elected Secretary and Treasurer. Dr. Hobby published the report of this old Academy and in it a paper on Fresh Water Algae of Iowa. When the report was issued he was lecturer on Opthalmology and Otology at the State University. Dr. Hobby is now in California.

Dr. R. W. Hill was a resident physician in Iowa City at the time of the first meeting of the Academy.

Dr. Radenhausen was a chemist for the glucose works in Davenport.

Dr. H. S. Williams is a practicing physician, a graduate from the State University, and for a long time was connected with the Hospital for the Insane at Independence. He was interested in ornithology and published some notes in collaboration with Dr. C. R. Keyes.

Dr. Schaeffer, well known as president of the University, should have a more extended notice because of his far-sightedness in reconstructing the University along modern lines.

I have been unable to get much information about Dr. W. S. Barnard, who was connected with Drake University.

The names of Barnard, Barris, Schaeffer, Hill and Radenhousen do not appear on the final list of charter members as given in the secretary's book, but an account of these men should not be omitted from our records.

DR. W. H. BARRIS.

I find on the final list of charter members the name of Prof. W. H. Barris*.

For some reason, unknown to me, his name and a few others do not appear on the subsequent list. It will not be amiss, however, in this connection to say a few words about this man since he was so intimately identified with the early scientific work of the state.

The Rev. W. H. Barris was born at Brush Creek, Pennsylvania, July 9, 1821; and his death occurred in Davenport, June 10, 1901. He was graduated from Alleghany College, Pennsylvania, in 1841, receiving the degree of C.E. and completed his theological course in the General Theological Seminary, New York, in 1850. He became an assistant to W. H. Lee of Rochester, N. Y. It was while in this parish in 1855 that he yielded to the earnest solicitation of Bishop Lee, who had been elected the first bishop of the Episcopal Church in Iowa, to come to this state. E. S. Hammatt states that Bishop Lee called to see him and found him confined to his bed with geological books opened around him. Pointing to a plate of beautiful fossils from the Burlington limestone, he said, "Bishop, I would like to go there." He went to Iowa City in 1855, where he remained until 1859. From Iowa City he moved to Burlington, where his wish to study the fossils in that vicinity was gratified, but it bore still another most fruitful result. A splendid collection of crinoids was made. In the work of Etheridge and Carpenter on Blastoidea in 1866, the authors make special mention of the work of Barris and Wachsmuth. It, too, gained for him a personal visit from Professor and Mrs. Louis Agassiz in 1866. Mrs. Hammatt in a recent letter tells me this story which is worth preserving.

"A physician in Burlington said to Dr. Barris: 'There is an old fellow down in that grocery, who has one foot in the grave, if you could get him out in the hills with you, you would save his life.' That was Dr. Wachsmuth."

In 1866 he was called to the chair of Ecclesiastical History in the Theological Department of Griswold College, Davenport. While he was rector at Iowa City, he served as a trustee of the University of Iowa. He was elected Professor of Exegesis by the trustees of Seabury Divinity School in 1877, and rector of St. John's Church, Keokuk, in 1869, and in 1870 of Trinity Church, Davenport. These offers were not accepted by him. In 1873 the chair of Geology at the Iowa State University was tendered him, he declined, saying: "Paleontology is my play, theology my work."

Dr. Barris contributed papers to the Davenport Academy of Sciences. He became a trustee at its first meeting in 1867, and served the Academy in one way or another until his death, being elected president in 1876. That he was not only an enthusiastic geologist, but was also well versed in matters geological

*For those who may wish to look up more in regard to the life of Dr. Barris, the following the biographical sketches will help:

C. H. Preston. Prof. W. H. Barris; American Geologist. 28:358.

Alfred A. Butler. Wilils H. Barris. The Living Church. 25: 289. June 29, 1901.

Edward S. Hammatt. The Rev. Willis Henry Harris. Proc. Davenport Acad. of Sci. 9; separate.

Charles A. White. Annals of Iowa. October, 1901.

A Vision. Science N. S. 16:710.

is the testimony of his old friend, Charles A. White. As a teacher it has been said by his student, Dr. A. A. Butler, "Dr. Barris was one of a few men who are born to teach and to be admired and loved by those who are taught." It was my pleasure a few years after coming to Iowa, in 1892, to call on Dr. Barris at his rooms in the Davenport Academy of Sciences, and a few years later at his residence with the venerable Arch Deacon Hoyt, his son-in-law. Though close to eighty years old, he was full of enthusiasm, and the brief visit was a most friendly one. I am glad to say I knew this genial and kind man, a pioneer geologist of Iowa.

DR. D. S. FAIRCHILD.

