

Biological Publications in the Second Texas Academy of Science Proceedings, 1892-1912¹

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The present Texas Academy of Science is the *third* of the name: (I) "Academy of Science of Texas", founded at Austin on October 27, 1880 by S. B. Buckley and Dr. F. L. Yoakum, moved to Palestine (1882), moribund for several years, and "died" about 1886, when Yoakum moved to Tyler; (II) "Texas Academy of Science," founded at Austin on January 8, 1892, by Edgar Everhart, G. B. Halstead, A. Macfarlane, F. W. Simonds, and T. U. Taylor; published twelve volumes of transactions (1892-1912) and then suspended. (III) "Texas Academy of Science" (the present one), was "reorganized" in 1928, with many of the members of the Second Academy as members of the reorganized one.

The constitution of the Second Academy provided originally for two formal meetings (one in June, at Austin, and one during Christmas Week, at some designated place); seven "ordinary meetings" (at Austin, on first Fridays of October, November, December, February, March, April, and May); and an undetermined number of "informal meetings" to be held on the third Saturdays of the above months, at Austin. During the last two years of the existence of the Second Academy (October 28, 1910 to November 29, 1912) fourteen meetings were held, of which two were formal meetings, with election of officers for the ensuing years. The last president of the Second Academy was Dr. G. S. Fraps of the Texas Agricultural Experiment Station.

Formal work in Biology worthy of the name, by present-day standards, began at Texas A. & M. College in 1888, when Thomas L. Brunk, a graduate of Cornell University, was appointed professor of botany and horticulture. During the year 1889-90, Herbert Spencer Jennings, later of Johns Hopkins, gave serious botanical courses at College Station, and made fundamental investigations of diseases of plants in Brazos County. He was succeeded in a few years by Helge Ness, who for many years did researches of value on botany and plant-breeding at Texas A. & M. College. Dr. Mark

¹Paper presented at a Symposium on "The Development of Science in Texas," before the Texas Academy of Science meeting at Dallas, Dec. 12, 1946.

²Cf. S. W. Geiser, "The First Texas Academy of Science" (*Field and Laboratory*, vol. XIII, 1945, pp. 34-39.)

Francis came to College Station in the year 1888, and initiated and continued investigations on comparative animal pathology and parasitology.

Formal work in Biology at the University of Texas began with haphazard courses in 1885. In the period 1888-92, courses in biological fields were offered by Robert T. Hill and F. W. Simonds, professors of geology. The School of Biology was established in 1891, with Dr. Charles Lincoln Edwards as the first professor (1892), and Dr. Simonds as a sort of "overseer" for two years. Edwards resigned in 1894, and his place was taken by Wesley W. Norman, who was head of the School of Biology from 1894 to 1899, when the biological work was separated into the two departments of Botany and Zoology. Norman was made head of the Department of Animal Biology in 1899, the year of his death. He was succeeded by William Morton Wheeler (1899-1903).

The Department of Botany was organized with William L. Bray as the first professor in charge. He continued at Texas until 1907, when (after a year's interval) he was succeeded by Dr. Frederick DeForest Heald, who held the headship from 1908 to 1912.

The heads of the Zoology Department at the University of Texas within "our period" (1892-1912) were as follows: W. W. Norman (1899), W. M. Wheeler (1899-1903), T. H. Montgomery, Jr. (1903-08), H. H. Newman (1908-11), and J. T. Patterson (1911+). The heads of the independent Department of Botany in the same period were W. L. Bray (1899-1907), F. D. Heald (1908-12), and I. M. Lewis (1912+).³

One of the most outstanding scholars of Texas was Dr. Edmund Montgomery, biologist and philosopher, who (although outside of academic connections) presented six notable papers to the Academy (1895-1903), the last being his presidential address in 1903. I shall particularize on the outstanding work, in order, that was done by members of the Academy, as it appears in the *Transactions* for 1892 to 1912.

CHARLES LINCOLN EDWARDS (1863-1937), professor of biology at the University of Texas from 1892 to 1894, during those years read four papers before the Academy. He came

³For an excellent account of the history of biological teaching at the University of Texas (with bibliographies), see J. T. Patterson, "The History of Biology in the University of Texas" (*University of Texas Bulletin No. 2545*, Dec. 1, 1925, pp. 43-91.)

to Texas (*aet.* 29) two years after having obtained his doctorate at Leipzig (which was followed by two years as Fellow at Clark University.) He left Texas in 1894 to become professor of biology (for six years) at the University of Cincinnati. For many years he was director of nature study in the Los Angeles, California, public schools. None of his Academy papers showed distinction; and one is left with a feeling of disappointment that one so well trained as Edwards should over the years have contributed so little for the positive advancement of science. Edwards in 1892 became greatly interested in the establishment of a marine biological laboratory on the Gulf coast of Texas, and read (February 4, 1893) a paper on the topic before the Academy.

