

EARLY BOTANISTS OF OKLAHOMA

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By

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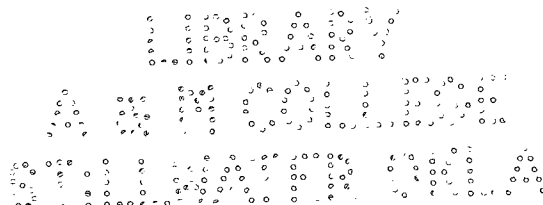
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PREFACE

In undertaking work pertaining to the character and accomplishments of men, several points arise for consideration. Each should receive space in proportion to worth and accomplishment. Relative apportionment has been difficult, in most cases impossible, because of the scarcity of source material. Indeed for some, whose names only were received intact, nothing can be said, viz., Frank Bush, Fres S. Barde, George Butler, M.A. Carleton, J.M. Holzinger, C.S. Sheldon, and Shannon. Others worthy of full consideration doubtless exist. It is hoped that a later revision of this work will make possible the inclusion of those individuals who are now necessarily omitted.

I am indebted to Dr. H.I. Featherly who so kindly directed my efforts during the course of the work and I wish to thank him for his kindly consideration and timely advice. I also wish to express gratitude for the critical reading of the manuscript done by Drs. H.I. Featherly and K. Starr Chester. Appreciation is expressed for information sent by many people in response to my letters and for that information which I received here during personal interviews with others.

This manuscript is necessarily incomplete but I trust it will be an aid to students in the future who desire such information.

Early Botanists of Oklahoma is dedicated to the Department of Botany and Plant Pathology, Oklahoma A. and M. College.

Oklahoma Agricultural and
Mechanical College
Stillwater, Oklahoma

Marion Henson

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EARLY BOTANISTS OF OKLAHOMA

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EARLY BOTANISTS OF OKLAHOMA

Since Oklahoma is a relatively new state, very little botanizing has been done until recent years. Because of this, and the extreme variation in environmental conditions seen in Oklahoma, the State is of particular interest to botanists today.

In order to present a complete picture of the progress of botanists in Oklahoma, we will glance at some of the earliest expeditions that came through Oklahoma and view them from the standpoint of the botanists.

Vasquez de Coronado was the first explorer known to have crossed what is now Oklahoma. There was no botanist with that expedition; however, in his report to the "Holy Catholic Caesarian Majesty" Coronado said, "We found no kind of wood in all these plains, away from the gullies¹ and rivers which are very few." Evidently, his route lay across the western part of the State. He did not make a list of any of the plants he saw on his expedition, nor did he describe them other than in relating the general appearance of the country.

Juan de Onate, governor of New Mexico, in 1601 led an expedition into the North and his maps show that he crossed what is now Oklahoma. Many such expeditions followed, but all of these explorers brought back such unfavorable reports that immigration was not encouraged and people thought of this country as a place "useless for agriculture and suitable² only as a hunting ground for savage tribes."

1. Lou Howe, Early Trails of Oklahoma and Their Influence, 1931, p. 2

2. Emerson Hough, The Passing of the Frontier, pp. 11-15

The first official expedition was that of Albert Pike. J.B. Wilkinson, a member of this expedition, explored the Arkansas River through the southern portion of the Indian country in 1807, and this country later became Oklahoma. Although Wilkinson made brief notes on the vegetation of the country he passed through, he did not make a list of plants. It is probable that none were collected. Most of the accounts Wilkinson gave were primarily concerned with geographical and topographical features of the country.

Thomas Nuttall was probably the first botanist to visit what is now Oklahoma. He first entered this region, 1834, by way of the Arkansas River. Before he reached the Red River, he wrote many comments about the flora of the region in his journal. He always described the country he was passing through, telling whether it was wooded or prairie, etc. At one time, Nuttall remained behind the main party just to collect some of the new and curious plants. This caused him to be separated from the party for several days. During that time, he made many short trips in the region, paying particular attention to the plants. Nuttall's journey took him to the Ouachita Mountains and the Red River in the southeastern part of the state. He returned to Fort Smith and continued up the Arkansas River in the northeastern part of the state to the mouth of the Grand River. After ascending the Grand River a short distance, he went through the prairie regions of the present state of Oklahoma. On his journey through Arkansas and Oklahoma territories, Nuttall discovered many species of plants new to science. He also found a number of plants that he had not thought of finding in the western states, thus changing his ideas on the distribution of various plants. His Collection toward a Flora of the Territory of Arkansas, published in 1834, is the first

attempt made to list the plants of Oklahoma and Arkansas. His list contains 550 species; however, only a small per cent of these were from regions that we now know as Oklahoma.

As said before, Nuttall found many species of plants in Oklahoma that were new to science. He found many more that he had never seen before. The following is a list of the plants that he saw and made notes on, in his journey through what is now Oklahoma:

Maclura (Bow wood)	Brassenia peltata
Crinum american	Myriophyllum verticillatum
Rudbeckia (new spp.)	Corylus americana
Kaehleria cristata	Rubus occidentalis
Phalaris canariensis	Populus angulata
Tripsacum dactyloides	Gaura
Elymus virginicus	Donia
Rotbolla	Eriogonum
Stipa	Uniola
Aristida	Amsonia salicifolia
Rhus (new sp.)	Sesbania macrocarpa
Agrostis arachnoides	Gymnocladus canadensis
Antheropogan	Quercus macrocarpa
Coriandrum (new sp.)	Carya olivaeformis
Centaurea (new sp.)	Betula populifolia
Rumex acetocella	Schrankia horridula
Pontederia cordata	Brachyris
Nymphoea advena	Chrysocoma
Cyamus luteus	Thalia dealbata
Zizania miliacea	Ambrosias
Portulaca	Achyranthes
Arundo	Gentian
Uralespis aristulata	

THOMAS NUTTALL

Thomas Nuttall was born January 5, 1786 at Seattle in Yorkshire, England. He was the son of Jonas Nuttall. At a very early age, Thomas was apprenticed to a printer and later entered the printing shop of an uncle at Liverpool. Very little is known about his education. He seems

3. The spelling of the plant names is as Nuttall spelled them in his journal.

to have been a boy of a studious nature who wasted no spare time that could be spent in reading or study.

His career began when he emigrated to Philadelphia in 1808. There he met Benjamin Smith Barton who started him on his career as a botanist. He immediately began collecting and identifying plants and took every opportunity to make distant explorations. In 1809-11, he went with John Bradbury, a Scotch naturalist, up the Missouri and Red Rivers; in 1834-35, he accompanied the Wyeth Expedition to the mouth of the Columbia River.

