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A Biography

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FAMILY HISTORY AND EARLY YEARS

Many forces determine the personality and life trends of each individual. Ancestry and the circumstances of the historic time of birth and birthplace seem to mold each individual. No man is born free. So it was with Louis Hermann Pammel, pioneer American botanist, whose ancestors were Prussians.

Pammel Family Origins in Prussia

Louis H. Pammel believed that his ancestors had gone originally to Prussia in the 1300's from Holland where they had been "seafolk". He thought their name had been prefixed with "van". It is highly likely that the early Pammels left Holland because of bad economic conditions, to settle in Prussia with its greater opportunities to gain a living. They chose to settle in Hoexter on the Weser River. There is no documentation for the early history of the Freises, Pammel's mother's family.

For hundreds of years the Pammels were tillers of the soil in Hoexter, where they became farmers of considerable acumen. They gradually amassed large land holdings and acquired reputations as cattle breeders and producers of fine ham and other pork products. These Pammels respected fully their occupation as farmers, bequeathing to their sons their agricultural skills as well as their property and love of land, generation after generation.

Louis Hermann Pammel's parents were born in Prussia at a time when the repercussions of the post-Napoleonic years shook its stability as a nation. His father, Louis Carl Pammel, was born April 19, 1829, in the city of Hoexter in the Prussian province of Westphalia. His mother, Sophia Dorothea Eleanora Freise, was born on August 5, 1834, in the city of Stade in the province of Hanover, Prussia.

The Pammel and Freise families had for generations been farmers and stockmen, living on adjacent farms near Hoexter. So close was the friendship of the Pammels and Freises that the families had intermarried. Louis Carl Pammel's paternal grandmother was a first cousin to Sophia Freise's paternal grandfather. Thus, the parents of the future American botanist were second cousins.

His Father Emigrates to Wisconsin

After 4 years of military service in the Grenadier Guards, Louis Carl decided in 1854 to emigrate to the City of Milwaukee, Wisconsin. He traveled to Stade to discuss his proposed move with the Freises. There he reached an understanding with Sophia that they should marry when he became established in Wisconsin. He would return to Prussia for her. She was then 20 years old and ready for marriage with Louis. Louis Carl, 25 years old, left Prussia in 1854 for New York City, where he entered as an immigrant. After an eight day train trip to Chicago and steamer passage to Milwaukee, he arrived March 13, 1854.

Young Pammel doubtless found his way to a section of Milwaukee then known as German Town, located in the city's northwestern section. Here the residents lived much as they did in their homeland in various parts of Germany. Many did not even speak English nor care to learn it. He found employment in the meat packing plant of John Plankington and Frederick Layton. He had been well trained by the Freise brothers and was soon busy curing and packing beef and pork products.

But farming was his dream, not meat packing. One day, Louis read a report of the Wisconsin State Geologist, describing the southwestern part of the state in romantic terms. This description so captured Louis' imagination that he was reminded of home and decided to see that part of Wisconsin for himself.

Several residents of German Town had already left for Prairie du Chien and La Crosse, towns established in southwestern Wisconsin. They reported back in letters that land was selling for $1.25 an acre in parcels of eighty acres. He read the letters of those who had settled in La Crosse and wanted to see it for himself. He decided, however, to remain for the winter at his job as meat packer. In the spring of 1855 he completed the arrangements for his travel and left Milwaukee by horse-drawn coach to La Crosse, going first to Janesville, Wisconsin, for a change of horses. From there he traveled to Galena, Illinois, where he boarded a steamer on the Mississippi for La Crosse.

La Crosse

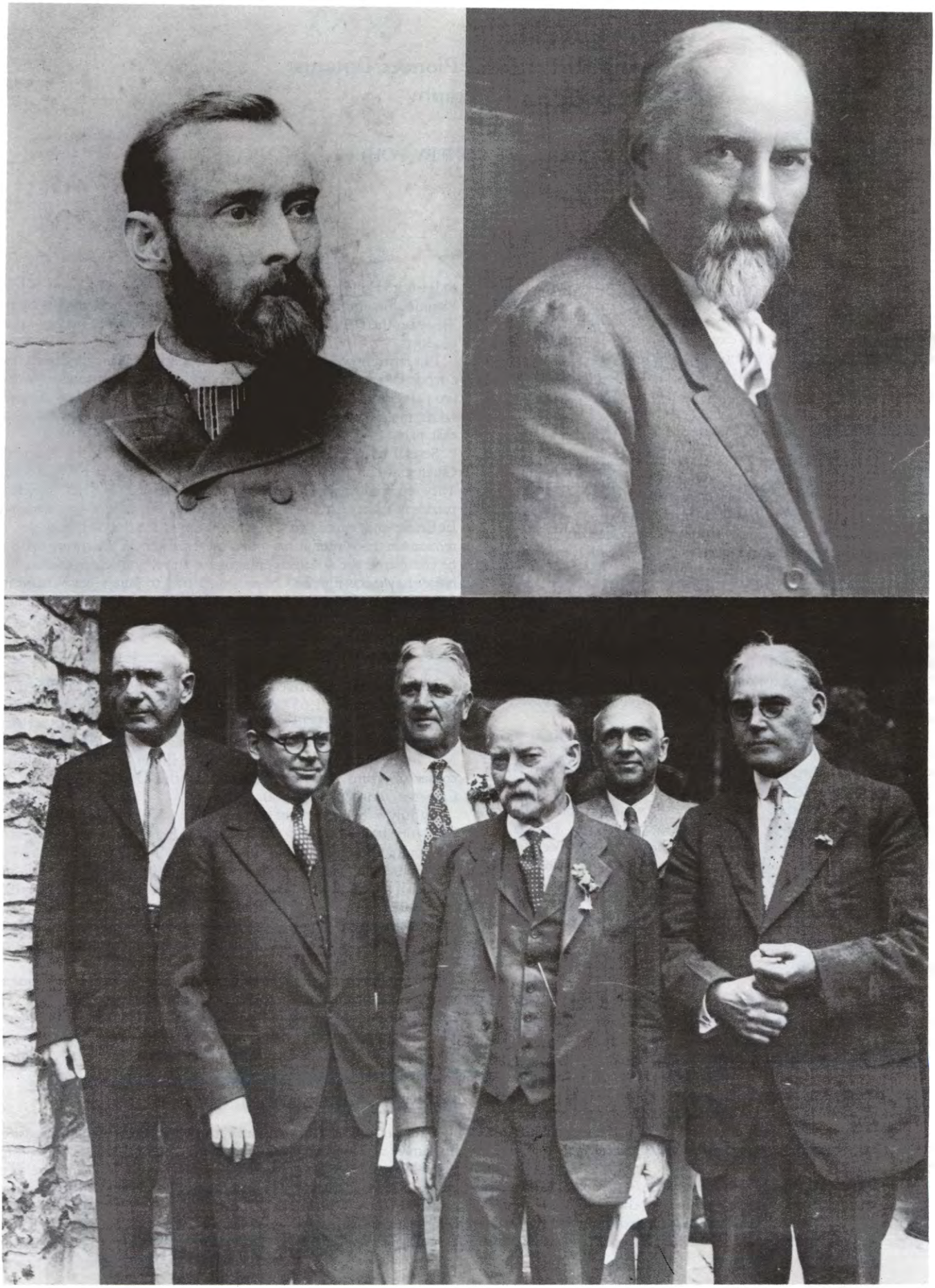
Louis C. Pammel arrived in La Crosse in April of 1855. The town had a population of 1,657 persons, and with a charter from the state, had become a city. He liked La Crosse. It was humming with activity. He made many friends with local Germans and decided to stay. On May 14, he purchased from Henri Phillip Pilger a lot at the northwest corner of Third and King Streets, in the Dunn, Dousman, and Cameron addition, for $300.

By July with the help of a Prussian friend, Louis erected a one and half story frame building on his lot. This home proved to be only temporary for Louis Carl, for in 1855 he took it down and erected on the same site for his wife-to-be a two-story building made of brick, the second of its kind in La Crosse. It no longer exists. After moving into their building, Louis and his friend went into the meat business in the front rooms, supplying meat to local citizens as well as to the lumber camps on the Black River. Indians were frequent customers. Business was good.

During his first winter in La Crosse, Louis decided it was time to marry, so he planned to go to Prussia for his bride, Sophia Freise. He left the business in charge of his partner and took a steamer to Galena, Illinois. From there he boarded a train for New York City, stopping long enough to file his first citizenship papers. He liked America.

Marriage and Return of Louis Carl Pammel

After Louis Carl Pammel had returned to Prussia, he first visited his family at Hoexter, talking to them at length about Wisconsin. Several would later emigrate to La Crosse. Louis Carl then traveled to Stade to meet his bride. He and Sophia Freise were married in her Lutheran Church on March 19, 1856, during Holy Week. The day before Easter the newlyweds sailed for Liverpool, England, and then by the steamer Washington to New York City. From there they



traveled by rail to Chicago. At Chicago they took another train to Galena, Illinois, and then boarded a large river steamer, carrying a thousand passengers, for La Crosse.

Sophia Pammel commented in her diary about this long journey to Wisconsin with sadness. It had cost her some anguish, regardless of how much she loved Louis, to part from her parents and brothers in Stade. She later gave this diary to her son Louis Hermann.

The young Pammels moved into the brick building which Louis and his partner had built in 1855, and all three helped in the meat business. Sophia assisted her husband not only in the cutting and selling of meat, but also in the making of sausage. She also made candles to be sold in the store.

Although Louis prospered in his meat business, he still wanted to own farmland. He started searching for suitable land and in 1860 bought his first 200 acres in the State Road area in Shelby Township south of La Crosse. Here many other German immigrants had already settled.

Birth and Early Years in La Crosse

Four children would be born to Louis and Sophia Pammel in their brick home in La Crosse: Matilda in 1860, Louis Hermann on April 19, 1862; Gustav J. presumably in 1864; and Herman Andreas in 1866. Two more children were born to the Pammels after they moved to their farm: Dora in 1869 and Emma Elise in 1874.

Louis Hermann remembered only that in these early years of his life, his family lived upstairs and conducted the meat business on the first floor at the front part of the building. It was during the selling hours that he saw his first Indians, who were customers. The young Pammel children were instructed not to leave their playthings outside the house as the Indians might take them, attracted as they were to the strange ways and belongings of the white settlers in La Crosse.

As his business prospered in those early years, Louis Carl Pammel purchased an additional 400 acres of land in the State Road area near his first purchase. He purchased more land after the family moved, this time from Alexander Ramsey, then governor of Minnesota. Louis Carl and Sophia Pammel, with Matilda, Louis, Gustav, and Hermann finally moved to their farm in Shelby Township in the spring of 1866.

His Boyhood on the Family Farm

The farm north of State Road had a log house on it, built by John Nagle, an early Shelby Township pioneer settler. The Pammel family moved into it, though it was barely large enough for six people.

Some of the acreage which comprised the Pammel farm holdings had been the site of a prehistoric Indian village. Louis Carl and his son Louis Hermann would soon discover and dig up artifacts of shells, arrow points, and pottery fragments while working their land. Louis Hermann as a child started to collect Indian items of all types.

The first chore for the family after moving and getting settled was the construction of a new well, down which four year old Louis Hermann promptly fell. After his anxious father extracted him, the young child was somewhat amused. Years later he remembered his feelings. "I was curious. All that space."

The winter of 1866-67, their first on the farm, was a very cold one.

FIGURE LEGEND

Upper Left: Pammel as a Junior in the University of Wisconsin in 1884.
Upper Right: Pammel in the late 1920's.
Lower: Dedication of Pammel State Park. Front row, l. to r.: J. N. Darling, L. H. Pammel, D. W. Morehouse, President of Drake University. Back Row, l. to r.: Fred G. Bell, Director of American School of Wild Life; W. E. G. Saunders, President, Iowa Board of Conservation; Charles R. Keyes, Mt. Vernon, State Archeologist.
Photographs from the Pammel Archives in the Iowa State University Special Collections.

Louis Hermann had a clear memory of his father talking about the large number of muskrats killed at the time by hunters from La Crosse who frequented the area for game. Sleet had followed a heavy snowstorm; the animals broke through the ice cover as they scampered through the woods and then could not extricate themselves from the deep snow beneath. The "sportsmen" from La Crosse slaughtered them as they lay helpless and trapped. Louis Carl and his son Louis Hermann viewed with loathing this ruthless killing.

One day the following spring, Louis saw a rattlesnake while exploring the neighborhood near his home. He remembered that he said to it, "You are too pretty to kill." He then threw a stick at it to prevent it from biting him and continued his walk. The snake crawled away. Louis next crossed a small creek to find another snake, coiled up. He recalled that it struck at him, but made no signs of rattling.

Also that first spring on the farm, young Louis Hermann remembered seeing thousands of butterflies and wondering where they came from. Their orange wings, he recalled, flapped in the wind, making an unforgettable sight. Louis Hermann, at the age of five was developing a keen eye for the observation of nature.

In their first years on the farm, the Pammels' farming pursuits included the raising of horses, cattle, sheep, and swine. They also produced hay, wheat, barley, oats, rye, apples, and potatoes. Each member of the Pammel family helped with the farming chores. Louis at an early age assisted his father in setting out young fruit trees, which in time produced many Duchess, Astrakan, Fameuse, and Russet apples.

Threshing, however, was a community affair, with the neighbors helping each other in crews of 12 to 14 men. "Threshing bees" took two weeks to work all the farms in the State Road area. At the time of these community threshing bees, the host farmer provided a lunch for all workers at 10 A.M., and another at 4 P.M. Each meal consisted of sandwiches, hot coffee, and occasionally whiskey, although none of the latter was served to the workers on the Pammel farm. The work day ended at sunset. Young Louis took part in every phase of these "bees" except the feeding of the thresher. He later recalled that, when he was eleven years old, he handled a "cradle" in cutting wheat.

Within a few years of moving to the farm, Louis Carl built another and larger home for his growing family of wife and six children. It was made of stone quarried from the bluffs on his property. This house consisted of two stories with wide porches near its entrance. In his boyhood years Louis Hermann transplanted a red cedar seedling he found near the bluffs, and later, a white pine found in the same area. These were his first attempts at landscaping.

His Father as a Farmer

Looking back to his childhood, Louis Hermann Pammel regarded his father as a progressive farmer, one who always was willing to experiment or try something new. After Louis Carl had extended his farming operations to cattle raising, he planted mangolds, a type of large coarse yellow beet, with which to feed his animals. The stock fattened fast and were sold at a good price in the fall. Louis Carl also constructed a large storage cellar near the family farmhouse to keep the mangolds as well as other vegetables for the winter. This storage idea was a new practice for the farmers in his area.

After the purchase of the "lower" farm of forty acres from Governor Ramsey in 1867, Louis Carl decided to straighten the creek that ran through that land. He dug a hole through a nearby hill to divert the flow of water in the direction he desired. Louis Hermann watched his father with all the intense curiosity of a five year old, as the older Pammel attempted to supply his land with needed moisture during dry periods.

When the McCormick reaper first appeared at an implement dealer's establishment in La Crosse, Louis Carl allowed it to be used experimentally on his farm, but the attempt was not successful. The

reaper was too heavy and cumbersome to be moved except by a five-horse team.

Later on, Louis Carl allowed Senator C.C. Washburn of La Crosse to experiment with a large sugar beet planting on his farm, with seeds furnished by the legislator. The senator wished to have the sugar beet introduced into the agriculture of the United States and needed data with which to present his case before his fellow congressmen in Washington, D.C.

Louis Carl was also the first farmer on State Road to use a drop corn planter and a sulky plow for his corn planting. He also treated his fence posts to prolong their life. He even purchased grade cattle from a German farmer friend in Guttenberg, Iowa, to improve the quality of his cattle.

In the late 1870's the wheat and small grain crops of farmers in the State Road area were almost a complete loss due to grain rusts and smuts. This condition aroused the curiosity of young Louis Hermann. What caused these diseases, he asked his father. Could they be prevented? There was at that time no remedy for these blights. His interest in these diseases presaged his later interest in plant pathology.

The future botanist's father was never too busy to pursue other interests. He went bowling in La Crosse and entertained his bowling companions on his farm, along with fellow members of the Germania Society. Louis Hermann remembered tht his father had many warm personal friends.

Louis Carl had always been a student of history and was widely read as well on many other subjects, a practice he started in his free time when he was in the Prussian military service. He had not had much schooling because of his father's and grandfather's early deaths, which necessitated his going to work on the farm at an early age.

Regretting this, Louis Carl read all that he could and determined that his own children should have as much education as possible. He helped to establish a school library at the country school his children attended. Louis Hermann remembered seeing such volumes as Humboldt's *Kosmos,* Oliver Goldsmith's *Poems,* and the works of Schiller on the bookshelves in that library.

To keep up with the best farming methods, Louis Carl subscribed to the German edition of the "Wisconsin Agriculturist" of which Orange Judd was the editor at the time. The botanist recalled later that whatever Mr. Judd wrote was "gospel" to his father. Louis Carl also subscribed to several German newspapers and magazines.

Louis Carl Pammel, recalling his boyhood days when he had sung in his church choir, and still possessing a fine tenor voice, joined the choral group of Germania, his German club. This group sang on Sunday evenings in La Crosse and participated in Saengerfests, contests with singing groups of the area. The entire family went to hear Louis Carl sing.

The botanist's father also served his community as a member of the Shelby Township Board and as a school director.

His Mother

Louis Hermann remembered his mother with respect, admiration, and affection. Because the family farm operations brought in a very comfortable living as the years progressed, it was not necessary for Sophia Pammel to work in the fields or even in the garden, unless she wished to do so. However, she was busy with the rearing of the six Pammel children, of whom Louis Hermann, her oldest son, was her favorite. They had many long conversations about life back in Prussia while she was growing up. She instilled in her son a feeling of respect for Prussia, her homeland.

To Sophia's lot fell the typical household chores of sewing, cooking, cleaning, food preservation, making of soap, and countless others. She frequently had help and took the time to instruct her daughters in the fine arts of managing a home.

Mrs. Pammel frequently entertained her friends who were members of her German clubs. Louis Hermann later characterized his mother as "a fine hostess, jovial and good natured." She was a model for his future wife.

In his later autobiographical remarks, Louis H. Pammel wrote fondly of his boyhood on the farm:

> "It is with pleasure that I can look back at my training on the farm. It has been a source of gratification to me that my early training led me to look at the marvelous beauty of things about me, the great out-of-doors."

Boyhood Memories

In his boyhood years Louis Hermann had plenty of time to explore the world about him and to wonder at its working. The outdoors would attract him all his life. In those years he had the almost primeval completeness of the La Crosse area to explore — and he did so, fascinated. His mother described him as a solitary child, one who preferred to be alone on his walks outdoors and to read, rather than to play with his brothers and sisters.

An amateur botanist, Dr. Rudolph Gmelin, who lived near La Crosse at the time, explored this region at approximately the time when Louis Hermann was growing up. Dr. Gmelin collected 269 species of flowering plants, now housed in the Herbarium of Iowa State University, due to the efforts of Louis H. Pammel after he became associated with that institution.

The future botanist recalled with pleasure the extensive flora and fauna he observed as a boy:

> "Our woodland teemed with a large number of the most interesting flowers. Wild flowers add charm to one's ramble through fields and woods."

The bell-shaped pasque flower with its bluish coloring and the creamy white American lotus of the Mississippi River bottomlands especially attracted him. In the spring of each year the woods seemed to him a "carpet of wildflowers." He also wrote, "I was particularly charmed with the splendid array of wildflowers found on the rights-of-way of the railways in the area." Such areas were his favorite searching places for plants.

Young Louis Hermann also remembered seeing foxes, wolves, raccoons, gray and black squirrels, chipmunks, ground squirrels, moles, and bobcats on his boyhood exploring walks in Shelby Township. Animals were his friends.

Pammel also observed many different species of birds and wrote especially of the passenger pigeon, now extinct. During their migrations over La Crosse each year, local residents caught them in huge nets, then skinned them and shipped them almost daily to Chicago by the carload, to be sold as food. Louis Hermann commented, "The pioneer hunters of La Crosse did their share towards the extinction of this wonderful bird."

This budding young naturalist noticed fish so abundant in the Mississippi River that they were caught by the wagonload, some of them weighing as much as one hundred pounds each.

Louis grew up at time when annual grass fires in the spring were common, some deliberately set and some ignited accidentally. The Indians in the area set fires to the grass near their encampments to scare out the buffalo which they killed for food and clothing. The settlers who followed the Indians also set fires when they wished to remove the thick growth of grass to clear the land for crops. Such fires in dry years, however, endangered crops and young fruit trees. Young Louis had to assist his father in putting them out, lest they injure their own fruit trees. Perhaps he received some stimulus towards conservation from these observations and experiences.

Of his early years on the farm, Louis Hermann remembers that Frank Samuel, who lived on an adjacent farm, found an Indian cave one day, quite accidentally. Frank had set traps for raccoons at the entrance to a small hole in the ground in a wooded area. One day he decided to crawl in and found himself in a deep cave. On its walls he

noticed crude pictures of various kinds, which later proved to be of Indian origin. He told Louis about this place; together they explored it many times. They did not tell their mothers about these occasions. A local historian who examined these paintings estimated they were 300-800 years old.

Holidays on the farm were fun for the Pammel children, especially the picnics on the Fourth of July. Their parents' organization, the Turnverein, held annual picnics on the farm also. At these picnics there was always a great deal of food, much good talk, and the chance to play with other children. The Pammel children attended dances and theatrical performances in the Germania Clubhouse in La Crosse. They also went to circuses in La Crosse and to county fairs each year. On Sundays the Pammels often hitched up their horse and buggy and visited friends and relatives in other parts of the Township for an exchange of ideas, opinions, gossip and other news.

Althugh Louis Carl and Sophia had been confirmed as Lutherans in their youth, they did not attend services regularly at the First Evangelical Lutheran Church which they had joined. The winter mornings were often too cold to move such a large family from the farm to town. Louis Hermann thus grew up without religious instruction.

School Years

Louis Hermann received his formal schooling in rural schools in the State Road area. The first one he attended in 1867-1868 was of frame construction, located across the road from the family farmhouse. This was the first school erected in the area. Twenty-five students attended with young Pammel. Their first teacher was a Mr. Ed Moore, of whom Louis commented years later. "He was impetuous and hotheaded. Not fit to be a teacher." Whenever one of his young pupils misbehaved, Mr. Moore disciplined him by hanging dead mice in a tree outside the school and holding the offender up in the air to view the dead mice, to scare him into better behavior.

The second school Louis Hermann attended from 1868 to 1872 was a brick building, farther up the coulee. The teacher at that time was Mr. Ed Cronon, a one-armed veteran of the Civil War. Later in his life Pammel wrote to this teacher, "There was quite an improvement when you came to the school." Mr. Cronon taught his young charges mathematics, grammar, history, and geography. Louis Hermann remembered using the McGuffey *Readers* and Swinton's *Grammar.*

Following his completion of fifth grade in 1872, Louis' father decided he needed his oldest son to assist him with his rather extensive farming operations. He wanted to attract this son to devote his life to farming and to pass on to the younger Louis the skills which he had developed in his own experience as a farmer in Wisconsin. Thus Pammel's first period of formal education ended.

However, at night he read books from the school library, such as Samuel Smile's book of famous men. Pammel developed at this point the beginning of a lifelong interest in the lives of men who were accomplishers in various fields. He was later to write essays about a number of such persons.

His mother in the early 1870's wanted her six children to converse in and write correctly the language of their ancestors, so she obtained a tutor who lived in their farmhouse during the winter periods. The Pammel children were required to speak German with their father, even though English was the language in which they were receiving their education and the one that they preferred.

Louis Hermann willingly assisted his father; he had really no other choice. But one day in 1878 he hinted to his parents that he did not want to be a farmer, even though he enjoyed being out of doors. Instead he wanted to go to college at Madison, where the University of Wisconsin was located. Fred Tillman, family friend in La Crosse, advised the Pammels to let Louis go to Madison and look around. He did and liked what he found.

In 1879, when Pammel was 17, he had a letter published in the *American Bee Journal* on bergamot as a honey plant, foreshadowing his lifelong interest in honey plants. His parents were delighted with this show of scholarship. In addition to the farm chores which Louis Carl asked his son to perform, he had permitted him to acquire and care for an apiary. By the time Pammel entered college he had 100 beehives with movable frames and a special interest in bees and honey.

To secure the equivalency of the high school education which he lacked, Pammel first was tutored in La Crosse by Mr. J. Burnham, the high school principal, in geometry, algebra, and grammar. Louis found out he would have to take admission examinations to enter the University. To further prepare himself for these, he attended the La Crosse Business College, where he received instruction in algebra, history, penmanship, and English. He boarded with a Mr. Heib in La Crosse during that winter.

During this period of schooling in La Crosse, Pammel helped organize the "North Western Horticultural Society" with 12 members. He was its treasurer. The object of the society was to "improve the condition of pomology, horticulture, and gardening; to discuss and disseminate information upon all questions pertaining to horticulture." This ambitious society recommended and published a list of fruit trees and shrubs suitable for planting in the La Crosse area.

Louis Hermann took his entrance examination in early 1881. He passed all but mathematics, but was admitted conditionally. He was one of 66 freshmen entering the University that year.

Louis H. Pammel emerged from his boyhood years on the farm with several distinct botanical interests: in seeds and germination, in crop diseases, in wild flowers and bees, and in conservation.

College Years

A few months after his 19th birthday, Louis H. Pammel arrived in Madison, late in August of 1881. He was slender and had sandy reddish hair and gray-blue eyes. His thin face was moustached and bearded in the fashion of the time. His complexion was ruddy from years of outdoor exposure. Although generally of serious countenance, his eyes, keen but kind could crinkle up in amusement.

In 1881 Madison had a population of about 11,000 and looked like a small town, even though it was the state capital. With broken stone and gravel streets, Madison had one large building known as the Opera House, and the usual collection of businesses, professional offices, and boarding houses, primarily existing to serve the legislators and college students living in the town.

William Trelease, a graduate of Cornell University in Ithaca, New York, arrived in Madison in 1881 to teach botany. This was a happy coincidence for the botanical development of Pammel, a freshman student in the School of Agriculture. Trelease had received additional training at Harvard and Johns Hopkins. At Harvard he had taken part in an important study of insects affecting cotton and had published a significant paper on pollination. Trelease passed on to young Pammel these two interests, which in time fascinated the younger botanist. In his later life, Pammel wrote to Trelease, "What I have done in botany, I owe to you. I was a raw country boy when I worked with you at Madison".

Once admitted formally to his freshman classes, Pammel moved into North Hall Dormitory and arranged to take his meals with a private family, presumably that of Trelease's daughter-in-law.

Students in their freshman year in Agriculture were required to take mathematics, science, French, German, rhetoric, mental philosophy, logic, and English literature. Pammel remembered using Wilhelm Meister's *Lehrjahre* with Professor William H. Rosenstengel. Pammel was a good student and his grades were excellent.

During the summer of 1882, following the completion of his freshman year, Pammel worked on his father's farm at La Crosse, as he did throughout the summer vacations of his college years. In spite of

his arduous duties and long hours on the farm, Pammel managed to go on many field trips during his vacation periods. He began to collect the flora of the area.

In his sophomore year Pammel began his work in botany. It included courses in ecology, cryptogamic and taxonomic botany. Each was taught by Trelease and was to be of major interest to Pammel for most of his life. These classes went on frequent field trips to Dead Man's Lake, Kilbourn City (now in Wisconsin Dells) and places near Madison. In his class were Rose Schuster, B. M. Vaughan, and Norman Van Dyke. The latter two and Pammel became inseparable friends. Rose Schuster remained his friend after college. She married an Iowan, eventually lived in Sioux City, Iowa, and later assisted Pammel with his conservation work in Iowa.

Pammel received his first botanical laboratory instruction in Old Main Building on The Hill in 1882-83. The class used a text written by C. E. Bessey, issued in 1881 by Henry Holt Co., New York, entitled *Botany for High Schools and Colleges*. Pammel later used it at Iowa Agricultural College.

Pammel wrote later:

> "When I began the study of botany at the University of Wisconsin in 1882, we were concerned briefly with the classification of plants. At the time we had only passing interest in the study of the diseases of plants. The germ theory of disease was just entering the scientific world."

It was in 1882 that Dr. Robert Koch of Berlin, Germany, announced his discovery of the tubercle bacillus. He had previously in 1876 discovered the bacterial cause of anthrax.

Early in the spring of his junior year Pammel wrote a letter to J. C. Hilgard, Superintendent of the U.S. Coast and Geodetic Survey in Washington, D.C., seeking temporary employment during the summer months of 1883. This position was not granted him. Pammel felt he wanted to get away from a summer on the farm, to broaden his horizons as he thought about what he wanted to do when he graduated from the University of Wisconsin.

After his course in cryptogamic botany, Pammel became interested in the parasitic fungi. In his collecting trips while he was still in college and during the summer, he found 200 parasitic fungus species, including several new ones. One new species was a fungus with interesting spore characteristics, growing on a grass; another was a rust on late-flowering spurge, later named for him. Also he found for the first time in Wisconsin a downy mildew on lettuce. Pammel sent a set of these parasitic fungi to Trelease in Madison and kept a set for his own private herbarium.

