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Finding Aid to the H.L. Bolley Photograph Collection

Bolley, Henry Luke, 1865-1956

H.L. Bolley Photography Collection, early 1900s

3 linear ft.

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OVERVIEW

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BIOGRAPHY

Henry Luke Bolley was born February 1, 1865, in Manchester, Indiana, the youngest of twelve children of John B. Bolley and Mary Broad Bolley. He attended Purdue University at Lafayette, Indiana, where he received a Bachelor of Science degree in 1888. He served as assistant botanist of the Indiana Experiment Station and earned a Master of Science degree from Purdue in 1889. In the summer of 1890, the Board of Administration, on the recommendation of the newly selected president of the North Dakota Agricultural College [NDAC], Dr. Horace E. Stockbridge, asked Bolley to join the fledging college as professor of botany and zoology and botanist of the North Dakota Agricultural Station. Bolley accepted, and officially began working at NDAC on October 15, 1890, to join the first faculty.

During his first winter at Fargo Bolley made the first pure cultures of the fungus *Oospora scabies*, which caused potato scab. In the spring of 1891, the first field plantings of treated scabby seed were made. The results were successful, and led to the publication of *Potato Scab and Possibilities of Prevention*. The corrosive sublimate treatment for potato scab became known around the world. It was also during that

first year at the college that Bolley began to study the disease which was destroying the flax crop. Bolley described it as "flax wilt." He also began work on smut in wheat, oats, and barley.

Plant diseases were not Bolley's only interest. Human sanitation was also very important to him. From 1890 to 1896, Bolley published many bacteriological papers dealing with the purity of water supplies, milk, and other farm products. In 1897, Professor Bolley published a serum method of diagnosing typhoid fever in the Journal of Comparative Medicine and Veterinary Science.

H.L. Bolley's love of nature, sports, and the outdoors led to an early interest in hunting, fishing, baseball and football. While at Purdue Bolley developed a keen interest in football, which was a very new sport at the time. He helped organize the first team at Purdue. In 1890, he organized a team at the North Dakota Agricultural College and challenged the University of North Dakota team to two games in 1893. Bolley coached the team for several years and remained interested in it even after regular coaches were hired. The competition between the two schools continues today, and is one of the longest running rivalries in college athletics.

It was during these early years at the college that Bolley met Frances Barnett Sheldon, daughter of Alfred Sheldon of Janesville, Wisconsin. After graduating with a degree in Greek Studies from Oberlin College, she was hired as a lady principal at the Fargo College in 1893. Shortly after arriving in Fargo she met Professor Bolley, and they married on September 23, 1896. The Boleys had two children, Don and Ann.

Mrs. Bolley was very active in educational and civic functions. She served on the board of the public library, board of education, board of directors of the Florence Crittenton home, and the community chest. Mrs. Bolley was particularly active in the Fine Arts Club of Fargo. She joined the club at the time of its organization and served as chairwoman of the program committee for many years. In 1924 she was elected President of the club and twice re-elected. During her tenure as president the club grew and progressed. In 1926 she organized the history section of which she served as chairwoman for many years. Also of vital interest to the club was her suggestion that the club incorporate to place it on a sound financial basis. This led to acquisition of a club house for women in Fargo. She later served as a member of the executive board of the club.

Professor Bolley was a firm believer in the principle of survival of the fittest. After coming to North Dakota he became convinced that the so-called flax-sick land was not sick in the sense that it was overcropped, but due to a parasitic disease in the soil. Bolley believed that the way to control the disease was to develop resistant plants through breeding. He arranged with the agricultural department of the college to turn over an area of land which could be made flax-sick. The area was called "Plot 30", and Bolley immediately began testing his theory.

Bolley soon discovered that even on the most wilt-ridden areas of lands some scraggly plants survived. After a careful process of selection and continuous cropping on the same flax-sick lands, Bolley and his assistants were able to develop varieties which could survive. After nearly nine years of investigations Bolley proved the land had not lost its fertility, but was infected by seed-born germs of the fungus known as *Fusarium lini*. In 1901 he published Bulletin 50, describing the fungus as the cause of flax wilt.