After his expedition with Bradbury, he was elected a fellow of the Linnaean Society of London (1813). In 1817, he was elected a member of the American Philosophical Society and a correspondent of the Academy of Natural Sciences of Philadelphia. In 1822, he accepted a call to be curator of the Botanical Garden of Harvard University. He remained there for ten years giving some lectures but devoting most of his time to the cultivation of rare plants. While there, he did most of his work on ornithology. In 1832, he published A Manual of the Ornithology of the United States and Canada. Later, he published a paper, Remarks and Inquiries Concerning the Birds of Massachusetts. Upon these two publications rests his whole reputation as an ornithologist. Since there was no such work as his "Manual" except the expensive folios of Wilson and Audubon, his reputation as an ornithologist was quickly established.

Nuttall was also a geologist. He wrote one paper, Observations on the Geological Structure of the valley of the Mississippi (Jour. Jan. 1821). This was the first attempt made in America to correlate, by means of fossils, geological formations widely separated geographically.

Nuttall's outstanding contributions to botany are:

The Genera of North American Plants, and a Catalogue of the Species, to the Year 1817; his continuation of the North American Sylva of F.A. Michaux; contributions to the Transactions of the American Philosophical Society; A Journal of Travels into the Arkansa Territory, during the Year 1819; numerous descriptions of new species and reports on collections in the Journal of the Academy of Natural Science; and a treatise on An Introduction to Systematic and Physiological Botany.

"No other explorer of the botany of North America has personally made more discoveries; no writer on American plants, except perhaps Professor Asa Gray, has described more new genera and species," said Elias Durand about Nuttall.

In regard to Nuttall's personality, we find that he was "disorderly in his dress and excessively economical, living the life of a recluse with few friends besides the botanists with whom he associated at the Academy." ⁴ He was never married.

He returned to England in 1842 when an uncle left him an estate near Liverpool on condition that he live there nine months of the year. Though the income from this state was not large, it was enough to enable him to devote most of his time to the cultivation of rare plants. He made only one more visit back to Philadelphia, 1847-48, and while there described the collections brought back from the Far West by Dr. Wm. Gambel. He died on his estate in 1859.

In 1820 two divisions of Major Stephen H. Long's expedition to the Rocky Mountains passed east through Oklahoma, one along the Canadian River and the other along the Arkansas. Dr. Edwin James, the botanist

4. Dictionary of American Biography, Vol. 13, p. 597.

of the party, wrote an account of the expedition. In this account, we find numerous notes, descriptions, and comments on the flora of the regions they passed through. To illustrate his candid description of the plants, let us look at his description of the Osage Orange,-- *Maclura aurantiaca*, Nuttall. James says,

"In its native wilds, the *Maclura* is conspicuous by its showy fruit, and external appearance resembling the orange....In our opinion, the whole of it is as disagreeable to the taste, and as unfit to be eaten as the fruit of the sycamore, to which it has almost as much a resemblance as to the orange."⁵

Throughout his account of the expedition, James gives rather good descriptions of the country they passed through. In describing a plant he often gave the common name, the meaning of the name, why it was so named, and the uses of the plant, as well as its scientific name and general description.

EDWIN JAMES

Edwin James was born in Weybridge, Vermont, August 27, 1797. He was the son of Daniel and Mary (Giles) James, and a grandson of Henry and Mary (Codnor) Emmes. His ancestors emigrated from Wales and were among the early settlers of Rhode Island.

Nothing has been found about his education except that he was graduated from Middleburg College, Vermont, in 1816. After receiving his degree, however, he moved to Albany and studied Medicine with his brother Dr. Daniel James, geology with Professor Amos Eaton, and botany with Professor John Torrey.

Most of James' work was along the western frontiers. In 1820, he

5. Thwaites, Early Western Travels, S.H. Long's Expedition, Vol. 16, p. 171

was botanist and geologist to Major Long's expedition to the Rocky Mountains. From 1826-32, the United States government employed him as surgeon and Indian agent at the extreme frontier outposts. He was associate editor of the "Temperance Herald and Journal" in Albany from 1832-34. In 1835-40, he was again Indian agent on the frontier and from 1840-61 he was surveyor and Indian agent at Burlington, Iowa.

For quite some time Pike's Peak was known as James' Peak. The Indians said it was "utterly impracticable to climb." When Pike was there it was November and conditions were not nearly so favorable for climbing the peak as they were when James was there in July. James did climb the peak, and in his journal Long wrote,

"Dr. James having accomplished this difficult and laborious task, I have thought proper to call the peak after his name, as a compliment to which his zeal and perseverance, together with the skilful attention with which he has examined its character and productions, give him the fairest claim." ⁶

It was called James' Peak for many years but was finally officially named Pike's Peak.

James did not publish a great deal. Some of his works were: Expedition to the Rocky Mountains, (2 vols., 1823); The Narrative of John Tanner; a translation of the New Testament into the Ojibway language (1833); and Account of an expedition from Pittsburg to the Rocky Mountains, performed in the years 1819, 1820 (3 vols.).

Two lists of the plants collected on Major Long's expedition were published, one by James and a later one by Dr. Torrey.

THOMAS SAY

Another scientist who should be included here with Major Long's

6. Ibid.

expedition is Thomas Say. He was a naturalist and a specialist in geology. Say was born in Philadelphia on July 27, 1787. He was the son of Benjamin Say. Thomas first tried to establish a drug store business but was unsuccessful. After that he devoted all his time to the study of natural history.

In 1812, he founded the Academy of Natural Sciences at Philadelphia. He did some exploring of the islands and coasts of Georgia and in 1819 joined Major Long's expedition as chief geologist. He did make some botanical observations, however. In 1820, he went on another expedition with Long to explore the sources of the Mississippi River and he made the whole botanical collection.

In 1825, Say joined the socialistic community of Robert Owen at New Harmony, Indiana. After the failure of the community, he remained there as keeper and agent.

In regard to his publications, he contributed largely to the Transactions of the American Philosophical Society, and the American Journal of Science. He is the author of American Entomology, (3 vols. 1824-28) and American Conchology. The latter was left unfinished but Wm. G. Binney completed and edited it in 1853.

Say died in New Harmony, Indiana on October 10, 1834.

Washington Irving was the next explorer to come through this part of the country. The botanist in his party was Charles Joseph Latrobe.

CHARLES LATROBE

Charles Latrobe was born in London on March 20, 1801. The Latrobes belonged to the Moravian community. Charles was an excellent mountaineer and loved to travel. From 1824-26, he made many important ascents in the mountains of Switzerland. In 1832, he came to America with Count

Albert Pourtales and, as mentioned above, he was with Washington Irving when he crossed the prairies from New Orleans to Mexico in 1834. He was given a government commission in the West Indies in 1837 and was made superintendent of the Port Philip district of New South Wales in 1839. Port Philip was established as a separate colony, Victoria, in 1851 and Latrobe became lieutenant-governor. In 1854, he retired.

Latrobe wrote many interesting books. The Rambler in North America is his book telling about the tour across the prairies. It is much like Irving's Tour on the Prairies. Each of the writers gives details not found in the others' account, however.