At the suggestion of Professor Trelease, Pammel began in 1883 a study of the seeds of several leguminous plants. He continued this in 1886 and 1887, but then dropped it. He took it up again in 1896 when he started work on his Ph.D. degree at Washington University in St. Louis.

Professor Trelease also introduced young Pammel to bacteriology, then an exciting new study in American botany.

Pammel later wrote:

> "As a student in the University of Wisconsin in 1883, 4 and 5, I became interested in the subject of bacteriology through the work which Dr. Trelease was doing. He talked many hours on the subject to a few of his students and even went so far as to make culture bouillon medium to grow them for us."

Pammel had observed the plant diseases which affected his father's crops and wondered if perhaps he could in the future work for their elimination to help farmers.

In the autumn of Pammel's senior year, Trelease decided to leave Wisconsin to work for a doctoate at Harvard University, but he had already aroused in Louis a deep interest in botany as a possible life's work. Furthermore, the importance of bacteriology to agriculture was emerging in Louis' mind with great clarity as he grasped its significance. He would seek permission to teach this subject when he arrived at the Iowa Agricultural College in 1889.

Not knowing exactly what he wanted to do when he graduated from Wisconsin, Louis wrote a letter in the fall of his senior year to the Chicago Medical College, seeking employment as a teacher of botany after his graduation. The study of medicinal plants was an integral part of medical education and practice at that time. The clerk who replied to his letter informed Pammel that the medical school employed no teachers of botany, but he believed Pammel could find employment after he had graduated.

Pammel knew by then he did not want to be a farmer, but he recalled many times in his later life that in his college years he did not think botany justified the "full application of a man's entire life to its study." He thought it was at best an avocation, worthy of a man's spare time and consideration, enabling him to be outdoors to enjoy the beauty of the world about him.

His life work not yet determined, Louis enjoyed himself socially when he was a senior. He saw briefly a Miss Siefert of Madison, a college woman. Women were definitely "on the scene" in Madison. They were encouraged to matriculate and take whatever course of study they desired.

In his senior year, Pammel, with the help of Trelease, organized the Natural History Society, which in later years became the local chapter of Sigma Xi, a national scientific honorary. Pammel gave a talk on butterflies for this club. He also took part in the debates of the Hesperian Society, one of two such forensic campus groups. Pammel was a charter member of the *Deutsche Bildungsverein*. He did not join a fraternity, but had no strong opinions against them. He preferred to invest his spare time in field trips.

As a senior he made contact with the Grace Episcopal Church in Madison, attending services there with his friend Norman Van Dyke. Pammel found he liked going to church. He was also active in the Unitarian Society on campus. The matters of God and the universe, of man's reason for being on earth, and the relationship of religion to science concerned Louis H. Pammel. As a college senior he was looking for a religious philosophy that would satisfy him.

In their final year at Wisconsin, graduating seniors were required to take a course in philosophy with John Bascom, then the University president. Scholarly and strict, Bascom firmly believed that the core of each man's life should be religion, primarily in some form of communication with one's Maker. It is possible that Pammel also attended Bascom's Sunday afternoon talks on social philosophy as exemplified in a Christianity with a dynamic approach to life.

Early in his senior year, Pammel and his two close friends, Bryde McKee Vaughan (known as B.M.) and Norman Van Dyke, decided to go to Chicago to attend a dance. On this occasion Louis met the woman who later became his wife. She was Augusta Marie Emmel of 500 Wells Street, Chicago, the older daughter of Peter and Caroline Emmel. Born in January of 1861, she was 15 months older than Louis.

Louis and Augusta thoroughly enjoyed themselves at the dance. She confided to him that her nickname was "Gussie". Louis noticed that she possessed all the feminine graces of young womanhood. She told him that she enjoyed music, that she sang and played the piano, and confided that her mother was teaching her how to cook. Shorter than Louis by a head, she was petite — barely five feet. Louis noticed that she had soft brown eyes and hair. Gussie was quite impressed with this tall handsome college man from the University and Louis was captivated by Gussie. He could not get her out of his mind and wrote her several times.

With senior finals over and grades made public, Louis prepared for graduation in late June, 1885. The weather was splendid for graduation week. His parents arrived from La Crosse for the ceremony and so did Gussie, accompanied by her parents. They wanted to inspect this possible suitor of their older daughter. Louis wanted her to see what

life at Madison was like.

The class of 1885 graduated 38 men and 12 women at the 32nd annual graduation of the University. The first event of Commencement Week was the Baccalaureate Sermon on Sunday, June 22 at 3 P.M. in Library Hall. John Bascom, as president of the university, preached from a text taken from II Samuel, Chapter XV, Verse 6, on the subject "Hero Worship." One thought from this sermon remained with Louis throughout his life. Bascom declared eloquently, "There is but a single and true, one sufficient and universal center to the human soul, that is the belief in the worship of God." Pammel as a scientist would find no conflict between science and religion. God had His realm of creating; man had his of worshipping God and the enjoyment of the divine plan.

The second event of Commencement Week took place on the morning of June 23 in South Chapel, the reading of the Honor Theses of the graduating seniors. There were eight of these, including that of L.H. Pammel, candidate for the degree of Bachelor of Agriculture. His title was, "On the Structure of Several Leguminous Seeds." This was later published in the *Bulletin of the Torrey Botanical Club* in 1886. This reading enabled L.H. Pammel's name to be listed on the graduation program as a graduate with special honors.

Class Day, the third event for graduating seniors, was held the following day, June 24, also in Library Hall. On this occasion the seniors with the highest grades gave orations: the valedictory, salutatory, and the class history. Pammel was not one of these orators nor was he mentioned in the Class History.

Graduation finally took place on Wednesday, June 25, at 9 A.M. in Library Hall. The Pammels of La Crosse, Wisconsin, were very proud of their oldest son, Louis Hermann, as he received his degree of Bachelor of Science in Agriculture. He was the first Pammel in the memory of his father to achieve such distinction. That night the final event for the class of 1885 took place, the Alumni Reception in Library Hall. After speeches welcoming the new graduates, the Alumni officers had the floor cleared at 10 P.M. for dancing that continued until 2 A.M. to the music of Leuders' Orchestra from Madison. Gussie was very proud of Louis. From the attention he gave her at the dance, she felt sure he was interested in her.

The next day the tired but proud seniors with their families and friends left Madison for their various destinations with the class song of '85 ringing in their ears:

"Gather now, O 'Eighty-five,
All our labor bravely done,
Lift your voice, daughter true,
Join the song, each loyal son.

Come, are there not bonds we love
That constrain our hearts today,
Bonds that college days have wrought
Closely round our hearts for aye?

Gather then for one last song.
Let us sing, our labor done.
Rest and sing, O 'Eighty-five.
Finished the course, the laurel won."

Post graduate years

After a brief vacation on the family farm at La Crosse, young Pammel decided to seek work in the Chicago area. He had made up his mind not to devote his life to farming and hoped his father would respect this decision. Louis Hermann did not know what he wanted to do with his life, but in Chicago he would be near Gussie and could also collect plants. She might even go with him on his collecting trips; she had shown some interest in botany when he had talked to her about his college courses in botany.

Early in July Louis traveled to Chicago and obtained work in a Chicago seed house at a salary of $50 a month. In addition to its operation in its Chicago laboratory, the company maintained experimental plots in Michigan, in the Traverse Bay area. The owner was so impressed with Pammel's diligence in his work that he decided to take him along to inspect the experimental plots. They left Chicago at night by steamer and arrived the next morning across the lake at Frankfort, Michigan. With time on his hands before the next leg of the journey, Louis walked to the nearby grocery store where he started talking to the owner about his work with the seed company. He found it easy to talk to strangers. In the course of the conversation, the store owner told Pammel that he had been a student of the botanist W.J. Beal at Michigan State College, and commented, "It is just a question of who is the greater botanist, Dr. Beal or Dr. Gray." Pammel replied that Dr. Gray of Harvard was one of the great botanists of the United States, if not of the entire world. Little did he know he would be working with Dr. William Farlow, a colleague of Gray at Harvard, by December of that year.

Pammel decided that work with the seed company was not a permanent occupation, even though he enjoyed what he was doing. He therefore decided to apply for admission to Hahnemann Medical College in Chicago, one of several homeopathic medical colleges in the United States. One of the Pammel family physicians had attended Hahnemann and recommended it to Pammel. Louis was admitted and started classes in October of 1885.

Harvard University

In early November Pammel, the medical student, received a letter from William G. Farlow of Harvard University in Cambridge, Massachusetts, which read in part:

> "I wish to secure an assistant and your name has been mentioned to me (by Trelease). The work consists largely of indexing fungi. There may be some microscope work. I paid Mr. Seymour (his assistant at the time) $25 a month, then $45 when he was more skillful. One day a week the assistant has free."

Pammel read the letter over several times. He was enjoying his medical work at Hahnemann, but since he had been recommended by William Trelease for the position he decided to accept Farlow's offer. Maybe a career in botany was the answer to what he would do with his life. He would enjoy being again with botanists. His decision did not completely please Gussie, even though she knew of Louis' devotion to plants and his desire to invest his life in work he would thoroughly enjoy. The disadvantages as she saw them were that Cambridge was far away from Chicago and that Louis had not yet asked her to marry him. However, she accepted Louis' decision with good grace. He promised he would write faithfully from Cambridge.

Louis ate Thanksgiving dinner at the Emmels'. He told them he did not know how long he would be employed at Harvard. Before Louis said goodby to Gussie that night he and she reached an understanding about their future. They would marry but would not become formally engaged until he was established on a sounder financial basis.

By 1885, Boston, together with Harvard University, had become the Athens of North America, culturally and educationally. Harvard, founded in 1636, had achieved by the mid-eighties an enrollment of 1180 undergraduates and listed 90 professors.

Botany at Harvard in the decade prior to 1885 was almost entirely confined to gross morphology and the classification of flowering plants. At the time the compound microscope was still quite crude. An effective microtome had not yet been devised. Furthermore, plant anatomy was restricted to a few of its more obvious facts and generalizations. Cryptogamic botany, the study of lower plants, was a subject largely dependent on microscopic research and hence little advanced.

One of the Harvard faculty members, Asa Gray, M.D., had been named professor natural history and gave lectures on wildflowers. Gray had started accumulating a large herbarium of the American

West during the years 1840-1860. Scientists and physicians frequently went along on these expeditions to collect plants. Gray received thousands of specimens, many of which would later be designated as nomenclatural types. He and his assistants worked diligently to identify them and give them scientific descriptions and names. By 1865, he had a herbarium of about 300,000 specimens. The herbarium was subsequently named for Gray.

By the early 1870's Dr. Gray wished to be relieved of his teaching duties and the herbarium routine. He wanted time to prepare a Flora of North America. The University therefore hired four men between 1872 and 1874 to take over the botanical phases as they developed at Harvard.

These men were William G. Farlow, professor of cryptogamic botany, Sereno Watson, Curator of the Herbarium; Charles S. Sargent, Director of the Botanic Garden; and George L. Goodale, plant physiologist.

Louis H. Pammel arrived in Cambridge in early December of 1885, to work with Farlow. He first rented a room on Story Street and arranged for his meals. He then visited the Harvard Herbarium to meet Dr. Farlow, his employer. Dr. Gray was there. Pammel introduced himself. Gray replied, "Yes, I know you. You are to be with Dr. Farlow. I saw your paper in the *Bulletin of the Torrey Botanical Club.*" This publication was Pammel's honor thesis, written when he was a senior at Wisconsin.

Pammel commented later that it was amazing that a "youngster" just out of college should have a paper read and remembered by the eminent Dr. Gray of Harvard. This experience and contact with Asa Gray gave Pammel inspiration and direction toward a career in botany.

In addition to the work of assisting Dr. Farlow with indexing fungi, Pammel audited a course in entomology and went on short field trips every Saturday afternoon in the Boston area. On one such trip he went to a large marshy area in the vicinity of Boston, known as Purgatory Swamp. Late that afternoon he was returning to Boston with an armload of wildflowers and lost his way in a slum section of town. He was soon surrounded, he says, by a horde of children, who asked him for some of his "pretty" flowers. "I wouldn't part with them" he remembered, "not even for those poor children."

During his year at Harvard, Pammel belonged to the Natural History Club which met twice monthly in one of the college buildings. Its speakers presented topics of botanical interest to large audiences of students and townspeople. Pammel also heard talks given by Charles Francis Adams on railroads and sermons by the eloquent Reverend Phillips Brooks, the Rector of Trinity Church.

Though he had reached an understanding to marry Gussie Emmel, Louis met another young woman, May Vernon, a music student at the New England Conservatory of Music. On March 8, 1886, she sent him a note, enclosing tickets for him to use to attend the quarterly concert which the Conservatory students presented for their friends and relatives. It is not known whether young Pammel attended the concert, but he saved the note.

Later in the spring of 1886 Pammel received by letter an offer from the Henry Shaw School of Botany in St. Louis, Missouri. Dr. William Trelease, his former botany professor at Wisconsin, wanted to hire him as his assistant. Pammel decided to accept this offer. The idea of becoming a botanist was now clearly established in his mind. He would enjoy working with Dr. Trelease.

Before he left the Boston area, Pammel decided he would take one more field trip, this time to Mt. Washington in New Hampshire. This highest peak in the White Mountains was a favored collecting place for Harvard botanists. Acting on Dr. Farlow's advice, Pammel took a steamer to Portland, Maine, and then went by train to Gorham, New Hampshire. From that small town he walked up a mountain path to Halfway House, a hotel where he spent the night.

The next morning after breakfast, he left with a sandwich furnished by the dining room cook, and walked up the rest of the mountain to the Summit Hotel, where he left his lunch and vasculum on the porch. He went in to the office to inquire whether any of his Boston friends had checked in. None had. He then left for his collecting trip, hearing a porchsitter remark, "That stray dog sure had a good ham sandwich." Pammel thought nothing of the remark at the time.

The young botanist continued his walk to Tuckerman's Ravine, which he descended to collect plants. Dr. Farlow had warned him this was a dangerous walk, rocky and steep. Pammel worked his way down carefully, collecting as he went along. When noon came, Pammel sat down to eat his lunch and soon discovered that there was no sandwich in the wrapper. The dog on the hotel porch had eaten his ham sandwich. Doing without sustenance, Pammel collected for several hours more, then went downstream to another small inn, Glenn House, where he had supper for 75 cents, according to his notes. In order to save money, he decided to walk the twenty miles back to Gorham, instead of taking a coach. This took him some hours. He arrived past midnight, rather tired. In the morning he walked yet to another peak, Mt. Jefferson, for more collecting. Later that afternoon he boarded a train for Montreal to look over that city.

Pammel returned that next day to the United States and eventually to La Corsse where he told his parents about Boston, Harvard University, and his collecting trips. He spent a few weeks in Chicago to be near Gussie. They became engaged to be married.

The Missouri Botanical Garden

Pammel left Wisconsin for St. Louis in late September. That charming old city of two rivers had then a population of about 350,000 persons. The Missouri Botanical Garden, located in St. Louis and known locally as Shaw's Garden, was first opened to the public in 1860. The museum and library which Henry Shaw had erected at the Garden were copied from buildings at the Kew Botanic Gardens near London. At this time the Garden consisted of 65 acres; in time more land was added.

By 1885 a School of Botany, named for Shaw, was established at the Garden with academic connections with Washington University in St. Louis. The Garden by then had a laboratory, library, arboretum, and greenhouses. Professor William Trelease, after taking his doctorate at Harvard, was appointed the first Director of the Garden in 1885. He also held the title of Professor of Botany. He chose Louis H. Pammel, his former student at Wisconsin, as his assistant. Pammel's work at the Shaw School began in early October, with a salary of $50 per month for the eight months of the academic year.

Dr. Trelease, Pammel's employer, was not in St. Louis when he arrived. Trelease had secured a leave of absence to go to Europe to study bacteriology with Dr. Robert Koch in Berlin, Germany. Trelease returned to the United States with some anthrax spores. In time he would give some of the spores to Pammel for his own experimental use. After his return to St. Louis, Dr. Trelease gave the first course in bacteriology ever offered in the United States to the physicians of the St. Louis area. Young Pammel audited this course, sharpening his own interest in the subject.

Since Trelease was not at Shaw's Garden when Pammel arrived in St. Louis, the young botanist first called on Henry Eggert, an amateur plant collector who lived in East St. Louis, Illinois. Trelease recommended to Pammel in a note that he should become acquainted with the flora of the area with the help of Eggert. The two went on several field trips during Pammel's stay in St. Louis.

After the 1886 fall semester had begun, Pammel was busily engaged in his duties as Trelease's assistant, but had time to go on many collecting trips in the St. Louis area. At the suggestion of Dr. Trelease, Pammel continued his study of the seeds of several leguminous plants, which eventually developed into his dissertation for his doctorate at Washington University.

The courses at Shaw's School included practical microscopy, sedges, microscopic fungi, ferns, wild flowers, and the structure and life history of ferns and mosses. The courses were primarily intended for teachers in the public schools of St. Louis and vicinity and the general public, but were also offered as electives to students at Washington University.

Young Pammel was assigned to display the Garden and facilities of this "Kew of the West", as Asa Gray had described it, to distinguished visitors. Among them were Dr. C.C. Parry and Dr. Alfred R. Wallace, the famous English naturalist. Pammel described Wallace as a "sparely built man with a full beard."

In the course of his nearly three years at the Garden from 1886 to early 1889, Pammel had many conversations with Henry Shaw, its donor, then nearly eighty years old. Sympathetic to the financial needs of the younger man, Shaw added another twenty-five dollars a month to Pammel's salary, for which the young botanist was to catalog the books in the Garden's botanical library according to Shaw's specifications.

Before the fall term of 1886 was over Pammel realized that he wished to become a botanist and applied for admission as a graduate student at Washington University in St. Louis. He was accepted and planned to work with Trelease at the Shaw School.

Early in 1887 Pammel's second botanical publication appeared in the Annual Report of the Minnesota Horticultural Society under the title, "Weeds of southwestern Wisconsin and southeastern Minnesota." He had expanded this from a paper written in his college years, which he claimed had first been published in Colman's *Rural World* in St. Louis. One other paper also appeared in 1887: "On the pollination of *Phlomis tuberosa* L. and the perforation of flowers," published in the *Transactions of the St. Louis Academy of Science.*

Pammel Marries

When the semester was over in late May Pammel returned home to prepare for his wedding to Augusta Marie Emmel on June 29. The ceremony was held at 5 P.M. in the home of the bride's parents, with Pastor R.A. John of St. Paul's Lutheran Church, Chicago, officiating. Pammel's two college friends, Van Dyke and Vaughan, were present. After a brief honeymoon in Madison and La Crosse, the young couple arrived in St. Louis for the opening of the fall term of Pammel's second year at the Missouri Botanical Garden.

Louis and Gussie enjoyed life in St. Louis. They went to fairs at the Exposition Grounds, on field trips, to concerts and attended the Episcopal Church which Louis finally decided to join after his wife accepted membership in it. They were also frequently entertained by faculty members of the Medical Department of Washington University. The young Pammels were an interesting couple, even if Louis did most of the talking. He was an expert conversationalist, well versed in many subjects.

Six children would be born to Louis Hermann and Augusta Emmel Pammel. They were Edna Caroline, June 1, 1888; Harriett Mathilda, December 27, 1890; Doris Marie, March 29, 1892; Lois Hermina, January 28, 1894; Violet Emmeline, September 22, 1895, and Harold Emmel, January 23, 1897.

Pammel's Research on Cotton Disease

Seeking employment for the summer of 1888, Pammel had in the late fall of 1887 decided to take an offer of summer employment at Texas Agricultural Experiment Station at College Station, near Bryan, Texas. Professor Frank A. Gulley, Director, had written to Trelease, asking him to suggest someone to go to Texas to investigate the cotton rootworm, believed to be killing young cotton plants. The destruction which resulted was costing Texas three to four million dollars yearly. Trelease recommended young Pammel for the job.

Before the Pammels left St. Louis for this summer job, the new father decided to go on one more collecting trip, taking his wife and infant daughter with him. They went by ferry to Cohokia, Illinois. At the time of their intended return, they missed the ferry and Louis had to secure the service of a boatman to row the three of them across the Mississippi. While they were returning, a heavy rainstorm developed which nearly blinded the rower with its intensity. Louis feared the boat would tip over and they would all be drowned. Luckily, they all arrived safely back in St.Louis, drenched to the skin.

By June 26 the Pammels were on their way to Denison, Texas, a very tiring trip. Here they had to change to another train which took them to Corsicana, then make another change for the final part of the journey to College Station.

On this last leg of the trip, the train engine could barely pull its load over the low hills in the area. It had to make frequent stops, during which Louis jumped out to collect whatever plants he could find on the railroad right-of-way. These areas were of great interest to him during his lifetime as a botanist. He regarded them as outdoor museums of plant life and would many times attempt to preserve them by writing pleas to railroad companies.

The Pammels, tired and hot, arrived at College Station on June 21. Louis had previously made arrangements for them to live in the dormitory which had emptied out for the summer. College Station was connected with the Texas Agricultural and Mechanic Arts College which had been founded in 1881. By 1888 it had a thousand students and one large building for recreation, lectures, laboratories, and offices, in addition to one dormitory. Most of its faculty lived at Bryan, five miles away.

Louis' study that summer on the cause of root rot of cotton plants took him to many parts of Texas for examination of the diseased plants. At these times he also collected plants of the local flora to add to his own herbarium. As he carefully examined thousands of tiny cotton plants, he noticed that at first one plant died, and then two or three close to it also. Cultivation made the condition worse. He became convinced that the commonly accepted theories about the cause of the root rot were incorrect. The rot was not caused by worms, but by a fungus mycelium, which he finally succeeded in culturing during the summer. Pammel concluded that the fungus was parasitic and was not *Ozonium auricomus* as Dr. Farlow at Harvard advised him to call it, but that it was probably a Pyrenomycete. It was finally named by Benjamin Duggar as *Phymatotricum omnivorum.* Pammel's conclusions were published as Bulletin 7, Annual Report for 1888 and as Bulletin 4, 1889, of the Texas Agricultural Experiment Station.

Pammel's work was considered throughout the United States as one of the outstanding pieces of research carried on at an Agricultural Experiment Station. He received many congratulatory messages about it and later used this research for his master's degree at the University of Wisconsin.

To eliminate the fungus and thus the root rot, Pammel experimented with fungicides such as chlorinated lime and sulphate of lime. The soil into which he put these agents grew healthy cotton, but it was so late in maturing that it did not produce a crop. Pammel finally recommended that in order to control the fungus, farmers should rotate their cotton fields and remove certain weeds, such as the prickly *Sida,* to cut down the incidence of root rot, which so easily spread from plant to plant in close proximity. His ideas from part of the principals of which has now been called "integrated pest management."

The Pammels remained in Texas until September of 1888 when they returned to St. Louis for Pammel's third year at the Shaw School. He was pleased the following month to receive a letter from Professor Gulley asking him to return to Texas in the summer of 1889 to continue his work on cotton root rot.

Pammel's Arrival at the Iowa Agricultural College

As the young Pammels were preparing for Christmas that year, they heard about a position available in the new agricultural college in

Ames, in central Iowa. Iowa, with its gently rolling landscape and rich soils, had been admitted to the Union in 1846. Approximately 85% of the state was originally prairie — vast, unbroken, thick with grasses. These prairies were destined to become the richest farmland in the United States. Pammel later described this virgin land as "A carpet of wildflowers from the Mississippi to the Missouri."

Iowa's early governors and lawmakers had displayed an interest in providing a college to assist its farmers. On March 22, 1858, Governor Ralph P. Lowe signed a bill providing for the establishment of a State Agricultural College and Farm, "which shall be connected with the entire agricultural interests of the state." The Governor also appointed a Board of Trustees and approved an appropriation of ten thousand dollars with which the trustees were to purchase a farm, erect the necessary buildings, keep accurate records, establish professorships, and open a college, as soon as they could.

This Enabling Act stated that instruction was to be offered in 19 subjects, including botany. It specified that botany was to include instruction in fruit-growing, horticulture, forestry, vegetable anatomy, and general botany, with application to farming interests. Botany afforded the foundation for the applied sciences of horticulture and farm crops.

As soon as conditions made it possible, the trustees purchased 648 acres of land in Story county, west of the Squaw branch of the Skunk River. They also agreed on four professorships for the new college, one of them in botany.

In 1861, the two-story brick building, known as the Farmhouse, and a cattle barn were erected. In 1868, the initial unit of the first instructional building, called "Main" was erected. This was a multi-purpose structure with a kitchen, dining and living rooms on its first floor and dormitory accommodations, recitation rooms, a chemical laboratory, and a "museum" on its upper floors.

The infant college received a stimulus to growth by the Morrill or Federal Land Grant Act of 1862, with its grant of 240,000 acres of Iowa land which could be used for college purposes as the Trustees saw fit. The College and Farm opened for admission and instruction of students on March 17,1869. Two courses were offered — one curriculum in agriculture and one in engineering. Botany was an integral part of the former.

In 1870, Charles E. Bessey, then 25 years old, came to the Iowa Agricultural College from the Michigan Agricultural College, as Iowa State's first professor of botany. The following year he established the Herbarium and in 1871, an experimental botanical laboratory, the first of its kind in the United States. Interest in botany among the college students increased rapidly, largely due to Bessey's personality. In 1872, the first graduate degree awarded by the College was granted to J.C. Arthur in botany. As the College grew, additional facilities were added. North Hall was constructed for the use of the curricula of Agriculture, Veterinary Science, and Botany.

In 1884 Charles Bessey decided to leave the College for the University of Nebraska. Byron D. Halstead, with a doctorate in Science from Harvard, was hired to replace Bessey. After four years at the college, he also decided to leave for Rutgers University in New Jersey. The Board of Trustees acted to fill the vacancy left by Dr. Halstead. The Board consisted of College President William I. Chamberlain, Edgar W. Stanton as Secretary, and Herbert Osborn. They offered the vacant position to Seymour, who turned it down. Upon Seymour's recommendation, Pammel applied for the position, stating his educational qualifications, teaching experience, and religious affiliation. He submitted a picture, about which Chamberlain later commented, "You had a vety sad expression." Dr. Trelease helped his assistant fill out the blank, believing that Pammel had a brilliant future.

Pammel was somewhat annoyed about the question regarding his religious preference, even though he was a churchgoer and a believer. So he answered that part of the application, "I attend church with my wife who was a Lutheran and also services at the Methodist, Episcopal, and other churches." He continued his explanation:

> "In my college days I was somewhat inclined toward the Unitarian Church and in St. Louis I became strongly attached to the Episcopalian Church."

The committee narrowed its choice to two applications: Louis H. Pammel and one other person, unknown at this time. Edgar Stanton traveled during the fall of 1888 to St. Louis to interview Pammel. He, wanting the position, invited Stanton to supper several nights. Gussie was an excellent cook and Stanton was impressed with them both.

At the time of the voting for Halstead's successor, Chamberlain did not want to hire Pammel. He favored the other candidate who had excellent recommendations but admitted he knew practically nothing about botany. However, he could conduct chapel services when necessary. Pammel had excellent recommendations from Trelease, from W.A. Henry, Pammel's former professor of agriculture at Wisconsin, and from William Farlow at Harvard. Professors Stanton and Osborn spoke so highly in favor of Pammel that Chamberlain changed his mind and they voted unanimously to hire him as professor of botany and officer in the Experiment Station.

Dr. Chamberlain remarked to the committee, "I guess Pammel is the man for the job." Later when Pammel heard from Stanton about Chamberlain's initial reaction to his candidacy, he never forgave him. Pammel was not sorry when Chamberlain left the college in 1890. Stanton, as Secretary of the Board of Trustees informed Pammel of the decision to hire him as professor of botany and officer in the Experiment Station. His duties would start February 27, 1889.

The General Assembly of Iowa, in 1888, had passed an act to establish an Experiment Station on the Ames Campus, following the passage of the Hatch Act by the Congress of the United States in 1887.

In late February, the young Pammel family left St. Louis for Ames, Professor Osborn met them at the train Depot in downtown Ames on a blustery winter day and gave them lodging in his home until their campus cottage, the Pines, was ready for their occupancy. Pammel brought with him some anthrax spores as well as cultures of pus specimens. Trelease had given him these for use in a course for students in veterinary science at the College. Pammel had received permission to teach this new course, which he planned to call "bacteriology." With the arrival of Louis Hermann Pammel at the Iowa Agricultural College, a new botanical sun was rising.

PAMMEL THE MAN, HIS PERSONALITY

As the new professor of botany, 27 year old Louis H. Pammel was vigorous and enthusiastic. He would move through his remaining 42 years with "vision, energy, and force", the words used to describe his life at the Pammel State Park dedication in 1930. Pammel had vision for all the ramifications and outreach of botany in its development at Iowa Agricultural College. He acted in all his endeavors with the force of conviction, education, and assurance.

What manner of man was he? Was he a genius, a scholar, a busybody, a Renaissance man, a promoter, an innovator? His record shows that he was a teacher, administrator, field botanist, plant explorer, political activist, conservationist, educational innovator, churchman, collector of rare books, speaker, and author. But what was he like as a person? How did he measure up as a human being?

Physical Characteristics

Physically, Louis H. Pammel remained in maturity much as he had been in his youth. He retained his ruddy complexion and full head of reddish hair. His posture was always erect, giving the impression of greater height than his six feet.