As a result of his pioneering work, the North Dakota Agricultural College and the United States Department of Agriculture jointly funded a trip to allow Bolley to survey flax cropping in Europe. He spent the summer of 1903 in the chief flax growing areas of Holland, Belgium, Northern Germany, and Russia, observing the crops and obtaining samples. It was in Russia that Bolley met Dr. Arthur Jaczewski, one of the most important plant pathologists in Europe. Dr. Jaczewski directed Bolley to the oldest areas of flax production in Russia, where he gathered seeds from the few plants that survived.

These lots of seed were planted on flax-sick soil, where many of the selections produced a considerable number of plants which survived. Bulletin 55, along with other publications published in 1905, demonstrated the possibility of procuring wilt resistant varieties through breeding and selection. After ten or twelve years of persistent effort, Plot 30 began to produce an almost perfect flax crop. Due largely to his efforts, North Dakota became a major flax producing state.

Professor Bolley also made extensive studies of rusts and smuts of cereal grains. In 1893 he proposed the formaldehyde method of seed disinfection for the prevention of oat smut. By observation and trial, he quickly discovered that this treatment could be applied to practically all kinds of seed. In 1899 he published his results in Bulletin 27. The treatment became very popular and saved farmers many thousands of dollars from losses due to diseased seed.

Flax, potatoes, and oats were not the only crops suffering from disease when Bolley arrived in North Dakota. Wheat was suffering from black stem rust, and he applied the tactics of "selective breeding" once again. In 1896 he planted wheat among rows of barberry bushes which contained rust spores. The results were very destructive. Only certain varieties of red durum and one variety of bread wheat, which were brought from Russia in 1903, survived. The destruction from the barberry bushes emphasized the importance of breeding and selecting cereals for rust resistance. It also brought about the enactment of the first state law authorizing destruction of barberry bushes on public and private properties in 1916.

Because of his extended experience in seed studies he began very early in his career advocating a pure seed law and pure seed laboratory. Farmers particularly wanted reliable germination tests for their seeds to determine if the seeds were suitable for crop use. As Dean of the Department of Botany and Biology, Bolley and his assistants were the most reliable people to undertake such testing. In 1907 Bolley began campaigning for a pure seed law, and in 1909 the State Legislature passed the law as it was written by Bolley himself. He served as State Seed Commissioner from 1909 to 1929. During this time the Pure Seed Laboratory determined varieties, authorized field and bin inspections, and issued tags certifying seed for sale. The sale of certified potatoes and seed stock in the United States, and in foreign countries, became one of the state's leading industries.

Bolley was one of the earliest experimenters in the eradication of weeds in cereal grain fields by means of chemical sprays. Although some chemicals were already used to kill weeds and grasses, Bolley believed the Experiment Station should investigate whether chemicals of a sufficient strength could destroy the weeds but not injure cereal grains and beneficial grasses. He believed a traction sprayer could be driven over the fields to destroy the weeds. Experiments initiated in 1896 were so successful that many states and European countries quickly began spraying for weeds to increase production. Bolley also corresponded with many manufacturers to help them develop suitable machinery to undertake the work.

Professor Bolley's discoveries were not always pleasing to everyone. His discovery of flax-sick and wheat-sick soils angered the land speculators and railroads who were making large sums of money off new farmers. To protect their interests, a group of bankers and businessmen formed the Better Farming Association to counteract Bolley, and others, at the Agricultural College. In 1913 Thomas Cooper, Directory of the Better Farming Association, joined the Agricultural College, and was given control of the experiment station and extension division. Bolley was quickly locked out of his laboratories and relieved of research money. He was charged with unscientific conduct and investigated by a faculty committee in 1916. He continually fought and denied all charges until he was finally exonerated.

