HOW MINNESOTA'S BOYS AND GIRLS LEARN FARMING

Experiments in Planting Wheat Made by Prof. Hayes' Assistants

AT this season of commencements, when the many schools of the Northwest are sending forth their graduates, it is worth while to recall that three months ago, long before June, its roses and its essays were in the public mind, the graduating exercises were held at a unique school of widespread influence—the school of agriculture of the University of Minnesota.

It was the first school of its class in the United States when it was established only sixteen years ago, and it is still, no doubt, the best.

Before 1888 there had been many agricultural colleges. They were valuable institutions. They did not, as a rule, justify the farmers' criticism against "fancy theories" and "running a farm by book." But they did not train boys to be farmers. For entering such colleges the student needed the equivalent of a full high school instruction. To complete the college term the student was obliged to be free from all other employment at an age when his services were required upon the farm. He had to be well provided with money during his four collegiate years. And, finally, he studied at the agricultural college the advanced branches of theoretical farming; he had no opportunity to acquire, by actual practice, the elements of agriculture.

Not a Practical Farmer

When, therefore, he completed his studies he knew much that the practical farmer might learn to advantage, but he was not himself a practical farmer. He had no desire to go back to the farm; he preferred to become an instructor, a professor, at some agricultural college, a writer upon agricultural topics, a governmental employe making agricultural investigations.

The founders of the Minnesota agricultural school, realizing the limitations of the agricultural college, were not discouraged. They believed that if the practical farmer did not always meet expectations his case was no more hopeless than that of Dr. Johnson's Scotchman—much might be made of him, if only he was "caught young."

To this end they organized a school that would admit any graduate of an ordinary grammar school; that would occupy his time only during that season of the year when he was not needed on the farm; that would not empty his purse; that would teach him, above all, in a practical fashion, the elements of agriculture, not its refinements.

Applicants for admission to the agricultural school so established are examined in "English grammar, arithmetic, history of the United States, and geography, unless they present state certificates, or approved county diplomas, showing that they have completed the eighth grade work in these subjects."

The school opens at the beginning of October and closes near the end of March, requiring the presence of students during six months only out of twelve, and that at a time when, in this latitude, there is little work to do upon a farm.

The cost of the course is scarcely more than nominal—50 cents a day, including board and lodging. The entrance fee is $5 and the school expense for the year does not exceed $85. The cost to the student for board, heat, light and laundry work is usually less than $3 a week. Text books are furnished at a rental of $1 to students that do not wish to buy them.

Clothing will cost the student as little at school as he would expend at home. All the boys wear a navy blue uniform made to measure for $11.65 a suit.

The site of the school, the buildings and the adjacent farm lands, tender first assurance that the training of a student will be practical. The school of agriculture, as most readers know, is located at St. Anthony Park, on the state university farm, three miles from the main campus of the university, and midway between St. Paul and Minneapolis. The school campus occupies a beautiful elevation close to the state fair grounds and overlooking the Twin Cities. There is an abundance of trees and shrubs around the artistic, commodious brick buildings. The numerous fields, scientifically laid out, illustrate most topographic conditions on a Minnesota farm.

School Is Coeducational

About to begin the serious study of ideal farming, the "new boy" is aware that this will not mean isolation from social life. His sister, whom he might miss, can study with him. In 1897 it was decided to make the agricultural school coeducational. Plans were undertaken to teach the farmer's daughter what a woman on the farm might learn most profitably.

Nearly all the students find lodging at the school. In the boys' dormitories and in the "ladies' hall," large brick buildings, the students occupy cozy rooms lighted by electricity and heated by steam. The dining hall provides excellent and abundant food amid comfortable surroundings. So well cared for are the boys and girls that there is even a professional nurse in constant attendance lest a student should fall sick.

Three years of two terms each are covered by the course of instruction at the school.

During the first term, or three months, a boy "takes" agricultural botany, drawing, music, English, blacksmithing, carpentry, military drill and gymnasium exercises. He also takes, with apologies to his father, "agriculture," or, at least, a small morsel of it.

Agricultural botany is taught with special reference to its bearing upon the everyday problems that present themselves to the farmer and the gardener. The subject is profusely illustrated with flowers and plants from the greenhouses and the nurseries.