In his later years he became somewhat stooped and rotund from years of good eating. He usually contained his great thatch of white

hair in a cap or hat when he was outdoors. His eyes would still light up in amusement or in recognition of a new idea. Near the end of his life, after his heart attack, he slowed down considerably. One of his former clerks recently told me, "Dr. Pammel simply lost much of his steam. He was worn out because of his illness. He didn't want to slow down."

In his final years at Iowa State he became a living legend, a bearded campus patriarch. He walked briskly from class to class, but absentmindedly, with his coat usually open, regardless of the weather, and smoking his corncob pipe. He was usually followed by the family pet — Chips, a small white mongrel dog. Chips followed at his heels wherever he went, even upstairs to the third floor of Central Hall, where Pammel's classes were held. The dog lay at his feet and slept through all the botany courses. When Chips died at the age of 22 years, the event was headlined in both the Ames and Des Moines newspapers.

Personality Traits

> "A man's interests center around his home, his school, his church, and his park." — L.H. Pammel, 1925.

The personality traits of Louis H. Pammel were so interwoven that it is difficult to separate them. Expressed simply, they are his attraction to people; his volcanic activity; his religious devotion; his inquiring mind and his high esteem of himself.

Louis H. Pammel liked people, singly or in crowds. In most relationships he was considerate, courteous, and compassionate, but usually dominant. He attracted people to him. They sought him out, not only for what he might do for them, but to enjoy the contagion of his good spirits and zest for living which he so easily communicated. As a teacher he was immensely popular with his students; he regarded them almost as he did his own children. He presented course material clearly and asked leading questions to stimulate thinking.

The botanist was a person of volcanic, almost furious activity, always moving on to another activity while finishing a first and contemplating the third. He proceeded through his life almost as if he were afraid he would run out of time before he finished everything on his personal agenda. The story was told by Ada Hayden, his student and colleague, that he often spoke to three or more students at a time, with each having to guess from his remarks to whom they were addressed.

This drive to accomplish led to much impatience in his dealing with people; he tended to be short-temepred with the person who did not express himself clearly and state his purpose within the first few minutes of conversation, or in the written material which he presented for review. Most of his colleagues therefore considered him to be somewhat "feisty", for he usually insisted on the use of his idea of correct procedure to follow or action to take. He had previously thought it all out, so therefore he must be correct. There was no arguing with him.

This quality of "feistyness" deepened as he grew older and his life interests broadened. His friend George L. McKay of Iowa City once chided him on this account. Pammel replied,

> "I am occasionally perhaps a little impetuous or perhaps a little quick to make certain statements, but I think I have tempered sufficiently so that I do not get ruffled at little things. Although I always insist that I want what is right and insist that it be done if there is any possible way of bringing it about in an honorable way. I don't think I have been inclined to make scraps, but have always insisted on the right attitude toward things."

The right way was usually Pammel's way.

Pammel possessed an inquiring mind and a good memory. He was well read, perennially curious, and articulate in both the written and spoken word. He dug deep into knowledge and wanted to explore the unknown, to try it, to pioneer, to break ground. He read extensively in all botanical fields, as well as in others, particularly history, biography, and the trends of contemporary life. From his continuous reading he enabled himself to understand the significance of his own work and to see the areas which would develop from it in the future. He had a "large vision", though sometimes the fine points to sketch it for accomplishment were beyond him.

Louis H. held himself in high esteem. He felt secure about himself as a teacher and researcher, and of his place in the history of the College in Ames. He knew or hoped that he would be remembered by administrators and students; he sought recognition and approval from each group. When such approval did not come from the College administration, he fought even harder to obtain it.

Organizations

Dr. Pammel was a joiner. As an adult he belonged to 45 organizations which are listed in the appendix of this biography. These groups were social, scientific, honorary, religious, and professional. He attended meetings, served his turn as officer, and read their publications. His favorite organizations were the Iowa Academy of Science, Phi Kappa Phi, the Cosmopolitan Club, the Episcopal Church, and the Iowa State Horticultural Society, though no record was found of his membership in the last. In one year of his life, 1924, he was president of the first three listed.

Church

Pammel was deeply religious. He found no conflict between science and religion. He expressed it once,

> "I am an orthodox Christian. Science and religion are not incompatible. I am not here to discuss the origin of life. I accept it as a fact that we found life on the face of the earth. How it came to be I am unable to answer. Only God Almighty can answer that question."

This was a simple expression of his beliefs as a Christian. He never wavered from it or questioned God as the Supreme Being and Creator of all things.

The mission which led to the establishment of his Episcopal church, St. John's by the Campus in Ames, met at Pammel's home in the late 1890's. By 1899 the group was strong enough to purchase lots for its first building, selling these later to obtain another lot south of the campus. This new structure was dedicated in 1930. Pammel donated for the construction 200 cords of limestone, quarried from the bluffs on the Pammel farm in Wisconsin. He valued the stone used in the walls of the rectory and parish house at $10,000. The vestry paid the transportation costs.

In 1909, when Pammel attended the General Assembly of his church in Ohio, he presented a resolution calling for the church to place pastors for students in college and university towns, near campuses. He believed that students attending institutions of higher learning should have pastoral help nearby. His resolution was adopted and started a movement among other religious groups for the placement of such student religious centers.

Dr. Pammel was never too busy to go to church or to work on its committees when he was so appointed. He served his church, St. John's, as a member of the vestry, as senior warden and lay reader.

At the time of his resignation from the State Board of Conservation in 1927, Pammel wrote to a friend,

> "I am proud of the fact that it has been my privilege to serve on the State Board, and to do scientific work as well, but I am also proud of the fact that the church has recognized the value of Christian work in colleges and universities and that I had a part in this movement."

Service as a Citizen

Early in his residency in downtown Ames, Pammel helped his

neighbors work for local beautification. He persuaded his wife to start a Civic Improvement Association with other young wives. They began work in the spring of 1906 with cleaning up a small city park that the railroad agent John Blair had deeded to Ames in 1865 when the city was chartered. This park, long neglected, had grown up to weeds. The young housewives removed weeds and dead trees, put in a cinder path, removed the old iron fence, and arranged for flower beds. The Association also encouraged residents of the city to do a spring-time cleanup of rubbish from their properties.

As a resident of Ames, Pammel enjoyed working with its youth in the Boy Scouts and Camp Fire Girls organizations. In 1928 Ames Boy Scouts were engaged with other scouts all over the United States in a nationwide effort to erect concrete markers on the Lincoln Highway from its eastern terminus at the Holland Tunnel in New York to Golden Gate Park at San Francisco, passing through the heart of Ames on its route. Fifty Boy Scouts assisted with the erection of 29 markers on Lincoln Way from one mile east of Ames to three miles east of Boone.

In a ceremony prior to the dedication of these markers, Dr. Pammel talked to the boys and their leaders about civic pride and their responsibilities as citizens of their city, state, and nation. He asked each to pledge himself to see to it that the markers were maintained properly and protected from vandalism. Today, because of road changes, all are gone.

Service to Ames Camp Fire Girls Pammel rendered as a member of Kiwanis, a men's service organization, which he joined as a charter member in 1924. One part of Kiwanis programming was to render assistance to the youth of its community. Another charter member, William G. Gaessler, suggested to the board of directors that it help the newly organized Camp Fire Girls organization. Pammel was attracted to this group because it stressed responsible life in the outdoors and gave special emphasis in its programming to the American Indians, another of Pammel's continuing interests.

In 1928 Pammel decided to offer a prize to the Camp Fire Girl in each of the Ames groups who wrote the best essay on "Iowa Wildflowers" or on "Weeds of Our Woodland Pastures", topics which he had chosen. On the Saturdays of that April, he was at Camp Canwita, a small local camp, in case any of the groups chose to go on a hike through the woods to find spring wildflowers with him. Conservation and instructing youths were among his life's thrusts.

Pammel later wrote of Camp Fire:

> "This is one of the most useful and praiseworthy organizations among the girls of our country. It inculcates self-reliance and the spirit of service among its members. In this organization are Roman Catholics, Protestants, and Jews, and they develop a spirit of sisterly love. The purpose of this group is also to get acquainted with the great out-of-doors."

Dr. Pammel also served in various parent-teacher groups. He was president of the Beardshear Elementary School group and president of the School Board. In this latter capacity, he stressed the importance of elementary school pupils having savings accounts. A school with 100% enrollment of savers was specially honored at meetings.

As a loyal Kiwanian, Pammel arranged in 1927 to introduce his group to Dean Beyer of Iowa State College at a special botany dinner held on campus. The menu was printed with the botanical names of the foods to be served and their places of national origin. The menu includes such items as escalloped potatoes, *Solanum tuberosum,* South America and Peru; corn, *Zea mays,* Mexico; and ended with apple pie, *Pyrus malus,* central Europe, and coffee, *Coffea arabica,* Africa and Asia. Pammel wanted his friends to be aware of the impact of botany in their everyday lives, even in foods.

Because of his classes in bacteriology at the College, Pammel gained recognition throughout Iowa as a water analyst in the early 1900's. He was frequently called upon to examine public water supplies and sewage disposal systems for the cities of Ames, Clinton, and Manchester, Iowa. He also analyzed the water used in certain boarding houses near the college campus where students lived, at the request of the city authorities who were afraid of typhoid outbreaks from impure water. Pammel willingly performed these services for the city of Ames.

In his retirement years Pammel indicated his willingness to work for Ames in 1929 when he accepted membership in the Iowa Council of the National Economic League. Its purpose was to provide a means for spokesmen to give expression to the opinions of local citizens regarding economic, social, and political problems of the day. The council would then use these citizen opinions as a vital and controlling force in national government. Pammel would represent the citizens of Ames. It is not known if he were active in this group, but he did record his acceptance of membership.

Throughout his busy years, Dr. Pammel was also active as a servant of the state of Iowa. He attended meetings and conferences for governors, many times making speeches at these sessions. He served on various commissions, consulted and helped prepare many legislative matters. Furthermore, he arranged statewide and national exhibitions for Iowa. From time to time he examined critically the structure of state government and made suggestions for its more efficient functioning and management.

Dr. Pammel never learned to drive an automobile, but had easy access to Des Moines, the capital of Iowa, by interurban railway. On many occasions he had to spend nights in Des Moines. He billed the state for his train fare and accommodations; his advice and services he gave freely.

The professor from Ames attended many conferences for Iowa's governors, such as one in 1905 for Governor Albert B. Cummins. This meeting, held in Marshalltown, was the Eighth Iowa State Conference of Charities and Corrections. Dr. Pammel presented a paper, "Sewage Disposal for Poor People." Louis H. Pammel also represented Iowa at annual meetings of the National Conference of State Parks and those of the American Forestry Congress.

Iowa governors appointed Pammel also to various commissions and boards operating at the state level, according to his interests. He served on the State Geological Board from 1918 to 1929; on the Forestry Commission from 1908 to 1929 and on the Plant Life Commission in 1917. This group helped select plants for the capitol extension grounds in Des Moines. Pammel worked as an advisor to the Executive Council of the state and State Architect in preparing a list of trees and shrubs for the grounds.

Another pertinent assignment was made by Governor John Hamill in 1927 when he asked Dr. Pammel to make the decision as to which Iowa trees were to be planted in the San Francisco Golden Gate Memorial Park in California. Trees were to be representative of each state to commemorate the mothers of sons and daughters who served in United States wars since the Revolution. Pammel chose the bur oak as representative of Iowa and arranged for a shipment of three to San Francisco.

Dr. Pammel helped with the preparation of several important bills up for consideration by the Iowa General Assemblies. He first spent hours in researching the historical aspects of each, then more time in their actual wording. Pammel also kept on hand a directory of members of the state assemblies and approached them directly to support the bills.

In addition to working on the State Parks legislation, Pammel assisted with the preparation of three bills, each reflecting his own deep conviction and interests at the time. These were the Crop and Pest Law of 1906, the Weed Bill of 1908, and the Seed Bill of 1920. Pammel believed very strongly that in an agricultural state, the needs of the farmers were of paramount importance in legislation.

The governors of Iowa appointed Pammel to prepare exhibitions for state fairs and national expositions. For the Iowa State Fairs, held

yearly each summer, Pammel prepared exhibitions of the state's most harmful weeds and of her wildflowers. Pamphlets were available as take-home educational devices for each category. At one state fair he conducted a polling for the selection of a national wildflower. The wild rose won, although the Congress has never selected a national flower.

On two occasions, Pammel arranged Iowa's contributions at national exhibitions. One was the World Columbian Exposition in Chicago in 1893. For this he prepared an exhibition of crop diseases and also one based upon the worst weeds of Iowa.

In 1904, for the Louisiana Purchase Exposition in St. Louis, Dr. Pammel prepared an exhibition of crop diseases. He set up a plant laboratory on the fairgrounds to demonstrate an operational college laboratory. Prior to this Exposition, Pammel had asked the farmers of the state, in news releases, to report to him about the plant diseases they encountered. He used this information for his display at St. Louis. From this evolved his Plant Disease Surveys for Iowa, begun in 1914, on a yearly basis.

As a citizen interested in good government, Pammel from time to time examined critically the government of Iowa with regard to its efficiency and its emphasis on agriculture. He expressed his views to several governors. Pammel could see the value of the creation of a State Department of Agriculture for Iowa, as several states had already done, to consolidate the work of various bureaus which handled miscellaneous agricultural and related matters.

He became convinced as he watched such bureaus function, that it was necessary for Iowa to create a State Department of Agriculture and elect or appoint a Secretary of Agriculture.

As early as 1900 he wrote to the State Horticultural Society, "The time is coming when we will have a great agricultural bureau, with its different departments consolidated. I expect to see the day when the Commissioner of Agriculture or the Secretary of Agriculture will be on the same basis as the Secretary of State — a member of the Executive Council." Iowa took no steps to put his idea into action, so Pammel waited several years, then wrote in 1920 to Governor Harding, reminding him of his earlier report and re-emphasizing the importance of such a department for Iowa. At this time he wrote,

> "A department of agriculture would coordinate the work of various state departments or commissions, more particularly in relation to the Conservation Board, the Fish and Game Department and the Geological Survey. I suggested the following to be included under the supervision of the Secretary of Agriculture: the dairy and food commission; livestock and sanitary commission; the state veterinarian; the state horticulturist; the state entomologist and commission of housing and the department of mines."

In 1923 Pammel wrote again to Governor N. E. Kendall, pushing for the establishment of the Department. It was finally legislated in 1923. It is not known how Iowa governors reacted to the advice received from the professor at Ames. Pammel was sincere; he was an able political strategist and had the good of the people of Iowa at heart. But he certainly did not believe in "going through channels."

Pammel served both his city of Ames and his state. In 1925, he wrote to his friend, Mrs. Henry Frankel (Margo Frankel) of Des Moines, "Many years ago I adopted a policy that I wanted to be of service to the people of Iowa." The quantity and quality of his service were immeasurable.

Pammel as a Family Man

Louis H. Pammel was a devoted family man. Louis and Gussie's fourth daughter, Lois Hermina Pammel Blundell, recalled in a letter to me in 1978, that her childhood days were always happy, for her and her siblings. She remembered that her father spent a great deal of time with them. She wrote,

> "Table conversation was always a wonderful time for us. And on Sundays my father took us on walks, after church and when dinner was over. We went to the woods and learned about nature."

Lois also remembered that sometimes her father hired a horse and buggy and took them to Boone, to the Ledges for their own private botanizing.

The six children of Louis and Augusta Pammel attended Iowa State College; all but one graduated. Their oldest, Edna Caroline, graduated in 1910. She became Mrs. Ray A. Needham and was the mother of two daughters. The next child, Harriett Mathilda, ex-'10, married, James L. Seal and became the mother of two sons. Doris Marie, their third child, '15, remained unmarried. Their next child, Lois Hermina, '23, became Mrs. Lyle L. Blundell and the mother of two daughters. The Pammel's fifth child, Violet Emmeline, '17, remained unmarried. Their son, Harold Emmel, '22, married Mona Thompson. They became the parents of two sons.

The four married children of Louis and Augusta Pammel had eight children. These eight became the parents, with their spouses, of fourteen children and two adopted children, thus providing the Louis Pammels with sixteen great grandchildren.

There were no more botanists among the botanist's progeny; it is not a craft that leads to dynasties. However, his son, Harold Emmel Pammel, became a landscape architect.

Augusta Marie Emmel Pammel, the mother of six children, was a very busy person all her life. She managed, however, to have some identity other than that of Mrs. Louis H. Pammel. Gussie loved music and playing the piano. She was an excellent cook and according to her daughter Lois had a "keen sense of style in dress." Gussie found time in addition to housekeeping and sewing, to belong to the Priscilla Club, an organized group of college faculty wives. Gussie was active in her church, as president of St. John's Guild. She played the organ, directed the children's choir and entertained its members for supper after choir practice.

Gussie seems to have walked behind her husband, literally and figuratively, rather than with him. She was very proud of her "Louie", as she called him, though she was many times annoyed when he didn't spend more time at home and with her. In general she was most content to be Mrs. Louis H. Pammel. The light of his glory shone on her; his accomplishments were in part hers also.

In their 42 years in Ames, the Pammels lived in four homes off campus. They were able to purchase a home in downtown Ames on Duff Avenue in the spring of 1893 when their family was about to increase to six persons.

Louis H. Pammel was not a handyman with repairs, and not a gardener, though he liked plants and being outdoors. He did not have the time for these phases of domesticity. The care and maintenance of the Pammels' houses and gardens fell largely on the shoulders of Gussie Pammel, in addition to the rearing of their six children. Pammel said jokingly at one point that God had given them five daughters for a reason: to assure a smooth home life in regard to house chores. The children left him free to pursue his many other interests. However, Pammel considered his home as the center of his universe and the source of all good life. He firmly believed that a good home was necessary for nurturing children and that the mother was the soul of the home.

In addition to home owning, Pammel had also been attracted to the idea of owning land as an investment for his retirement years. One of his early assistants, F. C. Stewart, told him of lots for sale at fifty dollars each in Idaho Falls, Idaho. Pammel purchased two of these, sight unseen, and held them for fourteen years, selling them in 1909 for $200. This was not a get-rich-quick scheme.

In 1917 when Mrs. Pammel decided that their home on Boone Street (now Lincolnway) was too big for her to maintain, because the

children were beginning to leave, she and Louis decided to sell it in trade for a farm in Traverse County, near Graceville, Minnesota. The farm consisted of a quarter section of land, nearly all tillable. It was unimproved at the time of purchase, but Pammel had a small house erected. The farm was used solely for investment purposes. Pammel was not destined to become a resident farmer. After the purchase of the farm, the Pammels moved to a smaller home south of the campus on Knapp Street, and in 1928 to their final home on Ash Avenue.

Their fortieth wedding anniversary approached in June, 1927. They made elaborate plans to celebrate this "ruby" anniversary. The festivities started with a dinner at home on June 29, 1927, at 5 P.M., the time of their wedding. All six children were present. Louis H. Pammel was a proud patriarch on this occasion. They were later honored by their friends with a tea, and outdoor buffet dinner, and a picnic on the college campus.

This celebration was listed in the society pages of the Ames paper. After stating the basic facts, the article devoted seventeen and a half column inches to discussing Pammel's activities. Of Mrs. Pammel it was stated, "She is also widely known in the community."

Pammel's Germanism

A very vital part of Dr. Pammel's personality was his Germanism, even though he had been born in the United States and called himself a "staunch loyal American." Pammel stated many times that the important institutions in a person's life were his home, his school, his church, and a park for recreation. In his philosophy, a man's home nutured him in his early and formative years. His school (the total educational process) educated him. His church gave him his moral values and the park provided him with release from cares and tensions. These institutions helped develop good citizens, Pammel believed. When one link in the chain was slighted, a child's entire personality and his future as a citizen were affected. Pammel centered his life around these cornerstones. This philosophy came to him from his German ancestors. He had seen their exemplification in the lives of his own parents.

Dr. Pammel was at all times proud of his German blood and of the role Germany had played prior to World War I as one of the leading European nations. In 1914 he wrote to George B. Viercek, editor of a German-language newspaper printed in New York, *The Fatherland,*

> "I think the United States owes a debt of gratitude to German scholars. I believe our American colleges, universities, and common schools of learning (public schools) must have been copied freely from the German ones. I believe our higher institutions have received more from German institutions than from the English colleges."

He wrote later that same year to Viercek, "Germany stands preeminent as a nation of culture. No nation has done more for the masses in the way of social betterment and cultural progress."

When a European war seemed imminent in 1914, Pammel wrote letters, as noted elsewhere, to both Iowa senators, asking them to do what they could to keep the United States out of the European conflict. He also expressed this opinion to them, "I am for peace and I do not see how peace can be brought about unless the manufacturers of the U.S. cease supplying munitions of war." He wrote again in 1915 to Senator Cummins, "I feel that war waged against Germany is unnecessary, but Germany is not responsible and that it is defending for its own existence. I hope it may win."

These letters received some publicity in the pages of other national newspapers, but brought no unfavorable reaction to Pammel.

Pammel's position in support of Germany is easy to understand. His Freise ancestors on his mother's side had been officers in the Napoleonic Wars. His father, Louis Carl Pammel, had been a member of the Grenadier Guards of Friedrich Wilhelm IV. The military tradition was therefore strong in his family. His father, however, did not serve in the American Civil War. He was drafted but declared exempt because he was the father of several small children. At the time of America's entrance into the European conflict, Pammel was 55 years old. His son did enlist in the Coast Artillery, serving in Hawaii, and his daughter Lois served as an American Red Cross volunteer nurse in France.

Lifetime Recognition

Reactions to Dr. Pammel's work and personality were numerous in his lifetime and he was the recipient of many honors. He loved those occasions when he was honored. He made note of these with clippings, congratulatory messages, colleagues' comments. He seemed to need positive evidence of his worth and contributions. He advised the college administration of each.

Pammel received honorary memberships, for which he applied, in one British scientific society and two German ones. His name is listed in several biographical works, such as *Progressive Men of Iowa* (1899); *American Men of Science* (1929); *Who's Who in America,* (1918-1925); and the *American Jewish Biography* (1929).

The Des Moines Register and Tribune nominated him in 1928 for the "Living Iowa Hall of Fame." Mentioned in its nomination were his work with state parks, his professorship at Iowa State College, his important botanical works, his honorary memberships in foreign botanical societies, and his important research. The nomination concluded, "Because his service to Iowa has been distinguished and valuable, spectacular in the best sense of the word, we nominate Louis Hermann Pammel of Ames."

Another special honor granted him which pleased his fancy was an honorary life membership in the Association of Beekeepers of Iowa at their convention in 1925. This was granted him in recognition of his preparation of many bulletins on bees and honey plants for the citizens of Iowa.

Dr. Pammel also received recognition from a foreign periodical. The British publication, *Town and Country Life,* published in London, highlighted him in its July, 1930 issue. It stated,

> "In the realms of botanical study and research, the name of Louis H. Pammel holds a position of marked leadership. His scientific influence and fame extend well beyond the confines of America. All Europe is talking about his valuable work and so we believe ourselves to be perfectly justified in bringing the notice of our readers to a few biographical facts concerning the great American professor."

Near the end of his life other tributes came to him from several sources. The *Iowa Homestead* of 1926 said of him in an editorial, "He is a splendid man who has done as much perhaps to preserve the natural beauty of this state as any one who can be named."

A friend, Florence Clark of McGregor, Iowa, who knew Dr. Pammel through his work at the American School of Wild Life, wrote of him to the governor in 1921,

> "We at McGregor have had the unusual opportunity to observe his executive ability and power as an organizer as well as his enthusiastic devotion to the park cause. To me Dr. Pammel is one who knows the natural beauty of Iowa as perhaps no other living person."

A fitting tribute came to Dr. Pammel from his friend George Washington Carver of Tuskegee Institute. Pammel had written that he anticipated retirement from Iowa State College. Carver responded in 1924,

> "I feel sorrow because so many boys and girls, men and women, not only from Iowa and contiguous states, but all over the country, will sorely miss the love and inspiration, as well as the superior instruction from you,

the Prince of Teachers. And whatever success I have been able to attain is due, in a very large measure, to you, my beloved teacher, Christian gentleman and friend."

PAMMEL THE CONSERVATIONIST

"I have pledged my every spare moment to the cause of conservation in the state of Iowa." Louis H. Pammel, 1925, to Mrs. Henry Frankel.

"Some day they are going to appreciate Dr. Pammel at his full worth and when the history of the state conservation movement is written in Iowa, his name will head the list." E.R. Harlan, 1929.

Conservation of natural resources had long been one of the primary concerns and motivating forces in the life of Louis H. Pammel, beginning with his boyhood years on the farm in Wisconsin. He noted with dismay the killing of passenger pigeons each spring by La Crosse "sportsmen". He saw the wastage of the pine forests north of La Crosse. He witnessed the killing of young animals according to the whims of the hunter. He observed the burning of prairie grasses to remove them more quickly. All these experiences had a lasting effect on young Pammel.

In his solitary walks in the area of his father's farm he had come to love and appreciate the world about him. He wanted others to experience this satisfaction when outdoors. When he was outdoors young Louis always felt reverent, as if he had stepped into a church to worship. The outdoors was almost sacred to him. He believed he was a better person for a walk in the woods, for hearing birdsong, for seeing wildflowers in bloom. The outdoors gave him relief from his cares and tensions in his later years; it afforded him solace in time of trouble or grief.

Because his being outdoors so beneficially affected him, Louis thought others could also be helped by communion with and understanding of nature. As a young adult, Pammel believed the state should provide public parks where everyone could enjoy the outdoors. He remembered the enjoyment his parents' friends had at their annual picnics held at his family's farm. There were no public parks in the La Crosse area at that time.

Early in his college days at the University of Wisconsin, Pammel received further inspiration towards conservation from the teaching of his professor, William Trelease, who helped him appreciate through knowledge, the orderly system of the natural world from germination to death, with its renewal and continuity.

Pammel gradually came to believe that if other persons were given some knowledge of the flora, fauna, geology, and history of the areas set aside for them, they would also achieve a sense of the orderliness of nature. Perhaps from this they would also realize their obligation to preserve the wonders of nature for the enjoyment and enrichment of future generations.

By the time the young botanist had begun his employment at the Iowa Agricultural College, he had achieved a definition of conservation which he would practice and advocate throughout his life. It was,

> "The deliberate and thoughtful preserving, guarding, and protecting in an entire state, the natural and historic resources of an area through planned management to prevent exploitation, destruction, and neglect."

His belief in the conservation practices he expressed thus,

> "It is our duty to pass on to the next generation some of the fine things we have inherited of trees, of flowers, of rocks and minerals. It is our duty to present to the next generation some typical scenic and scientific areas in different parts of the state."

Conservation Efforts in Ames

Pammel took an active interest in conservation efforts in Ames. In his early years in Ames, he took his children on walks around Ames in an effort to teach them about nature and the fun of being outdoors. On one of these trips in 1903 they discovered a peat bog known as Pettinger's bog, northeast of Ames.

After repeated trips to the bog, Pammel found a complete skeleton of a buffalo and the largest buffalo skull found anywhere in the United States. He also noted in or near the bog rare species of plants such as the beaked willow, yellow barked oak, fringed gentian, reed grass, sedges, lilies, and orchids. A visit to the bog was always a treat for the Pammel children.

Louis Pammel often thought about the historical and botanical value of this bog and in 1929 urged the city of Ames or Story County to purchase the site, dam it up, and so preserve it for the public to see in its natural condition. This was not done; the city lacked either an interest or the funds to purchase the site.

State Conservation Efforts

When Pammel considered the trends of the conservation movement in his adopted state, he found that its need had been noted in the early 1850's when Theodore S. Parwin, Register of Lands for the state, had suggested that the state buy a tract of land in Des Moines near the state capitol building, where the trees of the state could be planted. In time, he believed, this woodland would be used for the residents of the city and visitors as a public park. The land was purchased, but no further action was taken.

When Pammel joined the Iowa Academy of Science in 1890, he found that most of its members were vitally concerned with originating a conservation movement in the state, particularly Professor Thomas H. Macbride of Iowa City. Macbride had stated his beliefs in conservation in 1895 in his address as the Academy's retiring president. He said on this occasion,

> "County parks would tend to preserve for those who come after us, something of the primitive beauty of this part of the world, as such beauty stood revealed in its original flora. I esteem this from the standpoint of science and indeed from the standpoint of intellectual progress, a matter of extreme importance. Who can estimate the intellectural stimulus the world received from efforts made to appreciate and understand the varied wealth of nature's living forms?"

By county parks Macbride meant to open grounds available for public use in rural districts, as opposed to those parks in cities and towns. As Iowa's population increased and its agricultural prowess strengthened in the early years of its statehood, the "open grounds" in rural districts available for public use shrank and virtually disappeared. The use of cemeteries for spring and summer outings became standard practice in many towns.

Through Macbride's influence, the Iowa Academy in 1896 adopted two resolutions. One went to the State's 26th General Assembly, urging its members to take some action toward the preservation of Iowa's lakes. The other was sent to the Congress of the United States, call for legislation regarding the preservation and rational use of the remaining forests of the country.

In 1896 Macbride also presented at the Academy's annual spring meeting two papers dealing with the conservation of Iowa's woodlands. In one he examined the idea of establishing county parks, which he considered necessary for public health and happiness. In the other paper he advocated that the remaining forests of the state be left undisturbed because of their value in the conservation of soil moisture.

