

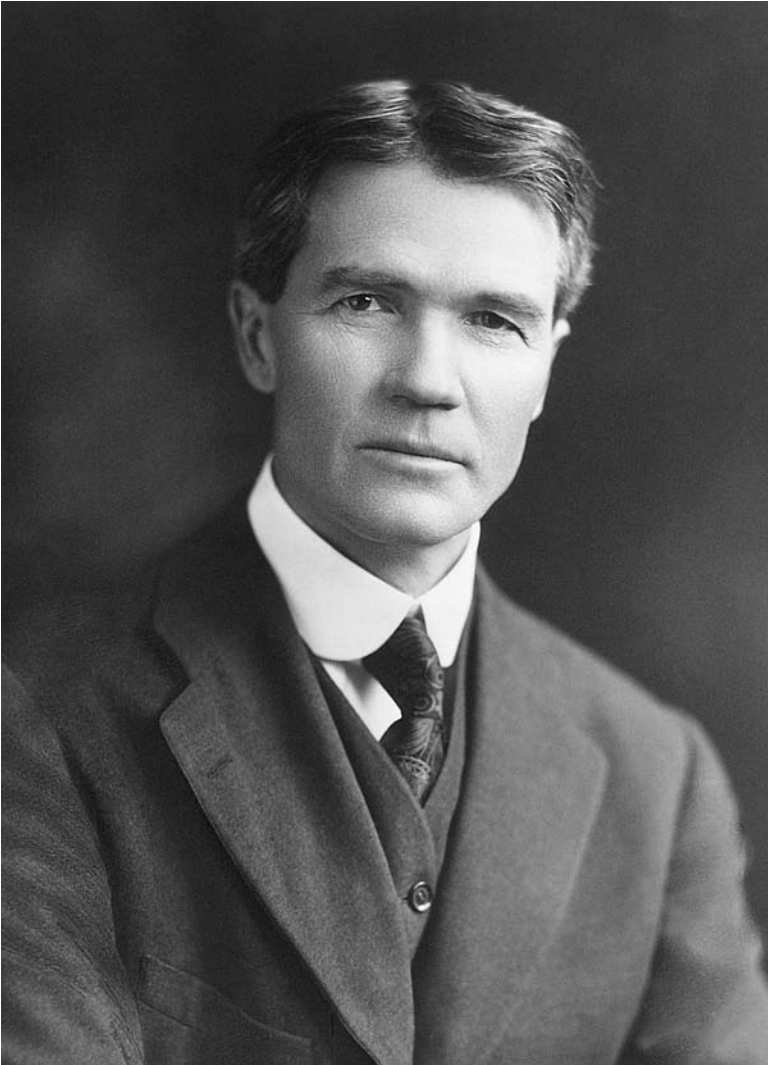
# ALEXANDER P. ANDERSON

1862-1943

*A biography of his life which was devoted  
to the study of the natural world*



LYDIA E. HEDIN    JEAN M. CHESLEY  
JOHN P. ANDERSON    LOUISE A. SARGENT



ALEXANDER P. ANDERSON  
1862 - 1943



LYDIA J. ANDERSON  
1876 - 1934

ALEXANDER P. ANDERSON  
1862 - 1943

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## ACKNOWLEDGEMENTS

The designs in the book were recreated to resemble the decorative borders on the ceilings and walls of the rooms in the house at Tower View.

In 1923, the border designs and the walls were hand painted by Joseph Kiemer, a church painter.

1977

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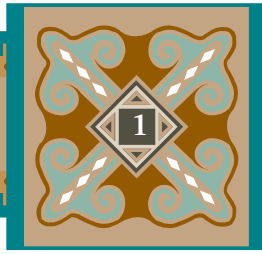
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## 1862-1890: EARLY YEARS

When Britta Maria and John Anderson left Småland, Sweden, in 1855, much of Goodhue County in the Minnesota Territory was still covered with prairies and woods along the rivers. They left their homeland with their two little children, David and Ida, to seek a better life in America. "We were so poor," Britta Maria said later, "that soon we realized that we could not live this way much longer for we had two children. So we gathered up all we could of our saleable belongings and the little money that our parents on both sides gave us. It was just enough to buy our passage to America, to us the 'Land of Promise.'"

The journey to America took eleven weeks. From the eastern seaboard they traveled by rail first to Chicago and then to Moline on the Mississippi, where they boarded a packet boat for Red Wing. An ox cart brought them from there to Featherstone Township, where they took a homestead of 160 acres for \$14.00. They were accompanied by Solomon Anderson, John Anderson's brother, who had come to Featherstone Township in 1853, at the age of twenty.



First the family lived in a dugout in a valley of Spring Creek on the south side of a hill where it was warm. Soon John Anderson built a log house, and it was here, on November 22, 1862, that Alex was born. Alex and his four brothers and one sister lived in the log house until 1866, when a larger house was built near the road.

Alex grew up in the Spring Creek valley surrounded by a natural world relatively untouched except for a few roads, farms, and the district school house. He heard the wolf packs howl at night and the whippoorwill and bob white call in early morning. There were bears and bobcats in the woods and trout in the creek. Alex recalled that when he was ten his father seeded wheat by hand on the old farm. "With a team of horses I dragged the grain in," he wrote, "and over my head, in April and May, thousands and thousands of passenger pigeons flew northwestward. They were on their way to the Big Woods to build their nests."<sup>1</sup> Alex hunted and set trap lines for muskrats and small game and sold their skins. When he was twelve, he trapped 100 muskrats and with his earnings of \$3.00 he bought a book. In the flyleaf of a well-worn book in his library, *Manual of Zoology*, Alex had inscribed "June 1875, self 12 years old."

Like other farm boys, Alex attended the one-room district school. He was a good student, and at the age of fourteen he received a book as first prize in a spelling bee. Alex loved the six books of the McGuffey Readers. Late in life, he was to publish a *Seventh Reader* containing his own poems and stories.

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<sup>1</sup>Quotes from *The Seventh Reader*, Alexander P. Anderson, 1941.



The school was the center of social life for the little community of farm families. Sometimes there were talks and entertainments in the evenings. Phrenology was popular at that time, the belief that mental characteristics and powers could be determined by the shape and bumps of the skull. Alex studied this "science" and, with diagrams of the location of character traits in the brain, he gave demonstrations at the local school.

There was a religious awakening in the mid-nineteenth century in Sweden. In opposition to the religious intolerance of the state church, free churches and revivalist movements began to organize their own churches and some of these joined the Baptist and Methodist churches in this country. Church membership was of great importance to the settlers.

Some years after settling in Featherstone Township, John and Britta Maria joined the Baptist Church. Alex recounts his baptism in the Cannon River in June, 1878. "That was the year I was baptized in the Cannon River by Rev. John Anderson, the father of Mrs. Bennett Melin. I was baptized first when 7 months old and this 1878 one was my second; I was never so frightened in my life. I almost floated down the Cannon and my white linen suit stuck to me and I got so cold that I still feel it."