Drawing is taught, so that the student may design and arrange farm dwellings, barns, outbuildings and farm machinery.

Why Music Is Taught

Instruction in music is given, not in order to make trained musicians, but to present the elementary principles of the art and to develop a love for this valuable factor of home and social life.

The first year's work in English consists of almost daily practice in the simpler forms of composition.

Classes in blacksmithing use such forges as any farmer can make for himself, each student manufacturing his own tools. He makes links, rings, hooks, bolts, clevises, whiffletree irons, tongs, cold chisels, punches, etc., and is able to accomplish any ordinary repair work after going back to the farm.

In the carpenter shop the student masters the use of common tools, makes mortise joints, splices, drawing boards, hammer handles, eveners, cupboards, files his own saws, sharpens his planes and chisels, learns to do framing, to lay out rafters and stairways, and estimate building materials. Lessons in the painter's trade are added.

All boys of the first two classes must attend military drill, as members of an infantry battalion of four companies. Students are instructed practically in the schools of the soldier and the company, extended order and military calisthenics. The school battalion is considered a part of the corps of cadets at the state university, and is instructed accordingly by an officer of the regular army.

To Develop the Body

Physical training is received in the gymnasium, a large, well-lighted, two-story brick building. It has the best apparatus for affording gymnastic and athletic exercises and for developing symmetrically a student's body. A strong basketball team is in regular practice, a track athletic team, a handball team, and an indoor tennis team.

The subject of agriculture as studied throughout the three years includes soils, selecting and planning farms, subduing the fields, drainage, irrigation, fences, roads, farm buildings, water supply, groves, farm management, rotation of crops, manuring, production and management of farm manures, green manure crops, and the place of commercial fertilizers in field management in various parts of the state; management of fields in relation to fertility, to weeds, to yields, to live stock and to profits; keeping weeds down by helpful crop rotations; careful field work, and good methods of farming generally; botany, including the habits of harmful weeds; methods of destroying each class of weeds.

During the second three months of the first year the boys study agricultural botany, farm accounts, music, comparative physiology, study of breeds, carpentry, drawing (farm buildings), blacksmithing, military drill, breeds of horses, gymnasium work.

The student masters farm accounts, that he may know at any time the profit or loss of any department of his business and be thus enabled to plan intelligently.

Study Applied Physiology

Applied physiology is studied during this first year. Attention is given to diseased and innutritious foods, to food adulterations, and to narcotics. Accidental injuries, including those caused by poisons, are considered that the student may know what to do in emergencies. Matters of home and personal hygiene are interwoven with the physiological work. Animal physiology, with reference to farm animals, is not neglected.

The "study of breeds" covers a discussion of the characteristics of the leading pedigreed breeds of "beef cattle," sheep and swine adapted to Northwestern conditions; the environment to which each breed is specially suited. The aim in teaching breeds of horses is to familiarize the students with the types of horses best representing the breeds adapted to the conditions that prevail in Minnesota. Score cards are used and standards of excellence made for comparative work.

English is studied during the first term of the second year, agricultural physics, dairy chemistry, dairy husbandry, fruit growing, music, farm mathematics, stock judging, breeding, military drill and gymnasium work.

Half the time in agricultural physics is given to experimental work, including capillarity of the soil, diffusion and osmosis of gases and liquids, heating, lighting and ventilation; farm machinery, in particular pumps, eveners—especially three and four horse pulleys; milk testers, centrifugals; incubators, windmills, steam and gasoline engines; frictions and lubricants; tensile strength of wire and binding twine of different grades; lightning and lightning protection—the attempt being made to give the student an acquaintance with the laws of nature so he may act with reason and work to advantage.

Thorough Course in Dairying

Dairy chemistry shows the chemical and allied changes that take place in the handling of milk and its manufacture into butter and cheese. Dairy husbandry comprises farm dairy lectures upon the making of butter and cheese; dairy practice, or practical training in the most advanced methods of creaming milk, ripening cream, churning, working and packing butter, etc. Students are taught also to recognize the characteristics of the various breeds of dairy cattle and to know the principles of feeding stock to best advantage.

Fruit growing is taught with reference to raising fruit for market and in the home garden or orchard.