At the Academy meetings in 1900 Macbride spoke out again, encouraging the establishment of state parks in the vicinity of the state's lakes and streams. He reminded the scientists that there were

only 1,300 acres of city parks in the entire state. He also encouraged state and national legislation for rational forest management and the creation of more forest preserves, as safeguards for agriculture in time to come. These papers were printed in the Academy Proceedings, but did not receive widespread reading or publicity.

As the years of the new century progressed, Pammel was somewhat alarmed at the lack of progress in the conservation movement, and so called a meeting at his home in Ames on November 16, 1909. Macbride and Professor Bohumil Shimek, of the State University of Iowa, spoke out with others in the state who were interested in conservation. Those present formed the Iowa Park and Forestry Association and elected Macbride as its president.

The purpose of this group was to create interest throughout the state for forest preservation, for state, county, and municipal parks. This group continued to meet once a year and with an increase in membership decided to reorganize itself into a new group named "The Iowa Conservation Association." It did most of the work of increasing interest in the establishment of a state park system at this time, with Louis H. Pammel assuming the role of its leading spokesman. Its members were diligent in spreading the word for the need of conservation in Iowa, but not effective in reaching the general public.

By 1906 Pammel noted that Iowa's population had grown to two million persons, with thousands using the highways in their daily pursuits. With the increasing cares of modern life, many persons felt the need to get out in the open for relaxation whenever possible, to get away from work and confinement.

However, there were not 10 acres of public woods, water landings, or open prairie in the state for recreational purposes. Most of the land in the state had been fenced in for agricultural use. The only way for persons to enjoy the open places was to trespass or obtain permission from private land owners to use their property for picnics. Soon thousands of "No Trespassing" signs appeared as these requests for permission increased. The friction between farmers and townspeople was endless. Hikers destroyed crops; others cut down fences with the result that livestock ran wild. Irate farmers began to destroy their woods and clear their land of plum thickets, so attractive to visitors in early spring.

Pammel came to believe that the only solution for the establishment of places for the public to use was to approach the state legislature for action. He knew that in the early 1900's the legislature had received two bills which might have led to the establishment of state parks. Governor William Larabee in 1900 had presented a bill for the preservation of Fort Atkinson in Winnishiek County. A few years later an unknown sponsor proposed that Camp McClelland near Davenport be made into a state park. Both proposals had received scant attention in the Legislature and were soon forgotten.

Iowa seemed not ready for such action, but Pammel continued quietly with his talks and letters to state legislators. Finally in 1915 the first state legislation directed towards conservation was passed through the guidance of Pammel and Cady Chase of Webster City. By this law the State Highway Commission was directed to make a survey of the lakes in Iowa. The commsission did so, then recommended that the state purchase land on the shores of its lakes for the use of all its citizens, not by just a privileged few. So the impetus for state action on the issue of the establishment of state parks was gaining momentum.

> Dr. Pammel wrote to Governor George W. Clarke in late 1915, "Some of Iowa's citizens could afford to go to the lakes of Minnesota for a vacation and some would take more extensive trips to far places, but the majority of our people can never leave the state for purposes of vacation. The man who works in the shop and many of our farmers are unable to leave. They must have an outlet and therefore we owe it to those substantial citizens to provide an outlet for this contact."

Governor Clarke then decided to form a committee to look into the matter of establishing state parks. It consisted of Louis H. Pammel, the curator of the State Historical Department, the assistant state geologist, the highway engineer, plus several prominent members of the Iowa House and Senate. This group met with Senator Perry G. Holdoegel of Rockwell City to assist him in drafting a bill to create a park system for Iowa, the bill to be introduced in both houses.

After two years of hard work on its preparation, with Dr. Pammel commuting frequently to Des Moines, the bill was passed in 1917 by Iowa's 37th General Assembly, as chapter 236 of its Acts. This first act established a State Board of Conservation, which, together with the Fish and Game Warden, W. E. Albert, and the Executive Council of the state, had the right to create state parks. They were to be purchased with monies received from the sale of hunters' license fees, which were estimated to amount to $50,000 yearly. The Commission was charged with the duty to establish, maintain, improve, beautify, and administer state parks, preserves, forests, and other conservation areas.

The next General Assembly, meeting in 1918, amended the first legislation by eliminating the support derived from the Fish and Game funds. The bill appropriated $100,000 annually for state parks. The Executive Council at its discretion was empowered to use funds for park purposes from the Fish and Game Funds. The Conservation Board proceeded immediately with a complete investigation of the state's recreational places and possibilities. Ideas came in from all over the state as the need was publicized; ninery sites were suggested.

Pammel, working behind the scene in order to create public interest in state parks, called upon the Federated Women's Clubs of Iowa to help him publicize the need for parks and the purposes served by them. Club units over the state cooperated with him. Pammel traveled frequently to local meetings of this organization to talk about conservation and the state parks movement to its members. Mrs. C. H. McNider of Mason City, Mrs. F. E. Whitley of Webster City, Mrs. Carol Sawyer of Oskaloosa, and his old classmate from Wisconsin, Rose Schuster (Taylor) of Sioux City, were very helpful to Pammel in his efforts toward establishing state parks.

The philosophy behind the parks bills was the belief that Iowa's heritage in prairies, valleys, lakes, and rivers not only should be enjoyed by the living but should also be preserved for the enjoyment of future generations.

The first act specified four kinds of parks: state, lake, highway, and prairie. State parks were to encompass large areas which would serve as regional parks, so located as to supply the needs of several counties. Lake parks were to guarantee freedom of access to the lakes for people to enjoy the water. Highway parks, being small, were to supply nearby communities with places for recreational purposes which would include free camping and space for outdoor recreation. Prairie parks were designated as preserves, to remain almost unimproved, so future generations could know what Iowa's prairie had been like. A fifth kind was the parklet, smaller editions of the highway or regional parks, and containing from two to ten acres. They were to be located along some of the most frequently traveled "tourist" roads. They would provide water for drinking and parking places, but no additional facilities, such as those for overnight camping.

The first park act also specified that the purposes to be served by the establishment of the parks were historic, scientific, and recreational. Historic purposes meant the preservation of such features as Indian mounds, old forts and mills, and rare old buildings from Iowa's history. These were to be tastefully restored and preserved.

The second purpose of the parks was to preserve scientific resources such as geological, botanical, and zoological features. These features might include places where a stream showed erosive action of water or where rare plants and unique trees or prairie areas occurred. The third purpose was recreational.

Governor William L. Harding appointed the first Board of Conser-

vation to include J. F. Ford of Ft. Dodge, Joseph Kelso of Bellevue, and L. H. Pammel of Ames. These men would serve along with the members of the Executive Council of the state. The Board met December 17, 1918, in Des Moines, and elected Pammel as president and E. R. Harlan of the Executive Council as secretary.

After Pammel received his appointment to the Conservation Board, he wrote to the college administration, advising them of the fact. Within a few days he received a letter from the college president, with this comment, "The State Board of Education approves your acceptance, in so far as such work does not interfere with the performance of your duties at the College and Experiment Station." This reply angered Dr. Pammel somewhat, so he commented in his notes, "An appreciation would have been tasteful. I give the state thousands of dollars yearly gratuitously and the college receives the benefits of this service."

Governor William L. Harding, in his Inaugural on January 16, 1919, assisted in the drive toward the state parks establishment. He said,

> "Nature was in a most pleasant mood when our land was fashioned. She bound us by two mighty rivers, hereafter to be harnessed for power unlimited. She pencilled the landscape for beauty and utility. She left lake, stream, and wooded hill; she gave forest and prairies for the pioneer and coal to turn the wheels of industry. — Playspots are necessary in building a permanent state. Men and women are but children grown up."

The 39th General Assembly later that year made the State Board of Conservation the custodian for park purposes of all the meandered streams and lakes of Iowa and made it further possible for counties and individuals to advance money for parks, provided the lands were properly approved by the Conservation Board and Executive Council.

Dr. Pammel called the Board together for a meeting in March, 1920 in Agricultural Hall on the Iowa State College campus. Men and women from all over the state interested in conservation of forest and park areas were invited to attend as well as county farm bureau agents interested in the establishment of state parks in their areas.

This large group of people discussed several of the sites previously suggested as possible parks. Finally the "Backbone" region in Delaware County was chosen as the site of Iowa's first state park. The suggestion was approved by the Executive Council.

Backbone is described as the "most wild and wonderful" scenic area in interior Iowa. Its 1400 acres include a trout stream, an ancient mill near a large spring, rare plants, and interesting weathering of ancient limestone. It was formally dedicated October 14, 1919. Formal invitations for the dedication were issued by the Executive Council to many dignitaries. The Chicago and Great Western Railway furnished two sleepers for persons of importance attending from Des Moines and for Dr. and Mrs. Pammel from Ames.

The first event of this historic occasion was an elaborate breakfast for one hundred guests, served by the ladies of Lamont, one of the nearby towns. This large group then traveled by cars to the park to inspect the site, and at noon indulged in a cafeteria type meal served outdoors by the ladies of Strawberry Point, another nearby town. Other visitors brought picnic baskets with them and ate in hundreds of different areas in the park.

A crowd estimated by the press to be from six to ten thousand persons gathered at two P.M. for the start of the dedication ceremonies. The first event was a welcoming message by Senator Newberry of Strawberry Point. A band concert followed, the musicians coming from Manchester.

Then Dr. Pammel, as president of the State Board of Conservation, presented the park to Governor Harding, with proper remarks. The Governor then dedicated it to the citizens of Iowa. Band music followed, then several more speakers, each allotted five minutes of "relevant" talk. Among them were E. H. Holt, George F. Kay, John F. Ford, and Mayor John Alderson of Dubuque.

This dedication day for the first state park in Iowa ended with a banquet in the Commercial Club of Lamont for the state officials from Des Moines and their wives, and for Dr. and Mrs. Pammel. The dedications for the other 37 state parks were very similar to this first one. Dr. Pammel was much in evidence at each.

As part of his work as president of the Conservation Board, Dr. Pammel then made a general survey of each of the areas proposed as possible sites of future parks, noting topographical and geological features of each. He considered the accessibiliry of sites to persons living in nearby areas. He also made notes of developmental possibilities, needs for reforestation, and the difficulties he thought might arise at the suggested sites as they were developed.

Dr. Pammel also made repeated visits to each proposed area. He soon learned the value of propaganda and local public support. He called on local newspaper editors whether he knew them or not, to find out what the local sentiment was for the location of such a park in their area and its possible financial support.

He visited key people in local communities — names supplied by his students — to enlist their support and oftentimes to inspire them to raise funds locally for the park. Citizens of the area were usually asked to contribute 50% of the purchase price of the land. Pammel considered this a wise policy because the community would therefore show not only an interest in the park but also a responsibility for its creation and maintenance. In Dr. Pammel's tenure as president of the State Board of Conservation from 1917 to 1927, 38 sites were acquired and presented to governors in ceremonies at the site of each new park.

Dr. Pammel faced opposition to his state park work for the state of Iowa. He had his detractors, those who doubted his sincerity and feared the financial burden the parks would place on the state's citizens. In 1920 Abigail Gardner Sharp, the remaining survivor of the Spirit Lake Massacre of 1857, wrote a letter to the *News Herald* of Spencer, Iowa, stating that in her opinion, the sites selected for parks near the lakes were too far removed from business and amusement centers for them to get the patronage they should from park visitors. She believed that people who went to the lake regions during vacation season would never park their cars and walk to restaurants, post offices and other places, but would park close to the town and picnic there instead. She feared no one would visit the state-owned parks and questioned the state's investing funds in their development. Her fears proved illusory; the parks were immediately popular.

Another of Pammel's highly significant efforts in conservation originated in 1918, his support of conservation education for residents of Iowa. He helped establish the American School of Wild Life Protection and Propagation at McGregor, Iowa, the first school of its kind in the United States.

The Reverend George Bennett, Congregational minister from Iowa City, who served as the field representative for the Iowa Conservation Association, is considered the founder of this school, which became known as the American School of Wild Life. He organized the first session of the school to be held early in July of 1918 as a summer conference of the Conservation Association. It was well attended by Iowans from all over the state. Its programs included boat trips on the Mississippi, field trips in the McGregor area, slide shows and demonstrations.

The purpose of the conference was to publicize the area near McGregor as a possible site for a National park, a project dear to the heart of Louis H. Pammel, for he had been born and grew up at La Crosse, Wisconsin, near McGregor. He considered the area to be of great scenic beauty and with many developmental possibilities for the enjoyment of millions of citizens, who in years to come, would live in the Wisconsin—Iowa—Minnesota area near McGregor.

The Reverend Bennett, with the cooperation of the residents of McGregor, organized the "McGregor Heights Outing Association."

Together they planned the School and worked out the details of a program, housing, and food. The next year they arranged for a five-day conference in late July, 1919. A thousand persons attended this second session. The American School of Wild Life Protection was launched.

The next year, 1920, marked the first year of its independent existence, separate from the Conservation Association. Again, with the cooperation of McGregor's citizens, the school was reorganized and drew from the faculties of the State University at Iowa City, Coe College, Cornell College, and from Iowa State College, which sent the redoubtable Pammel.

From that year until 1941, classes were held each August for a two week period, on a large bluff located between McGregor and Marquette, Iowa, overlooking the Mississippi.

Those attending the school in 1920 paid a five dollar fee if they were adults or two dollars and fifty cents if they were under fifteen years. Special rates were granted to organized groups of youth, such as the Boy Scouts or Camp Fire Girls, if they attended with their leaders. There were no educational requirements for registration.

The activities of the School received press coverage nationally as well as locally. This was the first school of its kind in the United States. Classes were held in botany, zoology, and other interests of the volunteer staff.

Field trips and boat excursions on the Mississippi were also scheduled during the School's two week sessions. On whatever Sundays were included, interdenominational church services were held on the bluff. Dr. Pammel was frequently listed as the speaker. Gasoline rationing during World War II led to the discontinuance of the American School of Wild Life.

National Efforts

Dr. Pammel also worked on conservation projects involving two or more states. In 1919 Governor Harding asked him to attend the Northern Mississippi Valley Conservation Congress at McGregor, in late July. Pammel did so with great interest because the matter of water conservation was of importance to him. He estimated that the state's underground water level had dropped nearly twelve feet since 1869, an alarming rate, in his judgment. Pammel wanted his state to get involved in the Upper Mississippi area to remedy this situation with plans for reforestation, because the lakes and forests of all states were a safety valve for their agriculture. Therefore, it was of prime importance to Iowa to cooperate with the states involved in this project.

In the summer of 1924 Pammel worked on two other interstate conservation projects. He assisted with planning and consultation for the Upper Mississippi Wild Life and Fish Refuge. As president of the State Board of Conservation, Pammel had to approve the acquisition of lands in Iowa by the federal government for such a refuge, which would then be federally managed. The land purchase was approved by the Iowa Legislature through Pammel's efforts, but it had difficulty winning approval in the other states involved. They were reluctant, among other things, to part with their fishing rights. Pammel's persuasive powers came into play. The states agreed and the refuge was established.

Pammel expended much energy to secure a National Park site along the Mississippi River in the McGregor, Iowa, area. The site also included the Prairie du Chien area in southwestern Wisconsin. The Park was never established because of administrative and political difficulties. Continued local interest in the site led to the establishment of Effigy Mounds National Monument in 1949, surrounding groups of ancient Indian Mounds.

Though Louis H. Pammel did not live to see this accomplishment, his influence was seen and felt in the drive for it. In his lifetime he was keenly disappointed that the proposed National Park did not materialize.

In 1926 Iowa Governor John Hamill persuaded Dr. Pammel to work on another interstate conservation effort. This was to investigate the feasibility of a tri-state park at the juncture of Iowa, Minnesota, and South Dakota. Pammel recommended that each of the three states contribute half an acre of land for the park. At this juncture of the three states a three-sided iron post had been erected which read, "Iowa, Minnesota, and Territory of Dakota." The post was to be included in the park land. This project was not completed during Pammel's lifetime.

In the pursuit of national conservation affairs, Pammel was frequently in Washington, D.C. for summer meetings of the National Forest Fire Prevention Committee and the American Forestry Association.

During one of these summer meetings in Washington, Pammel met President Theodore Roosevelt in 1909. The meeting had previously been arranged through the courtesy of Roosevelt's Secretary of Agriculture, James Wilson, an Iowan and friend of Pammel's. The President and Pammel met at a reception, about which Pammel commented in his notes, "Theodore Roosevelt greets his guests with a broad smile, but he struck me at first as being rather cold and austere and not sympathetic."

As the reception progressed, Pammel recalled that the chief executive relaxed somewhat, causing Pammel to comment,

> "It gave me a feeling of satisfaction that I had met a man of such dynamic personality. Theodore Roosevelt hated sham. He wanted to fill public places with men who were above suspicion, who would look after the public interests with the same fidelity as their own."

Dr. Pammel also played a part in national conservation in that he attended in January of 1921 the meeting in Des Moines called by Iowa Governor Harding, of two hundred conservationists from all parts of the United States who were interested in state parks. The professor from Ames was very much in evidence, assuming the roles he loved, of greeting people and advising them of conservation activity in Iowa.

Stephen T. Mather, first Director of the National Park System, recommended to the Iowa governor that he call such a meeting. Not only was Iowa centrally located but he had noticed much national publicity about the state park work in Iowa.

Mather, aware of the growing sentiment for more parks, made a suggestion to the Iowa Governor that he call a meeting where he could present the possibilities of both national and state parks. Mather explained the functions of both types of parks. Dr. Pammel spoke about the work and progress being made in Iowa.

International Efforts

Louis H. Pammel's efforts for conservation soon emerged at the international level. His fame and accomplishments in Iowa led to his being appointed in 1919 to the American Plant Pest Committee, a joint venture of the United States and Canada. This committee consisted of four members from each of the states and the Canadian provinces. The group included agriculturists, foresters, horticulturists, and plant pathologists. Their chief responsibility was the identification and suppression of plant pests through the educational devices of pamphlets and warnings with some advice for eradication. Most of their activities consisted of attending national conferences.

Pammel was honored in 1924 by being invited to speak at the Third Pan-American Scientific Conference, held at Lima, Peru. Pammel's fame as a conservationist had spread beyond the United States. The conference was held in Peru to commemorate the centennial of its independence as a republic. Pammel did not attend because of his many other involvements and the fact that no funds were available for the long journey from Iowa to Peru. He did send a paper entitled, "Conservation of Wild Life and Park Work to Conserve the Historic in America." This was read at the conference.

Retirement from the State Board

As the years progressed in the 1920's, Dr. Pammel knew that the major part of his work in conservation for Iowa had been accomplished and that he should relinquish his position on the State Board of Conservation with the heavy burden of responsibilities that went with it. He had recovered from his heart attack of 1925 and expected to live as long as his father had. However, the pressure of books yet to be written was such that he felt he had to resign from the Conservation Board. In his letter, dated in early 1927, he stated that he wished to be relieved of his membership on the Board. He reminded the Governor of his accomplishments when he was Board Chairman.

Newspapers in Ames and Des Moines headlined his retirement and told of a farewell dinner to be given in his honor, listing the dignitaries who were invited. Dr. and Mrs. Pammel enjoyed the festivities. The next day Pammel started work on the recommendations he would make for future park management, as a result of his long years with the Board.

Recommendations for the Park System

The first point he listed regarded land purchase. Pammel thought the Board should continue to ask for contributions from local communities for the purchase of parks within their areas. Communities thereby showed their interest and feeling of responsibility for the maintenance and support of parks near them. Pammel also thought that state appropriations had to be adequate for park land purchases, for road construction, and for facilities in parks. He made no mention of amounts of money nor ways to raise it.

Another point in his recommendations concerned the operations of the parks. He believed that each should have a previously prepared budget. Each park, he wrote, should have a resident custodian provided with a house and a lot for a garden. Pammel thought that such custodians should have an understanding of the plant and animal life, as well as of the geology of their areas, with the ability to transmit this knowledge to park visitors.

Another recommendation concerned roads in the parks. Pammel deemed just one road necessary for each park, but felt there should be a system of trails to permit visitors to walk about at their leisure. He recommended that the Board seek the advice of a landscape architect to formulate plans for future park development. He also believed that all lakes of the state should be declared state parks.

The Governor was not happy to lose Louis H. Pammel as a member and chairman of the State Board of Conservation, but he wrote the botanist a very cordial letter. Pammel had been an invaluable servant of the state.

Louis H. Pammel envisioned more in the way of conservation for Iowa and Iowans than he had time and physical resources to complete.

He wanted the railroads of Iowa to advertise the state's wildflowers on their dining car menus. He wrote to the Chicago and Northwestern Railroad about this. The company made no move to comply. He later wrote asking them to preserve their rights-of-way for the planting of native flora. He wrote, "Nothing can please a passenger more on our trains than to get a glimpse of native flora along your right-of-ways." The company tried this on one of their shorter runs, but soon lost interest in the project. However, these rights-of-way did remain full of native plants when left relatively untended and are to this day visiting places for field botanists.

Pammel also believed that conservation should be taught in public schools, this instruction to begin with elementary school students. He thought conservation was more than sentiment. It was as necessary as the "3 R's." Children must be taught to respect the fine things we have inherited. They must come into contact with a knowledge of the things about us, the wonderful plant life at our very door."

Furthermore, Pammel also thought that the State Highway Department should discriminate between wildflowers and weeds in the process of cutting out plants along the state highways. He urged the Highway Department to plant native trees, shrubs, and flowers along highway shoulders. Today we see that many of his farsighted recommendations are just now being carried out.

Another idea was visionary. Pammel wanted highway engineers to design a scenic highway which would progress from southeast Iowa to its northwest corner. It would follow as much as possible the course of the Des Moines River and connect a series of natural beauty spots. He saw this not as a highway which would be laid out with great precision, but rather as a winding road, following the natural contours of the ground.

One additional idea: Pammel wanted ancient trees to be given as gifts to the state, to prevent their being destroyed. "This generation should help preserve these wonderful trees and thereby enable posterity to enjoy them also." He had in mind five of these. One was a bur oak near Sioux City which he claimed was old when Lewis and Clark passed through that part of the Northwest Territory. Another was a white elm at the Ledges State Park which measured nine feet at its base. He estimated this one to be 250 years old at that time. There were also two sycamores near Red Oak, growing in an old slough of the Des Moines River, which were over eight feet in diameter and estimated to be 300 years old in the mid 1920's. The fifth tree was an eighty foot elm, about 250 years old, near the town of Lone Tree, which derived its name from it. This was at that time the only tree on the prairie between Cedar Rapids and the Iowa River.

Dedication of Pammel State Park

Dr. Pammel was pleased and felt honored one day in early 1930 when he opened a letter and read that the new State Board of Conservation wished to dedicate a state park to him, to be known as Pammel State Park. The ceremonies occurred June 30, 1930. The Park is located 5 miles southeast of Winterset, Madison County. Several thousand persons attended the ceremonies.

Formerly known as the Devil's Backbone, the two hundred and ten acres of this park had been purchased in 1923 and an additional fifteen in 1928, through the generosity of Madison county residents. Invitations were issued by the State Executive Council to persons chosen by Pammel. Mrs. Henry Frankel of Des Moines consulted frequently with him to make sure the ceremonies would be exactly what he wanted. The dedication folder and program contained these words about Dr. Pammel, in part,

> "During his term of office as the first President of the State Board of Conservation, Iowa acquired thirty-eight state parks. No group was too small for him to travel many miles to bring to them the message of saving Iowa's scientific, historic, and beautiful spots; no site was too far away for him to see and appreciate. He is the author of most of the bills governing the conservation work in state. His vision, energy, and force are felt by all with whom he comes in contact."

After picnic lunches on the grounds, the visitors gathered for the ceremonies which started at 3 P.M. with a welcome by W.E.G. Saunders of Emmetsburg, the new President of the Board. J. N. Darling, cartoonist and President of the Iowa Conservation Association, spoke on applied conservation.

D. W. Morehouse, president of Drake University, gave the main address, titled "A Great Teacher's Code." He characterized Pammel as one of the great scientists of the country and said in part,

> "Iowa has comparatively few outstanding scientists. No matter how long the list or how selective the group or whatever criteria be applied, Professor L. H. Pammel is certain of a starred position on the list. After enumerating his achievements, characteristics, and abilities, his work as a teacher receives the greatest weight — Intel-

lectual honesty has been his guiding principle. His great passion is to disseminate knowledge. He successively exalts his subject and the art of teaching."

The honoree then spoke on "The Past and Present of Conservation", in which he mentioned both his own accomplishments and his additional plans for conservation in Iowa. Knowing that William Trelease, his former teacher at Wisconsin, was in the audience, Pammel invited the older botanist to make some remarks, after Pammel had acknowledged the applause following his own talk. Trelease's talk was unprogrammed; it lasted for over an hour.

Ed M. Smith, Secretary of the State of Iowa, accepted the park from the State Board of Conservation, on behalf of the Executive Council and presented it to the people of Iowa. The ceremonies of the day ended with a concert by the 14th Cavalry Band, USA, of Fort Des Moines, Iowa. Thus was established Pammel State Park: the most fitting of all tributes to Louis H. Pammel.

Additional Thoughts of Dr. Pammel on Conservation

Many of Dr. Pammel's thoughts about conservation should be repeated because of their present day relevance.

> "We in the United States are leading such busy strenuous lives that recreation has become an absolute necessity. We are in a hurry all the time. There can be no doubt of it that the worry and bustle of our modern living leads to a great many premature deaths. Many useful lives are blotted out because they did not take time for recreation. If we are going to keep pace with our civilization, we must give the public an outlet in the great outdoors." — L.H.P., 1924.

> "There is nothing more conducive to better living than to get a certain amount of contact with the outdoors. If you love birds, flowers, and nature, you are going to be a better citizen." L.H.P., 1928

> "Where is a better place for man to get recreation than in God's great outdoors? What is more inspiring than to hear the rustle of leaves or to hear the brown thrasher issue its musical song or to see bluebells or the woods and the glorious and beautiful North American plants like the wild crab or the white thorn flowers on the hillside and in autumn, the aster and the goldenrod or the cardinal flower in our lowlands."

> "We think of a park as a place where there are trees like the maple and the basswood or the sycamore or white pine and the cedar, oak, and the ash, and they are all beautiful. But let us not forget that in Iowa at least we should have pride in the prairie park where the lily and gentian, the goldenrod and aster, the bluestem and the switchgrass, the pasque flower and Johnny-jump-up vie with each other in brilliant array, for it is to the prairie that we owe our greatness as a state." — L.H.P., 1928.

PAMMEL THE COMMUNICATOR

In my opinion, Louis H. Pammel was an excellent communicator of the written and spoken word. Ideas and words flowed from his mind with clarity and coherence. He enjoyed communicating with people orally, either imparting knowledge or engaging in repartee. Giving lectures was very rewarding to him. Merely chatting with friends was pleasurable, according to accounts of surviving contemporaries.

As a Speaker

As a speaker outside the classroom, he was much in demand for high school and college graduations. He was also called upon to deliver frequent sermons in his church and at the college chapel. His talks were well prepared, usually stirring and inspirational. They made each listener feel as if the message had been prepared for him alone.

Dr. Pammel often gave talks for men's and women's groups in his community and others, including chambers of commerce, as well as for campus groups at their meetings and banquets. He spent much time in the preparation of the dedicatory speeches he gave on the occasions of presentations of new Iowa State Parks to the citizens of the state and for the planting of memorial trees on the campus. His addresses for Phi Kappa Phi, when he served as its President-General, were scholarly and stressed the obligations and privileges of the educated.

As President of the Iowa Academy of Science in 1892-93, Pammel's retiring address was titled, "Bacteria, Their Relation to Modern Medicine, the Arts, and Industry." He dealt at length with the subject in these categories: history, methods of study, structure, the question of species, hygienic problems, and the relation of bacteria to industries and other interests. He wanted to correct some of the then prevalent notions regarding bacteria.

Pammel's address given upon his retirement from his second term as President of the Academy in 1924, is of historic interest. Titled "A century of botany in Iowa," it covers botanical developments between 1823 and 1924. Topics were an early history of the Academy of Science, collegiate botanical clubs, official state botanical organizations, and agencies publishing botanical papers. Pammel also discussed trends in taxonomy, morphology, seeds, plant physiology, ecology, pollination, phenology, phytopathology, mycology, algae, bacteriology, and economic botany. Many of these topics were also Pammel's own lifetime botanical interest.

Some titles of his other talks were: Arbor Day, About Bacteriology, Beautify Roadsides, Better Iowa, Birds, Botany, The Botany of Crop Plants, Botanists, Buffalo Bur, Buffaloes in Iowa, Civic Pride, Conservation, Economic Botany, Education, Flowers in the Garden, German Universities, Honey Plants, Lawn Weeds, Our Spring Wildflowers, Our State Parks, Plants of the Bible, Poisonous Plants, Poplars of Iowa, The Prairie, Rare Books, Scholarship, Some of the Treasures of Iowa; Some Present Day Horticultural Problems, Your Clover and Timothy Seed, Weeds, and Willow Trees. It is estimated that Dr. Pammel could speak readily on a hundred topics.