Between the church and the school, neighbors knew each other well. They helped when sickness struck or crops failed and they rejoiced over good news. New families arrived from Sweden and were invited to move in until their own farm houses were built. When Ingri

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Greta, Britta Maria's sister, arrived in 1869, she stayed with the Anderson family.

Alex started to plow with two horses pulling a 14-inch walking plow when he was eight years old. He wrote, "I held the plow and at the same time guided the two horses, one of which walked in the furrow turned out in the previous round. Two horses and a boy could plow an acre and a half in a ten-hour day." His father told him: "That furrow you plowed was as straight as a line fence." He was first in a corn husking contest, and he worked with the threshing crew of the steam engine thresher at harvest time. He was good at peeling aspen rails for fences and he helped his father clear the land for fields.

An important experience for Alex in these early years was a meeting he had with W. H. Scofield of Cannon Falls, a renowned expert of Silurian fossils. Alex recounts this meeting in the "Silurian," a story in the *Seventh Reader*. It was his first introduction to the marvels of scientific geology. Alex had walked to Cannon Falls to meet Scofield, who showed him his large collection of fossils and told him about the life in the warm seas of the Silurian millions of years ago. Alex took the stagecoach back home. "To me it had been the most wonderful day of my life," he later wrote. "Never have I forgotten that day."

Alex described his father as a thoughtful person who encouraged his boys to do well. He would say, "Plow well and deep, and we will have a good crop next year."



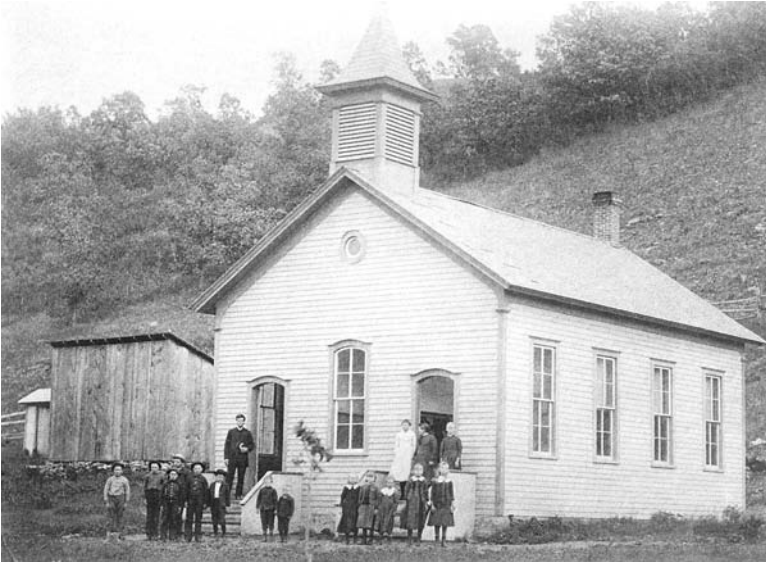
There was always hope for a good crop despite the cinch bugs, the droughts and storms. Alex later wrote how good they felt at the end of a long day's work "when the cows were all in their yard, the horses fed, gates and barn door closed for the night and now it was time for reading in the evening and table talk." In 1892, after Britta Maria and John had died, Leonard wrote to his brother Alex:

*Christmas does not seem to me what it used to be when we could all gather around the table at home. Few indeed were the presents, but there was something with us that satisfied us more than all earthly gifts.*

The family that Leonard remembered at the table would have been his mother and father, his sister Ida, and brothers David, Willie, Alex, and Arthur. There was an invisible empty place for little Frank who died when he was four, in 1864.

Years later, Alex recalled that every spring it was plowing, then seeding, harvesting, stacking, and threshing the grain. Hauling a load to town with a two-horse wagon took one whole day and sometimes more. He milked the cows every morning and evening with his father from 1870-1882. Alex, like many farm boys, dreamed of wider horizons.

After taking the state examination required of all rural school teachers, Alex taught in one-room schools from 1882 until 1890. Twice during those years he attended the University for brief periods, but always returned to help his parents on the farm. For seven years he stayed at home and taught school.



*School House, District # 18, Feathersone Township  
Teacher, Alexander P. Anderson, June 1889.*

In June, 1883, Alex took the exam for West Point, but failed by one-quarter of one percent on the question: "What is the length of a degree at 60° no. latitude as compared with a degree at the equator?" In September, 1883, Alex was admitted to the University of Michigan, but he did not attend. He continued to teach country school and help his parents on the farm.

By 1885, Alex was running the farm himself. Gradually new machinery was invented which lightened the farm work — the two-horse corn cultivator, the threshing machine, and the hand planter, which did the work of three men. His brothers, except Arthur, had left home and his sister Ida was married.

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In 1889, it was reported in the *Red Wing Daily Republican* that

*A. P. Anderson has 60 acres of very fine beans on his farm this season, over 40 acres in No. 1 corn, and some 5 acres of pumpkins for the pigs of which he has 115 small ones and 31 old ones. He has 100 acres in cultivation this season and thinks that a good yield of everything is now certain. Mr. Anderson is one of those progressive farmers who are bound to succeed in whatever line they engage.*

In August, 1889, Britta Maria died at the age of 63. Alex was teaching at that time in school district #4 in Burnside Township, walking back and forth each day. On Thanksgiving evening he rounded the corner of the road and saw their house in flames. Most everything was lost in the little house that Alex had built for his parents in 1885 in the valley near the site of the dugout. This little farm included the original 120 acres of the 440 acre farm. Alex had hoped to pay off all the debts and some day own the farm himself. After the fire, Alex, his father John, and brother Arthur moved down to the house by the road where his brother Willie was living. Sorrow came again in January 1890, when his father died at the age of 63.

**1890-1903:  
UNIVERSITY YEARS, HIGHLANDS  
AND THE NEW YORK BOTANICAL GARDEN**

**1890-1895: University of Minnesota**

Alex taught his last term of school in the spring of 1890. After the year's harvest he entered the freshman class at the University of Minnesota. His brother Willie and his family ran the farm for a few years, but the farm was heavily mortgaged and eventually sold to pay the debts and taxes that had accumulated over many years. In 1895, 80 acres were sold at a sheriff's sale, then 200 acres, and finally the last 160 acres were traded for three horses, as Alex later wrote in one of his stories.

Now twenty-eight years old and with farming behind him, Alex eagerly began his education. He had saved \$300 from his teaching, and with \$300 from his father's insurance he hoped to pay his expenses for two years. However, he very quickly got a job carrying newspapers at \$50 a month. He once said that he delivered papers to Cyrus Northrop, the second president of the University.

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Alex was not only older than his classmates but more experienced in many ways. He became close friends with his botany professors, particularly D. T. MacDougal, professor of physiology, and Conway MacMillan, professor of morphology and state botanist.