One of Edwards' students, a college junior, CHARLES FORTSON MAXWELL, read (November 16, 1894) a paper on "Some morphological relationships of the *Cactaceae*", which was not printed.

The year 1895 saw the inauguration of a series of six papers of very high distinction, before the Academy, in the philosophical-scientific discussions of DR. EDMUND MONTGOMERY of Hempstead. The sixth and last, his presidential address, was read in 1903. Three of the six papers were published in the *Transactions*, and the materials of another, "Consciousness and Purposive Movements" (read June 11, 1902), was incorporated into his 1907 book, *Philosophical Problems in the Light of Vital Organization*, at pages 333 to 382. In the *Dictionary of American Biography* I have set forth briefly the facts of the life of this very distinguished British-American philosopher and biologist, which obviates any need here. Suffice it to say that Edmund Montgomery was one of the keenest thinkers in America, and hence one of the most distinguished members of the Academy in any period. An excellent physiologist with very wide training in European universities, Montgomery attacked and solved (as I think) some of the most recalcitrant philosophical problems, by a study of the properties of living substance. Born in 1835, he died in 1911. He was sixty years old when he presented his first paper before the Texas Academy of Science.⁴

⁴Dr. Morris T. Keeton has recently completed for early publication a definitive biography of Dr. Edmund Montgomery (based on Keeton's doctoral thesis in the Department of Philosophy, Harvard University.)

WESLEY WALKER NORMAN (1863-99) came to Texas from DePauw University in 1894 to be adjunct, and later associate professor at the University. Norman took his doctorate under Jacques Loeb at the University of Chicago in June, 1899, a few weeks before Norman's death, in Boston. Between 1895 and 1899, Norman read eight papers before the Academy (most of them on general-physiology subjects.) Much loved by students and colleagues, Norman trained two excellent research students. WILLIAM HENRY LONG, JR. (for many years in work for the U.S. Department of Agriculture at Albuquerque) and Augusta Rucker. Both published papers on Texas natural history.

Norman called WILLIAM L. BRAY to Texas to carry work in botany. Bray remained at Texas from 1897 to 1907, and then for many years was associated with Syracuse University. Bray read (beginning December 22, 1897) eleven papers before the Texas Academy, during his stay in Texas, and published nine of them in various technical journals. These papers were largely of an ecological and plant-geographical nature, with two in the field of forestry. Bray had had, before he came to Texas, a rich educational experience—at Cornell, Indiana, Lake Forest, Berlin, and Chicago. The year after he came to Austin, Bray took his doctorate at Chicago. He was a constant worker and a prolific writer. His papers on the ecology of Texas plants west of the hundredth meridian will remain a monument to his high competence.

HELGE NESS (1861-1928), a native of Norway who had graduated from Texas A. & M. College in 1889, continued with the College for nearly forty years as horticulturist and/or botanist. He presented three papers before the Academy during the years 1897-1902: one on the development of floral organs in the *Compositae*, one on variations in maize brought from New York to Texas, and one on DeVries's Mutation Theory (read June 11, 1902, when DeVries's work was very much in the minds of men of science.) Ness was instructor in horticulture and botany, at College Station (1891-99), professor of botany (1900-03), horticulturist and chief of the Division of Botany (1908+). He was most active in plant-breeding, especially in hybridizing brambles (*Rubus*) and oaks. From 1918 to 1927 he published

several papers on these researches (largely in the *Journal of Heredity*.)

MARK FRANCIS (1863-1936), connected with the Texas A. & M. College from 1888 to the time of his death nearly fifty years later, presented to the Academy (November 23, 1897) a single paper on the biology of cattle ticks, the vectors of Texas or Spanish fever in cattle.

CHARLES HENRY TYLER TOWNSEND (1863-), distinguished for his entomological work in North and South America, was located in Texas for several years after 1894. He published two papers (presented in meetings of the Academy of June 15, 1897 and November 28, 1902) in the *Transactions*. Both of them concerned the bio-geography of Mexico and the Southwestern United States. Townsend was born in Oberlin, Ohio, and studied (1887-90) at Columbian (now George Washington) University, where in 1908 he took his B.S., and in 1914 his Ph.D. degrees.