His talks were satisfying and full. Each one seemed to follow a definite pattern. He usually began by defining the topic from the dictionary or a more scientific viewpoint. He then presented a historical analysis of it and his interpretation. He included also biographical accounts of the persons involved with the matter, if any, and then drew logical conclusions.

Dr. Pammel was well received by his audiences. They invariably liked the scholarly and attractive person from the College who appeared before them. He established immediate rapport with his audiences, speaking in a low, modulated voice, with a tone of authority and a genuine interest in the subject matter. He usually delivered his talks without notes. Those who heard him were attentive and appreciative. He had an almost hypnotic effect on his audiences. They listened attentively and applauded him sincerely when he concluded.

Many of his addresses were widely quoted in the newspapers of the state, then reproduced in essence in the national press. In order to assure a perfect rendition of what he said, he usually sent in advance a copy of what he intended to say to the news services and to the persons sponsoring the address. Afterwards, he checked for the accuracy of the press account.

Dr. Pammel was also a sympathetic and successful interviewer. When he was appointed chairman of the College's History committee he had to accumulate material from the early history of the institution

as well as reports of its current activities as printed in the state's newspapers and other sources.

For this assignment he conducted lengthy interviews with long-time residents of the Ames area who remembered something of the College's beginnings. He also interviewed students, including his own children, all of whom attended Iowa State College, for their own impressions of the professors. These interviews form an excellent treasury of the early history of the institution. The material thus collected was used later in a History of Iowa State College.

Pammel kept records of his talks and the number of persons he reached in the audiences for his yearly reports to the College presidents. His estimate of 1928 was 294 talks for 22,715 persons. The year before his death in 1931 he wrote to the college president that he delivered 172 talks to 2,497 persons in the three month period between September and early December of 1930.

As a Writer

Louis H. Pammel was equally adept at written communication. His written materials include books, papers, letters, laboratory guides, memorials and obituaries, columns, and miscellany. The Ames botanist was the author of ten books of significance. Seven are of botanical interest and three of biographical or historical value.

Pammel's first book is entitled *Flower Ecology.* It was published by the Hungerford Press of Carroll, Iowa, in 1896. Pammel dedicated it to his parents, "as an appreciation of what they have done for me." This is the shortest of his books, but in some ways the most interesting. With its general topic described as "pollination ecology", this one was written and published before the discovery of Gregor Mendel's work on the principles of heredity in 1865, which was not rediscovered until 34 years after his death. Nevertheless, Pammel discusses such genetic topics as the beneficial effects of crossing plants and the deleterious ones of inbreeding, the effects of pollen on the development of the fruit (xenia in corn) and the grafting of hybrids. This little known book offers more evidence of Pammel's great interest in honey plants and the relationship of insects to flowers.

Grasses of Iowa, published in 1901, has chapters by J.B. Weems and F. Lamson-Scribner, to whom the descriptive part of the work is credited in the introduction. Part I is a natural history of grasses and is not primarily taxonomic. Its first 100 pages present a discussion of the gross and microscopic anatomy of grasses, with numerous illustrations done by Charlotte King. The next section is attributed to Lamson-Scribner and deals with seed testing, cereal fungi, bacterial diseases, pastures, weeds, the chemistry of feedstuffs, and the making of lawns.

Part II of *Grasses of Iowa* is a standard taxonomic treatment of Iowa grasses with descriptions, illustrations, distribution maps for Iowa, and a citation of herbarium records of each species in the state. Most of the taxonomic work was done by E.D. Merrill, C.R. Ball, F. Lamson-Scribner, C.L. Shear, and T.H. Kearney, with Ball having written the keys.

Pammel also included extraneous material about sugar cane, rice, Zoysia grass, *Milium,* Bermuda grass, *Gynerium, Uniola,* and bamboo — none of which are known either as native grasses, cultigens, or weeds in Iowa.

Ecology, published by the Hungerford Press of Iowa in 1903, is primarily a revision of Pammel's earlier *Flower Ecology,* of 1896. Most of the text of Ecology is a treatment of floral structure, pollination mechanisms, insect relations, and dispersal methods. The final two chapters deal with plant adaptations, acclimatization, and phenology.

The Manual of Poisonous Plants of North America, published in 1911 by the Torch Press of Cedar Rapids, includes a chapter on bacteria by R.E. Buchanan, and one on poisons and their actions, by Walter C. Strike and W.F. Coover. Pammel states in the preface, "This work does not pretend to be complete; we hope, however, that it may prove useful to the veterinarian, the physician, and the layman."

The *Manual* is Pammel's longest work. It is also the first book on poisonous plants ever written in the United States. Interestingly, it is subtitled, "— Poisonous Plants, Chiefly of Eastern North America, with a Brief Note on Economic and Medicinal Plants and Numerous Illustrations." Many of the 438 illustrations were by Charlotte M. King and Ada Hayden. The chapters on poisons and poisoning are largely obsolete because of the progress made in phytochemistry after their publication.

One section is a manual of poisonous plants with a discussion of the entire plant kingdom. The chemistry and toxicology are of course now obsolete, but the *Manual* is regarded as a valuable first attempt at a treatment of American toxic plants.

The Weed Flora of Iowa was published in 1913 and revised in 1926. The revised edition was done with the collaboration of Charlotte M. King, J.N. Martin, J.C. Gilman, J. Cunningham, Ada Hayden, F.D. Butcher, D. Porter, and R.R. Rothacker. It treats 245 species of weeds and has 566 photos and maps.

Pammel's interpretation of the term "weed" is rather broad and the text includes a number of plants mostly regarded as wildflowers not of major weed importance. Its text includes treatments of seed characteristics, morphology of leaves and flowers of the weeds, flowering times, seed dissemination and migration, damages caused by weeds, fungi carried by weeds, eradication of weeds, and weed and seed laws. The author stressed weed eradication through cultivation. This book indicates the author's wide range of botanical interests. Modern weed books are much more restricted in content.

The sixth book was a memorial volume edited by Pammel, entitled *Major John R. Lacey.* It was a collection of Lacey's papers and speeches on natural resources and conservation, with memorials and biographical details.

Major Lacey of Oskaloosa spent many years of his life working for state and national conservation. In 1872, when he was a member of the United States Congress, he drafted and proposed the legislation which established Yellowstone National Park as our first such park. His name is honored in the title of Lacey Keosauqua State Park.

Weeds of Farm and Garden was published in 1920 by Orange Judd. This book covers the common weeds of North America with practical suggestions for their management, and the ecological and geographical distribution of grasses. This is a pioneer work also, primarily taxonomic, with illustrations and descriptions of many common weeds.

Pammel's discussions include injury to crops by weeds, duration of the life of weeds, dispersal of weed seeds, seed testing, weed laws in the various states, migration of weeds, and weed extermination. The material Pammel recommended for weed extermination is now judged to be dangerous and largely ineffective. Modern herbicides did not begin to appear until nearly twenty years after Pammel's death.

Some Reminiscences of La Crosse County and Vicinity, published by the Liesenfeld Press of La Crosse, Wisconsin in 1929, is Pammel's eighth book. This volume is reprinted from articles which first appeared in a La Crosse newspaper, the *La Crosse Tribune Leader.* Its author subtitled it, "An account of the men and women who lived in La Crosse and vicinity and who shared in its progress and in the building up of its commercial, professional and educational interests, with notes on conservation of plant and animal life."

Reminiscences — is further explained by its editors in another subtitle, "Being an account of the early explorations and natural history of the region with biographical sketches of the pioneer men and women who lived in La Crosse up to 1886." These reminiscences are a treasure trove of information regarding the early histoty of La Crosse, as well as of the natural history and botany of its surrounding area. The volume also contains valuable notes of the lives of the parents of Louis H. Pammel, Sophia Pammel and Louis Carl Pammel. These facts Pammel obtained from his mother's diary.

Prominent Men I have Known was written between 1926 and 1930. It was published by the Torch Press of Cedar Rapids in 1930. It is

actually a series of ten pamphlets, reprinted from articles first appearing during that period in an Ames newspaper. For these pamphlets Pammel chose twenty men, who had, in his judgment, influenced the world in scientific, professional, and religious lines of endeavor. He knew most of them personally. Each biography is treated with material from the man's family background and early years, his professional education, his personality as summed up by remarks made by his friends and students, as well as information regarding his professional life and achievements.

Pammel chose from the scientific world J. L. Budd, Herman Knapp, Miliken Stalker, William Beardshear, F. E. L. Beal, S. A. Beach, William Trelease, C. E. Bessey, Bruce Fink, Alfred R. Wallace, Asa Gray, H. J. Detmers, C. C. Nutting, H. H. Paarman, and E. D. Holway. Those chosen from political life were Henry C. Wallace, James Wilson, and Dr. Henry Albert. Dr. Leroy Titus Weeks represented the religious category.

Pammel's tenth book, *Honey Plants of Iowa,* was published in 1931 after his death. This volume was written with the cooperation of Charlotte King, Ada Hayden, J. N. Martin, Frank P. Sipes, William S. Cook, Edna C. Pammel, Clarissa Clark, L. E. Yocum, L. A. Kenoyer, C. W. Park, Charles A. Hoffman, R. I. Cratty, and C. C. Lounsberry. *Honey Plants* discusses the characters, distribution, and value of about 400 plants which are visited by honey bees. Pammel collected material for this book for fifteen years. He discussed pollination and bees, nectar production in flowers, the history of honey and pollen, pollen grain structure and composition, nectar secretion, studies of various crops, relation of honey plants to soils, and the seasonality of local flora. This volume is quite useful, considering modern interest in pollination ecology.

Pammel's very active research life and his multitude of personal research interests led to his writing in his lifetime approximately 700 papers of professional and educational nature. They are listed by categories in an appendix to this biography.

This vast amount of material appeared in 49 publications, including state park bulletins, those of the Geological Commission, the *Phi Kappa Phi Journal,* the *Proceedings of the Iowa Academy of Science, Kiwanis Magazine, the Annals of Iowa,* the publications of the Iowa Agricultural Experiment Station, *Science, Veterinary Medicine,* the *Proceedings of the Iowa State Horticultural Society,* and the publications of the College, such as the *Ames Forester* and the *Iowa Conservationist.*

Most of Dr. Pammel's material was accepted with little editing, but he did receive some advice from Alson Secor, editor of *Successful Farming,* who asked him in 1911 for an article concerning seed adulteration. Secor wrote to Dr. Pammel,

> "Put some pep in the article. You scientists are apt to be too serious. Make this article just as vigorous and full of pep as you would a speech before a bunch of farmers, give it to them straight."

As a letter writer Pammel was tireless. At one time in his later years he kept three department clerks busy assisting him with the great outpouring of letters from his pen. At one time even his daughter Harriett was thus employed. Many letters had this note at the end, "Dictated by but not signed by L. H. Pammel."

Dr. Pammel wrote letters to children, to legislators and governors, to editors, friends and family members, to scientists in the United States, to colleagues in the other colleges of Iowa, to botanists in foreign countries, and to college administrators.

Letters were perhaps his most voluminous written record. Thousands of them are now preserved in the Special Collections Section of the Iowa State University Library and largely provide the basic documentation for this biography.

As the administrator of the Botany Department, Pammel had official correspondence, such as letters and reports to college officials, to his colleagues, to his staff, the State Board of Education, and for students. Pammel wrote many letters for students to help them secure summer employment, admission to colleges for higher degrees, and for jobs following graduation.

He also wrote letters of congratulation to his friends in celebration of their accomplishments and other joys, letters of condolence upon deaths, of concern in the case of illness. He also wrote to his mother throughout his busy years and conducted her personal business matters by mail after she was widowed. At least he gave his mother sound advice, he thought. He wrote faithfully to his children after they had left home. Letters to the editor were his special joy; he savored writing and reading them after publication. Dr. Pammel considered such letters as an educational device, a chance to present his viewpoint or to educate readers about some cause.

Sevetal letters written to the *Des Moines Register,* are still worthy of notice. In 1922 he warned Iowans against draining lakes and straightening rivers. He suggested that they plant rough (untillable) land to trees to conserve moisture for agriculture. He expressed his belief that lakes were worth more as lakes than as farmland and recommended that the state build artificial lakes and reservoirs to hold both water and soil, to preserve sloughs and bayous and leave more farmland uncultivated.

Pammel wrote another letter in 1923 about the value of trees.

> "These are an asset to our commonwealth and of importance to our civilization. There are large tracts of land in the state of Iowa unsuited for agriculture. These should be planted with trees, not only to keep the soil of Iowa, but also to produce a crop of trees for the future. It is a lamentable fact that the average farmer will not plant trees unless he has some encouragement. I am safe in saying that under present circumstances very little reforestation will be done unless we make this a matter of public policy (through legislation). It seems to me in view of the great problems facing us in the great state of Iowa we should be doing conservation in reforestation."

Informed that a commercial florist in a town near Ames was selling wildflowers in his shop, taken from the Ledges State Park, Pammel penned another letter to the *Des Moines Register.* He wrote in part,

> "Unless we protest, some of our beautiful wildflowers will soon be a thing of the past because one of our enterprising florists has sold large quantities of the beautiful blazing star for bouquets. Will not the good citizens of Iowa who love the state preserve such wildflowers so that they may be enjoyed by others?"

One day in May of 1928 Pammel read an article in the *Chicago Daily Drovers Journal* about the need for rural beautification of highways in the cornbelt by planting trees, shrubs, and flowers on them. Pammel agreed thoroughly and wrote a letter about his opinions to the *Journal* editors, which became the subject of another article in the same paper. Pammel wrote,

> "No civilization will endure unless it takes account of country life. Country life should be made beautiful and can be made beautiful by taking into account native surroundings. The great men and women of the future, as well as in the past, are those who have planted their feet firmly on Mother Earth, in other words, the men and women who have had contact with the great out-of-doors, nature. We will be a great nation as long as we take these things into account — the development of rural life and all that goes with it."

In 1929 he wrote another letter to the *Register* commenting on an article it had published written by Mark Sullivan, "The small, one-man family farm has been, so to speak, the cell of American national life." Pammel wrote in response to this,

> "It is far better to have a large number of farms successfully run by individual owners than large farms, run by companies and corporations whose ownership would

> largely rest with people who would not live in this state and thus would not have the understanding and good of the tenants in mind. We must keep intact farm life because the future greatness of this nation depends on a farming people."

One day in 1930 while Pammel was traveling to Des Moines for a meeting, he noticed what he called unsightly roadside conditions and wrote another letter which was published. He wrote in part,

> "It is a disgrace to Iowa and the other states that our highways are made dump heaps of old used cars, rubbish, and tin cans. Our highways should be made beautiful. Some of our gas stations use inappropriate flowers. Why not use our own wildflowers and help advertise Iowa in a better way?"

Pammel maintained a voluminous correspondence with scientists who were faculty members of other Iowa colleges, as well as with those in foreign countries. He wrote in response to or criticism of the articles or opinions expressed by these persons in the various journals and other periodicals which he perused regularly.

Dr. Pammel wrote to botanists and horticulturists in Argentina, Australia, Austria, British Honduras, Canada, China, Cuba, Czechoslovakia, Denmark, England, France, Germany, Holland, Iceland, India, Italy, Japan, Mexico, the Netherlands, New Zealand, Nova Scotia, Peru, the Philippine Islands, Roumania, Sweden, Switzerland, the Union of South Africa, and Wales.

This ardent penman wrote to administrators of institutions other than Iowa State whenever he agreed or disagreed with their viewpoints as presented in the press. In 1922 he wrote to E.A. Birge, the President of the University of Wisconsin, his alma mater, "I am not opposed to athletics, but it should not be the aim of an educational institution to place athletics above everything else. It is emphasized too much."

Louis H. Pammel also wrote to the representatives and senators of Iowa as well as to national congressmen and senators. He was alert and knowledgeable about politics and the course of history as it was developing in his lifetime. He wanted his opinions to be considered.

At the time of the events leading up to the outbreak of World War I, Pammel wrote to both Iowa senators in the Congress that he was against the war which he felt was imminent. He implored Senators Kenyon and Cummins to vote against the sale of American munitions to England and France. Later during the War, his sentiments were definitely pro-German. He did not publicize these, even though he felt that Germany had been provoked into the war. Pammel also wrote to Iowa's national representatives on matters pertaining to the establishment of a national arboretum, national parks, and the reorganization of the Department of the Interior.

In 1929 the professor from Ames wrote to William Sirovich, Congressman for the 14th district of New York, "I hope the time will come when we will have old age pensions." His letter referred to a speech which the congressman had made in the House. Pammel at the time had just retired and faced the prospect of retirement years with reduced funds.

Pammel frequently wrote to the governors of Iowa. In 1921 he wrote to Governor Kendall about his salary, which he felt was too low for his many responsibilities. He said in part, "The reason my salary was not advanced is that I was away from the college on the business of the State." Pammel inferred that the governor should therefore rectify the matter, but Kendall chose not to. He did not care to interfere with the college budgeting procedures.

The college professor also enjoyed writing letters to his children. He wrote endearing missives to his own six children after they had left home. He remembered their birthdays, congratulated them on the births of their children, and sent family news to all of them at Christmas and Easter.

Because of his interest in bird migration, Pammel sent an article to Iowa newspapers requesting information from readers as to the dates that hummingbirds were first seen that spring in various parts of the state. This resulted in a flood of letters to Pammel in the spring of 1929. One was from Isabelle E. McCoy, then 8 years old, of Marshalltown, who wrote to him on May 29, 1929, that she had seen hummingbirds on the petunias of the flowerbeds in her backyard a few days before. Isabelle received a very courteous and proper letter addressed to her as "Dear Miss McCoy", in which Dr. Pammel thanked her for her cooperation in his quest for hummingbird appearances.

On another occasion in 1924, a group of children in one family — Ben, Betty, and Roger Gailor, approached Dr. Pammel to say hello when he was making a public appearance. They had become acquainted with him in August of that year at the American School of Wild Life Protection which they had attended at McGregor, Iowa. The day after they stopped him to say hello, he wrote to them,

> "My dear children: It was nice of you to run after me and tell me that you had met me at McGregor. I am so pleased to know that you are interested in the great outdoors. The wonderful trees and flowers. Did you notice yesterday the fine red coloring of the white and red oaks? How beautiful are their autumn colors. The yellow of the maples contrasting with the red of the oaks and the blue skies. What a wonderful picture. I hope you will always keep an interest in birds, the trees and flowers. When you are grown, don't forget that nature will be a great solace to you. Let its beauty and charm remain with you."

Another youth, John W. Wood of Moulton, Iowa, wrote to Pammel in 1926, asking for his definition of a scientist. Pammel wrote back promptly,

> "A scientist is one who does original research, investigates, experiments, and who correlates these investigations with others that have previously been made."

He also enjoyed the writing of memorials and obituaries, a task distasteful to some persons. Most of these were published in the *Annals of Iowa* or the *Proceedings of the Iowa Academy of Science*. In these he recalled salient facts of the person's family background, education, and his contributions to society during the course of his lifetime.

Those so honored with memorials were Charles Aldrich, S.A. Beach, William Beardshear, the Reverend George Bennett, Charles E. Bessey, Robert Combs, Arthur A. Crozier, Bruce Fink, J. Howard Frazier, Archelaus Greenfield, Byron D. Halstead, W.E. Harriman, Dr. Edwin James, Harriett Kellogg, Charles Nutting, J.H. Paarman, G.E. Patrick, Carl E. Schlaback, E.W. Stanton, Benjamin D. Walsh, Leroy T. Weeks, and Finley Witter.

Pammel was also a magazine columnist for twelve years. He wrote an answers-to-questions column for *Veterinary Medicine,* published in Chicago, from 1919-1930. As the editor of its department of livestock poisoning, he answered questions sent in from all parts of the country.

His travels throughout the United States in his later years resulted in a series of travelogs which appeared in an Ames newspaper. He described the geography, history, and botany of the places he visited. These accounts were eagerly read by local persons. One such article was titled, "What may be seen of trees and shrubs between St. Augustine, Florida, and Ames, Iowa, while traveling on a train."

The record shows that Dr. Pammel also wrote, on the request of Dr. L.H. Bailey, for his *Cyclopedia of American Agriculture,* in 1892, an article on farm water supplies. The writer received $13.50 for his efforts.

The least of Pammel's many writing endeavors were his laboratory guides for his courses when he was a beginning teacher. These include guides for his courses in bacteriology, cryptogamic botany, vegetable histology, and elementary botany. They have little present day

relevance.

It is estimated that Pammel's published words in all forms had a readership of several million people, including readers of news sources in both the United States and foreign countries.

Dr. Pammel kept only one record of a payment for his writing, so his writings may not have been lucrative. However, his publications do show the depth and breadth of his life interests and his lifelong philosophy to bring knowledge to all persons.

PAMMEL THE ACADEMIC

"My life has been spent for this institution and I have always felt that the interests of the college were the same as my own."

Growth: 1889-1894

Louis H. Pammel, 27 years old, assumed his position at the Iowa Agricultural College as professor of Botany and Botanist of the Agricultural Experiment Station on February 27, 1889. He arrived on the botanical scene in Ames at a time when botany was developing as a major science in American colleges.

From the 1880's on, botany as a major science went through an exceptional growth period, a transition from sole emphasis on taxonomy to others in morphology, physiology, mycology, anatomy, and vegetable diseases. This transition was substantially aided by several factors. First was the improvement of the compound microscope. Another was the establishment of the land grant colleges and their installation of botanical laboratories, such as those at The University of Illinois, Purdue, Michigan Agricultural College, the University of Michigan, the University of Nebraska, and Iowa Agricultural College.

In the early land grant institutions, some prominent botanists were Thomas C. Porter at Purdue, Albert N. Prentiss at Michigan Agricultural College, and Charles E. Bessey at the Iowa Agricultural College. The only Iowa botanists of note, prior to Pammel's arrival, were Bessey at Iowa State and Bohumil Shimek and Thomas Macbride at the State University of Iowa.

Because he was the only botany professor, Pammel decided all botanical matters: courses, administrative procedures, budgeting, and purchasing. Pammel therefore considered himself the head of the botany program, though not so hired.

Louis H. Pammel came to Iowa Agricultural College with a philosophy of education: the responsibility of education lay upon the shoulders of the teacher. Not only did he have to spark interest in his students with his knowledge and enthusiasm, but he also had to keep up to date in his field through reading. Furthermore, the teacher must do pertinent research of his own.

The new young professor therefore believed the function of a college and of its staff was threefold: to instruct students, to carry on research, and to take the information and results of that research to citizens of the state not on campus. In Pammel's view these off-campus efforts would enable other residents to live more productive and rewarding lives.

Pammel's educational philosophy matched that of the young college in which he invested his life: teaching, research, and extension. Louis Pammel and the Iowa Agricultural College developed together as the years progressed.

Iowa Agricultural College in 1889. In the year 1889 the college buildings consisted of a Farm House with a barn, a piggery, a Main Building, a Chemical and Physical Building, boarding cottages, and a residence for its president.

Iowa students attending the college paid no tuition. Those who came from outside the state paid $30 a year, unless this was remitted by a special vote of the College Trustees. All students were required to pay a 75 cent hospital fee per term. Day students were also charged a janitor's fee of $4 for each seventeen week term. In 1889 the staff numbered 24, to serve 284 students.

Four courses of study were offered: one in science and agriculture, a "course for ladies"; one in mechanical engineering; a fourth in civil engineering. Botany was considered a basic course and was required of all students except those in mechanical engineering.

Botanical Equipment and Library. The first classes Pammel taught were held in North Hall. Botany quarters included a lecture hall seating over 100 students, microscopes, including an old Tolles purchased by Bessey, several Becks and a few Bausch and Lombs.

A small library housed within the botany offices provided ready reference opportunities for students. The books included Tulasne's *Selecta Fungorum Carpologia,* 1863; the French journal *Annales de Sciencias Naturales;* Baillon's *Dictionary of Botany;* twelve volumes of Pringsheim's *Jahrbuecher;* Charles Sargent's *Silva of North America,* 14 volumes, and an ancient work by Aldrovandi, the fifteenth century Italian botanist.

These books had been purchased over the years with a $75 yearly appropriation from the state. H. R. Speer, the first head of the Experiment Station, had begun this collection from lists furnished him by Stechert of New York.

Other teaching aids available were 25 Dodel-Fort botanical charts purchased in 1882 by Pammel's predecessor, Byron Halstead. They were large, well-drawn charts and were used for the general and beginning courses. There were also charts prepared by J. C. Arthur in 1872 when he had been a botany undergraduate. In addition, Pammel acquired a crude projection lantern for "throwing pictures" on a wall.

Pammel's First Classes. The courses in botany offered during Pammel's frist year were elementary botany, cryptogamic botany, plant morphology, pharmaceutical botany, and bacteriology, which Pammel had been granted permission to give for veterinary science students. The texts used in the freshman year were Gray's *Lessons in Botany* and Gray's *Manual;* in the sophomore year, Gray's *Structural Botany* and Goodale's *Structural Botany.*

Students in the Veterinary Science course took botany each year. The first course, which lasted one term, included morphology, flowering plants, and the identification of drugs. In their second year these students were required to prepare a herbarium of medicinal plants and to take a course which included the study of fungi, yeasts, and the causes of fermentation. Their third year course was bacteriology, which included its history, a study of the growth of cultures and instruction in the ways to prevent contagion.

Mr. Pammel had to teach all these courses for general and veterinary students, including giving lectures and conducting all laboratories. He handled a heavy load of class work his first year, which meant much last minute planning. The young teacher had never been completely in charge of a class before, totally responsible for teaching, examining, grading and laboratory guidance. He enjoyed the new course in bacteriology which used Nicholas Senn's *Surgical Bacteriology.* Within a few years Pammel asked to give the course for the "general" student and was granted permission to do so. Bacteriology was of great interest to Pammel, not only because of its relationship to plant diseases, but also because of its relevance to sewage and water purification. Pammel was curious about the physiological characteristics of microorganisms and during his early years at Ames would describe several species which produced special or unusual fermentations.

The anthrax spores which Pammel had brought with him from St. Louis had been placed in a box, appropriately labeled, in his desk at the College. Pammel later told of an incident of a veterinary student rummaging through his desk and finding the box. The student did not open it, but became very excited when Pammel told him the

spores were very dangerous. During the course, Pammel made bouillon cultures of the anthrax and inoculated laboratory mice with it. The mice died within 24 hours, making a lasting impression on the future veterinarians.

Pammel also had to teach during his first year the course in landscape gardening which his predecessor Byron Halstead had taught. Fortunately the class was small with only six students, and a good text, Kemp's *Landscape Gardening,* was available. After one term of teaching it, Pammel decided he had enough to do, and gave the course back to the administration.

In a few weeks after the term started in 1889, the weather turned to spring, with greenness and luxuriant plant growth. Pammel had heard of a place of botanical interest, called The Ledges, five miles south of Boone, in the county west of Ames. His students were enthusiastic about going there and procured basket lunches from the college dining hall. The professor and his students traveled by train from Ames to Boone for 42 cents, then went by horse and buggy to The Ledges. This was the first of a long series of such trips, which became traditional with Pammel's classes throughout his long teaching career. His students thoroughly enjoyed them and Pammel found that the outdoor laboratory was far more instructive than the Dodel-Fort charts.

In addition to his course work, Pammel had to take care of all departmental correspondence without the aid of a clerk. This necessitated handwritten answers to each piece of mail he received, a very time-consuming procedure. Letters came in to the Botany Office at the rate of 25-60 a week from residents of the state who wanted plants identified or questions answered regarding seeds, crop problems, weeds, and other matters relating to crops and their production. The queries from farmers of the state convinced Pammel that Botany had a vital role helping farmers to solve problems in crop production, seed quality, and weed control.

Pammel did not have a typewriter and it soon became evident he could not keep up with the mail and do anything else. He considered the matter and finally decided to persuade the curricula of agriculture and zoology to contribute $30 each to purchase of a typewriter, to be shared by the three. The others agreed and the administration had no objections.

Louis H. Pammel was extremely popular with his students because of his enthusiasm for his work, his obvious familiarity with his field, his serious approach, and his charming manners. However, an incident with one student in 1889 caused him some anguish. The student was Joseph C. Chamberlain, the son of the college president, who appeared in Pammel's freshman botany class. Pammel was very uneasy with young Chamberlain in his classroom and also slightly suspicious. He thought that perhaps young Joseph was there to report back to his father about Pammel as a teacher. Dr. Chamberlain even visited the class once or twice, "whether to criticize me or not," Pammel wrote later. Pammel bore the young man no grudge, in spite of his father's opposition to him at the time he was hired and helped Joseph to become competent in botany. Pammel directed his senior thesis, a study of the style characters of the Compositae, the first such presentation in botanical literature.

Mr. Pammel's suspicions were confirmed when later that year he received a "very nasty" note from President Chamberlain criticizing his work and informing him that the caliber of his work was not entirely satisfactory. Pammel remembered he felt "very blue" about this attack during the following Christmas holidays. He never felt friendly toward Chamberlain afterwards, though he was always courteous to the President. Pammel did not regret the leaving of Chamberlain in November of 1890.

Other Activities. Pammel decided to deepen and strengthen the interests of his students in science, so in 1890 he assisted them in forming a campus organization called The Science Club. The next year he gave two talks for this organization, one on the seed coats of the genus *Euphorbia* and the other about his recent experiments in sterilizing milk to destroy the tubercle bacillus. In 1892 he presented a talk on the chromogenic bacteria of Ames, at its first annual meeting.