Farm mathematics or arithmetic enables the student to master the usual mathematical problems of the farm.

Stock judging is self-explanatory.

The second term of the second year introduces vegetable gardening and field crops as new studies.

Vegetable gardening embraces tillage, irrigation, rotation of crops; transplanting, formation and care of hot beds, etc.

The classes in field crops instruct students as to the place of field crops in rotation of crops; preparation of the land, planting, cultivating, harvesting, storing and marketing of grains, field roots, fiber crops, sugar crops, grasses; clovers and other forage; planting, care and use of pastures and meadows; laws of heredity and variation; possibility of increasing values; improvement and formation of varieties of grain, etc.

Beginning the last year a boy at the school studies for the first time forestry, entomology and zoology, poultry, algebra (optional), veterinary science, and the handling of grain and machinery.

Forestry includes the formation and care of windbreaks and shelter belts; propagating trees, etc. Entomology and zoology, all in their practical aspects, relate largely to insect pests. The selection and raising of poultry is thoroughly taught with practical illustrations. The elements of algebra are taught, if desired. Veterinary science, inculcated with the aid of clinics at an animal hospital, teach intelligent care of farm stock. In the handling of grains the student receives practical suggestions for the best methods of harvesting, shocking, stacking and storing cereal grains. The choice, management and care of farm machinery is set forth with frequent illustrations.

The final subjects introduced in the last half of the third year are civics or geometry, plant propagation, dressing and curing meats, feeding of farm animals, and soils and fertilizers.

Through civics the student learns much that every progressive farmer should know of politics and government. Instruction is given, as well, in commercial law, and in surveying. The dressing and curing of meats is illustrated by two weeks' practice in the actual work. Plant propagation comprises seed testing and propagation by seed, cuttings, grafting and budding. Feeding of farm animals directs the choice and compounding of rations that the future farmer may feed to best advantage horses, "beef cattle," sheep and swine. Upon the subject of soils and fertilizers lessons are given in every practical application.

Not a few of the boys' studies, such as agricultural botany, drawing, music, English physical culture, fruit growing, dairy husbandry, vegetable gardening, etc., are allotted to the girls. But the residents of ladies' hall are kept busy with their special courses. The first year they learn laundering, sewing, social culture, and cooking; the second year, household art and home management; the third year, home economy, domestic chemistry and domestic hygiene.

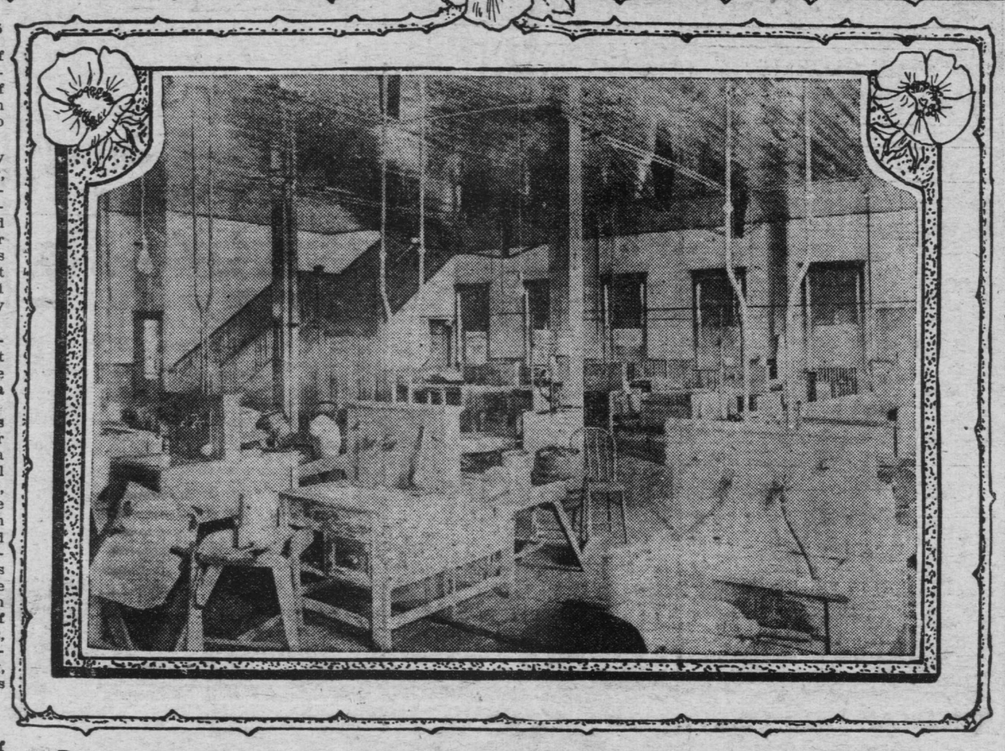
Debating societies, Christian associations, both for young men and young women, and a course of lectures and concerts by popular entertainers are among the subsidiary means presented for rounding out the culture of the students.