In his Tour on the Prairies, Irving describes Latrobe in the following manner:

"Another of my fellow-travellers was Mr. L., an Englishman by birth but descended from a foreign stock; and who had all the buoyancy and accommodating spirit of a native of the Continent. Having rambled over many countries, he had become, to a certain degree, a citizen of the world, easily adapting himself to any change. He was a man of a thousand occupations; a botanist, a geologist, a hunter of beetles and butterflies, a musical amateur, a sketcher of no mean pretensions, in short, a complete virtuoso; added to which, he was a very indefatigable, if not always a very successful sportsman. Never had a man more irons in the fire, and consequently never was a man more busy nor more cheerful."

The next expedition of botanical interest into Oklahoma was that made by Captain R.B. Marcy, May-July, 1852. This expedition went from Fort Arbuckle through the Wichita Mountains to the source of the North Fork of the Red River. Dr. G.G. Shumard, surgeon of the expedition, collected about two hundred species of plants. About one-half of these were collected within the present boundaries of Oklahoma. The determinations of the plants were made by Dr. John Torrey. Since Torrey did so much work in determining the species of Oklahoma plants,

both with the plants collected on Captain Marcy's expedition and Major Long's expedition, we include his biography in the "Early Botanists of Oklahoma".

JOHN TORREY

John Torrey was born in New York City on August 15, 1796. He received his M.D. degree from the College of Physicians and Surgeons in New York in 1818. After graduation, he held various positions until 1836 when he became New York State Botanist. In 1853, he became chief assayer to the United States Assay office; however, he continued to take an interest in botanical teaching until his death.

Among his best known publications are: Flora of the State of New York, which he published in 1843, and Flora of North America. Asa Gray, one of his pupils, assisted Dr. Torrey in this latter work. A letter written to Captain R.B. Marcy concerning the plant collection of that expedition follows:

No. 96, St. Mark's Place, N.Y.
Aug. 10, 1853

Dear Sir: I have examined the collection of plants that you brought from the headquarters of the Red river, towards the Rocky Mountains. The flora of this region greatly resembles that of the upper portion of the Canadian. It is remarkable that there occur among your plants several species that were first discovered by Dr. James in Long's Expedition, and have not been found since until now. Your collection is an interesting addition to the geography of North American plants, and serves to mark more closely the range of many Western species. For particular remarks on the rarer plants, and descriptions of the new species, I refer you to the accompanying list.

At your request I have had some of the rarer plants drawn and engraved, to illustrate your report to Congress.

I am, dear sir,
Yours truly
John Torrey 7

Captain R.B. Marcy

Dr. Torrey gave his herbarium and botanical library to Columbia College. He died at New York on March 10, 1873.

In 1853, Captain Whipple's government surveying party explored a route for a railroad from the Mississippi River to the Pacific Ocean. This surveying party passed through what is now Oklahoma near the Canadian River. Dr. J.M. Bigelow made a line transect of the region and collected about 125 species of plants within the present boundaries of Oklahoma. These were identified by Torrey. A separate report of the Cactaceae collected was made by G. Engelmann and Bigelow.

JACOB BIGELOW

Jacob Bigelow was born at Sudbury, Massachusetts, February 27, 1787. He was graduated from Harvard in 1806. Shortly after his graduation he began the study of medicine. He received his degree in medicine in 1810 and soon had a large practice in Boston. Although he was a physician, Dr. Bigelow spent a great deal of time studying botany and he wrote a great deal on the subject.

Dr. Bigelow had quite an interesting career. He was a physician in the Massachusetts General Hospital for twenty years and for forty years he occupied the chair of "Materia Medica" in Harvard College. At one time, he was president of the Massachusetts Medical Society and of the American Society of Arts and Sciences. He also founded and designed the Mount Auburn cemetery.

Dr. Bigelow wrote profusely. Some of his publications are:

Florula Bostoniensis (1814); The Useful Arts Considered in Connection with the Application of Science (1849); A Brief Exposi-

tion of Rational Medicine (1858); American Medical Botany (3 vols., 1817-21); Nature and Disease (1854); History of Mount Auburn (1860); and Modern Inquiries and Remarks on Classical Studies (1867).

Dr. Bigelow died in Boston, January 10, 1879.

Dr. T.E. Wilcox collected "several hundred" species of plants in what is now western Oklahoma from 1875-1877. These plants were determined by Alphonso Wood.

ALPHONSO WOOD

Alphonso Wood was born in Chesterfield, New Hampshire, September 17, 1810. He was graduated from Dartmouth in 1834. He then studied for a year in Andover Theological Seminary. He was not to become a minister, however.

From 1835 until 1849, he taught in Kimball Union Academy, Meriden, New Hampshire. Then, for three years, he was a civil engineer. In 1851, he became president of the Ohio Female Seminary. In 1857, he resigned his position to become a professor in Terre Haute Female College. After that, he was principal of Clinton Seminary in Brooklyn, where he remained until 1865. After traveling for a year he settled down in West Farms, New York.

Professor Wood published a number of works on botany including Class-Book of Botany; First Lessons in Botany; The American Botanist and Florist; Poetry from the Vegetable World (edited translation from the German); Leaves and Flowers or Object Lessons in Botany; and Plant Record.

Professor Woods died in West Farms, New York, January 4, 1881.

In 1858, a survey of the Creek Indian boundary line was made by Sitgreaves

1849-1850 published in 1958

and Woodruff. Dr. Woodhouse, a physician and naturalist, was with these parties and made collections of the plants found in the regions. In his first report (in the expedition with Sitgreaves), he relates,

"My collection of plants numbers 709 specimens--there being many duplicates. The genera "Astar" and "Salidago" I have not examined, few of our botanists being acquainted with them; and there are a few others that I have not been able to make out."³

He then gives a list of the plants he collected. In his second report (in the expedition with Woodruff) he said he collected 157 plants which were different from those collected the first time.

In 1892, Bohumil Shimek did some collecting in Oklahoma (around what is now Oklahoma City). As far as can be found, no other work was done by him in Oklahoma.

BOHUMIL SHIMEK

Bohumil Shimek was born in Shueyville, Iowa, June 25, 1861. He was the son of Maria Theresa and Francis Joseph Shimek, political refugees who immigrated to America from Bohemia in 1848.

In 1878, Mr. Shimek entered the University of Iowa as a student of engineering and attained the C.E. degree. After receiving his degree, he was a railroad and county surveyor for two years. In 1888, he became an instructor in zoology at the University of Nebraska. In 1890, he returned to the University of Iowa as a member of the botany staff. He soon became a professor of botany, head of the department of botany, director of the Lakeside Laboratory, curator of the herbarium and research professor.