H. C. Taylor, class of '90, summarized later the feeling that most of the students at the college had for young Mr. Pammel. He said,

> "Mr. Pammel did more than anyone else in my day to make me feel that a college professor could be perfectly human and still have happy and informal relations with students without impairing his teaching qualities. He put us in the field as cattle to graze, but he did not hitch us up in teams to work us."

Students were the stuff of life, its very essence, for Louis H. Pammel. He especially delighted in teaching those who he felt showed unusual promise in the field of nature, but he did not despise the less interested. He enjoyed training and enriching their young minds to appreciate the world and to understand how it functioned.

George Washington Carver. In his forty-two years as a teacher, Pammel had three students of highly unusual promise in botanical endeavors. The first of these was a black student, George Washington Carver.

Carver arrived in Ames in the late summer of 1891. He had been born in a small log cabin on a farm near Diamond, Missouri, just at the outbreak of the American Civil War. His mother was a slave owned by the farm proprietor, Moses Carver. Because the woman and her babies had been kidnapped near the end of the war, Carver offered a reward of a horse worth $300 for their recovery. Only the older boy was returned, whom Moses and Susan Carver reared as one of their own. They named him George Washington Carver and taught him to read, spell, and write. Because he was too sickly to assist in the fields, young George helped in the Carvers' kitchen and garden where he found he enjoyed caring for plants, especially sick ones. In his spare time he made crude sketches of these plants for Mrs. Carver. She encouraged him to seek an education in the public schools of the area.

After several attempts to get a high school education, Carver finally succeeded, graduating from a school in Minneapolis, Kansas. He applied for admission to nearby Highland College, but was turned down because he was black. Applying to several others, he was finally accepted for enrollment at Simpson College in Indianola, Iowa. He planned to take courses in art and music, beginning in the fall of 1890.

After a few months at Simpson, his art instructor, Etta Budd, whose father. J. L. Budd was in the Horticulture Department at Ames, urged Carver to give up art and go to college at Ames and study scientific agriculture as a surer means of earning a livelihood. Carver took her advice and transferred to Ames for the academic year of 1891. He walked the 50 miles to Ames and arrived in the late summer with no money. He could find no place to sleep except in the fields. One day on campus, Carver met Louis H. Pammel by chance and the two started a conversation. Pammel was touched by the promise and humility of the young student seeking a college education, and gave Carver the use of a small room in North Hall where the Botany Department rooms were located. Carver studied and slept in this room during his entire stay in Ames.

During his years in Ames, Carver earned his subsistence by doing janitorial work and his board by waiting on tables in the college dining room. He was popular with the other students, many of whom had never seen a black man before. Carver was elected captain of the student military regiment and in whatever spare time he had, continued with his art work. Two of his paintings were hung at the World Columbian Exposition in 1893, through Pammel's help.

Carver wrote years later,

> "I did odd jobs for a number of professors, cutting wood,

> making gardens, working in the fields, cleaning houses and taking care of greenhouses and also the chemical, botanical, and bacteriological laboratories."

This enterprising student received his bachelor's degree in agriculture in 1894 and was then named Assistant Botanist in the Experiment Station, thus achieving the status of a faculry member. Carver started his work for a graduate degree and received it two years later, his thesis subject being *Septoria* and *Cercospora*. Following this second degree, he joined the staff of Tuskegee Institute in Alabama, where he spent the rest of his life and became famous as an agricultural chemist and extension worker.

Carver and Pammel remained friends throughout Pammel's lifetime. They exchanged 300 letters and publications. The letters express the deep friendship and respect that existed between them. Each letter to Pammel is addressed, "Beloved teacher."

In one letter Carver recalled an incident when he was living in Ames. "You were going out of your way to help a poor insignificant black boy. You was giving many cups of water in His Name." The occasion to which Carver referred was Pammel's outfitting him in 1892 so he could attend without embarrassment an art exhibition in Cedar Rapids, Iowa, where several of his paintings were being exhibited. Pammel purchased a suit, hat, and gloves for him.

Carver was a frequent guest for meals at the Pammel home during his college days, occasions which Carver also recalled later in his letters to Pammel. The six young Pammels liked Carver. Not only could he tell stories, but he also sketched their likenesses. Carver remarked to Pammel about his children, "They served as lamps onto my feet and lights upon my pathway."

In his later years Carver asked Pammel in a letter if it were possible for Iowa State to award him an honorary degree. He put it modestly,

> "I do not covet this much from any other institution except Iowa State College. Of course, if I am not worthy of it, I do not want it. It would be a priceless heritage from your department and I believe would inspire more boys and girls to delve into the mysteries of nature and nature's God."

Iowa State does not award honorary degrees, but Pammel did look into the matter. However, in 1928 Simpson College honored Carver with an honorary Doctorate of Science and in 1923 he received the Spingarn medal for distinguished service in his chosen field of agricultural chemistry. The award was presented to him at Kansas City, with a number of Iowa State alumni present.

In another letter in 1921 Carver thanked Pammel for being his teacher. "God evidently arranged it," he wrote, "so that I should fall into your hands for training and I am simply carrying out in my poor way the things you endeavored so earnestly and patiently to teach me!"

George Washington Carver was the most exceptional student Louis H. Pammel taught in his first years at Iowa Agricultural College.

Seed Testing. The letters from the state's farmers were of more than passing interest to Pammel, especially those concerning seeds, for they were basic to agriculture. In the early 1890's, Pammel decided to start seed testing with the help of F. C. Stewart, his assistant, and some of their botany students. This service was rendered free to Iowa farmers, but seed dealers were charged a nominal fee.

Pammel started planning for a botany course on seeds and grasses, which was presented for the first time in 1895. The course was successful and popular with students from farming families. Emma Sirrine, '94, was the first seed technologist to receive training at Iowa State College. From Pammel's vision has sprung the leading seed testing laboratory of the United States that does testing of seeds, seed research, training of seed technologists, and extension work.

The Experiment Station. Another of Mr. Pammel's early responsibilities was his position as Botanist of the Experiment Station. In the spring of 1888, the year before he arrived in Ames, the College established the Experiment Station under the provisions of the 1887 Hatch Experiment Station Act. It erected a building for the Station and equipped it at a cost of $9,000, which included a library and laboratory apparatus.

The college authorities placed the organization and management of the Station under the control of their Board of Trustees, who appointed Robert Speer as its first head. They then made other appointments, including a station botanist, a chemist, and an entomologist. Louis H. Pammel therefore became the Station Botanist as well, upon his election as Professor of Botany.

Because of his connection with the Botany Department and the Station, Pammel decided to plan his departmental research along with that done by the Station. During his first years at Ames this research included experiments done on currant spot disease, leaf spot of cherry, and pear diseases. The college orchards had serious trouble with these blights in 1893. Pammel also directed the botany seniors of 1890 to devote their senior theses to a study of these diseases.

The research work of the Station and the Department then branched out to include studies of fungus diseases of cucurbits and forage crops. Pammel himself discovered the cause of rutabaga rot and experimented with corn root rot. He is also credited with discovering the causal agent of black rot of cabbage, the first bacterial vascular disease known to botanists. Pammel became increasingly interested in the bacteriology of plant diseases and worked in these first years on one of the most important of the bacterioses, the black rot of crucifers. The young professor was developing his interest in economic botany, which deepened as the years progressed.

Seeking intellectual exchange with other scientists in Iowa, Pammel in 1890 established contacts with the Iowa Academy of Science through his friendship with Herbert Osborn of Zoology, who took him to his first annual meeting of that group. Pammel enjoyed the papers given by the participants. He met Thomas Macbride and Bohumil Shimek of Iowa City at this meeting. This was fortunate for the growth of conservation in Iowa. Because of the enthusiasm of these three scientists, the Academy took a vital interest in conservation. In the early 90's the papers presented at its meetings dealt largely with Iowa's natural resources, such as underground water supplies, natural gas, coal, and the minerals zinc, aluminum, and lead.

By 1892 Pammel was elected president of the Academy. His retiring presidential address was entitled, "Bacteria, Their Relation to Modern Medicine, the Arts, and the Industries."

The year 1891 marked a first for Pammel, for then P. H. Rolfs was hired as his first assistant. The young professor was increasingly busy with his many responsibilities. He had also decided to apply for a master's degree at his undergraduate institution, the University of Wisconsin. He thought this additional degree might enhance his standing at the College.

The M. S. Degree. Pammel therefore wrote to the registrar at Wisconsin and was informed that the degree of Master of Science could be conferred upon a graduate of the University who had previously received a degree there and who after graduation had pursued an approved course of study equivalent to the work of one year of graduate study at Wisconsin. The candidate also had to present a satisfactory thesis upon the leading subject pursued, prepared at the University or elsewhere.

Pammel decided to use the work done on cotton rot at the Texas Agricultural Experiment Station during the summers of 1888 and 1889 as his thesis material. The requirement of one year of resident graduate work was waived in Pammel's case. His thesis was accepted and the degree of Master of Science was conferred on Pammel at Wisconsin's 38th annual commencement in 1891. Louis H. Pammel had taken one more step up the ladder of academic achievement.

The Herbarium. To a botanist, a herbarium is a prime source of data on the structure, ecology, phenology, anatomy, and distribution of the plants included. It further documents work done in other fields, such as cytology, ecology, anatomy, and morphology. It is a capsule of botanical history.

The years were very busy for the young botanist both at home and at the College, but he felt compelled to spend the bulk of his time at the College as he planned and managed his classes, research, and the Herbarium. The Herbarium owed its origins to Charles E. Bessey. In his 14 years at Ames, he and his college students collected and pressed about 10,000 specimens for the beginning of the Herbarium. They collected not only vascular plants, but also mosses, algae, and fungi — the latter a most unusual practice for botanical collectors of the time. He took most of this collection when he left Ames in 1884 for a position at the University of Nebraska at Lincoln, and Bessey specimens are a rarity in the Iowa State Herbarium at the present time. However, Bessey had his students collect classroom herbaria bound in books. Some of these still turn up in midwestern attics and Iowa State has a number of them.

Pammel's contributions to the Iowa State Herbarium were enormous, directly and indirectly, but they are difficult to document. No catalog of the Herbarium exists which might detail all of his contributions. Pammel himself, always in a hurry, did not maintain a number series or record books, so far as can be determined. We have tried to make a rough estimate of his contributions to the herbarium by counting the proportion of Pammel specimens in random pigeonholes of specimens in several families in the Herbarium. Out of a sample of 545 specimens, 78, or 14% had been collected by Pammel. Considering that the present collection contains about 400,000 specimens, it is probable that Pammel's contribution amounted to over 50,000 specimens. To this could be added numerous contributions made by his colleagues and students, including Ball, Lamson-Scribner, King, Carver, Hitchcock, Hayden, and others. It is not known how large the Herbarium was when Pammel arrived, but some of his contributed specimens bear accession numbers as low as 5,000, indicating it was very small at the time.

In addition to his own collection, Pammel placed in the Herbarium many scrappy specimens sent to the institution for identification as weeds or unknowns. These were sometimes mounted along with letters concerning them.

The management of the Herbarium was one of Pammel's continuing duties. In 1900 its holdings were increased by the 23,000 specimens of the Webster County Botanical Club, bearing the name of the Oleson Collection, for one of its members. The Herbarium also acquired its first curator, R. I. Cratty, in 1918. Pammel himself purchased a number of standard series of fungus collections for the herbarium, bulking about 20,000 specimens. By 1927 the Herbarium had increased to approximately 180,000 specimens by donations and the collections of Dr. Pammel and his staff.

The Herbarium had nearly worldwide representation with specimens from northern Europe, Alaska, China, India, Central and South America, and the United States. Byron D. Halstead, who followed Bessey, did not add many specimens of flowering plants, but did add numerous specimens of fungi.

Louis H. Pammel brought with him about 10,000 specimens which he had collected, beginning with his college days. These he added to the Herbarium as he found it. He was anxious to build up the number of specimens, not only for his own future research, but as an aid to his students and staff members. Many of these old Pammel specimens bear a printed stamp with the legend, "Pammel Herbarium."

The purchase of the C. C. Parry Herbarium was one of Pammel's major achievements during his first five years at Ames. In his judgment it was a very valuable collection because Dr. Parry, a physician of Davenport, Iowa, had collected many of his specimens in Iowa and the American West. Many were irreplaceable type specimens.

Prior to his death, Parry had offered in 1890 his herbarium of 22,000 specimens for sale at $10,000, to Senator Stanford in California. He was reluctant to part with it when no building was immediately available to house it, and withdrew his collection from the market.

In 1893, Parry's widow, anxious to settle the doctor's estate, offered it for sale again at $5,000. The news traveled fast in botanical circles. Dr. Bessey in Nebraska urged Pammel to try to obtain it for the Iowa Agricultural College because Parry had been one of the pioneer botanists of Iowa and Bessey believed his collection should stay in Iowa as a memorial to him.

Pammel agreed with Bessey and, in consultation with President Beardshear, found the money to purchase the Parry Collection in 1894, along with the early botanical books that went with it. Mrs. Parry specified these must remain with the Herbarium, the entire collection selling for $5,000.

His First Five Years in Ames. These first five years were of tremendous importance in the growth of Pammel as a botanist. The botany courses offered in 1894 differed little from those given in 1889. He did, however, add those in vegetable pathology and physiological botany in 1892. Master of Science degrees were awarded to P. H. Rolfs in 1891, to S. A. Beach and H. A. Gossard in 1892, to Mary Nicholas Cox in 1893, and to Charles W. Mally and F. C. Stewart in 1894.

Personal Research. Vacation periods away from the campus were not only a delightful part of the young teacher's career, but a necessity. The long hours spent outdoors not only provided him with relaxation, but they also gave him a chance to collect plants for the Herbarium and to use in his research.

Pammel spent part of his first summer vacation in 1889 working for the United States Department of Agriculture in the Division of Vegetable Pathology to augment his salary, and then went to Bryan, Texas, to continue his work on cotton root rot. He spent the next two summers collecting forest flora along the Mississippi from Clinton to Dubuque to McGregor, Iowa, and in the Prairie du Chien area of Wisconsin and at La Crescent, Minnesota. His 124 papers from these first years reflect the nature of his plant collecting and his personal research as well as that done in the Experiment Station. These papers dealt with pollination, bacteriology, climate, ecology, forestry and trees, mycology and plant pathology, seeds and germination, weeds, and others of historical and biographical interest. They were published in 12 periodicals, primarily in the *Proceedings of the Iowa Academy of Science,* the various publications of the Agricultural Experiment Station, and the *Monthly Review* of the Iowa Weather and Crop Service.

Conclusions. In his first five years, Louis H. Pammel made significant progress in the botanical endeavors which would characterize his professional life. He had increased the number of courses offered and initiated a new one, bacteriology. He was immensely popular with his students. Furthermore, he had commingled the research efforts of his department and those of the Experiment Station for the benefit of the Iowa farmers. Pammel had charted his course in teaching, research, and extension. The many facilities which he had started, out of nothing, with few staff members and little money, had persisted and grown, and today are distinctive on the Iowa State scene.

Flowering: 1895-1924

Iowa Agricultural College in 1895. The year 1895 was significant in the flowering in both the Iowa Agricultural College and Louis H.

Pammel. They both were in a period of expansion and growth with a deepening of an educational philosophy which was concerned with agriculture and its application to the farmers and the industries of the state.

William M. Beardshear was President of the College. New faculty members were being hired during this period who would add luster to the College in the years to come. These, to name a few, included Maria Roberts, C. F. Curtiss, Warren H. Meeker, Samuel W. Beyer, Anson Marston, and James "Tama Jim" Wilson. Wilson had been named in 1891 as Professor of Agriculture and Director of the Experiment Station.

New buildings were being constructed with adequate state funding. New Agricultural Hall (now old Botany) was completed in 1892. Morrill Hall, built in 1891, housed the library. In 1893 an athletic field was laid on behind central campus, to the northwest.

Educational emphasis at the College was moving toward and centered almost solely around the interests of the farmers of the state, largely due to the influence of "Tama Jim" Wilson. A distinctly agricultural and mechanical thrust was emerging with little emphasis on purely academic and scientific studies.

Student enrollment was increasing. In 1892 the student number passed 1000. Enterprising students had started a campus newspaper and organized literary and other societies which grew in popularity. Athletes engaged in intercollegiate football games, beginning in 1892.

The Botany Department in 1895. Louis H. Pammel, Professor of Botany, claimed in the College catalog for 1895 that his department had 50 compound microscopes and, "It now offers superior facilities in the way of instruction. The Herbarium is full of plants from the eastern states and California." He was listed as the only professor in botany, with one assistant, F. C. Stewart. All students except those in mechanical, electrical, and mining engineering were required to take elementary botany. The catalog listed the same courses as it had previously, with another in seeds and grasses.

The Department was still located in North Hall. Because of its space needs for classes and Herbarium, it moved in 1897 from North Hall to the north side of the new Main Building and in 1902 moved to its south side. The same year saw another move to Margaret Hall for four years. The Department enjoyed a long residency from 1906 to 1928 in Central Building (now Beardshear), then moved to what seemed spacious quarters for all of its burgeoning needs, including the Seed Laboratory, to Botany Hall (now Old Botany). A permanent home for Botany had long been one of Pammel's objectives.

Pammel was then 33 years old. E. W. Stanton remembered him later as a "vigorous and enthusiastic youth, who, like the (biblical) David, was ruddy and of a beautiful countenance and goodly to look upon. His energy and personality took the students by storm."

Pammel Receives his Ph.D. The young man had a definite achievement in mind for himself: the attainment of his Doctor of Philosophy degree. He wanted this not only because it was a notable academic achievement, but also because he noticed that those of his colleagues who possessed it were advanced to higher positions in administration, with a subsequent increase in salary.

Money matters had always been a problem for him in his employment at Ames. He never seemed to have enough of it to maintain his home and provide for his family of six children and wife. There was not enough money to finance vacations or to save for the future. He wanted also in time to purchase a farm, possibly for his retirement years. The only mention he made of his salary in all his memorabilia was that in 1904 his salary was $2,000; in 1913, $2,950, and in 1927, $4,200. Pammel had to publish his own books with the aid of subscriptions from friends, except those printed by several state agencies and commissions.

Thus, he had to acquire his Ph.D. He had planned to take it at Washington University in St. Louis, where he had worked as Trelease's assistant at the Shaw School of Botany and the Missouri Botanical Garden. Trelease had suggested at that time that Pammel begin a study of the seed coats of several leguminous plants. Pammel spent his winter vacations in the years 1896-1898 in the preparation of this doctoral dissertation. He had received permission to enroll in the Graduate Section of Washington University and a committee had been formed to assist him.

Pammel's dissertation was finally completed, with drawings done by Charlotte M. King, the botanical artist of the Iowa State Experiment Station. The doctoral candidate was examined by William Trelease, Francis Nipher of the Washington University Physics Department, and a Dr. Snow. The dissertation was entitled "Anatomical Characters of the Seeds of Leguminosae, Chiefly genera of Gray's *Manual.*"

The degree, Doctor of Philosophy, was conferred on Louis Hermann Pammel by Washington University at its June, 1899 commencement. Dr. Louis H. Pammel: he had achieved the ultimate in academia, a doctorate, but it brought no increase in salary.

Pammel's Money Problems. Field trips for his personal research were of great importance to him. He went on them whenever the weather permitted during his academic terms and always during his vacation periods away from the College. He found it difficult to pay for rail transportation from his salary, and he had no car.

He wrote in 1902 of a field trip to Steamboat Rock, Iowa,

> "I had transportation on the Iowa Central. But I had to pay my own fare since the College seems not to be provided with funds for me to carry on this line of investigation. I have not only to pay my own traveling expenses but also my railroad fare as well. While I am, of course, perfectly willing to contribute something, I of course don't feel that I can provide everything. The work I am doing is entirely along economic lines."

The next year, 1902, he made an arrangement with the Union Pacific Railroad, which passed through Iowa, whereby he was provided $110 worth of transportation, non-transferable, in a special advertising contract. The advertising which he would provide for the service was not stipulated in his notes. This arrangement was renewed for several years.

By 1906 Pammel had decided to look quietly for another job without consulting either the collegiate administration or his friends about his unhappiness over his salary. During the next six years he wrote many letters in the hope of securing another position. He wrote in 1904 to the Albert Teaching Agency in Chicago about this and received the answer, "We have a letter telling us you wish to make a change some time in the future." Pammel did wish to make a change as soon as he could, but the agency could find no job opening for him. He then pursued the matter on his own by writing letters every time he heard about a botanical vacancy. In 1905 he wrote to the Ontario Agricultural College in Canada; in 1907 to the Vermont Agricultural Experiment Station. These letters did not result in any job offers.

In 1906 Dr. Pammel wrote to President Cyrus Northrup of the University of Minnesota, "I have heard that there is a vacancy in the Botanical Department. What salary is paid and what are the requirements?" There is no record of a reply.

The next year Pammel wrote to H.J. Waters of the University of Missouri at Columbia, concerning the position in botany available due to Benjamin Duggar's taking an appointment at Cornell University in New York. He advised Dr. Waters, "I am in no sense a candidate, but I write simply for information. I am fairly well-situated here but of course not as well as I would like to be." His oldest child by then was ready to go to college; the securing of additional funds through increased salary was necessary, for five more would

probably soon seek a college education.

In spite of Pammel's efforts to secure another position, none was offered or available. He seems to have been not too interested, in that he never sent references or college transcripts. It was, it seems, a passive effort. If news of it leaked out, he hoped the authorities would entice him to stay with a salary increase. They did not. Thus he was destined to remain in Ames.

His devotion during this "flowering period" from 1895 to 1924 to teaching, research, and extension is much in evidence in his accomplishments. He widened his contacts with his students and assumed additional campus responsibilities. Development of the Herbarium took more of his time. He also found time to engage in off-campus activities in Seattle and Chicago. Recognition came to him from several sources.

Beginning of Botanical Seminars. Students were still of vital concern to Pammel. In 1898 he decided to start a seminar for senior students in the Department. The seminar met twice a month and gave seniors the opportunity to participate, to hear reviews of recent botanical literature, to listen to talks of general interest and to exchange ideas with each other and with staff members. Charlotte King, the botanical artist of the Agricultural Experiment Station, served as the secretary of the seminar. Pammel considered the seminars a valuable teaching aid. In time, several seminars were listed for course credit.

Pammel's Interaction With Students. Because of the numbers of foreign students enrolling at Iowa Agricultural College during these years, Pammel became interested in them, not only with their adjustment in a strange land, but also as unique personalities who could contribute much to other students in the college. In 1904, Pammel helped form the local chapter of the Cosmopolitan Club. Installed in 1908, its purpose was "To bring together students of various nationalities and to see if it is not possible for us to meet on some ground." In this group, Pammel enjoyed many contacts with foreign students whom he occasionally took to Des Moines to observe the state legislature in action.

In this middle period of his academic life, Pammel worked with four exceptional students. They were Robert E. Buchanan, Ada Hayden, James James, and one unnamed in the Pammel letter collection and known only as "the prisoner."

Robert E. Buchanan. Buchanan, from Cedar Rapids, Iowa, entered Iowa State College in 1900, when he was seventeen years old. After his bachelor's degree in 1904, he became a botany instructor, teaching bacteriology and completing his master's degree in two years. Dr. Pammel recommended that he enroll at the University of Chicago for his Ph.D., which he received in 1908. After this he returned to Iowa State to advance to an associate professorship in Botany, later becoming head of the newly organized Department of Bacteriology. He also served Iowa State College as the first Dean of the Division of Industrial Science and the first Dean of the Graduate Division, a position which Pammel desired for himself. Buchanan became world famous as a taxonomic bacteriologist and as editor of Bergey's *Manual,* a standard bacteriological reference. Pammel bore Buchanan no grudge and exhibited no jealousy toward him because of his Deanships. As Buchanan's appointments were made, Pammel wrote him letters of congratulation.

Ada Hayden. In 1904 another student came to Dr. Pammel in elementary botany, who also proved to be exceptional. This was Ada Hayden of rural Ames. She was the only child of David and Christina Hayden, a farming family who lived north of Ames, where Ada was born.

The Haydens kept several acres of land on their farm in an uncultivated state in order to preserve some of the virgin prairie of that area. Young Ada therefore grew up in an outdoor laboratory environment from her earliest years. She was encouraged in her botanical interest by her parents.

Dr. Pammel first met Ada when she was a student at Ames High School. One day when he was visiting the school to give a talk, he stopped at the principal's office to say hello. There he noticed a bouquet of pasque flowers on the desk. These pale blue bell-shaped flowers had been favorites of his from boyhood years on the family farm in Wisconsin. He asked the principal where the flowers came from. The schoolman then called in Ada Hayden, who explained they had come from her family's farm.

This was the beginning of a long friendship between Louis H. Pammel and the Haydens. He became interested in Ada, who was extremely shy, and visited their farm on many occasions. He encouraged Ada in her botanical interests and advised her parents that she should attend Iowa State College. In this petite woman he had recognized a discriminating mind and an artistic talent.

Ada enrolled at Iowa State College as a freshman in 1904 and chose botany as her major. Her interests as a student developed botanically along the same lines as Pammel's, chiefly in taxonomy and conservation. She became a friend of his entire family. The professor and Ada could and did talk for hours on botanical matters.

After Ada obtained her bachelor's degree from Iowa State in 1908, Dr. Pammel encouraged her to do graduate work at the Shaw School of Botany, as he had. In 1910 she received an M.S. from Washington University, with which the Shaw School had an academic connection. Her thesis was entitled, "Algal Flora of the Missouri Botanical Garden."

Miss Hayden then wanted to return to Ames for a doctorate, but Dr. Pammel encouraged her to continue at the University of Chicago. She spent her summers taking courses at Iowa State, and finally did transfer to Ames, receiving her doctorate in 1918. She was the first woman to receive that degree at Iowa State. Her dissertation concerned the ecological anatomy of some plants of the prairie province in central Iowa. After graduating, Dr. Hayden was appointed to the Botany staff in taxonomy. She remained at Iowa State as an assistant professor until her death in 1950.

Ada Hayden worked in close collaboration with Dr. Pammel in all departmental matters. She made 37 original drawings for his *Manual of Poisonous Plants,* and for his *Weed Flora of Iowa* she contributed 33 drawings and 20 photographs. She also wrote five of the 23 chapters of Pammel's *Honey Plants of Iowa* and provided 150 drawings and 100 photographs for it.

Dr. Ada Hayden, botanist, was a "botanical daughter" of Louis H. Pammel. Their interests coincided almost completely. She deeply mourned his death in 1931 and remained throughout her life a worshipful defender and supporter of Pammel.

James James. Dr. Pammel's third unusual student in this period was Dr. James James. One morning in 1917, Pammel opened a letter from this former student with whom he had maintained contact.

After James James had graduated from Iowa Agricultural College in the 1890's, he attended and graduated from Beaumont Medical College in St. Louis, and eventually became a professor in the St. Louis College of Physicians and Surgeons. In time he became an otolaryngologist of considerable renown in the St. Louis area. Dr. James had written to Dr. Pammel, his former professor, that he planned to do scholarly work at both Oxford University in England and at the University of Paris. He thought that a master's degree in literature might enhance his chances of being admitted to both institutions.

Dr. James had retired to California and wanted a master's degree from Iowa State for his writing a translation of a modern French play. He wondered if Dr. Pammel could arrange this for him. Pammel investigated the possibility but found out that it was impossible.

Pammel suggested instead that his friend plan a master's degree in botany.

Here was another unusual student, a challenge to the ingenuity of Pammel. The mature student, he believed, was just as capable as a younger one of pursuing a college degree successfully. Intellectuality knew no limitations of age. So Dr. Pammel encouraged Dr. James to work for his advanced degree in botany, with his thesis subject being the Torrey Pine, which grows only in California. This species greatly interested Pammel, because it was so picturesque and produced such fine timber.

President Pearson gave Dr. James permission with this statement, "You can enroll with our Graduate Division with the understanding that you will do your work in California where the only specimens of Torrey Pine are available. Your work there would be considered in residence." It is hard to visualize the reaction of a modern Graduate Dean to a similar proposition.

To assist Dr. James in the pursuit of his degree, Dr. Pammel prepared an outline for his thesis, suggested reference books, avenues of investigation, and places where the pine might be found. Dr. James proceeded with his study entirely in absentia, consulting frequently by mail with Dr. Pammel.

In time the thesis was completed and Pammel approved it. He also attended to the other formalities required for graduation from the college. Dr. James' M.S. degree in botany was awarded in absentia. Pammel sent him his diploma and copy of the graduation booklet.

In return for Dr. Pammel's courtesy in handling the degree for him, Dr. James sent him, freight collect, some lumber from a Torrey Pine, which Pammel had made into another herbarium case. Pammel had these cases, of which a large number once existed in the Herbarium, made by local cabinet makers from a variety of American woods. He did this to demonstrate the utility of the various species for cabinetry. Many were handsome, but unfortunately not insect-proof, and have now all been retired from herbarium use.

The fourth unusual student was a prison inmate at the Anamosa, Iowa, facility. Known only by number, he first wrote to Dean Curtiss at Ames, who forwarded the letter to Dr. Pammel. "I would like to borrow a microscope which will be suitable for explaining the cells of plants. I will take care of it and return it within ten days." Here was another educational challenge to Dr. Pammel. With the Dean's permission he sent the inmate a microscope, some literature on the subject of weeds, some stained plant cells, glass slides and cover glasses, and instructions on how to study a section of a plant.