So successful has the school proved itself that its graduates now number more than 600. They are practical farmers and they love farm life. They go back gladly to the farm and demonstrate eagerly the value of their knowledge. On more than one occasion a farmer has written to the faculty that his son, after graduating, had saved enough money on the farm in one year to pay the whole cost of his training at the school.

As these graduates increase and spread their knowledge, agriculture in the Northwest may yet be transformed through the instrumentality of the Minnesota school.

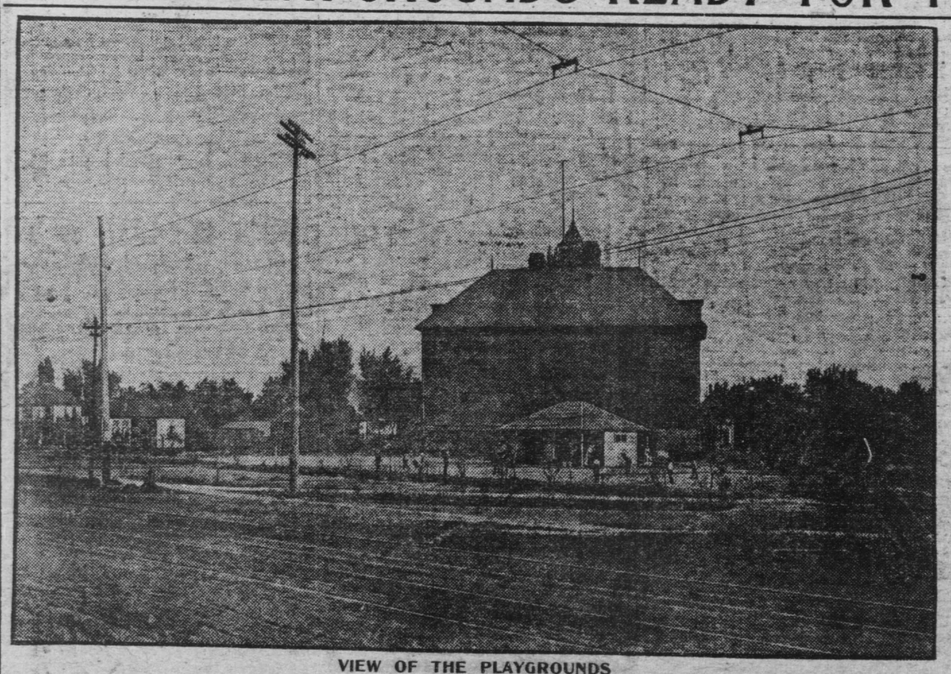
Many other important divisions of the agricultural department of the state university cannot be touched upon in this sketch of the school of agriculture. The intermediate year is one of such divisions, the short course for farmers another, the dairy school a third, and the college of agriculture an important fourth. The department cooperates with the state department of education in introducing the study of agriculture and of home economics in rural schools throughout the state. The state experiment station, which gives no direct instruction to students, performs, nevertheless, a work of great value and high reputation.

At the head of the school is Dr. Cyrus Northrop, president of the state university, and William M. Liggett, dean and director of the department of agriculture. The faculty of the school consists of twenty-two instructors and five assistants.