In the field of zoology, Professor Shimek's chief interest lay in the study of snails. His work on fossils, for which he became widely known,

developed from his original work on snails. He also published a number of papers on geology, this interest being brought about by his work with fossils. Many of his papers are on loess and its fossils. He also coined the term "Nebraskan" which is applied to the till sheet that underlies the Aftonian interglacial deposits. Many of his highest honors came as recognition of his geological work. He was a member of the Iowa State Geological Board and in 1911 was chairman of the geological section and vice-president of the American Association for the Advancement of Science. As a tribute to his many important contributions, he was made honorary chairman of the geological section of the International Scientific Congress held in Europe in 1914. In 1936, he was granted a research award by the Geological Society of America.

In the botanical field, most of his contributions were in ecology in relation to prairies.

"He strongly championed the concept that prairies were definite associations of species with common tolerance of light and rapid evaporation and that their treelessness was attributable to the high summer temperatures and drying winds." ⁹

In 1901, he took his first class to Lake Okoboji. In 1909, the Lakeside Laboratory was established there. This was a good illustration of his insistence on study in the field.

Professor Shimok labored very hard in behalf of Czechoslovakia when she was trying to obtain her independence in 1918. He and his friend, Thomas G. Masaryk, planned much of the strategy which finally resulted in Czechoslovakian independence. Shimok was then elected as the first president of the Czechoslovakian Council of Higher Education and Masaryk

9. Proc. Iowa Acad. of Sci., Vol. 44, "In Memorium".

was then elected as the first president of the new republic. In his new position, Shimek was able to contribute many American ideas to their system of education.

In 1914, he was called to the Charles University of Prague as an exchange professor. While there, he was awarded the honorary Ph. D. degree in recognition of his scientific contributions.

In 1927, he was awarded a special medal of honor by Czechoslovakia for his patriotic services.

Dr. Shimek was closely associated with schools throughout his entire life. He served on many different school boards. He was president of the Iowa Academy of Science in 1904. Later, he was president of the Botanical Society of America, Ecological Society, Washington and Iowa academies of science, Sigma Xi, national and state president of the Isaac Walton League, Fellow of the American Association for the Advancement of Science, and member of the Botanical Society of Bohemia and the National Historical Society of Prague.

Professor Shimek had the characteristic of being unusually precise and exact. This was probably brought about by his early training in engineering. He was held in high esteem by the people connected with the University as well as the state as a whole. When he retired after a teaching career of fifty years, a testimonial celebration was held in his honor. The University published his biography and dedicated it as follows:

"Honor to whom honor is due, Bohumil Shimek, a golden anniversary, June the 6th, Nineteen Hundred and thirty-two.

In appreciation of Bohumil Shimek Pioneer, Engineer, Geologist, Zoologist, Botanist, Conservationist, Educator, Patriot, and Citizen.

The Faculty, alumni, and students of the University of Iowa, and your friends everywhere salute, greet, and honor you on the occasion of the golden anniversary of your career as a teacher.

The varied and enduring character of your contributions to Science and to Life make the chronicle of your career unique in the annals of the University and in the realm of Natural Science! 10

Professor Shimek worked until just a few days before his death, studying herbarium material, and completing a report on the plant geography of Iowa. His death, January 30, 1937, was caused by heart complications following influenza.

JAMES CLINTON NEAL

James Clinton Neal was the first biologist at Oklahoma Agricultural and Mechanical College.

He received his Ph. D. and M.D. in 1893-4.

Neal came here from the Florida Experiment Station and was made director of the Oklahoma Agricultural Experiment Station. For a time he was the director of the experiment station and professor of botany and entomology. Later, Marrow took his place as director of the experiment station and Neal continued in the capacity of professor of botany and entomology.

The only thing found about his personality was that he was the "absent-minded professor" type of individual. This is illustrated by an incident told me about Professor Neal. One day he asked a friend of his to take him collecting in his wagon. The friend drove Professor Neal a short distance from Stillwater and Professor Neal, seeing an insect he wanted, asked his friend to let him out and wait for him. The friend waited for about two hours and Professor Neal did not appear. He finally grew tired of waiting and went home. The next day he met Professor Neal on the street and asked him what had happened to him that

day before. Professor Neal said he had caught the insect and saw another, then others, forgot his waiting friend, continued collecting, and did not reach home until late that night.

Professor Neal published some material on insects, grasses, and weeds. In 1895 he published Oklahoma Weeds. Dr. Neal and A.N. Caudell published Pest Bul. 11, Weeds. In this, they listed 39 species of weeds with technical names and other data. Caudell was Neal's assistant in botany and entomology. He became the highest authority in the United States--and probably the world--on Orthoptera. He was graduated from Oklahoma Agricultural and Mechanical College in 1897 and went from there to the United States National Museum.

In 1893, Neal and A.C. Magruder published another bulletin on 72 varieties of grasses.

Professor Neal died December 22, 1895.

Very little material could be found on the early botanists of Oklahoma Agricultural and Mechanical College, for the early personnel files were burned in 1914.

E. E. BOGUE

Ernest E. Bogue, M.S., was professor of botany and entomology at Oklahoma Agricultural and Mechanical College from 1899 until 1901. He was well-trained for those early days. He was a better entomologist than botanist, however. He published a list of 750 species of Oklahoma plants in 1900. This list, An Annotated Catalog of the Ferns and Flowering Plants of Oklahoma, was published in 1900.

ALBERT HEALD VAN VLEET

Albert Heald Van Vleet was a botanist at Oklahoma University. He

was born September 17, 1861 in Page county, Iowa. He was a son of William Van Vleet and Harriet Axtell Van Vleet.

Professor Van Vleet received his earlier training in Iowa and Nebraska. He went to the public schools, graduated from the Nebraska State Teachers College, and taught there for a number of years. After that he went to the University of Wisconsin, where he was graduated. He then went abroad and secured the degree of doctor of philosophy from the University of Leipzig. The title of his thesis, prepared under direction of Dr. Leuekhard, was, "On the Mouth parts and Respiratory Organs of Limnochares Holosericea Latreille in Particular and the Manner of Breathing of Hydrachnids in General."

While Van Vleet was doing graduate work at Johns Hopkins, he heard of an opening for a science teacher in Oklahoma University. At that time, Dr. David Ross Boyd was president of Oklahoma University and was attending a meeting of the National Educational Association in 1898. Van Vleet had a conference with him and was given the position. It was later learned that he had declined a position in New York City offering him \$1800. a year in order to accept the position at Oklahoma University which paid only \$1200. at that time. He was professor of biology from 1898 to 1909 and professor of botany and dean of the graduate school from 1909 to 1925. He was the first doctor of philosophy employed at the University of Oklahoma.

Dr. Van Vleet was especially active in collecting specimens. He desired a complete collection of the plant life of the territory of Oklahoma and was always working toward that end. He also made a rather complete collection of the animal life of the Oklahoma Territory. These specimens were all well mounted and were sent to the St. Louis

Exposition to exhibit the resources of this territory. There were two disastrous fires at the University and a large part of Van Vleet's collections were destroyed. He also lost important documents, books, and other personal collections that he had made while he was in school, both in the United States and abroad. It is said that these fires caused the greatest discouragement that Dr. Van Vleet experienced at the University.