ORLANDO CLARKE CHARLTON (1854-1944), professor of biology and geology at Baylor University (1893-1902), read three biological papers before the Academy in the years 1896-1900. A native of Indiana, graduate of Hanover College in 1872, with graduate study at Yale (1875-76) and Chicago (1895-96), Charlton came to Texas from Ottawa University, Kansas, in 1891. He was professor at the Texas Normal College at Denton (1891-93), and at Baylor (1893-1902.) He left the State to teach in Kalamazoo College, Michigan; but returned in 1907 for two years as president of the Texas Woman's College at Bryan. In 1909 he became instructor in biology at the Dallas High School, and later went into forestry work for the park board of the city of Dallas. This last position he held with credit until within a few years of his death. As I knew him, he was a gracious, venerable gentleman of the old school, with a very extensive knowledge of biology.

FELIX EZELL SMITH, a senior student of the University of Texas (B.S., 1899, M.S., 1900) read a paper before the Academy on June 12, 1899, on the ecology and embryology of the "rain lilies" (*Cooperia* sp.) Smith was a student assistant in zoology at the University in 1898-99; in 1902 and 1903 was superintendent of schools at Victoria, Texas; and in 1925 was teacher of science at the San Angelo High School.

ALEXANDER MCGOWEN FERGUSON (1874-) presented two papers on botanical subjects before the Academy from 1900 to 1903, while he was instructor in botany at the University (1900-06.) Ferguson had graduated in horticulture at Texas A. & M. College in 1894, took his M.S. degree there in 1896, and later studied at the Missouri Botanical Garden and Cornell University. He left the University of Texas in 1906, to enter commercial plant-breeding work in northern Texas.

FREDERICK WILLIAM MALLY (1868-1939), one of the early protegés of C. V. Riley in the U. S. Bureau of Entomology, later (1899-1903) professor of entomology at Texas A. & M. College, read two papers before the Academy in 1900 and 1901 on recent progress in insect warfare. Mally, like Carl G. Hartman (*infra*) was a native of Iowa; he was a graduate of Iowa State College at Ames. He had a varied career in Texas as teacher, State entomologist, orchard manager, and county agricultural agent.

WILLIAM MORTON WHEELER (1865-1937) succeeded W. W. Norman in 1899 as head of the Department of Zoology at the University of Texas. Wheeler remained at Texas for four years (until 1903), and during this period published 25 papers, three of which were read (1901-03) before the Academy. Wheeler had taken his doctorate at Clark University in 1892; and had been an assistant professor at the University of Chicago before he came to Texas.⁵ From 1908 until his death Wheeler was professor of entomology at the Bussey Institution of Harvard University. Wheeler's great interest was in the ants, and in this field he became *facile princeps* of the myrmecologists of the world. At Texas (as elsewhere) he drew about him a circle of brilliant students, who over the years contributed greatly to the advancement of science—such men as A. L. Melander, C. T. Brues, J. F. McClendon, and Carl Hartman. Miss Augusta Rucker (one of Norman's students), ANNIE PRITCHETT, and MARGARET MARSHALL did excellent work, but marriage in the case of the last two, and entrance upon medicine in the case of Miss Rucker, terminated their promising careers in zoology.

JOHN KERN STRECKER, JR., of Baylor University (who

⁵My obituary notice of William Morton Wheeler (*Proceedings of Centennial Meetings, Philosophical Society of Texas . . . 1937, 1938, pp. 73-75*) traces the great influence of Charles Otis Whitman on the scientific development of Wheeler.

from 1903 until his death in 1933 was curator of the museum and librarian at Baylor) read a paper (December 27, 1901) before the Academy, and it was later printed in the *Transactions*. Titled, "The Reptiles and Batrachians of McLennan County," it was the first of his long series of publications on the invertebrate and vertebrate animals of Texas (most of them printed at the Baylor University press.) A nephew of the well-known lepidopterist, Herman Strecker, J. K. Strecker was born in the North, and came to Texas about the turn of the century.

One of the finest pieces of work published on the animals of Texas was J. D. MITCHELL'S monograph on the poisonous reptiles of Texas (read before the Academy, November 28, 1902, and published in volume V of the *Transactions*.) A biographical note on Mitchell is printed in the *Southwestern Historical Quarterly*, vol. XLIX, 1946, p. 596.