Medical men have not identified themselves as much as we should like with the Iowa Academy of Science. There were several among the charter members. The Iowa Academy of Science welcomed the council and advise of two of its well known specialists in medicine in Iowa, Dr. D. S. Fairchild of Ames, and C. M. Hobby of Iowa City. Neither, however, ever contributed to its pages. The varied and busy professional duties of these men made it impossible to attend the meetings of the Academy or prepare papers which would be of interest to scientific men. At the time of the organization of the Iowa Academy of Science, Dr. D. S. Fairchild was College Physician at Ames, and Professor of Therapeutics and Professor of Surgery in Drake Medical School. In addition he was surgeon for the C. & N. W. Railroad. All of this involved an enormous amount of labor and professional skill. He resigned his professorship from the Iowa State College in 1893 and removed to Clinton to take charge of the surgical work of the C. & N. W. R. R., retaining, however, his connection with Drake Medical School until 1909. In 1903 he was elected dean. He served the Medical School of Drake University for 26 years with credit and distinction. He has always been a student and thus has kept in touch with the newest phases of medical science. He was a splendid teacher and brought to the class room a wealth of material from his practical experience as a physician and surgeon.

He is a member of many prominent medical organizations, such as the American Medical Association, Vice President in 1907; Academy of Railway Surgeons, President 1900; Western Surgical Association, President in 1898; Iowa Medical Society, President in 1896; also of various local medical societies. At the May meeting of the Iowa Medical Society he was elected Editor-in-Chief of the Journal of the Society, and since he became editor he has contributed many articles; one of special interest dealing with the early history of medicine in Iowa, has been appearing serially in the Journal.

Other contributions have been numerous; among these papers I may mention the following: The Present Status of Aseptic and Antiseptic Surgery (Railway Surgical Journal, January, 1907); Some Points in the Examination for Alleged Peripheral Nerve Injuries (Railway Surgical Journal, August, 1906); Report of Committee on Uniform Standard for the Examinations of Railway Employes (Railway Surgeon, December, 1903); Trauma as a Cause of Malignant Disease (The Railway Surgeon, September, 1903); The Field of Usefulness for the Railway Surgeon (The Railway Surgeon, December, 1901); Observations on the Various Means of Direct Fixation in Fractures (The Railway Surgeon, March, 1902).

Dr. Fairchild has helped not only to advance medical education but medical practice in Iowa. His influence is felt in all parts of the state where the early graduates of the Iowa State College and of Drake University Medical Department have gone. His influence has been wholesome and good throughout.

R. ELLSWORTH CALL AND F. M. WITTER.

When the Academy was organized it was thought that a distinctive service might be rendered to Iowa Science by interesting the science teachers of our high schools in the work of the Academy. While the list of the members shows that not a few of the high schools science teachers of the state have been associated with us in the undertaking of making science what it should be in our public schools, there is still room for an enlarged interest in this direction. Two high school teachers took an active interest in the early history of the Iowa Academy and were counted among the most active of the charter members, namely, Dr. R. E. Call, now Professor of Biology of the West Clinton High School, New York City, and F. M. Witter, long time Superintendent of the City Schools of Muscatine, who has passed to his reward.

Dr. Call served as Secretary of the Iowa Academy of Science from 1887-1891. He was active in promoting the interests of the Academy in Des Moines. While an active member he made a number of contributions on geology, conchology, and zoology. He is a most versatile and facile writer, and is thoroughly trained.

Born in Brooklyn, New York, May 13, 1856, educated in the public schools of New York, graduated from the Cazenovia Seminary in 1875, entered Syracuse University in 1875, graduated from the University of Indiana in 1890 receiving the B. A. Degree; A. M. in 1891; M. Sc. of the Iowa Agricultural College in 1891; M. D. Hospital College of Medicine, Louisville, Kentucky, 1895; Ph. D. Ohio State University in 1895. He was principal of Stonington, Conn., High School 1877-79; Superintendent of the City Schools of David City, Nebraska, 1880-1883, connected with the U. S. National Museum 1884-85, Special Assistant U. S. Geological Survey 1885, Principal of High School, Moline, Ill.; Assistant Professor of Zoology University of Missouri 1887. Professr Natural Science, West Des Moines High School 1887-1892; Assistant Geologist, Arkansas Geological Survey 1888-1892; Professor of Natural Science, Manual Training High School, Louisville, Ky., 1892-1896; Superintendent of City Schools, Lawrenceburg, Indiana, 1896-1898; Professor of Physiography Erasmus Hall High School, Brooklyn, New York, 1898-1899; Curator Children's Museum, Brooklyn Institute of Arts and Sciences, 1898-1905; Professor of Biology DeWitt Clinton High School, New York, 1906. Also Nature Study lecturer Pratt Institute, Brooklyn, New York, 1903-1905; lecturer Board of Education, New York, 1896.