During his student days, the University published the results of an ingenious weighing machine that Alex had invented to measure the growth and transpiration rate of pumpkins and other fruits. It was called the Anderson Registering Balance and was marketed for a short time by Bausch and Lomb Optical Company.

Alex received his B.S. degree in botany in 1894. In September he won \$160 as the first recipient of the Howard Fellowship, enabling him to continue his studies and to receive an M.S. degree in 1895. He was always a loyal alumnus of the class of 1894. He kept in touch with his classmates, and in 1921 the 27th class reunion was held at Tower View.

### **1895-1896: University of Munich**

In June, 1895, with savings and borrowed funds, Alex traveled to the University of Munich in Germany to study for a Ph.D. degree in botany. The University was noted for the study of plant physiology and pathology, as well as other sciences. He attended lectures and worked in the laboratories of Dr. Karl Goebel, plant physiologist, and Dr. Freih van Tubeuf, morphologist. He explored the forests in Bavaria in the company of Dr.



*Alexander P. Anderson, University of Munich*

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Robert Hartig, who was studying the diseases of conifers. These professors were the leading botanists of that time. Alex also studied experimental organic chemistry under Dr. Ritter von Beyer, the chief chemist of the aniline dye industries.

Alex enjoyed the year in Munich immensely. He attended the opera and other celebrations in that colorful city with his friends from the pension. He traveled to botanical gardens in Switzerland and southern Germany and visited with their botanists. He wrote his Ph.D. thesis, in German, on the content of resin in diseased trees; it was accepted in July, 1896.

At the University of Minnesota, Alex had learned of a new theory proposed by Dr. Heinrich Meyer, plant physiologist of Munich, about the possibility that the central nucleus of the starch granule contained an infinitesimal amount of free water. In Munich, Alex heard more about the Meyer theory from lectures given by Dr. Karl Goebel.

**1896-1901:**

**Clemson College, Clemson, North Carolina**

When Alex returned from Munich, he had excellent preparation for teaching botany and conducting research. He began to work at the Shaw Botanical Garden in St. Louis, Missouri, in October, 1896, but four months later he accepted an appointment to teach botany and bacteriology at Clemson College, Clemson,



*Lydia Anderson, 1898  
Taken in Scotland during her visit to see her father, sisters and brother*

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South Carolina. He was named state botanist there. In addition to teaching, Alex traveled by train or horse and buggy to small towns where he gave lectures on plant diseases of crops at Farmer's Institutes. He wrote a number of bulletins for the State Agriculture Department. He remained at Clemson from 1896 to 1901, except for one year, 1899-1900, when he was named Associate Professor of Physiology at the University of Minnesota.

**1898-1921:**

**Marriage and Highlands, North Carolina**

In 1897, Alex met Lydia McDougall Johnson from Glasgow, Scotland. She had traveled with an American family and their little girl to Clemson. He always said that he fell in love with Lydia when he looked out his boarding house window and saw her walking up the path. They were married in Highlands, North Carolina, in 1898. Alex brought the wedding cake up the mountains from Clemson, a two-day trip by horse and buggy.

Five children were born, Frank Leonard (1900), who died in childhood in 1904, Louise Alexandria Sargent (1904), John Pierce Anderson (1907), Lydia Elizabeth Hedin (1912), and Jean Margaret Chesley (1916).

In 1907, Alex and Lydia built a summer house in Highlands. They both loved the beautiful Blue Ridge mountains where they were married and their first son was born. For almost fifteen years, Lydia spent the summers in Highlands with the children, and Alex would



*House, Highlands, North Carolina. Summers from 1907-1919*

join them from Chicago for his vacation. Whenever they were separated—Lydia in Highlands, Alex working in Chicago or later at Tower View in Red Wing—they wrote to each other twice a day.

The trip from Chicago to Highlands was long and arduous, the first stretch by train, with several changes, to Seneca, South Carolina, and then the final forty miles by buggy, a two-day trip up the mountains; the trunks arrived by wagon. There was an overnight stop at Russell's half-way house. By 1920, the trip up the mountains was by car.

The house, windmill, barn, ice house, sheds and tennis court encompassed almost a city block. Alex planted the grounds with a virtual arboretum of southern mountain trees and shrubs. The house was sold in

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1922, and after changing owners several times, it was torn down to make way for development.

Earlier, in 1910, Alex had purchased seventeen acres on two barren hillsides in Highlands with a stream running through the valley between them. On these two slopes he planted 18,000 small white pines, and over the years they grew to become a beautiful dense forest. The pine lot was given to the town of Highlands in the 1940s.



*Alexander P. Anderson demonstrates the first experiment, 1902, of the puffing process with rice in sealed tubes being placed in a copper oven.  
Tower View. 1933*



1901-1903:  
Columbia University and the New York  
Botanical Garden

Alex continued to be interested in the Meyer theory of the structure of starch granules. An opportunity to test that theory came in September, 1901, when he accepted the position of Curator of the Herbarium at Columbia University in New York, a position which allowed him to do research work at the New York Botanical Garden. Alex, Lydia, and baby Leonard moved to New York.

In December, 1901, he conducted an experiment to determine the free and hygroscopic moisture in the starch granule:

*In this initial experiment, he took six test tubes, each four inches long and one-fourth inch in diameter. Three of the tubes he filled with corn starch and three with wheat flour. All of the tubes were then hermetically sealed and placed in an oven whose temperature was maintained at about 500 degrees Fahrenheit and heated from five to ten minutes until the visible contents of the tubes began to change in color from white to a slight yellowish brown.*

*One by one the tubes were withdrawn from the oven and cracked with a hammer, inside of a wire screen, before any cooling took place. The breaking of each tube produced a sharp explosion. The contents of one of the tubes containing the cornstarch, it was observed, had expanded to some ten times the original volume. Examination showed that all the cornstarch granules had been exploded and disrupted to such an extent that in reality no starch granules remained. In their place was a porous puffed mass, white as snow.*



*This fact was considered proof that it was the free or condensed water of the starch nucleus which, due to its being confined within the granule, could not escape on account of the pressure, but flashed into steam at the time of the explosion, and like any explosion tore the starch granule to pieces.*

*Alex immediately tested rice, wheat, barley, buckwheat and many other grains in the same way. During the winter of 1901-1902, almost every known seed was subjected to the heating-exploding process in the laboratories of the New York Botanical Garden.*

Alex realized that puffed cereal grains had commercial possibilities. He proceeded immediately to patent the process, and on August 26, 1902, he received the main patent on the puffing process from the U. S. Patent Office. In the years to come, Alex received 25 patents from all over the world on the puffing process as well as on the machinery to manufacture puffed products.