Dr. Van Vleet was a modest man whom many have described as too modest for his own interests. For example, several years before his death, he received numerous letters inviting him to accept a place in "Who's Who in America", "Who's Who in Science", and "The Progressive Men of Today". The American Geological Society also wished to give him recognition. He did not accept any of these offers, however.

His love of camping and fondness for hunting show that Dr. Van Vleet was a true out-of-doors man.

Dr. D.R. Boyd describes him as a "capable looking man with his deep chest, vigorous physique, and frank manners, quick smile and the little hesitancy of speech that prefaced a clever comment and the quiet wit that broke over his face before it came to his tongue".

Vernon L. Parrington said, "The zest of a boy was in him and the self control of a man."

Dr. Van Vleet demanded serious work but he was always ready with sympathy and encouragement. He thought of things in terms of their possibilities. For example, if asked how a student was doing, he might say he is doing fairly good work but he would quickly add that he was not doing all he could do.

While he was Director of the Oklahoma Geological Survey he discovered a new fossil which was named in his honor.

Dr. Van Vleet was quite a public spirited man. He was interested in the affairs of the community and state. He helped organize the scientific section of the Territorial Teachers Association. He also helped organize the Oklahoma Historical Association. He was a member of the Norman Chamber of Commerce and served until his death as chairman of the committee of the Chamber of Commerce on Good Roads and County Interests. Dr. Van Vleet was vice-president for Oklahoma of the Ozarks Trails Association and he was State Director of School Gardens during the World War. He was very active during the world war because of his knowledge of the German language and the nation. He is to be credited with bringing about the construction of the highway from the Cleveland County line to Lexington; therefore, that road now bears his name.

Dr. Van Vleet died June 22, 1925, at Norman, Oklahoma.

Probably his best known work was the list of Oklahoma plants that he published in 1902.

E. M. WILCOX

E. M. Wilcox was at Oklahoma Agricultural and Mechanical College in 1901-1902 as professor of botany and entomology. He received his Ph. D. from Harvard. He went from here to Alabama and later did extension work at Lincoln, Nebraska. Wilcox was well-trained for that day. His ability as a botanist and an entomologist was about equal. His paper, A rhizomorphic root rot of fruit trees, is a masterful pioneer work on plant disease and its effect on Oklahoma fruit growers can be detected even today.

WALTER R. SHAW

Walter R. Shaw was a professor of botany, entomology, and geology. He was at Oklahoma Agricultural and Mechanical College from 1902 until 1906. He was married before he came to this institution.

Shaw looked the part of a classic professor. He wore a van dyke beard, sideburns, and long hair. He was very methodical and precise. This was well illustrated by the manner in which he and his wife cared for their baby. It had to be fed at an exact time, sleep at an exact time and for a certain length of time.

No record of his work could be found for the fire in 1914 has destroyed the files that contained his personnel record.

 HENRY CHANDLER COWLES

Henry Chandler Cowles is included in this paper because of work done during the dispute between Oklahoma and Texas over the ownership of the oil under the Red River bed. Dr. Cowles was called in to determine the original boundary line. He was able to do this by the use of annual ring counts of the trees along the banks of the river, thus establishing the age of the trees on both sides of the river and making a comparison possible.

Professor Cowles was born in Kensington, Connecticut, February 27, 1869. He received his A.B. degree from Oberlin College in 1893. From 1895 to 1897, he was a fellow at Chicago University and received his Ph. D. degree in 1898.

From 1894-95 he was an instructor in natural science at Gates University. He was assistant botanist at Chicago from 1897-1901, associate botanist in 1901-02, instructor from 1902-1907, assistant professor of botany from 1907 to 1911, associate professor of botany

and later professor of plant ecology.

Professor Cowles did a great deal of special work, too. In 1895, he was field assistant in a United States Geological Survey. In 1898, he was associate editor of the Botanical Gazette.

According to the American Men of Science, sixth edition, Professor Cowles was a member of the following societies: American Association for the Advancement of Science (sec'y section G. 08); Botanical Society; Ecological Society; Association of Geographical Botany of the Central States (sec'y, 07); Chicago Academy of Science (v.pres. 12, 13); International Association of Botany.

He was a congenial man and well liked by all of his students. He had a very brilliant mind and the number of plants that he could identify at sight was amazing.

His chief interest was working with the vegetation of sand dunes. He was one of the principal men to work on plant succession on sand dunes around the Great Lakes. He also worked in physiographic ecology and comparative ecology of dune vegetation.

Professor Cowles, Barnes, and Coulter wrote a set of two books entitled Textbook of Botany. Professor Cowles wrote volume two which is on ecology and Professors Barnes and Coulter wrote volume one which is on physiology and morphology.

As previously stated, George Engelmann and Bigelow made a separate report of the Cactaceae collected by Bigelow in 1853 while with Captain A.W. Whipple. Many plants occurring in Oklahoma have been named after him.

GEORGE ENGELMANN

George Engelmann was born February 2, 1809 at Frankfort-am-Main. He was the eldest of twelve children of George Engelmann, a doctor of philosophy from the University of Halle, and Julia May, a teacher.

In 1827, he received a scholarship from the "Reformed Congregation" which enabled him to attend the University of Heidelberg. At that institution he met Alexander Braun and Karl Schimper; however, it is said that his interest in botany was not due to their influence for he later wrote that when he was only fifteen years of age he had a great interest in plants.

In 1828, there was a student uprising at Heidelberg which compelled Engelmann to leave. He then went to Berlin where he remained for two years. His "democratic tendencies" made it difficult for him to remain there, however, so he went to the University of Wurzburg, where he received his M.D., July 19, 1831.

In 1832, he went to Paris where he was associated with Braun, Agassiz, Constadt, and others. In September of that year, he sailed for America to invest some money for an uncle. He reached St. Louis February 20, 1833 and lived on a farm about twenty miles east of St. Louis for about two years. While on the farm, he studied the plants, minerals, rocks, etc. found in that region. In 1840, he returned to Kreuznach, where his parents were then living. While he was there he married a cousin, Dorothea Hortsman, who had lived with the Engelmann family since she was eleven years of age.

During the early part of his life, Engelmann was unable to devote much time to botanical studies; however, he had always kept his herbarium

and botanical library in a room adjoining his office. After his return from Europe in 1869, he moved into a new house and practiced very little medicine. This gave him time to indulge in any thing he desired. He began his meteorological observations in 1836 and his interest in this work continued until his death. The study of plants was his greatest delight. At his death, he left a mass of notes, drawings, and observations on plants that constitute sixty folumes. He also left some works which were collected by Henry Shaw under the title Botanical Works of the late George Engelmann.

Dr. Engelmann organized the St. Louis Academy of Science in 1856, the first of its kind west of the Alleghanies. He worked extensively for the paper "The Westland". This was a paper to unite pioneer settlers and give information to Germans who were thinking of emigrating. He was a member of thirty-three societies. A mountain peak and many species of plants as well as three genera have been named after him.