During her four years (1896-1900) as a member of the zoology staff of the University of Texas, Miss AUGUSTA RUCKER published five papers, chiefly on the spiders of the State. One of these was presented by title at the June 10, 1903 meeting of the Academy. Miss Rucker later took her M.D. degree at Johns Hopkins, and is now a practicing physician in New York City.

OSCAR MELVILLE BALL (1868-1942), professor of botany and mycology at the A. & M. College from 1903 until his retirement in 1937, presented two papers before the Academy (1904 and 1912.) Both papers were in the field of plant physiology, in which he had had excellent training (at Leipzig, where he took his doctorate in 1903. Ball had been professor of chemistry and biology from 1895 to 1900, before going to Germany for the doctorate.) During his last years at College Station, Ball devoted most of his time to a study of the fossil plants in Texas, and published an extended monograph as his *magnum opus*.

During the period from 1904 to 1912, CARL HARTMAN presented two papers before the Academy, both of which appeared in the *Transactions*. His first paper, "Instincts and Habits illustrated by Solitary Wasps," (published in vol. VII, 1905) was a noteworthy piece of work, and showed the influence of his old teacher, William Morton Wheeler. Hartman had taken his A.B. and A.M. degrees at the University

in 1904, and his doctorate there in 1915, and was on the zoology staff there from 1912 to 1925. For sixteen years he was research associate at the Carnegie Institution of Washington, Department of Embryology; and since 1941 has been head of the department of zoology and physiology at the University of Illinois. For many years he has published embryological and endocrinological papers of the highest quality.

THOMAS H. MONTGOMERY, JR., (1873-1912) was head of the department of zoology at the University of Texas from 1903 to 1908, during which period he published 27 papers. Three of them were presented before the Academy, between 1904 and 1907. His presidential address, "The Aesthetic Element in Scientific Thought" was read before the Academy on October 27, 1905. Montgomery had taken his doctorate at Berlin in 1894, and came to the University of Texas from the University of Pennsylvania, where from 1898 to 1903 he had been assistant professor of zoology. The five years at the University of Texas were prolific ones, in which he developed five students who made contributions to zoology. Montgomery returned to the University of Pennsylvania to head the department of zoology there, and died in office in 1912. His researches were largely in the field of cytology.

EZRA DWIGHT SANDERSON (1878-), B.S.A., Cornell, was professor of entomology at Texas A. & M. College in 1903-04, when he left to enter on a six-year term as professor of zoology and entomology at the University of New Hampshire. He had come to Texas after four years at Delaware State College. From 1918 until his retirement in 1943, Sanderson was professor of rural sociology at Cornell University. His sole contribution to the proceedings of the Academy was an illustrated lecture (January 1, 1904) on the boll weevil, then commanding very serious attention in the state of Texas.

FREDERICK WILLIAM SIMONDS (1853-1941), whose notable work in Texas geology has in this Symposium been well described by Dr. E. DeGolyer, presented a paper (not published) at the June 8, 1904 meeting of the Academy on "Representative Lists of the Vertebrate Fauna of Texas." From February, 1892 to January, 1894 Simonds had offered two years' work in biology at the University of Texas; and

for two years more directed the work offered in the School of Biology established there in 1891. From 1890 until his retirement, Simonds was connected with the department of geology of the University (succeeding Professor Robert T. Hill.)

W. L. BRINGHURST of San Antonio, not a member over many years of the Academy, read a paper, "Some recent Experiments in Biology" in 1905. As his paper was not printed, I am not able even to guess at its contents.

BARNEY BROOKS (1884-), present professor of surgery at Vanderbilt University School of Medicine, presented (June 12, 1906) a paper on the urogenital organs of North American lizards (published in vol. VIII of the *Transactions*.) Brooks was a student assistant in zoology at the University in his senior year; he graduated B.S. in 1905, and took his M.D. degree at Johns Hopkins in 1911.

HARLAN H. YORK (1884-), instructor in botany at the University of Texas from 1906 to 1911, presented a paper (November 15, 1907) on the mistletoe (published in *University of Texas Bulletin No. 120*, 1909, pp. 1-31.) He left Texas to complete his doctorate at Johns Hopkins, after which for eight years he was professor at Brown University. Since 1930 he has been in charge of the work in plant pathology at the University of Pennsylvania.