Later in 1902, Alex demonstrated the puffing of rice to a group of industrialists in Minneapolis who were interested in financing further experimentation. A special retort or iron gun was made along with an oven for heating it. A successful demonstration took place when the pressure, generated by the heat, was released by striking the release arm with a sledge hammer. Out came a shower of perfectly puffed rice. There were several dangerous experiments in the years that followed, but fortunately no one was ever injured.


  
**UNITED STATES OF AMERICA.**  
 Department of the Interior,  
**PATENT OFFICE.**

To all persons to whom these presents shall come, Greeting:

This is to certify That the annexed is a true copy from the  
*Records* of this office of the  
*Letters Patent of*  
*Alexander P. Anderson,*  
*Number 707,892,* granted August 26, 1902,  
 for  
*Improvement in the Art of Treating*  
*Starch Materials.*

In testimony whereof I have hereunto set my hand and  
 caused the seal of the Patent Office to be affixed at  
 the City of Washington this *18<sup>th</sup>* day  
 of *December*, in the year of our Lord  
 one thousand nine hundred and *five*  
 and of the Independence of the United States of  
 America the one hundred and *thirtieth*.

*A. V. Allen*

Commissioner of Patents.



*Alexander P. Anderson with Lydia Elizabeth at the corner of the apartment, 5552 Everett Ave., Chicago. 1910-1917*



1903 - 1932:  
QUAKER OATS COMPANY, CHICAGO AND  
THE BUILDING OF TOWER VIEW

**The Quaker Oats Company, Chicago**

As a result of the demonstration in Minneapolis, an agreement with the Quaker Oats Company of Chicago was drawn up to provide for large-scale production and marketing of puffed rice and wheat. The company's plant at 16th and Dearborn streets in Chicago became Alex's laboratory; the mills were located in Cedar Rapids, Iowa, and Akron, Ohio. The complicated process has been described in this way:

*Out of the glass test tubes finally evolved what have properly been called guns, a muzzle-loading cannon of murderous caliber that would have been in place on a colonial frigate. The guns are filled with rice in the loading chamber and there moved on carriages to the ovens into which they are pushed for heating and rotation. While in the ovens, high-pressure, superheated steam is injected into the guns. This steam prevents the oven heat from driving off the moisture in the grain which is essential to the puffing, and serves also to put pressure behind the cap sealing the muzzle, thereby assisting in rapid explosion when the cap is removed.*

THE EIGHTH WONDER OF THE WORLD

# Puffed Rice

The Latest and Greatest Food  
See how GOOD it is

Warm to make crisp and serve when cool with Sugar  
and Cream, or with Butter and Salt

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5c a Quart

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Quaker Puffed Rice in Packets 10c

The American Cereal Co.

*The Quaker Oats Company advertised Puffed Rice and Wheat, Corn Puffs and Quaker Crackels extensively in magazines and newspapers., 1909*



*This process completed, the guns are withdrawn and moved by the carriage to what might be termed the exploding chamber. Into this they are pointed, the end caps removed, and the puffed grain "shot" out like a blast of canister.<sup>2</sup>*

Alex worked for almost twenty years, 1903-1922, at the Quaker Oats Company in Chicago, testing all kinds of cereal grains and many other starchy materials under intense heat and pressure. He also puffed wood and clay. Over a period of 35 years he performed some 15,000 experiments, all of which are recorded in his forty volumes of 12,000 handwritten pages. At the end of each experiment he wrote up the procedure and the results in longhand. These volumes are shelved in the archives of the New York Botanical Garden.<sup>3</sup>

### **Buying Land in Goodhue County**

It is indicative of his devotion to his parents as well as to the land in Spring Creek that Alex began to buy back the family farm which had been sold when he was at the University. As soon as he was financially able, in 1907, he purchased 160 acres. In 1908-1909 he built a new house, a large barn and silo, a granary, and other buildings. Another 160 acres were purchased in 1911, and in 1932 another 80. So in time he repurchased most of the original farm. The farm was rented to Oscar

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<sup>2</sup> *The History of the Quaker Oats Company*, Harrison J. Thornton, University of Chicago Press, 1933.

<sup>3</sup> A microfilm copy of the notebooks is in the archives of the Minnesota Historical Society, and in the Goodhue County Historical Society.

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Pearson and his family for many years and sold to him after Alex died in 1943.

Alex also began to buy land in Burnside Township, beginning in 1910 with the Purdy farm of 170 acres at the intersection of the present Highway 61 and 19. The 115 acres on which Tower View is now located was purchased in 1914 from C. H. Eckblad. This land, adjacent to the Purdy farm, had originally been the pioneer Justin Chamberlain's homestead.

Over a period of years, Alex also acquired the Cannon River bottom lands below these two farms. Between 1912 to 1920 he purchased over 300 acres of bottom land. In the early 1920s he planted 100 acres of beautiful perennial wild hay in the fertile bottom land and built two hay barns near the Cannon River to store it. When Lock and Dam No. 3 was built on the Mississippi River (on Prairie Island) in 1935-1938, the land became too wet for planting.



### Tower View

Tower View was built between 1915-1921. The tower, used to provide water and water pressure for all the buildings, was built in 1915. That year also saw the construction of a new granary, barn, chicken coop and silo. In 1916, the ice house, greenhouse building, and two subways were completed. In the same year the foundations were laid for the house, the small laboratory, and the garage. By 1917, all the buildings were standing with the exception of the large laboratory, which was constructed in 1920-21. The brick wall along Highway 61 was put up in 1921.



Until 1925, Alex, Lydia and the children spent the school year in Chicago, living in apartments in Hyde Park. Summers were at Tower View. The difficulties of spending summers in Highlands after Tower View was built was probably the reason for the sale of the property in 1922.



*Tower View. c. 1922*

The buildings at Tower View are of reinforced concrete construction with red brick facing and red tile roofs. The house, greenhouse, tower and two laboratory buildings are connected with underground tunnels. Excavations for the foundations of the buildings and the tunnels were dug laboriously by one-horse drawn scoop shovels. Concrete blocks were handmade on the spot in cast-iron molds. Lumber, cement and other



materials were delivered by the Chicago Great Western Railroad to the crossing below Tower View. Alex said at one time that “Red Wing has as many expert men, and I think more than any city of its size in the United States.” Local craftsmen were employed for all construction work.