After being relieved as State Seed Commissioner in 1929, Bolley was granted a leave of absence in 1930 to study flax cropping in Argentina. Bolley was accompanied by Mrs. Bolley and their daughter Ann. Tragedy struck the Bolley family while visiting a museum in Buenos Aires. Mrs. Bolley suffered two paralytic strokes on August 13 and 16, and died on August 19, 1930. Bolley and daughter Ann returned

with the body. Mrs. Bolley was interred in the mausoleum at Riverside Cemetery in Fargo.

In 1931 Bolley returned to Argentina, and obtained new samples of flax to continue his studies. His observations of the Argentine trip were published in Bulletin 253 in 1932. Upon his return to America Bolley married Emily Knight Sheldon, on August 1, 1931, daughter of Godfrey Knight and sister-in-law of Frances Sheldon. Emily had two daughters, Lorissa and Therese (Mrs. J.W. Ansenberger). The second Mrs. Bolley died March 8, 1944.

Professor Bolley continued teaching and conducting research until his retirement in 1945. In recognition for years of research and service he was awarded an honorary Doctor of Science degree from Purdue University in 1938, and a Doctor of Science degree from the North Dakota Agricultural College in 1939. Henry Luke Bolley died November 10, 1956 at the age of 91. He was interred at the Riverside Cemetery mausoleum near his first wife Frances.

Bolley was a member of numerous organizations including the American Botanical Society, Indiana Academy of Science, North Dakota Academy of Science, Honorary member of the British Association for the Advancement of Science, American Society of Agronomy, American Society of Phytopathology, Fargo Commons Club, 32nd Degree Mason, American Association for the Promotion of Agricultural Science, and the American Association for the Advancement of Science. He was a contributor to the *Journal of the American Society of Agronomy*, the *American Journal of Botany*, and various other scientific and agricultural publications.

SCOPE AND CONTENTS

The provenance of the Henry Luke Bolley photograph collection is as unique as the papers collection. Most of the photographs and negatives were inter-filed with the papers and withdrawn while the collection was being processed. The lantern slides and prints of the trip to Russia in 1903 we believe came with the papers. One of the most interesting parts of the collection, a photo album of the early years at the North Dakota Agricultural College, arrived from the state of Washington during the processing, anonymously.

The Henry Luke Bolley photograph collection consists of approximately 1,100 photograph, 380 negatives, and 83 lantern slides from his tenure as the first biologist, botanist, and plant pathologist at the North Dakota Agriculture College. The collection contains photographs of Bolley, early scenes of the college, his trip to Russia in 1903, and his early experiments in the laboratory and on field test plots. Almost all of the photographs have descriptions written by Bolley himself on mounting sheets in each folder. Some description sheets had no original prints and/or original negatives. The sheets note which items have negatives.

General Topic Series

The General Topics Series, arranged alphabetically, contains photographs of Bolley, and prints of the early days at the North Dakota Agricultural College. Among them is a print of the first president of the college, Horace E. Stockbridge in his office, also early buildings on campus, student and classroom scenes, and early football games. The series contains a large amount of photographs relating to Bolley's experiments. The topics cover everything from bacteria to wheat. Of particular interest is the control of weeds by spraying, which contains scenes of early horse-drawn sprayers. There are also good pictures of the harvesting of wheat and flax.

Russian Flax Studies Series

The Russian Flax Studies Series contains photographs of Bolley's trip to Europe in 1903 to study flax

culture. The group of pictures relating to his visit to a small flax workshop offer an interesting view of Russia and the workers during the time period. Some of the pictures have handwritten descriptions in Russian with translations for them in the index file. Another important part of this series is the lantern slide collection, which contains wonderful early panoramas of the cities of Moscow, Riga, and St. Petersburg before the revolution of 1917. The slides also contain scenes of the everyday life of the Russian people in the cities and countryside, and slides of his Russian friend, Professor Arthur A. Jaczewski, and Jaczewski's family and home at Rylkowa, province of Smolensk, Russia.

Photograph Box Listing

Box Folder

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