Dr. Engelmann died February 4, 1884.

LOUIS HERMANN PAMMEL

Louis Hermann Pammel was born at La Cross, Wisconsin, April 19, 1862. He was graduated from the University of Wisconsin with a Bachelor of Agriculture degree in 1885. He later received his M.S. (1889) and the honorary Sc.D (1925) from Wisconsin. He received his Ph. D. degree from Washington University (St. Louis) in 1898.

He was private assistant to Dr. W.G. Farlow, Cambridge, Massachusetts in 1885 and 1886. He was an assistant at Shaw School of Botany Washington University (St. Louis) from 1886 until 1889 when he obtained a position as professor of botany at Iowa State College, Ames, Iowa. He was head of this department for many years.

Dr. Pammel was active in a number of the principal scientific organizations that dealt with plants, holding several elective and appointive positions. In 1894, he was with the Iowa Forestry Commission of the Iowa Geological Board. He was chairman of the Iowa State Board of Conservation in 1910 and was president of the taxonomic section of the Botanical Society in 1920. He was chairman of Section G (botany) of the American Association for the Advancement of Science; vice-president of this association in 1919; and became a Fellow of this association when it had been in existence only two years. He was also a member of the Phytopathological Society, Ecology Society, Society of Foresters, Society of Bacteriology, Iowa Academy of Science (president in 1893), Washington Academy of Science, Washington Biological Society, St. Louis Academy of Science, British Ecological Society and editor of the Botanical Gazette.

His botanical activities were extensive. For example, in 1889 he worked with the Texas Experiment Station, in the division of vegetable pathology. In 1897, he was with the division of agrostology; from 1899 to 1902 the bureau of forestry; and the bureau of plant industry in 1902.

Some of the subjects he worked with are: the anatomical characters of the seeds of Leguminosae, grasses of Iowa, a study of the flora of central Iowa, and of the Uintahs, weeds of Iowa, poisonous plants, ecology, seeds and fungi.

Pammel made three trips to Oklahoma. One was in 1888, one in 1921, and one about 1930. In 1921, he spent some time around Muskogee studying the vegetation and published a pamphlet regarding that trip entitled, A Day Near Muskogee, Oklahoma. About 1930, he and Mrs. Pammel made another trip to Oklahoma. He made collections on this trip but most of the time was spent visiting friends and numerous schools. He

visited in Stillwater for two or three days, staying in the home of Dr. H. I. Featherly. On one of the days, they went to Pawnee and had dinner with "Pawnee Bill". From here, they went on to Norman and visited at the University of Oklahoma for two or three days.

Dr. Pammel was an enormously large man. He never forgot a friend. He knew people in nearly every town in the state of Iowa. One of his characteristics was his desire to be remembered to people. For example, if a friend of Dr. Pammel was going to a certain town, Dr. Pammel would enumerate all the people in the town that he knew and ask the friend to "remember me to them". He was a very considerate man and never did anything to hurt another's feelings. If someone disagreed with him on an issue, he carefully avoided saying anything unkind about that person. It was a pleasure to work with him. When students were around him however, they worked! Work just seemed to be contagious around Dr. Pammel. He was ever ready to help and encourage any youth who displayed a desire to take up scientific work. He has been the inspiration of many men who have become successful in botany. One of his chief methods of encouraging youth in scientific work is illustrated in the many papers of which he is co-author with a young scientist.

Dr. Pammel was a devout Episcopalian. He donated the lot where the church now stands in Ames, Iowa.

Dr. Pammel was a prolific writer. He was author or co-author of one hundred and ten papers. If he met a famous person he wrote about him. If he made a trip, he wrote about it. Some of his best known publications are: Manual of Poisonous Plants, Iowa Geological Survey Bulletin No. 4; Weed Flora of Iowa, Honey Plants of Iowa; Grasses of Iowa, written by Pammel, Weems, and F. Lamson-Scribner; and Grasses of Iowa, written by Pammel, Ball, and F. Lamson-Scribner.

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"As a scientist, Dr. Parmel has left a wealth of valuable information and stimulating inspiration; as a citizen and public official he served his adopted state faithfully and well; as a teacher he will be remembered gratefully by thousands who had the benefit of his instruction; and as a man and a friend he will be held in cherished remembrance the longest by those who knew him best."ll

ALBERT SPEAR HITCHCOCK

Professor Albert Spear Hitchcock was born in Owosso, Michigan, September 4, 1865. His early years were spent in Nebraska and Kansas and he was graduated in 1884 from the Iowa State University, the youngest in his class.

In 1885, he was an assistant in chemistry and in 1886, when he was only twenty-one years of age, he was appointed instructor in chemistry at the State University, Iowa City. He resigned this position in 1889 to accept a position as instructor in botany and curator of the herbarium in Washington University. In 1890, he made his first exploration. This was a three months trip in the West Indies with Dr. J. T. Rothrock, of the University of Pennsylvania. In January, 1892, he was appointed professor of botany at the Kansas State Agricultural College, Manhattan, Kansas. He went to Washington as assistant chief of the Division of Agrostology in March, 1901. At that time he was assigned to the study of the sand dunes and went to Europe to investigate their methods of control. Prior to this time, Hitchcock's work was mostly economic; however, in 1905 he and Professor C. V. Piper made arrangements satisfactory to both, to change positions. This made it possible for Piper to do economic work, fulfilling a desire he had held for a long time, and Professor Hitchcock took over the grass herbarium which he had desired. Under Professor Hitchcock, the grass herbarium increased almost four times its size of 1905.

Professor Hitchcock believed travel was of the utmost importance. He visited every state in the Union, Alaska, Canada, the Canal Zone and Panama, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, South America, Europe, Africa, the Philippines, Japan, China, Indo-China, and Newfoundland. His sons, Frank and Albert accompanied him on different expeditions as his assistants. In later life, his wife went with him as his assistant.

Many honors were bestowed Professor Hitchcock but perhaps the greatest of these was that of the British Association for the Advancement of Science. In 1929, this Association held a meeting on cooperation with the South African Association for the Advancement of Science. One representative was chosen from each of the major sciences in the United States and Dr. Hitchcock was chosen as our botanist. While at the meeting, he gave a paper on Grasses in Relation to Man. In 1919 he was made a member of the Organization Committee for Biological Research of the National Research Council. He was made chairman of the executive committee of the Institute for Research on Tropical America in 1920 and held this position for six years.

Organizations of which he was a member are: American Association for the Advancement of Science (secretary of section G in 1901); Botanical Society (president in 1914); Washington Academy; Washington Botanical Society (president in 1916); Washington Biological Society; Washington Biological Field Club; and the Kansas Academy.