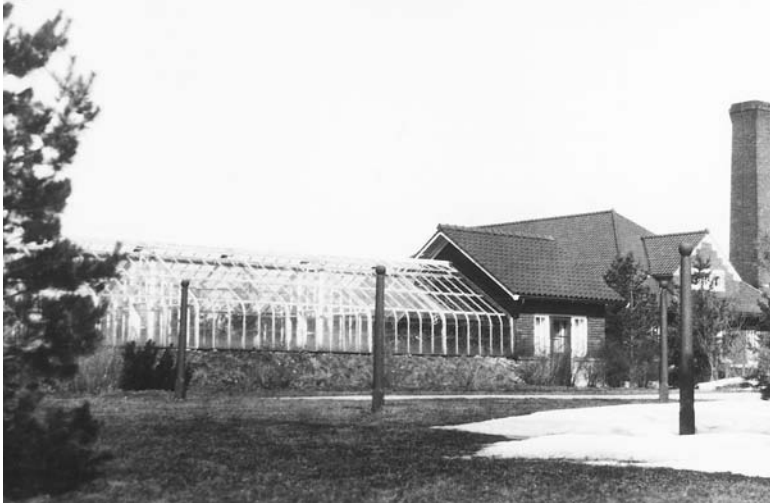
*Foreground: Barn, granary, chicken coop, corn crib and blacksmith shop*

The farm buildings provided facilities for full-scale farming which Alex carried on for many years, not only on the farm of Tower View, but also on the Purdy Farm and the Upper Farm, as the original Featherstone Township farm was called. On the Purdy farm, Alex built two large barns and silos, a granary, hog house, chicken coop, garage, and other out buildings. At one time, Alex farmed a thousand acres on these properties.



*Alexander P. Anderson raking on the Purdy Farm.  
Purchased in 1910.*

Tower View Farm, as it was called originally, was a working farm. There were cows to be milked, horses for field work, chickens and eggs in the chicken coop. Pigs were raised on the Purdy Farm. Wheat, corn, flax or oats were planted every spring. Threshers came in the late summer or early fall to thresh. Hay filled the hay mow for the horses, and the silo was filled with silage for the cows.



*The greenhouse*

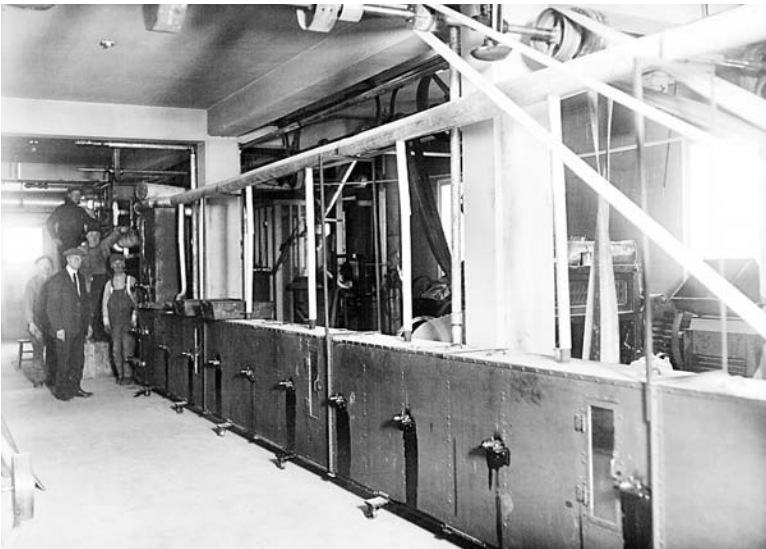
Every year a large vegetable garden was planted. Vegetables and fruits were canned, and jam and jelly were made and stored in the fruit cellar. A flower garden with a variety of old-fashioned flowers was planted in front of the vegetable garden. Seeds were collected in the fall. Lydia planted flowers in the greenhouse and it was a joy to her to see them in the winter.

Ice was cut on the Cannon River and stored in the ice house. Large blocks were brought from there to the ice box in the house.

The pre-World War I buildings needed their own electric power, water and water pressure, gas, and sewage disposal. All these facilities were constructed at Tower View to make the plant as self-sufficient as possible. Electric power was direct-current generated by a gasoline engine and stored in storage batteries, a 110 volt system.



*Cereal experiments were conducted in the laboratory at Tower View. In a series of long ovens, the dough was cooked and puffed as it was sent through a very fine nozzle at the end. It was called "the continuous puffing process." Left to right: Otto Carlson, James Still (Engineer, Quaker Oats Company.), Alexander P. Anderson and George Thompson.*



*The long ovens through which the Quaker Crackels dough was cooked before being forced through a fine nozzle. Alexander P. Anderson in the background.*



The two laboratory buildings were used for research and development of cereal products for the Quaker Oats Company. By 1922, Alex was building the machinery for a new process, the continuous puffing process. With technical personnel and a considerable amount of equipment provided by the Quaker Oats Company, Alex carried on experiments for almost ten years to perfect this process and develop a cereal known as Quaker Crackels. In this continuous process, bread-like dough, a synthesis of wheat, corn, and oats, was baked in long ovens and forced under great pressure through a nozzle. As the dough left the nozzle in a fine stream, it puffed up and was cut into little "pillows." The laboratory was filled with a wonderful fragrance of baking bread. Quaker Crackels was marketed by the Quaker Oats Company for several years. Alex considered the continuous puffing process a method of making bread without the use of yeast.

### **Aerodynamic Experiments and Plantago Psyllium Seed**

Since 1911, Alex had been fascinated by the vortex nature of the tornado. Two tornadoes had passed through Goodhue County during his boyhood and left vivid impressions of their destructive power. They may have contributed to his long interest in the theories and principles involved in making an artificial tornado funnel or whirlwind. From 1925-1939, Alex undertook experiments with various forms of cones and devices

which he tested for the power of their propulsion when rotated at great speeds. He wrote up the purposes and results of every experiment in 20 large notebooks, just as he had done with the thousands of cereal experiments.

Alex never tired of tackling new research on subjects which interested him. In 1930, he began an experiment to grow plantago psyllium seed on a commercial scale in Minnesota. This seed, grown in many parts of the world, was thought to have potential industrial and



## He Invented the Foods Shot from Guns

You owe these puffed foods, and all your delight in them, to Prof. A. P. Anderson.

He was seeking a way to break up starch granules so the digestive juices could get to them.

He was aiming to blast the starch granules to pieces by an explosion of steam.

When he did this, he found that he had created the most enticing cereal foods in existence.

### Note the curious process

The whole wheat or rice kernels are put into sealed guns. Then these guns are revolved, for forty minutes, in a heat of 550 degrees.

This terrific heat turns the moisture in the grain to steam, and the pressure becomes tremendous.

Then the guns are fired. Instantly the steam explodes every granule into myriads of particles.

The kernel of grain is expanded eight times. It becomes four times as porous as bread.

Yet the wheat or rice berry remains shaped as before. We have simply the magnified grain.

### Puffed Wheat, 10c—Puffed Rice, 15c

There was never a cereal food half so delicious. Never one more digestible.

Think of unbroken wheat or rice berries puffed to eight times their size.

They are so porous that they melt in the mouth. Yet they are crisp.

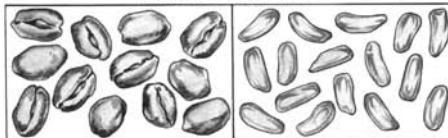
### Let the Children Know

Get one package of the Quaker Puffed Rice, and one of the Quaker Puffed Wheat.