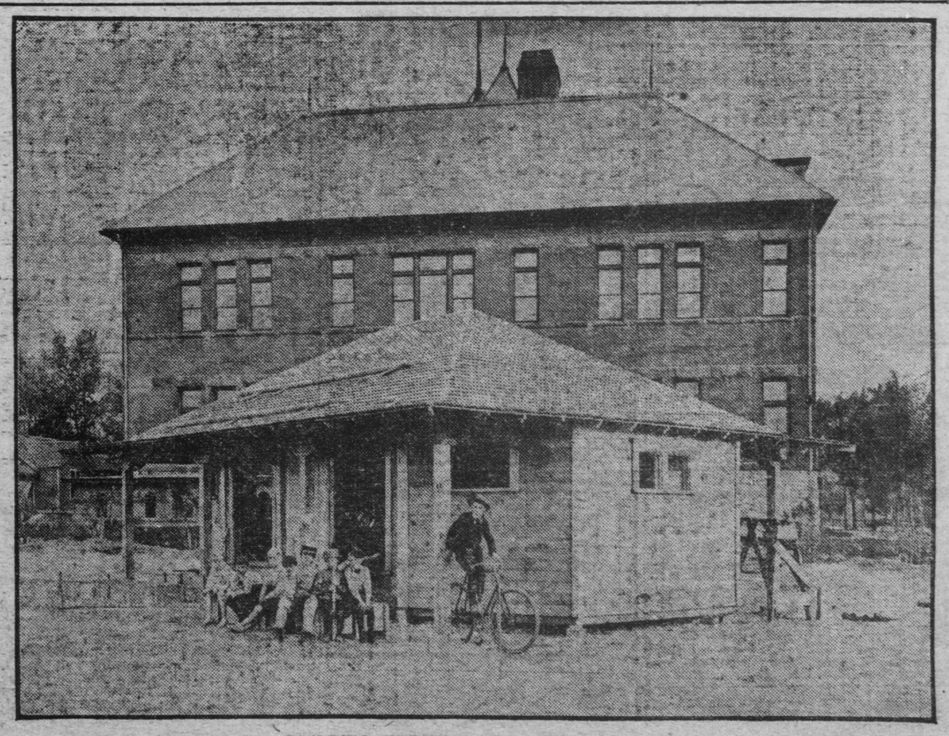


Buttermaking Room in Dairy Building, Where Boys and Girls Are Taught Home Dairying

PUBLIC PLAYGROUNDS READY FOR THE CHILDREN



VIEW OF THE PLAYGROUNDS



BUILDING ERECTED FOR THE CHILDREN

BEFORE another week is spent the work on the playgrounds at Como avenue and Lafond street will be completed, and then after the grand opening is arranged and carried through by the playgrounds committee, the little tots and their bigger brothers and sisters, and cousins and friends, will be happy in a kingdom all their own, where cops need not be feared when "de bunch wants t' bat fungo ball or play sides." Without creating any undue excitement Arthus Leland, superintendent of the playgrounds, has been rushing the work, and now the playgrounds building is practically compieted. The carpenters are gone and the plumbers and stone company men will have their tasks completed within a week.

While the building has been going up Supt. Leland has been paying some attention to the gymnasium apparatus. With the exception of a few minor pieces the strength building tools have all been ordered and will be placed in position immediately.

The gymnasium will include a set of nine rope swings hung from three-inch iron pipe frames, a giant stride, a revolving see-saw, one that, while having all the charm of the old-fashioned kind, revolves at the same time, making a merry-go-round or a see-saw at the will of the occupants.

A set of parallel and horizontal bars for the larger boys will be part of the equipment, and two basketball courts for the girls and boys have been laid out. The baseball diamond will be on the block adjoining the open air gymnasium. The small boys will play their ball games on the lot between Gaultier and Marion streets on Thomas.

For the quiet children Supt. Leland has provided croquet, checkers, quoits and rope-ring toss. The little tots of the kingdom will have their own special department, where in their own sand boxes they can build houses and steps, not only of sand, but of blocks that will be provided.

The playgrounds during the entire summer will be under the direct supervision of Arthur Leland, who came to St. Paul from Louisville, where for three years he was in charge of the public playgrounds of the Kentucky towns.

"The equipment that we are putting in this year is only a small part of what we really need," said Supt. Leland, "but it is the best we can do with the limited appropriation. The apparatus most necessary to give proper exercise to the children has been provided, and we will have to wait for the rest."