The Jack Trice Incident. Another incident involving a college student happened in 1923, following a football game between Iowa State College and Minnesota, in which an Iowa State player, Jack Trice, was injured on the field and later died. Louis H. Pammel penned this resolution from the Industrial Science Division, in which Mr. Trice was a former student of Pammel.

> "It is with a feeling of profound regret that the Industrial Science faculty mourns the loss of Mr. Jack Trice, a student in the agricultural curriculum, who lost his life for Iowa State in a football game last Saturday. To those who know Mr. Trice more individually there comes a feeling of deep sorrow that a life so full of promise should be cut off at an early age. We wish we might impress upon the student body the indomitable courage of Mr. Trice; his determination to do something for his fellowman, be it little or great, that there may be to the student body a new spirit of incentive to fellowship and to work."

Comments From Students. Throughout his career as a teacher, the students in his classes reacted favorably to Pammel, not only because he knew his material and presented it clearly and with enthusiasm, but also because of his interest in them and the warmth of his personality.

The student yearbooks of this period reveal how he rated with the undergraduates whom he taught. The 1898 yearbook commented, "Although Dr. Pammel enjoys a national reputation, he is not all puffed up thereby. His modesty and geniality are equaled only by his good sense and popularity among his students. May his shadow never grow less."

In the 1913 student yearbook, Pammel and his Department are characterized, "Headed by one of the great botanists in the country, and possessed with excellent equipment, the course in botany is made interesting as well as valuable to everyone who takes it."

Two years later, in 1915, this comment appeared,

> "Morphologically speaking, it takes a good student to pass up botany. Also it takes a good judge of weeds, for due to the generosity of his classes, Dr. Pammel has been kept in cigars since before Squaw Creek ran uphill. Just why some people want to work in botany is more than we can understand. We never knew before this that they liked to work so well."

An Iowa State college alumnus wrote to his daughter, in college in the 1920's, "If Dr. Pammel is giving a course, take it. It will give you a chance to work with a man who is a great scientist and a great human at the same time. It is a rare combination."

Pammel as Administrator. As the administrator of a large department, Dr. Pammel was aware of the current trends of his field and determined to keep the Department up to date. In 1910 he realized that botanical instruction in the future would require specialists trained in their own fields. The hiring of botanical specialists began in 1910 with the appointment of A.L. Bakke to teach plant physiology and Ada Hayden to instruct in taxonomy. The next year, J.N. Martin was added to the Department as instructor in morphology.

Other Academic Responsibilities. Pammel also assumed responsibilities on various faculty committees to which he was appointed, beginning in 1892 with his selection for the Buildings and Grounds Committee. On this committee it was part of his work, he thought, to protect the campus wildflowers from being destroyed during the construction of new buildings. He wrote letters of protest in that regard. It was also part of his responsibility on this committee to work for campus beautification, which, to him, meant the planting of trees. The manner in which he accomplished this was to make each planting a memorial to deceased faculty members. In 1917 he presided at a memorial dedication to Welch, Beardshear, Budd, Knapp, Stalker, and LaVerne Noyes, for whom the campus lake had been named. Pammel enjoyed the work connected with these plantings. He also obtained the glacial boulders which were placed near the trees, with attached metal plaques inscribed with the names of the men so honored and arranged for the inscriptions.

As a further tree beautification project for the campus in 1922, Pammel shipped from the family farm in Wisconsin several trees for planting on the campus, including a large-tooth aspen and several quercitron oak trees. His purpose was "To connect our farm in Wisconsin with the college campus."

The next year, in 1923, Pammel arranged a dedicatory planting of hard maples in memory of his good friend, Edgar W. Stanton. At the ceremonies in June of that year, Pammel looked around at the beautiful central campus and opened his remarks, "Sixty-five years ago the land about us was a raw prairie, a little later a cultivated field, and then Old Main was erected on the present site of our Central Building." He mentioned the progress the College had made since then and concluded his remarks with this sentiment, "A tree is the highest expression of the plant world, for it embodies longevity and continues to increase in beauty and grace and so is a symbol of the

finest aspiration of the human soul."

Pammel also functioned on two special reception committees. One was in 1909 when he was designated chairman of the committee for the celebration to mark the fiftieth anniversary of the selection of the site for the location of the Iowa Agricultural College. The event was scheduled for July 3, 1909. As chairman of the reception committee, Dr. Pammel had to maintain a Bureau of Information for visitors to the campus. He was in charge of meal and light refreshment concessions. Also, it was his responsibility to set up and manage the hospital tent, to provide hitching posts for teams of horses which would bring visitors to the campus, and to arrange a program of sports and games and a pipe organ concert. This was a moderately busy day for Pammel, who loved playing the host and greeting hundreds of visitors who came to the campus.

He had but a minor role in another semi-centennial celebration in 1920. Pammel was appointed a member of the Committee on Special Functions for the College's Semi-Centennial Celebration, postponed a year because of the dislocations following the end of the World War. Pammel arranged for a seminar on the Botany of Cereal Crops and secured C.R. Ball, J.C. Arthur, and A.S. Hitchcock as speakers. All had been students at the College and were nationally recognized in their fields.

Of great significance to Dr. Pammel was his appointment in 1922 by President Pearson as chairman of the College History Committee. The directions to this group were to gather material on the past of the College and to collect facts on the role of the College in contemporary times from Iowa newspapers and other publications. He relished working with this committee and did his share, reading the news media and collecting articles. He also conducted 100 interviews, some with local persons who remembered the College in its early days. He even interviewed his own children, all six having attended Iowa State. This material would later be used for a history of the College, which Dr. Pammel did not write.

Dr. Pammel had his headaches as an administrator. There were two fires, one in 1900 and the other in 1902. The fire of December 8, 1900, demolished the north wing of the Main Building where the Herbarium was housed, with the loss of equipment in the botany office and lecture rooms. The College sustained a property loss estimated at $150,000, none of which was covered by insurance.

The fire apparently started about 4 A.M. with an explosion in the boiler room at the back of the building. When it was discovered by students sleeping in another part of the building as they were awakened by the smoke, the college bell had already sounded the alarm. Added to the announcement of the fire were the whistles of the Chicago and Northwestern Railroad engines, with four short blasts, repeated, to indicate the site of the fire was on the campus.

As the students awakened and stirred into action, they gathered whatever possesssions they could and ran from the burning building. A few of them who took a botany class ran to the department rooms on the first floor and took out whatever herbarium specimens they could lay their hands on, for they knew how much Dr. Pammel valued them. According to local tradition, one of these rescuers was Robert E. Buchanan.

The Ames Volunteer Fire Department arrived within the hour of the discovery of the fire, as did many Ames citizens who wanted to see the spectacle for themselves. Pammel arrived with the latter group from his downtown home and assisted in recovering herbarium sheets. With the assistance of the Boone Fire Department, the fire was finally contained about 6 A.M. Even though the day was bitterly cold, the College staff and students assembled outside for a roll call. Ames residents came to the aid of the students with donations of clothing and offers of housing.

Classes were unable to meet in Old Main, so college workmen erected a temporary wooden shack of six classrooms which the students soon nicknamed "The Wigwam." They also made spectacular photographs of the ruined building for the next issue of the college yearbook.

Dr. Pammel went into action as soon as he could to recoup his herbarium losses. He prepared a circular which he titled, "Fire partially destroys the herbarium of the Department of Botany." He sent copies of this to a dozen colleges throughout the United States, hoping for contributions to his Herbarium from their collections of duplicates.

Letters of condolence and thousands of duplicate sheets were mailed from many parts of the United States in response to Pammel's plea. He and his students saved as much of the burned herbarium material as they could by carefully removing the remains and remounting them. At the present time, no such burned material is in evidence in the Herbarium.

In 1902, the south wing of Old Main also burned with a loss of $10,000. The Botany Department was housed in that wing. Again the loss was uninsured. The building had been condemned by the state architect and was scheduled to be torn down for the erection of a new building on approximately the same site. At the time of this second fire, the valuable Herbarium and equipment were entirely saved, as well as office and classroom furniture.

Dr. Pammel suspected arson as the cause of this fire and immediately wrote to the acting president, Edgar W. Stanton, asking for an investigation into the cause of the fire. Pammel wrote, "There seems to me no doubt that it was started by someone, not accidentally, but willfully." The cause was never determined. Fortunately, classes were not in session at the time.

Over the years. Dr. Pammel observed the many new buildings erected to accommodate the growing numbers of students and diversification of curricula. He wanted to preserve the open vistas of the campus as they had been when the College first enrolled students in 1869. From Pammel's day to the present, there has been strong community sentiment for the preservation of the great central mall of the campus.

Pammel Petitions for a Campus Preserve. Pammel decided in 1912 to petition the College Trustees to set aside a tract of land northwest of central campus, near the College Cemetery. He prepared the document without conferring with the administration. The 60 acre tract was to include native timber such as might be found along streams in central Iowa, with a strip of prairie as its northern border. Dr. Pammel wanted this to be administered jointly with Forestry and Landscape Architecture. The three departments would turn the acreage into an outdoor labortory or wildlife sanctuary where students in plant sciences could observe and study plants in their natural environment.

His petition did not succeed. He tried again to obtain his College Park. Finally in 1920 the College Trustees did vote to set aside the area Dr. Pammel requested. Committees were then set up to administer this area, but in spite of well intentioned people and efforts, the plot fell into disuse and neglect, especially after Dr. Pammel's death in 1931. Repeated depredations have reduced the tract to a bare 20 acres. Portions have been lost to a golf course, road construction, and dumping. Nevertheless, the remaining woodland is one of the most important outdoor teaching laboratories on the campus.

The movement to preserve the area was revived by members of the Botany Department in the late thirties, with the result that the area was formally dedicated to the memory of Louis H. Pammel in ceremonies held in 1941 and named Pammel Park. F. B. Trenk, Forestry '23, referring to the cemetery, said, "Yonder are those whose minds continue to influence and inspire unnumbered thousands. A peer laid to rest there is Louis H. Pammel." Because of the dedication of Pammel State Park and the resulting confusion of such similar names, the area is now known as Pammel Woods.

Establishment of the Bacteriology Department. In 1906 Pammel

wrote President Albert B. Storms, asking him to consider the creation of a Department of Bacteriology. Pammel taught this very popular course since 1889. By 1906-07, Botany offered four courses in bacteriology, with the possibility of adding more as the field developed. In 1908, the Board of Trustees agreed to establish the department. Robert E. Buchanan was named its first head. Thus Pammel had achieved another first: the establishment of the first collegiate bacteriology department in the United States.

Pammel Donates his Personal Library. In 1911 Dr. Pammel turned his attention to the library facilities available for teachers and students at the college. In his judgment a library was the soul of the College.

Throughout the years he had maintained in his office a small library of a few books and periodicals of botanical nature, as had been the practice of his predecessors. With the increasing enrollment of students in botany courses, he considered the library inadequate and obsolescent. He had added to this departmental library thousands of pamphlets which he had collected for his private library. He found that the central library had 35,000 volumes and 41,000 pamphlets. He examined the botanical works and wrote the head librarian,

> "Our Iowa educational institutions are handicapped, for the library facilities are very poor indeed. I speak only for botany. Its annual appropriation is so small at $150 per year that it will hardly suffice to obtain current botanical periodicals, let alone any books."

Pammel then decided to offer to the College Trustees for the central library his own personal library of books, periodicals, and pamphlets with the exception of some copies of Gray's *Manuals* which he wished to keep. This added up, he figured, to a contribution of about 5,000 pamphlets and several hundred volumes of proceedings of the various societies to which he belonged.

In return for this contribution, Pammel requested that the Trustees authorize the College to pay his membership dues in his scientific societies from that time on. He would receive their proceedings in his name, then give them to the central library for processing, housing, and circulation. The Trustees voted to accept Pammel's offer and to meet his stipulations. Within two years the College was paying Pammel's dues in 23 organizations for a total of $65.50. By 1916 this increased to $83.50. This arrangement continued during Pammel's tenure at Iowa State College.

Apparently Pammel's urgings in support of the library were fruitful, for its botanical collection now ranks as one of the best in the United States.

Establishment of the Division of Industrial Science. Dr. Pammel continued his efforts to update the administrative procedures at the College. In 1913 he wrote to President Pearson about the need for a Division of Industrial Science in the college curricula. It was his belief that,

> "A College of Agricultural and Mechanic Arts must include strong science departments. Scientific agriculture works upon the discoveries in pure science for any considerable development. The biological sciences of botany, zoology, entomology, bacteriology and physiology are of manifest application to the countless phases of science and plant production. Heredity, growth and development, maturation, reproduction and death are all inextricably bound up with the deepest manifestations of the natural and physical sciences."

In his preparation for this assault upon the administration, Pammel had previously written to leading scientists asking their opinions about the role of science in the curriculum of the Agricultural and Mechanic Arts Colleges. His respondents were in cordial agreement with him, confirming the need for an Industrial Science Division at Iowa State College. In 1913 he wrote President Pearson that he thought there was a great need for all students at Iowa State to take a general course in science. He wrote,

> "The intelligent administration of a home demands a thorough education in the physical and biological sciences, and the economic, social and ethical sciences, and nowhere of more vital importance than here."

The beliefs expressed by Pammel would bear fruit in a few years with the establishment of general science courses in some curricula.

A third letter in 1913 expressed this belief, "The government and determining of policies of an institution should be delegated to the faculty on the whole rather than to the Dean." He thought a faculty council — a veritable wave of the future — would be able to give a much more comprehensive viewpoint of conditions in the college than a dean could, because of closer contacts with students on a daily basis. "Why not rotate the dean of the Graduate Division and why not rotate the department heads in the Science Division as the heads of the Graduate Division?" Dr. Pammel seemed to be looking for an advancement for himself to another level of administration.

Selection of a Graduate Dean. The president considered the matter carefully, but took no action at the time. By 1919 it became evident to Pearson that an administrative decision was necessary for the College with its burgeoning enrollments and the increasing development of its graduate programs. This was the selection of a dean for the Graduate Division.

Louis H. Pammel seems to have desired the appointment but made no direct effort to obtain it. In August of 1919 while the Pammels were vacationing in Denver, Colorado, he received a letter from President Pearson who wrote,

> "For a long time I have been wanting to see you for a frank talk abut a matter which has happened, but either you or I have been out of the city almost constantly. The time has come for the selection of a Dean of the Graduate College. I have considered a good many names in this connection. Some persons are excellently fitted but their other duties are already so heavy and so varied that they ought not to be asked to do more. Your own name is in that class."

"Excellently fitted" — a tacit admission of excellence, but a tactful denial of Pammel's abilities to do so many things. All through Pammel's career at Iowa State he encountered objections to his manifold occupations, and especially to his frequent absences from the campus. Pammel answered immediately, suggesting several persons whose capabilities he felt were those of a good dean. He did not mention his own name. He mailed the letter and returned to Ames immediately to await developments.

Earlier that spring Pammel knew that the selection of a Graduate Dean was imminent, for his friend Chaney in Mathematics had confided in Pammel that Edgar Stanton would probably recommend Chaney for the position. Chaney reported that he replied to Stanton, "I will not try for it if Pammel wants it." After Chaney told Pammel of the incident, Pammel commented "I wouldn't turn a stone to get it but if it comes to me without solicitation, I would accept this."

After Dr. Pammel returned to Ames from Denver, he received another letter from President Pearson announcing the appointment of Robert E. Buchanan as Dean of the Graduate College. Pammel commented on this appointment in a long memorandum that seemed intended for a future biographer or historian,

> "President Pearson's letter was not intended to be serious as far as my name was concerned. It is an adroit letter, to ease me in my feeling. I feel that Dr. Stanton had something to do with it. The thing that hurts me most is the fact that I did as much and more than any member of the faculty in connection with graduate work of the

> college. One sometimes thinks that petty politics play a part in educational work, as well as in other public institutions. Of course, I have a large work before me in connection with the state parks, although there is no remuneration in this as there is in the deanship."

Pammel also stated in his memorandum that more than "fifteen persons" told him he should have been made the Dean of the Graduate Division. Pammel didn't grieve. He went on with his work and wrote his friend Buchanan a letter of congratulation.

It is questionable whether Pammel would have been contented with the sedentary life of a graduate dean. He was fundamentally a field botanist and a wanderer. While his executive abilities were such that he seemed to grasp the overall view of many undertakings, the details were relegated to lesser talents. But the deanship was not his, and he had to reconcile his thinking to the fact. He suspected politics as the cause rather than the somewhat annoying aspects of his personality that antagonized many persons with whom he came in contact. Sometimes his energy proved to be too forceful.

Quite early in his years at the college, Pammel had made it a point, when he could honestly do so, to advocate graduate work to capable students. His department received permission from the Board of Education in 1913 to advance officially to the "Doctorate stage" in granting graduate degrees. The initial Ph.D. was conferred on Leslie Kenoyer in 1916. Robert E. Buchanan, the new Graduate Dean, tactfully asked Dr. Pammel to serve as the Chairman of the Science Division Graduate Committee, a responsibility which he happily accepted.

Pammel's "Vacations". During the years from 1897 to 1914, Pammel spent his vacations working for the United States Department of Agriculture, to get additional income. In 1897, he worked for the Division of Agrostology. As a result of his association with Albert Spear Hitchcock of that Division, many of Hitchcock's grass specimens were given to the Iowa State Herbarium. From 1899 to 1902, he worked for the Forest Service and from 1906 to 1909 in Utah as special agent for the Bureau of Plant Industry.

The summers of 1901 and 1902 found him in the Uintah Mountains in Utah and in the areas of Ogden and Salt Lake, Utah. The Herbarium contains thousands of specimens of alpine, subalpine, bog, and coniferous forest plants collected during these trips, along with a remarkable photograph of the future graduate dean, Robert E. Buchanan, seated against a pine tree, his large hobnail boots extended before him. These were happy summers for Pammel; he enjoyed the mountain scenery and apparently climbed several lesser peaks.

During the years 1894 and 1924, Dr. Pammel often visited the summer camps of the Department of Forestry for one or two weeks. These camps provided professional training for forestry majors for three months each summer. Pammel visited these camps in 1916 and 1917 at Cass Lake, Minnesota, and in 1926 at Ontonagon, Michigan. These vacations resulted in his writing papers on forestry-related matters which were printed in the Forestry Department's publication, *The Ames Forester,* which he helped subsidize.

Pammel's Publications. In the 29 years of this middle period, Pammel wrote a total of 394 papers on the following topics: bees and pollination, climate, ecology, economic botany, flora of several areas, forestry and trees, fruit, grasses, horticulture, mycology, plant pathology, seeds and germination, taxonomy, weeds, conservation. The major emphasis was on economic botany. His papers during this period were published for the most part in the *Proceedings of the Iowa Academy of Science,* the *Reports of the Iowa State Horticultural Society,* and the *State Parks Bulletins.*

He had also begun to rely on collaborators, of whom 29 are listed. Charlotte M. King coauthored 35 of his publications in this period. Graduate students were frequent coauthors, but Pammel always participated in the research and writing. He seemed to inspire intense loyalty in his collaborators. Ada Hayden, in her later years, spoke almost worshipfully of Pammel's talents.

Extension Efforts. Pammel regarded his extension efforts as an educational device. Most of his projects were of his choice rather than in cooperation with those of the College.

Pammel's concept of the farmer was, "He is not only essential to the existence of the social order of mankind, he is also an essential part of society." He knew that farmers were vitally concerned in questions of government policies, finance, taxation, religion, and ethics. Pammel remembered his father's vital role in the life of his community in Wisconsin and his widespread interest in many topics outside of farming.

Iowa Agricultural College had begun its extension program in 1870-71 when staff members conducted farmers' institutes at Cedar Falls, Council Bluffs, Muscatine, and Washington, Iowa. These were the first such programs held in the United States for the farm population.

Demands on the extension staff for services grew to such an extent that in 1906 the Iowa Legislature established the Agricultural Extension Department with its own appropriation and Director, Perry Greeley (P.G.) Holden. He had devised a unique method of taking the innovations of the laboratory to the farmer. His "Seed Corn Gospel Train" consisted of three coaches and a baggage car, and was equipped with lecture charts, displays, and a speaker's platform. It made its first tour in 1904, for three days, to northwest Iowa. More than 3,000 persons saw it. The train was continued for two years. It is supposed that Dr. Pammel offered assistance in this enterprise. Thereafter, extension services were extended to farm men, women, and children throughout the state by college extension specialists.

Pammel arranged botany short courses of a few days' duration and participated in other types of college tours throughout the state. In 1914 he traveled to meetings in Clinton and Fayette Counties. At the latter place, he noted that 130 cars "attended" with five farmers in each. College specialists, including Pammel of Botany, gave talks on lifestock, silo construction, alfalfa and clover, farm conveniences, and horticulture. One farmer remarked to Pammel, "I should be at home today cultivating corn, but this trip is worth a good many dollars to me."

After Pammel returned to Ames from that tour, he wrote to President Raymond A. Pearson, commenting,

> "This extension is taking the laboratory to the very door of the farmer. I think it would be well next year to distribute at these meetings short circulars about the college. And each speaker should summarize his talk on a one-page leaflet for free distribution at these talks."

The administration arranged the printing and distribution of such circulars.

Pammel's extension work included the writing of many publications on weeds, plants, and crop diseases — the results of research done in the Botany Department and the Experiment Station. These pamphlets were distributed free to the farmers of the state upon request.

Pammel estimated at this time that he was receiving 60 to 100 letters weekly from Iowa farmers and other Iowans. These writers wanted information about all subjects relating to farm life, natural history, and the geology of Iowa. They also inquired about weeds, poisonous plants, hybrids, honey plants, and the identification of wildflowers and trees. Dr. Pammel answered each letter, sending also whatever leaflets he thought would prove helpful.

One of the most serious problems of Iowa farmers was weeds, not only because they crowded out growing crops, but also because they consumed enormous quantities of moisture and food elements from the soil. Dr. Pammel received hundreds of weed samples through the

mail and finally in 1904 asked the state's farmers to report to him about their plant diseases, another vital concern in agriculture. From this evolved Pammel's Iowa Plant Disease Survey, soon to be carried out on a yearly basis.

Also in 1904, Pammel began to consider writing a book on the identification and eradication of weeds of Iowa farms. He was too busy at the time to work this out, but planned an official weed census, perhaps with the aid of his students.

Establishment of the Botanical Seed Laboratory. Another significant extension effort was Pammel's establishment of the Botanical Seed Laboratory in 1906 with Charlotte M. King as its seed analyst. R. H. Porter, a former director of the Laboratory, recalled in a letter to the writer in 1977 that Dr. Pammel had the foresight to initiate seed testing in 1890 and in 1906,

> "He started a small laboratory. It never had much financial support nor adequate equipment. She (Miss King) had an old relic of a refrigerator for seed germination, a bowl and a spoon for mixing and drawing samples for analysis."

Porter believed that seed testing lagged somewhat at Iowa State College because of the existence of two small laboratories on the campus. The second had been established in 1914 by the Agronomy Department. In 1932 the two were reorganized into a single more efficient unit.

Pammel's efforts with the Agricultural Experiment Station continued as a major part of his research and included the writing of numerous circulars and pamphlets on the many problems of the Iowa farmers. After the appointment of James Wilson in 1891 as the Experiment Station Director, its work developed rapidly. With continued appropriations from the state and from the Federal Adams Act in 1906, its funding was much more adequate for the management of laboratories, buildings, and dairy, agronomy, and apple breeding farms.

The Adams Act resulted in part in the start of a series of special bulletins known as the Research Series. These included circulars, popular bulletins, and soil reports. Pammel contributed to all three types, chiefly in regard to seeds, weeds, and crop pests.

In this middle period of Pammel's academic life, twenty-nine years, his Botany Department had hundreds of botany undergraduate majors. Forty-seven would go on for master's degrees, and four for the doctorate.

Botanical Honors. Louis H. Pammel was the recipient of several botanical honors at this time, including the naming of four plants for him. One was a grass, *Hordeum pammelii* Scribn. & Ball, now known as an intergeneric hybrid; one was a smut, *Entoloma pammelii* Hume; one a rust, *Puccinia pammelii* Arthur, and one a Composite, *Senecio pammelii* Greenman. These were significant to Pammel because they symbolized his worth as a botanist and a researcher.

In 1915, Iowa State honored him and other staff members who had served the College for 25 years or more. It had been 26 years since Pammel had come to the institution.

Honored in 1915 were Edgar W. Stanton, James R. Lincoln, Herman Knapp, Alfred A. Bennett, and Louis H. Pammel. Each received a parchment scroll with his name elaborately inscribed, stating his years of service. The Botany Department at that time also expressed its appreciation by presenting a traveling bag to Dr. Pammel. He had his parchment and the letters of congratulation which students wrote to him bound in a leather-covered book. The Twenty-five Year Club tradition at Iowa State is carried on today.

In 1924 Pammel was honored academically by being elected President-General of Phi Kappa Phi, a scholastic honorary. This national position he held for three years. The Ames Chapter, installed in 1911 was the first west of the Alleghenies, a distinct honor for Iowa State. At that time, four honorary members were named, two being J. C. Arthur, '72, and A. S. Hitchcock, '84. Pammel was the first president of the Ames Chapter.

Off-Campus Activities. Off-campus activities were also an integral part of Pammel's plan for his life. One project was in Seattle and another in Chicago. Because his courses and work in bacteriology had received national publicity, Pammel was called upon in 1906 to consult with F. J. Pearson, Chief Engineer of the Pacific Coast Extension project of the Chicago, Milwaukee, and St. Paul Railroad. The company was anxious to secure the right to an entrance into the city of Seattle for its train service. The surveys conducted by Pearson had shown that the best entrance was the water level route into the city. This would go over Snoqualmie Pass. The city of Seattle obtained its water supply from the Cedar River which lay west of that Pass. Seattle was interested in maintaining the purity of its water supply without contamination from the railroad or its passengers.

Pammel studied the situation very carefully in the summer of 1906, then drew up an ordinance with the help of the railroad's legal department for the construction of the access route into Seattle. He believed there would be no trouble with contamination. This ordinance was approved by the Seattle Council, but some citizens still objected to the proposed route and wrote many letters to that effect to the city council. So Pammel conducted another investigation and finally recommended that all bridges on the Cedar River be covered with cement and that all toilet rooms on the trains be closed when they were passing through the Cedar River Valley. The city fathers had been afraid that an epidemic of typhoid fever might result from contaminated water. Pammel's experience in Seattle resulted in papers, national publicity, and the chance to collect plants of the region for the College Herbarium.

Pammel's fame as a midwestern naturalist had extended so far from Ames that he was asked by the Field Museum of Natural History in Chicago to give lectures in its spring series on Saturdays in March and April during the years of 1912 through 1915. Pammel accepted this opportunity joyfully. Mrs. Pammel took the children with her to visit her parents in Chicago.

The Thirty-Fifth Year Celebration. The year 1924 marked the 35th year of Pammel's service to Iowa State College. He wrote to President Pearson, "I would like to be relieved of administrative duties and put in the status of research professor." Pammel pointed out that other colleges did grant such status to long-serving staff members and he hoped for a lighter administrative load. However, he was not ready to resign from his position as Department Head. The administration refused his request.

He wrote again to Pearson, "The state of my health is such that I feel I should get away from this climate during the months of January, February and March." Dr. Edwards, the college physician whom he consulted for the angina he was experiencing, advised him to arrange this time off. Again, the privilege was not granted him.

Louis H. Pammel arranged with the help of his graduate students, who seemed very willing, to celebrate his 35th year at the college. They arranged a series of seminars and banquets. Former students wrote their congratulatons from many parts of the world. These letters he also preserved. Dr. Pammel was concerned about his place in the history of Iowa State College, so he prepared as part of his celebration a ten-page typed paper which he titled, "Thirty-five Year Celebration." In this he cited his achievements during this period of his employment. It was impressive.

In his first paragraph he wrote,

> "My college work had taken so much of my time that money-making has been a side issue with me. Many institutions follow the custom of giving a sabbatical year. In my many years here I have used my vacations to

collect plants for the college."

He then continued, "I have the satisfaction of knowing that we have built up a strong department. We have a strong staff, not only as regards teaching, but in scientific research as well."

Pammel then mentioned his innovations, such as the creation of a Department of Bacteriology, the first of its kind in American colleges. He also pointed out that he had increased the Herbarium holdings from a mere 10,000 specimens as of 1889 to more than 130,000 in 1924.

He also pointed out that he correlated the research done by the Experiment Station with that of the Department, "a most wise administrative arrangement," he believed.

He then discussed his state parks work,

> "It is wholly gratuitous labor on my part. I feel that as a public servant the state should be served in the best way a person can serve. I do, however, feel keenly some of the remarks which have been made in this connection, namely that I have spent too much of my time away from the college. I believe I have always been quite conscientious about my college work."

Pammel concluded his summary of his achievements with his personal justification of his efforts and these remarks,

> "I would be ungrateful if I did not record the many pleasant features about this college work. There have been unpleasant things to make a sensitive person worry and make them lose sleep, but we will cheerfully forget the unpleasant things and think only about the good and the beautiful."