Get both, because they differ vastly. Let the children decide what they want.

Don't wait till tomorrow — order them now. For you are missing a food that's better than any you know.

Exact Size of Grains After Being Puffed



**Made only by The Quaker Oats Company**



medicinal uses. Alex tested two plots of the seed grown over two years and proved that psyllium seed will germinate after staying all winter in Minnesota soil through freezing and thawing, and that it is as hardy a seed as any grown in the state.



*The Vasa Lutheran Home for Children. c.1926*

### **The Vasa Lutheran Home for Children**

The Vasa Lutheran Home for Children had its beginnings in 1865 in response to an urgent need to find shelter for four children suddenly left orphaned by the death of their Swedish immigrant parents in St. Paul. Dr. Eric Norelius, first pastor of the Vasa Lutheran Church, prepared rooms for the children in the basement of the little church. A house was built for them in 1869. When a tornado destroyed it in 1879, killing three children, a new home was quickly erected.



This home was later destroyed by fire in 1895. Again, a new house was built, and it served as a home until 1926. Compassion for those in need was strong in the small Swedish community. For over sixty years the Vasa Lutheran Church provided a home for orphan children.

In time, serious consideration was given to the idea of moving the children's home to Red Wing or to the Twin Cities. Alex had very strong feelings for the pioneer Vasa Children's Home, and believed that it should remain in Goodhue County. His uncle Solomon Anderson had been a member of the first Vasa Lutheran Church in 1854, and Britta Maria's sister, Ingri Greta Fredrickson, was buried in the church cemetery.

In February, 1924, Lydia and Alex donated 400 acres of their farm (the old Purdy Farm), along with all the farm buildings, for the site of a new Vasa Children's Home. By 1926, a large modern brick building had been built near the intersection of Highways 19 and 61. The Crown Prince of Sweden laid the cornerstone of the new home in June, 1926. They also established a trust fund for the maintenance of the Home. Over the years, more than a thousand children have been cared for at the Vasa Home.



## Honolulu

Lydia and Alex spent several winter months in Honolulu from 1927 to 1933. Both of them enjoyed the warm climate and tropical vegetation, and they also valued their friendship there with Dr. & Mrs. Harold L. Lyon. Harold, a former student of Alex's at the University of Minnesota, was a plant pathologist with the Hawaiian Sugar Planters Association.

Even though Alex took his writing and experiment books with him, these months in Honolulu were really the only vacations he and Lydia ever had from their busy life at Tower View and their years in Chicago.



*Lydia and Alexander, Tower View, 1920.*

## LYDIA

Lydia was only twenty-two years old when she and Alex married in 1898 in Highlands. She had left her father, a brother, and three sisters in Glasgow when she came to the United States in 1896. Lydia returned to visit her family only twice, once soon after her marriage and again in 1926.

Lydia's father, Anton Johnson (1834-1912), was born in Sweden. As a young man he joined the British

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Merchant Marine and served for over sixty years as a seaman until his retirement. Lydia often recalled how she and her sisters listened for the whistle of their father's ship as it came up the River Clyde to dock at Glasgow. They would rush down to the harbor to greet their father. He was often at sea for months at a time.

Lydia's mother, Elizabeth McDougall (1847-1882), died of pneumonia when Lydia was six years old and her sister Annie just a baby. After many years of employing housekeepers to care for the children, Anton remarried.

Lydia's father and Alex made plans several times to meet each other at one of the ports where Anton's ship docked, perhaps in New York, Baltimore, or Montreal, but unfortunately they never did meet. Lydia's sister, Annie, and her brother, James, emigrated to Vancouver, British Columbia, and her sister Bertha settled in Chicago. Elizabeth stayed behind in Scotland. Lydia was always in contact with her family and ready to help them in times of need.

Lydia was Alex's closest companion and shared his ambitions and disappointments. During the many years of unsettled living, moving from place to place, Lydia always managed to establish a new home for the family. During the building of the house in Highlands in 1907-1909, with Alex in Chicago, she directed the contractors and carpenters. In Chicago, Lydia settled the family in many different rental apartments. Again, at Tower View, she planned the house along with Alex and



*Left to right: Louise (Sargent), John, Alexander holding Jean (Chesley), Lydia and Lydia Elizabeth (Hedin). Early 1917.*

always conducted the operations of the housework as smoothly as possible. Alex's work and welfare were her main concerns.

Lydia loved to read. She enjoyed the opera at Orchestra Hall and the lectures at the Art Institute and the Field Museum in Chicago.

From the first years when Alex started to buy land in Burnside Township, Lydia would come up on the train from Chicago with the children to stay a few weeks in the hot summer on the Purdy Farm. She became friends with the neighbors and the families that Alex had known since his boyhood.

When Lydia and Alex settled down at Tower View, they would join Burnside families, the Melins, the Bryans and others, on picnics and Fourth of July celebrations. Verna Melin Wilcox was married in the rotun-



*The Swedish Navy Band at Tower View,  
May 10, 1926.*

da at the top of the water tower at Tower View.

Lydia loved Tower View, her neighbors, and the trees and woods around her. She attended the Presbyterian Church in Red Wing. Once, the Swedish Band came to Red Wing and was entertained at Tower View. Occasionally, Leonard and his family would spend a few weeks in the summer at Tower View. Sunday dinners were held with Arthur's family in Cannon Falls. The brothers continued throughout their lives to be good friends and helpful to each other.

Lydia kept in close touch with Alex's nieces and nephews: Lillian, David's daughter; Ida's three children; Edna and Alice, Willie's daughters; Hope and Paul,



Leonard's children; and Irene, Arthur's daughter. Lydia or Alex wrote to their children every day when they were away at school. The letters were filled with love and words of encouragement and advice.

Alex, who valued education so highly, helped many young people get through school. In appreciation of his own education, he established the Alexander P. Anderson and Lydia Anderson permanent fellowship fund in the biological sciences at the New York Botanical Garden, the University of Minnesota, and Clemson College. He also set up a fellowship fund for students at the Punahou School in Honolulu, where Jean Chesley had attended high school.

Both Lydia and Alex suffered illnesses, Alex duodenal ulcers and Lydia severe migraine headaches. The death of little Leonard at the age of four from spinal meningitis was the greatest tragedy of their lives. His death was always present in our family.

Lydia died of cancer on September 27, 1934, at the age of 58. Leonard, a Baptist minister and the Superintendent of the East Orange, New Jersey, Baptist Seminary, conducted the funeral service in the house at Tower View and at the Burnside Cemetery.

### **The Seventh Reader**

Memories of the twenty-eight years of growing up on the farm in Spring Creek with his parents, his brothers, and his sister were frequently in Alex's thoughts. He

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expressed his deep attachment to that place and time in his life through poems and stories which he wrote over many years, often jotting them down on scraps of paper when time allowed. Lydia urged him to publish them, and in 1941 the *Seventh Reader* was privately printed, dedicated to Lydia.