Dr. Call has the faculty of expressing himself in an easy and forcible way. He has shown himself to be a splendid teacher and an enthusiast on scientific subjects. He has inculcated a desire in his pupils to study natural history. His work on the Unionidae in which he has been interested for more than a quarter of a century is of a high order and he has published the following monograph on these groups: Geographic Distribution of the Uniondae of the Mississippi Valley and The Parvus Group of Unionidae (Proc. Ia. Acad. Sci. 1:45, Part I). He also has written important papers on The Mollusca of the Great Basin and The Mollusca of Indiana. Call has also made a number of

contributions on fishes: The Fishes of the Des Moines Basin (Proc. Ia. Acad. of Sci. 1:43, Part II). A study of these animal forms no doubt led up to study the work of that erratic naturalist, Rafinesque, of whom he wrote a biographical sketch. "The Life and Writings of Rafinesque" trying to properly place this writer among the American naturalists*. He has also made a number of geological and botanical contributions. The Geology of Crowley's Ridge (Rep. Arkansas Geol. Survey, between 87-92); The Artesian Wells in Iowa (Iowa Acad. Sci. 1:57, Part II); Notes on the Native Forest Trees of Eastern Arkansas (Proc. Ia. Acad. Sci. 1:76, Part I). Dr. Call is at present working upon the Unionidae of North America and upon Fungi Destructive to North American Forests.** Dr. Call's work has been a great credit to the Iowa Academy of Science.

Mr. F. M. Witter, whom I counted among my early acquaintances in Iowa, was of a very different temperment, calm, judicious, less enthusiastic only, because he had less time to give to the study of natural history, since he was burdened with executive duties as superintendent of the Muscatine Schools. He was, however, thoroughly familiar with the local botany, zoology, and geology of the region about Muscatine. His wide and varied interests may be seen from the papers published in the early volumes of the Proceedings of the Academy (Notes on some Shells, Ferns, etc., Proc. Iowa Acad. of Sci. 1:17, Part I); Some Observations on Helix Cooperi (Proc. Ia. Acad. Sci. 1:28, Part III); On the Absence of Ferns between Fort Collins and Meeker, Colorado, (Proc. Ia. Acad. Sci. 1:29, Part III); Notice of a Stone Implement from Mercer County, Illinois, and one from Louisa County, Iowa, (Proc. Ia. Acad. Sci. 1:30, Part III). He was also active in the older Iowa Academy of Science as shown in its proceedings published in 1880.

Men like Witter help scientific work largely by their contact with their fellow men. At least one of Mr. Witter's pupils has become a botanist, Mr. K. McKenzie, who has published in connection with Mr. Bush and Bishop Mann, papers dealing with the Flora of Jackson County, Missouri. He has elaborated the genus Carex for Britton's North American Flora.

The following is a brief account of the life of Mr. Witter taken chiefly from a biographical sketch prepared by Prof. Shimek***.

Mr. Witter had the spirit of an investigator, and his intimate knowledge of shells led him to question the adequacy of the aqueous theory of the origin of loess. As early as 1880 he suggested that this theory could not explain its origin. In addition to his published scientific papers in the Academy reports, he made use of the local press. He also founded the Muscatine Academy of Science, which existed largely through his efforts.

Mr. Witter was born in St. Joseph, Indiana, August 15, 1839, removed to Iowa in 1850, enduring the hardships of a pioneer life. He graduated from the Normal Department of the State University in 1861, receiving the degree of B. S. in 1869 and the M. A. in 1875. The Iowa Chapter of Sigma Xi elected him an honorary member in 1906, practically at the close of his scientific labors in Iowa. It is seldom given to a man in Iowa to be connected with its public schools for nearly half a century in a single community. He organized the

*Those who may be interested in this naturalist will find a splendid biographical sketch and bibliography by T. J. Fitzpatrick.

**In his letter to me Jan. 27th, he says: "A strange combination."

***Proc. Iowa Acad. Sci. 17:7.

public schools in Muscatine and served that city and county for forty-eight years as principal, superintendent of the city schools, and later as county superintendent. A man who can serve in this capacity with such a varied constituency has unusual qualities as an executive. The esteem in which Prof. Witter was held by his old associates was the unanimous action of the Academy at Cedar Falls in 1908, to elect him an honorary life member. Prof. Witter died at Biloxi, Mississippi, October 29, 1909.