The bibliography of Professor Hitchcock contains about 250 titles. Some of his principal publications are: Alfalfa Growing, 1905; Bermuda Grass, 1911; Cultivated Forage Crops of the Northwestern States, 1902; The Genera of Grasses of the United States with Special Reference to the

Economic Species, 1936; Manual of the Grasses of the West Indies, 1936;
Methods Used for Controlling and Reclaiming Sand Dunes, 1904; North
 American Species of "Agrostis", 1905; North American Species of "Leptochloa",
 1903; Pasture, Meadow and Forage Crops in Nebraska, 1904.

Professor Hitchcock died December 16, 1935, on board the S. S. City of Norfolk, homeward bound from Europe where he had attended the International Botanical Congress at Amsterdam.

Dr. Willis Lynn Jepson wrote the following of Dr. Hitchcock in a copy of his Flora of California which he presented to Professor Hitchcock, "Eager explorer, farseeing botanist, and wise promoter of scientific research in America."

DR. G. W. STEVENS

Dr. George Walter Stevens was born in Keithsburg, Illinois, September 4, 1868. He was a son of John A. Stevens and Margaret Jones Stevens. When he was young, his parents moved to central Kansas. He completed his high school education there and began teaching at the age of 18. His B. S. degree was from the state college at Emporia and he later attended the University of Kansas, securing his A. B. degree there. While there he studied medicine for two years, however, his love of nature caused him to change his course. Very early in his career, Dr. Stevens taught in the Guthrie, Oklahoma school system. He then became head of the department of biology at Alva, Oklahoma in 1903. He filled this position for almost 14 years. He resigned this position and took one at Warrensburg, Missouri in 1916, which position he filled for about 18 years. Because of ill health, he was forced to resign there two years before his death. He was director of the Oklahoma

Botanical Survey in 1913. He specialized in taxonomic botany, geographical distribution, and Mendelism.

Before his death, Dr. Stevens had prepared manuscripts for two books, one on the plants of Oklahoma and the other on the birds of Oklahoma. The manuscript for the book on plants is now at the University of Oklahoma. Neither has been published. He published several pamphlets. Some of these were: Weeds, Birds, Nature Study, Beneficial Insects, Injurious Reptiles. One of his friends once said, "Dr. Stevens never found time to publish. He was too busy interesting people, students, to know the things about them."¹²

While Dr. Stevens was in school at Emporia, he married Anna Ruble of Iola, Kansas, who formerly was of Bellefonte, Pennsylvania. He and Mrs. Stevens took into their home six children whom they educated and treated as if they were their own.

Dr. Stevens always planned his summer vacations with a view to exploring a new region. He spent three or four summers at Palmer Lake, Colorado and while there he collected many Rocky Mountain species. He spent one summer in the Osage country. This was before he made his extensive study of the flora of Oklahoma. One summer he visited Arizona and New Mexico, working with the desert plants. He also visited California and Oregon, and made many botanical trips there, accompanied by his friend and co-worker, Dr. Sumner Brooks now of Berkeley, California.

Dr. Stevens' classes were always large and the many who studied with him were inspired by his teachings. "His former students came from seven states to attend his funeral."¹³ Dr. Carter, a former student of Dr. Stevens and later an associate worker with him, said, "His friends in northwestern

¹². From a letter written to me by Mrs. G. W. Stevens.

¹³. Written in a letter to me from Dr. T. C. Carter.

Oklahoma are numbered in the thousands." In 1929, "Rhetor" was dedicated to him with these words, "To Dr. Stevens, whose intellectual honesty, true scholarship and genuine manhood have inspired so many of us to the higher ideals of service, learning, and gentility."

When Prof. Stevens took his "orals" prior to the granting of his Ph. D., the late Dr. Robinson in his introduction to the Board of Scientists who conducted the orals said, "Gentlemen, this candidate, Mr. George Walter Stevens, whom I present from my department is the most versatile candidate that I have ever presented before this board--indeed, the most versatile man along scientific lines that I have ever known."¹⁴

N. O. BOOTH

Nathaniel Ogden Booth was professor of horticulture and botany at Oklahoma Agricultural and Mechanical College in 1914-15. He was horticulturist at the Geneva Experiment Station before coming here. After leaving Oklahoma he went to the Shaw Gardens, St. Louis, Missouri. He also worked in the high schools after he left here. Professor Booth received his B. S. A. from the University of Missouri.

He was a bachelor when he came here, but about 1910-11 he married Miss Rebecca Acheson, Professor of Domestic Arts.

Prof. Booth was a fine featured man weighing about 190 pounds. He had a pronounced habit of shrugging his shoulders. His personality was pleasant but he was not easy to talk with. Another of his outstanding characteristics was his desire for definiteness in his work. He took every opportunity to gain recognition for himself.

¹⁴. Written in a letter to me from Mrs. G. W. Stevens.

ROYAL EDGAR JEFFS

Royal Edgar Jeffs was born in Marshall County, Iowa, December 21, 1879. He was the son of John Jeffs and Rachel J. Pennington. He was graduated from Grinnell High School, Grinnell, Iowa, in 1901, and entered Iowa State College the same fall. At that time, he took work in animal husbandry. Later, he changed to the course in horticulture and graduated in that course in the spring of 1906. "Several courses in botany, zoology, and entomology were required in these divisions and he also took most of the additional courses offered in botany as ecology, plant histology, cryptogamic botany, systematic botany, plant pathology, agrostology, and bacteriology. A classmate of his in all of these courses was Dr. Henry Ness, Ames, Iowa. At that time, Prof. L. H. Pammel was head of the Botany Department and gave most of the lecture work in the above courses. The laboratory work was given by Dr. R. E. Buchanan, now Dean of the Graduate School and Director of the Agricultural Experiment Station at Iowa State College. Practically all courses in zoology and entomology offered at that time were taken by Mr. Jeffs.

After his graduation in June, 1906, he taught botany and other subjects in the Boone, Iowa high school during the second semester of the school year 1906-1907. In the autumn of 1907 he came back to Iowa State College to work for his M. S. degree and during the following three years he also instructed in the botany department, his work being mostly laboratory instruction. During this time, he majored in botany while his minor was taken in entomology under Prof. H. E. Sumners, then head of zoology and entomology. He completed his work for his M. S. in June of 1910 and that fall took up his work as Prof. of Botany at Iowa Wesleyan University at Mount Pleasant.

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Iowa. He held this position for two years but due to poor health, he gave it up. While he was teaching at Mount Pleasant, he met Inez Naomi King, a student, and they were married September 3, 1921. They had one daughter, Betty Francis. During the second semester of 1912, however, he taught in a high school in Illinois. The next year he held a position as professor of botany in Friends University, Wichita, Kansas.

During the school year 1914-1915, he took graduate work toward his doctorate at Nebraska University at Lincoln, Nebraska where he held a fellowship. His doctor's dissertation was on The Elongation of Root-hairs as Effected by Light and Temperature. This degree was received at Iowa.