The *Seventh Reader* is not only an autobiography, it is also a history of pioneer life on a Minnesota farm some 130 years ago. From firsthand experience, Alex describes how he helped his father break the primeval forest and prairie to make new land for grain and corn: "I remember to this day the thousands of trees . . . that we grubbed up, chopped up and burned, except those that had straight trunks from which firewood and fence posts were made."

Alex tells how the original dugout was constructed. He explains the back-breaking work of plowing, seeding and threshing almost exclusively by hand with only the help of one or two horses. He recalls the annual worry about the crops "next year" and about paying the interest on the mortgage and loans.

In the short story, "Mike," Alex writes about how they cared for their hard-working and faithful horse, while in "Four Million Bushels" he conveys his excitement when the first big steam thresher comes to a nearby farm, capable of threshing two thousand bushels of wheat in a day.



Exactly what kind of a person Alex was can be seen in the autobiographical stories, "The Strange Story of Joe Allan" and "The Last of the Dugouts." He had endless curiosity about the structure of the natural world, the power of wind in a tornado, and the forces of nature that have shaped the earth. Above all, the poems tell us about his love of Lydia.

There is one story in the *Seventh Reader* that tells us vividly about himself. It is "The Farm Museum," a listing of the lovable, tangible relics of the past. In the museum, in the attic of Tower View, he placed things he found near the old dugout and the house by the road and belongings that he tracked down, such as the old clock. Here in the museum he put the old drag tooth, the mower pin, the old drill hoe, broken parts of farm machinery that represented a remote past. On the shelf went the brown door knob, the cast iron hinge, a piece of brick from the Chamberlain farm that was destroyed by the tornado of 1865. Every object recalled a day in the past. Through these relics Alex is reminding us of the importance of our own history.

## *A Lesson Learned*

*No one disturbs it now, no one ever will,  
That man-built dam above the mill:  
Floods took it out, washed it all away,  
The creek dried up - no water there today.*

*Man built many dams and mills that day,  
Also grubbed and cleared the hills away.  
No leaf mold now to hold the rains that fell -  
The creeks are dry, and empty is our well.*

*Man did not know, but now is forced to know  
It takes a thousand years and more to grow  
The Forest trees, shrubs and grass again  
That held the rain, that filled the mill dams then.*

*Poem written by Alexander P. Anderson, published in the  
Seventh Reader, 1941*



## 1943-1995: TOWER VIEW

Alex died on May 7, 1943 at the age of 80. Two years before his death he married Miss Vinnie Munson of Red Wing.

Alex, Lydia and their first son, Leonard are buried in the Burnside Cemetery near Tower View. Also buried there are Alex's brothers David (with his wife Anna), George William (with his wife Helen), Frank Edward, Leonard (with his wife Linda), and Arthur (with his wife Mary). Britta Maria and John Anderson and John's parents, Anders Person and Cecelia Akesdotter, are buried in Burnside. Ida is interred in the Lakewood Cemetery in Minneapolis.

### **The Anderson Center for Biological Research**

In 1941, the Anderson Institute for Biological Research, a non-profit scientific research organization, was established at Tower View by Dr. Raymond E. Hedin. He, along with Elizabeth Hedin, John and Eugenie Anderson, and Jean and Frank Chesley formed the corporation under the provisions of the state of Minnesota. The Board of Directors included professors of medicine at the University of Minnesota and the

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Massachusetts Institute of Technology. The purpose of the Institute was to establish a medical, biological and chemical research laboratory where specialists in scientific fields could obtain a degree of freedom for research not always found in larger institutions. The Institute also provided closer cooperation between the pure physiologist and the medical practitioner, specifically the physicians at the Interstate Medical Clinic in Red Wing. Several research projects resulted in papers published in scientific journals. Three of these research problems centered on the care of head injuries suffered during the war, poliomyelitis, and radiation and stomach ulcers.

Work continued at the Institute until 1945, when the scientists and physicians joined the efforts of World War II. For several years, Ray Hedin and other doctors at the Interstate Clinic continued their research at a laboratory at Tower View.

From 1945 until 1975, Tower View was the home of Jean and Frank Chesley and their family. Along the way they acquired Louise Sargent's one-quarter ownership of Tower View. In 1958, the Chesleys added a screened porch, 15' x 20', to the west side of the house.

John and Eugenie Anderson have lived on the east side of Tower View since 1932. The property consists of their house, John's studio and shop where he carries on his work as an artist and photographer. The property is completely separated from the publicly-owned land of Tower View.



## Central Research Laboratories

In the fall of 1945, Central Research Laboratories, Inc., a Minnesota corporation, was founded by three graduates of MIT, Frank G. Chesley, Demetrius Jelatis and Gordon M. Lee. This company, which became a principal manufacturer of remote-control handling devices, moved into the two laboratory buildings at Tower View and remained in them until 1961. In 1954 an enclosure was built, connecting the two buildings, which was used by CRL as a crane bay and assembly area. In 1961, due to a need for increased space, a new CRL plant was built across the highway from the original buildings. After Central Research moved to their new plant, the laboratory buildings at Tower View sat idle for approximately ten years.

From 1971 to 1975 the large laboratory building was occupied by the Interstate Rehabilitation Center, Inc., a private, non-profit corporation dedicated to the purpose of assisting handicapped individuals to progress toward independent living and a productive vocational status.

In 1975, Jean and Frank Chesley, John and Eugenie Anderson, and Elizabeth Hedin conveyed the land and buildings of Tower View to the Nature Conservancy. In keeping with what they believed would have been their parents' wishes, the conveyance to the Nature Conservancy of the entire estate of 343 acres was made

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subject to “the limitation that the premises be held as a nature preserve, for scientific, educational, and aesthetic purposes, and that it be kept in a natural state, without any disturbance of habitat or plant or animal population except for the undertaking of scientific and educational research.”

In 1977, the Nature Conservancy conveyed the land and buildings of Tower View to the Red Wing School District #256. The School Board proposed that an energy education center be established at Tower View, and in August 1979, a referendum of Red Wing voters authorized the School Board to allocate \$500,000 to develop an energy center. In the following year, the state legislature authorized an appropriation of \$1 million for the establishment of the center. The original laboratories were remodeled and a two-story classroom building was erected between the large laboratory building and the barn. An earth-sheltered solar and wind center was also built. Tower View thus became a secondary campus for the Red Wing Technical College on Highway 58.

The Energy Center offered a curriculum in energy conservation and technology. Experimentation in solar and wind energy was conducted as a source of heating and cooling. Later, courses in air conditioning and refrigeration as well as carpentry were offered. The house was used to teach a two-year professional nanny program.

In 1991, the state mandated the consolidation of the Red Wing and Winona Technical Colleges, and two



years later the Tower View College campus merged with the Technical College on Highway 58. Much of Tower View was left vacant in the process.