HORATIO HACKETT NEWMAN (1875-), since 1911, professor of zoology at the University of Chicago (now emeritus), was head of the department of zoology at the University of Texas from 1908 to 1911. He came here from the University of Michigan, where for three years he had been instructor in zoology. During his three years at Texas, Newman published nine papers (several of them with Dr. J. T. Patterson.) One of the joint papers, on the development of the nine-banded armadillo, was read (January 27, 1911) before the Academy; an earlier paper, "The Process of Heredity as Exhibited in Fish Hybrids," was presented April 16, 1909.

DR. JAMES W. McLAUGHLIN (1840-1909) as member or president of the Academy presented two papers in the year of his death: "The Catalytic Theory of Infection and Immunity" (March 19, 1909), and his presidential address, "Critical Remarks on Ehrlich's Side-chain Theory of Im-

munity." A native of Ohio, McLaughlin came to Texas in 1865, entered upon his apprenticeship in medicine here, and took his M.D. degree from (present) Tulane University Medical School in 1867. He returned to Texas, where in 1885 he discovered the vector of dengue fever, and later published several papers (expanded into a book in 1892) on infectious diseases. He died in office as president of the Academy and regent of the University, in 1909. For eight years he had been professor of medicine in the Medical Department of the University of Texas, and president of the Texas State Medical Association in 1904.⁶

FREDERICK DEFOREST HEALD (1872-) became professor of botany at the University of Texas in 1908, succeeding William L. Bray, who had gone to Syracuse University. He came with a doctorate from Leipzig (1897) and a consuming interest in mycology and plant pathology. He remained at Texas until 1912, and during these years published eight papers, several of them jointly with FREDERICK ADOLF WOLF, tutor in botany, and thirteen years his junior. Two of these papers, one on *Urnula*, a gasteromycete (read April 16, 1909), and another on the symptoms of diseases in plants (read April 30, 1909) were presented before the Academy. From 1915 to 1941 (when he became emeritus) Heald was professor in the State College at Pullman, Washington. His young colleague, Wolf, left Texas in 1910 to complete his doctorate at Cornell, and later had a long career as investigator of fruit diseases with the U.S. Department of Agriculture. In 1943 he was still publishing research in his field of investigation.

The above gives the list of investigators who presented papers, during the period 1892 to 1912, before the second Academy of science. I have arranged their names in the order of their first appearance in the proceedings of the Academy.

During the twenty years of the existence of the Second Academy, 66 biological papers (by 28 investigators) were presented, but only a fraction of them were printed. The following Table shows percentage data of institutions, for investigators and papers (whether published or not.) In the Table, column II gives data for the University of Texas,

⁶For an obituary notice of Dr. J. W. McLaughlin, see *Transactions of the Texas Academy of Science*, vol. XI, 1910.

and columns III, IV and V give the data respectively, for A. & M. College, Baylor University, and "Others."

	I	II	III	IV	V
Investigators	57%	14%	7%	21%	
Papers	66%	12%	4%	18%	

The above figures refer only to the percentages of investigators and papers *entering into the proceedings* of the Academy, and are no demonstrative index to the relative research activities of members of the various institutions during the years 1892 to 1912. Thus, Wheeler "presented" *only three* papers out of 25 published during the years 1899-1903; T. H. Montgomery presented *only three* out of 27 published during the years 1903-1908; Edmund Montgomery presented only six out of perhaps a score of papers, and three books, published between 1892 and 1907. At Texas A. & M. College many scientific papers in the biological field were published by Mally, Francis, Ness, and others in the form of bulletins, and papers in *technical* agricultural journals. Moreover, since the preponderating majority of the active membership was concentrated in the Austin region, and since the "ordinary" and "informal" meetings were held in Austin, it was but natural that the largest number of papers should come from members of the University staff.

The Vetches and Pea Vines (*Vicia* and *Lathyrus*) of Texas

Lloyd H. Shinnery

In technical keys, the genus *Lathyrus* is characterized as having a squarely truncate stamen tube and styles hairy near the apex on the inner side only, while *Vicia* has an obliquely truncate stamen tube and styles hairy on the back or all around. These differences are neither well-marked nor easy to see, especially in most Texas species, which have very small flowers. For convenience the species of both genera are here treated together in a single key.

Grateful acknowledgment is made to Dr. G. L. Wittrock, New York Botanical Garden, for the loan of the types of