In the fall of 1916, he came to the University of Oklahoma as instructor in botany. He was later made an associate professor of botany in the University. He was acting head of the botany department from 1925-1927. He continued with his work in the botany department at Oklahoma University until he suffered a nervous breakdown and was forced to give up his teaching work a few months before his death, following an operation for removal of a brain tumor, in the winter of 1933.

Dr. Jeff's was a rather quiet and retiring individual. During his early life, he was not rugged physically although he later overcame this trouble to a certain extent. He was a young man of high standards and ideals. Morally, he was a man of the highest type. While quiet and unassuming, he had a keen sense of humor and no one enjoyed a good joke more than he did. He was considered an unusually excellent teacher as well as a research scientist. Some of his students say, however, that his main work was as a teacher rather than as a research botanist. They had a small department and a heavy teaching schedule in those days and there was not much time for

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research. One of his students, Dr. E. L. Little, Jr. said, "Dr. Jeffs was a good teacher, gave well organized lectures with clear explanations of terms, and a very conscientious worker. He willingly taught extra courses at odd hours to small groups of students who requested them." His courses became very popular and he was well liked by both the general and major students. During all his years as a teacher he was looking forward to the time when he could retire and have a chicken ranch.

Dr. Jeffs was a specialist in plant physiology and seed plants of Oklahoma. "A preliminary list of the ferns and seed plants of Oklahoma," Dr. Jeffs and Dr. Little, "Growth Rates in Plants," Amer. Jour. of Bot., 1926, and "A Key to Ferns and Seed Plants of Oklahoma," 1931, are some of his works that were published. At the time his health broke, he was working on an illustrated flora of Oklahoma.

He was a member of several learned societies, including the American Association for the Advancement of Science, the Botanical Society of America, the Microscopical Society of America, and the academies of science in Iowa and Oklahoma.

Dr. Jeffs did not make extensive field trips. He did make many collecting trips out over the state by himself, with Dr. Van Vleet, and with his various students. He made one early collecting trip to southeastern Oklahoma as far as Antlers. His herbarium was deposited with the University of Oklahoma herbarium.

Another botanist who should be included in "Early Botanists of Oklahoma" is C. W. Prier. He was botanist at Northeastern State College between 1917-1927.

Mr. Prier was educated in the public schools of Missouri, coming to northeastern Oklahoma shortly after 1900. His high school work and college work were done largely in Oklahoma and his A. B. and M. A. degrees were received from the University of Oklahoma.

Nature study was his hobby and he made many collecting trips, especially into the Cherokee hills. Prof. Prier made a collection of grasses of Oklahoma that was the most complete collection in existence until 1927. This collection is in the herbarium at Oklahoma A. and M. College now. It was bought by the college from Northeastern State College after Mr. Prier's death. He never wrote for publication.

CLARENCE DELEBERT LEARN

Clarence D. Learn was born in Clermont, Iowa, September 30, 1875. He received his B. S. from Upper Iowa College in 1909. He was with the Missouri Botanical Garden in 1909-1910 and received his A. M. from Cornell in 1912. In 1909-1910, he was a teaching fellow in botany at Washington University (St. Louis). From 1910-1912, he was an assistant at Cornell University. In 1912, he came to Oklahoma Agricultural and Mechanical College as an instructor in botany and was assistant professor from 1915-1920. He was an assistant in the botany laboratory at the Purdue Experiment Station in the summer of 1910. He was a fellow of the Iowa Academy and was a member of the Botanical Society. Professor Learn went to Colorado State College, Ft. Collins, from Oklahoma, staying there as taxonomist until 1932. From that time until his death, he lived under rather trying financial circumstances.

Professor Learn was a quiet, energetic, reserved man and would not defend himself. He was peculiar in some ways, shown by the fact that he

could not work well with his superiors and associates. He was well-liked by the Aggies but less so by the advanced science students.

Professor Learn married Julia Barde, a daughter of Fred S. Barde, another early botanist of Oklahoma.

CHARLES OSCAR CHAMBERS

C.O. Chambers was born in Van Wert, Ohio, September 7, 1866. He received his A.B. degree in Indiana in 1891 and his A.M. in 1895. From 1910-13, he was a fellow at Washington University, St. Louis, and received his Ph. D. there in 1913.

Professor Chambers career began as a teacher of science in the high school at New Castle, Indiana from 1895 to 1905. He became professor of biology at Georgetown College in Kentucky in 1905 and remained there until 1907. He was with the Pacific College, Forest Grove, Oregon from 1907-1909 and came to Oklahoma Agricultural and Mechanical College as professor of botany in 1915 from the Peabody College for Teachers, where he had been employed as assistant biologist. He became the head of the department and remained until 1924, when he resigned. He was also a member of the faculty at Puget Sound Marine Station in the summers of 1908-19. He was a member of the American Association for the Advancement of Science and the Tennessee Academy.

He was a bachelor, well-liked by everyone. He avoided doing anything to "step on another's toes" even if he had to sacrifice. He went from here to Compton, California.

He wrote long interesting letters characterized by their telegraphic style. He was an interesting conversationalist but conservative and modest. His brilliance became apparent only on long acquaintance.

Professor Chambers suffered from poor health for a number of years, which compelled him to work slowly and made him want to spend long hours by himself. He had an unsuspected wit. He donated his books and some money to Pacific University, in Oregon, to buy equipment for the biology department.

His lectures were deliberate, dry for beginners. He had a soft voice and usually sat down to lecture (because of his poor health). This made his lectures even less interesting. He was a good thinker, however, and was quite an effective teacher of small groups.

He died October 31, 1930 at San Diego. At the time of his death, he was engaged in technical research at the California Technological College; however, he held no regular position after he left Oklahoma A. and M. College.

E.C. ANGST

Ernest Clement Angst was born February 15, 1899 in Chehalis, Washington. He received his B.S. in 1922, his M.S. in 1923, and his Ph.D. in 1929 from the University of Washington, Seattle. In 1927-28, he held a teaching fellowship in botany at the University of Washington.

In 1928-29, Professor Angst was an associate in botany at the University of Washington. From 1923-26, he was an assistant professor of biology at the University of Idaho, Southern Branch at Pocatello, and he became professor of biology at that institution in 1926-27. He was at the University of Oklahoma, September, 1929 to April 18, 1930 as assistant professor of botany.

He was a member of the following societies: The American Association for the Advancement of Science, Sigma Xi, the Botanical Society of America, and The Puget Sound Academy of Science.

The following are some of his publications:

Observations on Pteris Aquilina, Identification of Mesophilic Bacilli,
Some New Agar-digesting Bacteria, and Puget Sound Plankton Diatoms.

Professor Angst died April 18, 1930 in Norman, Oklahoma.

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2. Clipping from Warrensburg Standard-Herald sent to me by Mrs. G.W. Stevens.
3. Clipping from Daily Star-Journal, Warrensburg.
4. Clipping from Topeka paper sent to me by Mrs. R.E. Jeffs.