The classrooms of the Red Wing Alternative High School remain located in the laboratory building of Tower View. Red Wing's Environmental Learning Center is situated in a building behind the laboratory.

The Anderson Center for Interdisciplinary Studies was established at Tower View in 1993. This creative use of the buildings and grounds was proposed by Robert Hedin, grandson of Alex and Lydia, and his wife Carolyn Hedin.

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## FAMILY OF LYDIA MC DOUGALL JOHNSON

In 1943, Alex wrote to Elizabeth Johnson McMurray, Lydia's oldest sister, living in Bridge of Allan, near Glasgow, Scotland, for information about their family. This is a copy of the letter she wrote to Alex:

*Father, Anton Johnson, was married to my mother Elizabeth McDougall, when she was 18 years of age. Father was 13 years older than mother.*

*James was the first born. He was called James Well Johanson, after the Rev. James Wells of Pollockshields free church as he was the first boy he christened.*

*Agnes and myself were born in the year 1869, 4th day of December. We were twins.*

*Bertha was the next born, 2 years after me.*

*My brother John comes next. He died when he was a few years old.*

*Lydia comes next, your dear wife.*

*Marie comes next. Died infancy.*

*Annie was born in the year 1881, 9 November.*

*Mother died in 1882, 4th day of February, 3 months after Annie's birth with Galloping Consumption.*

*Father was at sea when Mother died. So we were just children when she passed away. There is one thing I will say, a Good Mother's prayers follow her family through life. She left us all with Jesus, who is God. We had a good Mother and Father.*



*Father died in the year 1912, 30 of September. Lydia gave me the Title Deed of Eastwood Shawlands Cemetery grave. I shall be laid beside him when my time comes. My Mother is not buried there. Lydia got her name put up on the stone.*

*Now about my Mother's family, on my Grandmother's side.*

*My Grandmother's father was called John Pollock. He got the freedom of the City of Glasgow, or otherwise a Burgess of City of Glasgow. He died about the year 1850, but I could find out at the City Chambers Glasgow. I could find out all about him. It will (be) in the Record Books.*

*My Grandmother was called Agnes Pollock McDougall. I do not know much about my Grandfather McDougall. He was killed at his work and my Grandmother was left with a small family. She became a Medical midwife, trained at Anderson College, attached to the Western Infirmary, Glasgow, one of the biggest infirmaries in Glasgow.*

*Grandmother's family was my mother Elizabeth Pollock McDougall, and so my uncle Robert, my aunt Annie, aunt Lydia, also uncle John who became a minister of the free church of Scotland. They all died between 30 and 40 years of age with consumption, except my aunt Maggie who lived till she was 79 years of age. Grandmother lived till she was 82 years of age. Buried at Glasgow Cathedral. My Great Great grandfather and my Grandmother, my uncle John who was a minister of the free church of Scotland, my brother John, are all laid to rest there. It is an honour to be laid there. See my Grandfather (Great Great) was a Burgess of the City of Glasgow.*



*I think I am the last of the race in Scotland—Aunt Maggie had no family.*

*There is a few of the Pollocks on my Grandmother's side who live in Southhampton, England, but I don't know anything about them. There may be no one there now, as her (he) was my Grandmother's brother. He had a family of sons. That is all I know.*

*I hope you will make out the writing, as I am not very good at the writing or giving the details of the family.*

*Will it be asking too much if you will kindly let me know if you have received this letter. They are all opened by the Censor.<sup>1</sup> I trust I have made it as plain as I can. If there is any more I remember I will let you know.*

*Love to all,*

*Elizabeth McMurray*

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<sup>1</sup> Elizabeth McMurray wrote this letter in 1943 during WWII.

## GENEALOGY OF LYDIA'S AND ALEX'S FAMILIES

Parents: John Anderson and Britta Maria Gustafsdotter Anderson

1. John Solomon: Born and died in Smaland, Sweden, 1853-1853.
2. David August, born in Sweden in 1851, farmed near Spring Creek in a community called Småland. He married Anna E. Johnson in 1874. David suffered ill health for several years, and died in 1892 leaving his wife and two little daughters, Lillian and Myrtle.
3. Ida Charlotte, Alex's only sister, was one year old when she came to America with her parents. She was beloved by her brothers and all who knew her. Ida died of consumption in 1894 leaving her husband, Nels M. Anderson, and their three little children, Agnes, Raymond and Mabel. She was a victim of bovine tuberculosis, a disease contracted from the milk of cows infected with the bacillus.

John Lind wrote Alex on July 24, 1894 when he learned of Ida's death on July 4th:

*It grieves me to think that Ida had to leave us so early and with her children to be raised by other hands. I am glad that it was my good fortune to*



*see Ida once as a wife and mother. I always thought of her, and loved her as an elder sister. She had a loveable, loving disposition that few people possess.*

4. George William, called Willie, was one of the first white children born in Featherstone Township in 1957. He was graduated from the University of Minnesota in 1882. Willie married Helen S. Bunch in 1889 and farmed the Anderson farm for several years. Helen died in 1895, leaving two small daughters Edna and Alice.

For over 25 years Willie operated the Anderson Publishing Company of Des Moines, Iowa, and later the What Cheer Clay Products Company of What Cheer, Iowa. He married Floretta Ogen in 1906. One son, William, Jr., was born in 1910.

5. Frank Edward, 1860-1864.
6. Alexander Pierce, was born in Spring Creek, November 23, 1862, and died on May 7, 1943.
7. Frank Leonard was born in Spring Creek on August 7, 1865. He taught country schools until he entered Pillsbury Academy in Owatonna graduating in 1892. He then entered the University of Minnesota that year and was awarded a B.A. degree in 1896.

Leonard received a B.D. degree from the Divinity School of the University of Chicago in 1899 and a PhD in 1901. During these years he held pas-



torates at the Baptist Church in Austin, Minnesota; Maywood and Normal Park in Illinois.

From 1905-1920, Leonard served as the superintendent of the Baptist Executive Council of Chicago. In 1920, he was elected the first president of the International Baptist Seminary in East Orange, New Jersey, and held that position until his death in 1935.

Leonard married Linda Williams of Cherry Grove, Goodhue County, in 1896. They became the parents of Paul Alexander and Hope Evangeline. Linda died in 1919. In 1922 Leonard married Mabelle Meeker.

8. Arthur Edward was born on September 24, 1871. After attending district schools in Spring Creek, he entered Pillsbury Academy at Owatonna where he was graduated in 1892. He attended the University of Minnesota, majoring in botany. Arthur then entered the United States Railway Mail Service, continuing this occupation until his death in 1926.

Arthur married Mary Eastman of White Rock, Goodhue County. They became the parents of Irene, Sterling and Arthur, Jr.

Arthur developed the florist industry in Cannon Falls which he carried on in greenhouses he built adjacent to his home. This business is still in existence today.