Pammel's Philosophy of Education. In a talk given in 1924 in Galesburg, Illinois, Pammel revealed his philosophy of education, which had not changed materially from that which he had when he began his teaching career. He said on this occasion,

> "Education broadens a man's horizons and its true worth will be recognized — The real educated man has broad sympathies in every line of human endeavor — Science should stand for the broadening of education and its various ramifications should reach every form of society and all human activities."

Science and education were inseparably linked in his mind.

Dr. Pammel finished the year 1924 with another letter to President Pearson, asking him to save whatever trees that were to be sacrificed for the erection of a new Home Economics Hall. "These trees should be saved: a swamp white oak, two Dahurian larches, one white ash and two buckeyes."

Maturation: 1924-1931 — The Final Years

Iowa State College in 1924. The central campus of Iowa State College throughout the years had achieved a quiet charm and solidarity which Dr. Pammel found very attractive in his later years as he hurried across it or viewed it from his office in Central Building. It was like an old friend. Its immaculately kept lawn was enhanced with many old trees — budding and blossoming in spring, spreading leafy branches in summer's heat, festooned in the fall with autumnal coloration, and snow-laden in winter.

He was proud that he helped create this campus with his memorial plantings and pleas to prevent old trees from being destroyed when modern progress so dictated. This green oasis was surrounded with stately old buildings, some dating back to the early years of the college. These seemed to proclaim the main thrust of its educational system: administration, library, engineering, home economics, and botany. In the central campus, the Campanile, the great purveyor of music — towering, overseeing students, faculty, buildings — the symbol of the College at Ames.

A Living Legend. Louis H. Pammel, now in the sixty-fourth year of his life, had become a living legend on campus. Even the freshmen students had heard about the eminent botanist. Many would approach him on campus for a moment of conversaton. He always introduced himself simply, "My name is Pammel."

He still looked forward with joy to his classes each quarter throughout the college years. Each of them was a new experience for him: he had retained his freshness of spirit. The sea of friendly faces which greeted him in the classroom provided him with vigor. Students were always a challenge with their young minds; he still delighted in introducing them to the great world of nature which he so loved. When members of the male quartet were all present in a class, Dr. Pammel approved of their singing a few college songs to open it.

A student once decided that Dr. Pammel was not reading the class examination papers, so he decided to write "reams and reams" about everything except botany on one exam to see what would happen. Back came the paper with a grade of 75 on it and the notation, "I thought your time must be worth something."

Ada Hayden remembered that he never carried a "collecting can" on his class field trips. He always "conferred" his specimens on his students. No field trip was ever complete without a campfire and the "reparation of the inner man."

One day a female student who had a habit of playing practical jokes placed a tack on the chair of the distinguished professor. When he sat down, then arose suddenly, he remarked, "No gentleman did that." The class roared when the student identified herself. Dr. Pammel was not displeased.

Departmental Locations. The Botany Department and the Herbarium were located in Central Building (now Beardshear). They moved again in 1928 to Botany Hall (now old Botany), which had been built as Agricultural Hall in 1892. This latter building, with a later annex on the north, seemed most spacious for the total botanical operation — classes, Herbarium, and Seed Laboratory.

Early in 1925 Pammel began work on a project dear to him, the history of the Botany Department. He was interested in its beginnings and relied on the memories and recollections of the older staff members. He obtained some reminiscences by correspondence. He was establishing in its history the role which he had played.

His Heart Attack. The angina from which Dr. Pammel had been suffering grew worse. He attributed some of his chest pains to indigestion and brushed them aside. He had too much work to do to take time out to be sick or even feel sorry for himself.

He suffered a heart attack in late February when he was at home assembling material for his departmental history. Pammel was then hospitalized for about a month in the Iowa Methodist Hospital in Des Moines. His attending physician, Dr. Oliver J. Fay, a former student, diagnosed the illness as resulting from myocardial degeneration and hypertension. Pammel was a fairly easy patient to handle during his hospital stay, according to one of his nurses, whom the writer met in 1981.

An Honorary Degree. After Pammel was released from the hospital, he stayed at home for a month's additional rest. Believing he was sufficiently recovered from the attack, he traveled to Madison, Wisconsin, to receive an honorary Doctorate of Science from his undergraduate college, the University of Wisconsin, in June, 1925.

When informed by the University of its impending action, Pammel wrote to its President, E. A. Birge, who had been one of his undergraduate professors,

> "I thank you for this honor. I did not of course expect this, and I appreciate highly the honor you will be conferring on me. I do not know whether I deserve such

> distinction. I have tried to do my best to make a little contribution in a scientific way and have tried to be of some service to my adopted state. It is gratifying to me that the public has appreciated my service in connection with the state park work."

The presentation of the degree carried with it this citation, in part,

> "Today he is the senior man in service in economic botany in this country and is easily without peer in the work of his chosen field. He is a distinguished son of the state and the University whom it is our delight to honor."

Dr. and Mrs. Pammel were both present on the occasion, each delighted with this recognition.

That fall Dr. Fay warned Pammel that the Iowa winters would be difficult for him so Pammel wrote to Dean Beyer of the Science Division,

> "You are aware, I am sure, of the fact that I have serious heart trouble. Cold weather is pretty hard on a person with such trouble. I am therefore asking that I may have permission to carry on my research with full salary in a warmer climate during the winter."

With the approval each year from the Board of Education, this permission was granted to Pammel for a period to extend from January to the end of March of each year. Dr. and Mrs. Pammel spent these months away from Ames in visits in the homes of their six children.

After his heart attack, Dr. Pammel went back to work, full-steam. He noted in his annual report to the college president that he was back working as he previously had, ten hours a day, including Saturdays.

Botany Course Enrollment. The year 1926 was a big one for student enrollment in botany courses. There were 600 students taking courses in morphology and general botany; 97 chose plant physiology and 160 elected plant pathology courses. Pammel would have to recommend the hiring of additional staff members if the trend continued.

In June of 1926 he arranged the ceremonies for the dedication of a memorial boulder near the library for W. T. Hornaday, one of his friends, who had achieved fame for his contributions in zoology and conservation.

Pammel was asked later that year by the Ames newspaper to comment on the work of Luther Burbank, a controversial plant breeder, who had just died. Pammel told the reporter who interviewed him that the press statement, "Burbank did more to improve nature than any other man in histrory." was in his judgment "a trifle strong." Burbank, in Pammel's judgment, was not a scientist in any sense of the word, and "It does science an injustice to place him in that category." Pammel went on to point out some of Burbank's erroneous claims, such as the statement that he could produce corn in California which grew eight feet tall, with 10 to 14 ears on a stalk. Pammel concluded the interview by saying that he didn't want to underestimate the value of Burbank in one way — the indirect benefit was that many scientists might turn to research in plant breeding because of his effort.

Irving E. Melhus Named Acting Head. In 1927 Irving E. Melhus was named Acting Head of the Department of Botany and Chief of the Section of Botany and Plant Pathology in the Experiment Station. This change was made because Dr. Pammel would be away from administration for a three month period each year. The Board of Education also changed the name of the Department to Botany and Plant Pathology.

Later that year Pammel, Melhus, and R. I. Cratty, curator of the Herbarium, finished a Herbarium Report which Dr. Pammel sent to President Hughes and Dean Beyer for the Board of Education. They pointed out its origins, its growth by purchase, donation, and exchange. Pammel reminded them of how little this cost the College.

The report included material about the wooden cases in which the collection was housed. Pammel wrote that he wanted to complete the information about the trees from which the lumber was obtained for each case with photographs and specimens to show the bark character and cross-section of the wood, together with a flower, fruit and seed character of each. He estimated the monetary value of these sixty cases to be $5,500.

Pammel Resigns as Department Head. The year 1929 was Dr. Pammel's last as head of the Botany Department of Iowa State College. He finally decided to resign from his duties due to the pressure which he felt the administration was placing on him to do so. This was one of the most momentous decisions of his life — to give up the department which he had so loved and nourished for almost 41 years, from its infancy through to maturity. He realized he would finally be free to finish his book on honey plants and begin another. He was not overly concerned about his health. He was a mere 67; his father had lived well past 80 years. Longevity ran in both sides of his family. The Board of Education accepted his resignation. The *Des Moines Register* reported that his reason was "To give more time to research." In time he was named professor emeritus.

In the spring of 1929 Pammel enjoyed attending the meetings of the Iowa Academy of Science, held at Parsons College in Fairfield. This austere but gentle senior member of the Academy enjoyed the joke played on him and the other scientists in attendance. On the first day of the Academy sessions, the *Fairfield Daily Ledger* published a front page article concerning a parade, headlined, "Scientists stage parade." The article covered the news of a long parade of floats which proceeded down the Main Street of Fairfield, in which the eminent visiting scientists took part. Dr. Pammel was reported as appearing on a "flotilla" in an ornate chariot surrounded by hummingbirds, presumably made of crepe paper. It was reported that he held a sheaf of banknotes from the State Legislature to finance the publication of his book on honey plants. The floor of this float was supposedly covered with the weeds of Florida, California, and New Mexico, where Pammel had recently collected.

Other scientists present at the meetings were similarly treated. The readers of the paper were thus humorously made aware through this spoof, of the personalities and work of some of Iowa's leading scientists.

Rare Books. In November of 1929 Pammel gave a talk on Rare Books, which were then on display in the Main Library. He held each volume, explaining where it had come from. He claimed to have started the Rare Book Collection of the Library with his 1911 donation of the Botany Department's collection.

Vacations: Papers: Research. His vacations during 1925 to 1929 were spent in the Midwest at the Forestry Department summer camps for a week at a time and at the American School of Wild Life Protection. Whenever not otherwise employed with their sessions, he went collecting. Pammel's research followed the lines which he had pursued in his previous years at the College. His 144 papers were again published primarily in the *Iowa Academy of Science Proceedings*, in *Veterinary Medicine*, in the *Iowa Geological Survey Bulletin*, and the *Iowa State Horticultural Society Reports*. His topics covered pollination, climate, ecology, flora, forestry, grasses, mycology, poisonous plants, seeds and germination, taxonomy, weeds, and conservation.

The 1929 Summary. Pammel sat down in the fall of 1929 to evaluate his activities of the previous year. He reported that he had attended 172 meetings, including hikes. A total of 24,407 persons were present at these functions. He emphasized again that he put in ten to twelve hours each day of work for the College, including Saturdays.

He also stated that even in the winter months when he was away from Ames, he collected plants for the Herbarium. He estimated that this activity alone contributed the equivalent of $15,000 in service and travel expenses.

The Botany Department in 1930. Dr. Pammel and Dr. Melhus prepared departmental material for the 1930 catalog. Botany listed 52 courses: 5 in general botany, 10 in plant morphology and cytology, 12 in plant pathology, 5 in ecology, 6 in plant physiology, 11 in taxonomy, and 3 seminars offered for credit.

The department staff consisted of 15 members, with major work being given in ecology, morphology, mycology, pathology, physiology, and systematic botany. The Herbarium was listed as having 180,000 specimens and the Department had 6,000 square feet of greenhouse space.

An International Congress. The college administration sent Dr. and Mrs. Pammel to Cuba on an interesting assignment in February, 1930. From February 15 to 19, they stayed at the Hotel New York in Havana to represent Iowa State College at the International Congress of Universities. Dr. and Mrs. Pammel enjoyed this introduction to the tropics. He delivered several speeches and collected plants for the Herbarium.

After visiting friends and relatives in the South, the Pammels arrived back in Ames to be present for the dedication of their church, St. John's by the Campus, on May 4. Pammel was called upon to say a few words. He had been one of the church's most loyal supporters.

The Pammels vacationed this year at the American School of Wild Life Protection at McGregor. It was an usually hot summer; Pammel was not feeling too well for most of the time that they were there. They returned to Ames at the end of August to participate in an unusual ceremony held near Forest City, Iowa, in connection with the 75th anniversary celebration of the founding of its county.

The unusual ceremony was the rechristening of Lime Creek with its former name, the Winnebago River. Thirty Indians from Nebraska, descendants of the Winnebagoes who had lived in the Iowa area originally, were present for this occasion. Their Chief, Eagle Neck, offered a bowl of water from Lime Creek to Dr. Pammel, who standing in the water, received it and poured it back, naming it again the Winnebago River. Pammel remarked to the press, "I look with respect upon the American Indians. They were conservationists. They roamed the country, but did not destroy it, while the white man is civilized, but not a conservationist at heart."

Pammel was busy writing papers this year also on bees and pollination, ecology, poisonous plants, germination, weeds, and on the buffalo in Iowa. There were 28 papers, with Charlotte King collaborating on three. They were published in the *Proceedings of the Iowa Academy of Science,* the publications of the Agricultural Experiment Station, the *Bulletins of the Iowa Geological Survey* and the *Reports of the Iowa State Horticultural Society.*

The 1930 Annual Report. Early in October of 1930 Dr. Pammel prepared his annual report for the college president. It consisted of 13 pages and presented his viewpoint, again stressing his worth to the College and the state in a rather defensive manner.

He estimated that he spent from ten to eleven hours each day on college work, six days a week. He stressed the fact that whenever he was away from the campus, he was collecting specimens to show the distribution of plants in Iowa. He pointed out that expenses incurred on his trips were borne by him or by other persons. Dr. Pammel then observed that his contributions to economic botany were many, with his focus on weeds and weed control. He claimed he wasted no time. When he was away from the campus on leave, he looked over manuscripts, collected plant material for class work and worked on various writing projects. To bolster this reputation he mentioned the dedication of Pammel State Park the year before and quoted from remarks made about him by D. W. Morehouse, the President of Drake University.

Dr. Pammel also summarized his activities in regard to talks and hikes he attended. He estimated that he was the speaker at 172 meetings, addresses, and hikes, and that 21,407 persons were in attendance to hear his words. This he perceived to be a most remarkable record, one of his best to date.

He mused at the end of 1930, as to what the new year held in store for him. He and Gussie should start planning their visit with Edna and her family. Her two little girls had probably grown considerably since their grandparents' last visit.

PAMMEL'S DEATH AND BURIAL, WITH AN ASSESSMENT

In early December of 1930 Dr. Pammel completed reading page proof for his tenth book, *Honey Plants of Iowa,* which would be published by the Iowa Geological Board sometime the following year. Christmas was always a quiet time for Louis and Augusta Pammel. They attended church services in the morning and received a few of their neighbors, bringing traditional cookies and fruit breads, in the afternoon. The Pammels talked about their anticipated visit with their daughter Edna.

Before leaving Ames for Patterson, California, where the Needhams lived, Dr. Pammel checked through his mail at the College. Department affairs were in good order in the capable hands of his successor, Irving E. Melhus. Dr. Pammel relished the chance of being away from Ames to pursue his botanical interests in California.

Pammels' Visit With Their Daughter

Their three months' visit on the Needham ranch would be a relaxing one with wintry weather completely forgotten for a while. Shortly after the Pammels arrived, Louis suffered another heart attack. He refused hospitalization, believing that bed rest at home would be beneficial to him. Gussie protested, but Louis won out. He spent January in bed, convalescing. Dr. Pammel happily spent the month of February botanizing in the area, renewing old friendships and giving several talks. The days passed quickly and he felt good.

Seemingly recovered, Dr. Pammel decided near the end of March that he and Augusta should return to Ames for the beginning of the spring quarter at the college. He hoped that spring had come early to Ames, for he looked forward to seeing the patches of wildflowers in wooded areas on the campus.

Pammel's Death and Burial

On the morning of March 23, the day after the Pammels started their journey eastward, Louis H. Pammel suffered a fatal heart attack as the train was pulling out of Ogden, Utah. Louis H. Pammel was not quite 69 years old.

Mrs. Pammel notified the college authorities and members of the family. The Iowa State authorities put her in contact with alumni at Ogden and Salt Lake City, Utah, many of whom immediately traveled to Ogden to assist her at this difficult time. Ogden alumni arranged for a memorial service to honor the memory of Louis H. Pammel.

Within a few days Mrs. Pammel resumed her journey with the coffin, back to Ames. Funeral services for Dr. Pammel were held on Friday, March 27, at St. John's Church, across from the college campus, the first funeral to be held in the church that Pammel had helped to build. The Reverend Leroy S. Burroughs, church rector, and the Rt. Reverend Harry S. Longley of Davenport, Episcopal Bishop of Iowa, conducted services in a packed church, overflowing with flowers. Afterwards the funeral procession made its way across the campus, the coffin carried by eight undergraduate forestry students.

Eight honorary pallbearers included a dean and professors from Iowa State, as well as a state senator.

When the cortege reached central campus, it stopped in front of Central Building, where Dr. Pammel's office had been. The carilloneur played the botanist's favorite hymns on the campanile. Hundreds of students stood nearby in silence out of respect for Dr. Pammel. His body was finally laid to rest in the college cemetery, adjacent to the woods of his College Park. Modest stones mark the locations of his burial place as well as those of his wife and two of their daughters. Few who seen them know of the tremendous gifts he gave to Iowa State.

Violet Pammel's Interview with President Hughes

A few days after the funeral, Violet Pammel requested an interview with President Hughes. In their discussion he assured her that her father's unfinished projects, such as his honey plants book, would come under his personal supervision. He also told her that the affairs of the Botany Department were in good order.

Then Hughes said to Miss Pammel what her father would have appreciated hearing in his lifetime, but never did,

> "He is the best known man throughout the country on the college faculty. He did not like details; his vision was beyond that. But we had to look for someone to replace him who would spend more time on details."

Hughes closed with these words, "Your father was too big a man. He could never be replaced."

Tributes

The La Crosse Tribune and Leader-Press called Pammel in an editorial, "One of the town's most distinguished sons as scientist, humanitarian, philosopher, and historian — His contributions to science won him high place among authorities; no botanist of his generation was more widely or favorably known."

The Des Moines Register and Tribune characterized his death as, "The close of one of those rare lives that is accompanied even in late years by a keen and vigorous mind — Dr. Pammel was a botanist and in that field acquired a national if not international fame in his research on poison plants and a score of other subjects — He has left us a whole expanse of natural parks scattered throughout the state."

Mrs. Henry Frankel of Des Moines wrote, "His vision of a park for every county which we thought extreme now appears as logical and an economic way to care for the recreational needs of the people of the state."

The Ames newspaper commented in an article a few days after his death, "The career of a great teacher, scientist, and conservationist ended Monday."

Comments of Colleagues

> "It is a testimony to the extraordinary versatility of this man that he could retain an interest in so many and so diverse fields of his great mother science, botany." — R. E. Buchanan
>
> "Dr. Pammel was one of the great builders of Iowa State College. His strong personality and his indefatigable energy made an enduring impression upon the character of this institution and its standing in the world of science and conservation." — P. H. Elwood
>
> "Dr. Pammel was thoroughly imbued with the spirit of research. Many workers in all parts of the world were led to the study of plant sciences through his enthusiasm." — I. E. Melhus
>
> "It falls to the lot of but few men who serve the state to leave such an enduring record of deep conviction and worthy purpose, and of high ideals in public service." — C. F. Curtiss
>
> "As an educator Dr. Pammel has always emphasized effectively ideal educational motives as contrasted with those of self-interest. He is a famous scientist who has inspired many to lives devoted to scientific research and the teaching of scientific truth." — Anson Marston
>
> "He had a fine spirit of courtesy and appreciation of the things that make life worthwhile. No student went to him for counsel but gained helpful advice and real encouragement." — O. H. Cessna
>
> "The death of Dr. Pammel removes from the Iowa State faculty one of her most distinguished and widely known scientists. I have never known a man more enthusiastic about his field or one who drove forward more persistently in the advancement of causes to which he was devoted. Dr. Pammel in a great many ways typified the ideal scientist." — R. H. Hughes

Within a week of Dr. Pammel's death the Iowa Legislature adopted a resolution of appreciation for his service to the state. This was distributed to all the scientific societies which knew of him and his work.

The Wisconsin Alumni Magazine in its May, 1931 issue wrote of him, "Dr. Pammel is one of the nation's leading figures in his fight for conservation of our natural resources."

The Northeastern Iowa National Park Association passed this resolution of respect for Dr. Pammel as a "Noted conservationist and a botanist of more than statewide reputation."

Posthumous Tributes

Louis H. Pammel received many posthumous tributes as well, beginning in 1932 with a long article about him in The Journal *Phytopathology*. It reads in part, "In his science, Dr. Pammel has always been a pioneer and with that spirit he entered into all his work. He was interested in the unknown and active in carrying investigations in new fields." In 1937 at the annual student Veishea ceremonies held on the Iowa State campus each spring, a group of maples was dedicated to his memory.

The 1940 Proceedings of the *Iowa State Historical Society* honored him thus,

> "For years he carried on the burden of the conservation movement to save Iowa's wildlife almost alone on his broad shoulders. Under the driving power of his will and enormous energy the state parks at last took shape. Due to him, Iowa was one of the first states to have a comprehensive plan of conservation. Practically every one of the state's 74 parks was either acquired while he was chairman of the Board of Conservation or if later, because of his interest in it."

The Iowa State College authorities honored his memory in 1945 when they named the first unit of the campus married students housing, Pammel Court. He would have been pleased with such recognition.

As recently as 1961 the Iowa Wildlife Society honored his memory by installing his name in the Iowa Conservation Hall of Fame, at a banquet held in Des Moines. His daughter Violet accepted the honor for the family.

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Ames, Iowa, and of La Crosse, Wisconsin, as well as to those of the University of Wisconsin at Madison. Also helpful were John O. Holzhueter of the State Historical Society of Wisconsin at Madison; Charles H. Schultz, archivist at Texas Agricultural and Mechanic Arts University, Bryan; Barbara L. Mykrantz of the Missouri Botanical Garden, St. Louis; Diana Fillios, Farlow Reference Library Archivist, Harvard University, and Clarke A. Elliott, Associate Curator of the Harvard University Archives. Lois Pammel Blundell, daughter of the botanist, and James L. Pammel, a grandson, straightened out certain genealogical matters.

Finally, much appreciation to Richard W. Pohl, the other botanist in my life, who believed this biography could be written.

AUTHOR'S NOTES

A chance comment led to the preparation of this biography. My husband remarked to me, "There is a biography of Louis H. Pammel waiting to be written. The material is in the University Archives, the Special Collections Section of the Iowa State University Library."

As a young faculty wife at Iowa State University in Ames, I had lived in Pammel Court on the Campus, walked through Pammel Woods, and visited Pammel State Park, but knew nothing about the man for whom these places were named.

The Pammel archives in the Iowa State University Library consist of 78 boxes crammed with thousands of items, mostly his letters. Other memorabilia include scrapbooks, photos, souvenirs, newspaper and magazine clippings, copies of graduation booklets, and lists of his honors and tributes. He seemed to have saved almost every piece of paper that passed through his hands.

Among the memorabilia was also a copy of his booklet, *Some Reminiscences of La Crosse and Vicinity,* published in 1929 by the Liesenfeld Press of La Crosse, Wisconsin. This was a most important document for my reconstruction of his early years. He also used his mother's diary, which she had kept from her girlhood years, in his writing of these reminiscences. She gave this script to Louis shortly before her death. In addition to the written record, there exists a large but fast-fading body of oral traditions about the man among Iowa people. His ghost still clings about Iowa State University. I also referred to Pammel's books and other publications in the Iowa State University Library. My first examination of this vast quantity of material led to the preparation and presentation of a paper entitled "Louis H. Pammel and the Conservation Movement in Iowa", for the 1978 Iowa Academy of Science meetings.

Not only were Pammel's life and work distinctive but they followed closely the history and development of the young college in which he invested his life. I also believed that his work in conservation was so important and relevant to today's world that a biography should be written.

To document the facts of his life as he claimed them to be, I searched through birth and property records at his birthplace, La Crosse, Wisconsin. For details concerning his three academic degrees, I checked with the registrars at the University of Wisconsin and at Washington University in St. Louis.

It seemed important to visit the places where he spent his early years, prior to his arrival in Ames, Iowa, in 1889. In La Crosse, I located the site of the first house his father built there, but looked in vain for the family farm in Shelby Township, south of La Crosse. I walked the areas Pammel might have walked as a boy and climbed Grandad's Bluff, as he did many times, to see the majestic sweep of the Mississippi River as it flows past La Crosse. To put Pammel's various geographical locales in perspective, I visited and read about La Crosse. My odyssey also took me to the Missouri Botanical Garden in St. Louis, where Pammel worked from 1886-1888. I read the early history of St. Louis and biographical material about Henry Shaw, founder of the Garden, the history of Harvard University and the Boston area, and the beginnings of Texas A. & M. University.

For student opinion about Dr. Pammel, I read campus newspapers and yearbooks for the Pammel years, as well as the pertinent college catalogs and department reports.

I also read the histories of the Iowa Academy of Science, the Iowa State Historical Society, and Phi Kappa Phi, an honorary scholastic society. I read his ten books and reviewed his nearly 700 papers.

I also visited places Pammel frequented on the Ames Campus, and McGregor, Iowa, where the summer meetings of the American School of Wild Life were held.

I corresponded with Lois Pammel Blundell, his one daughter surviving in the early 1980's, and with his grandson, James L. Pammel.

The basic material for this biography, unless otherwise indicated, is the archival material in the Iowa State University Library.

An Assessment

Scientist, humanitarian, historian, philosopher, conservationist, teacher, builder of Iowa State College: this was Louis H. Pammel. He spent his years in academic life according to the philosophy of collegiate education with which he had begun his 41 years at Ames in 1889 — in teaching, in research, and extension.

As a teacher he was thorough, able, and dedicated. He was well liked by his undergraduate and graduate students. He attracted hundreds of students to the study of plant sciences.

As a researcher he was creative in regard to working on what he found about him — the grasses, flora, poisonous plants, seeds, and weeds of Iowa. Then he extended his interests to other areas of the United States. He was also sensitive to the problems of the farmer and forthright in his attempts to solve them.

In extension, Pammel delighted in taking the knowledge of the classroom and the laboratory, insofar as he could, to Iowa residents and elsewhere, either by means of direct personal contacts or by publications and personal letters. He wanted these other citizens to enjoy the better life which he believed education would bring them.

As a pioneer botanist, Louis H. Pammel extended botanical knowledge and understanding by his ten books and nearly 700 papers and other writings.

As a conservationist Pammel, through his personal efforts, acquired 37 state parks for the citizens of Iowa. He also sketched an aditional 37 parks which were in time acquired by the state of Iowa. In his lifetime, Louis H. Pammel was the conservation movement in Iowa.

In sum, he was one of those precious human beings, a great generator of new ideas and attitudes, a builder and a mover with vision, energy, and force.

APPENDICES

Organizations of Louis H. Pammel

Pammel was a joiner. He liked to be with people and enjoyed going to meetings, conferences, and conventions. In his adult lifetime he belonged to 45 organizations. These included social, honorary, religious, and professional groups. He held honorary memberships in three foreign botanical groups: the British Ecological Society, *Deutsche botanische Gesellschaft,* and *Versammlung der Vertreter der angewandten Botanik.* He served his organizations in many capacities, usually as chairman or president. Pammel belonged to these organizations:

Academy of Science of St. Louis
American Alpine Club
American Asiatic Association
American Association for the Advancement of Science
American Association of University Professors
American Genetics Association

American Phytopathological Society
American Society of Agronomy
American Society of Bacteriologists
Association of Beekeepers of Iowa
Biological Society of Washington University, St. Louis
Botanical Society of America
British Ecological Society
British Association for the Advancement of Science
California Academy of Science
Central Association of Science and Mathematics Teachers
Cosmopolitan Club
Davenport Academy of Science
Delta Phi Epsilon
Deutsche botanische Gesellschaft
Gamma Sigma Delta
Iowa Academy of Science
Iowa Forestry Commission
Iowa Geological Board
Iowa Park and Forestry Association
Iowa State Board of Conservation
Luther Burbank Society
Nantucket Maria Mitchell Association
National Science Research Club
Organization of Official Seed Analysts of North America
Osborn Research Club
Phi Kappa Phi
Potato Association of America
Sierra Club
Sigma Xi
Sigma Psi
Society for the Promotion of Agricultural Science
Society of American Foresters
State Historical Societies of Iowa, Minnesota, and Nebraska
St. John's by the Campus Episcopal Church
Travel Club of America
Versammlung der Vertreter der angewandten Botanik
Wisconsin Academy of Science, Arts, and Letters

The Papers and Miscellaneous Writings of Louis H. Pammel

Pammel wrote about seven hundred papers and miscellaneous publications, in addition to ten books. These papers are here divided into two categories: botanical writing and general publications.

The botanical papers are grouped as follows: Bacteriology; Bees and Pollination; Climate; Ecology; Economic Botany; Flora; Forestry and Trees; Fruits; Grasses; Horticulture; Mycology and Plant Pathology; Poisonous Plants; Seeds and Germination; Taxonomy; Weeds; Botany: Miscellaneous; Botany Courses, Outlines, and Guides.

The general papers include Conservation and Parks; History and Biography; Miscellaneous.

Pammel published over 100 papers in the *Proceedings of the Iowa Academy of Science*. It is regrettable that dates of publication were omitted completely from this journal from volume 12 through volume 39. Instead, each volume bears a legend "for the year _____". Since the volumes frequently did not appear in the same year, an attempt was made to determine the actual date of appearance from other sources. The set of the Proceedings in the library of the State University of Iowa bears hand written notations as to the date of receipt of most volumes, and these dates have been used as the dates of publications where they were available.

Botanical Papers

Bacteriology

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