

**BULLETIN**

OF THE

**First District Normal School**

**Kirksville, Missouri**

**In Behalf of Farm and Household Economics**



CORN AND COWPEAS.

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Vol. XI

DECEMBER, 1911

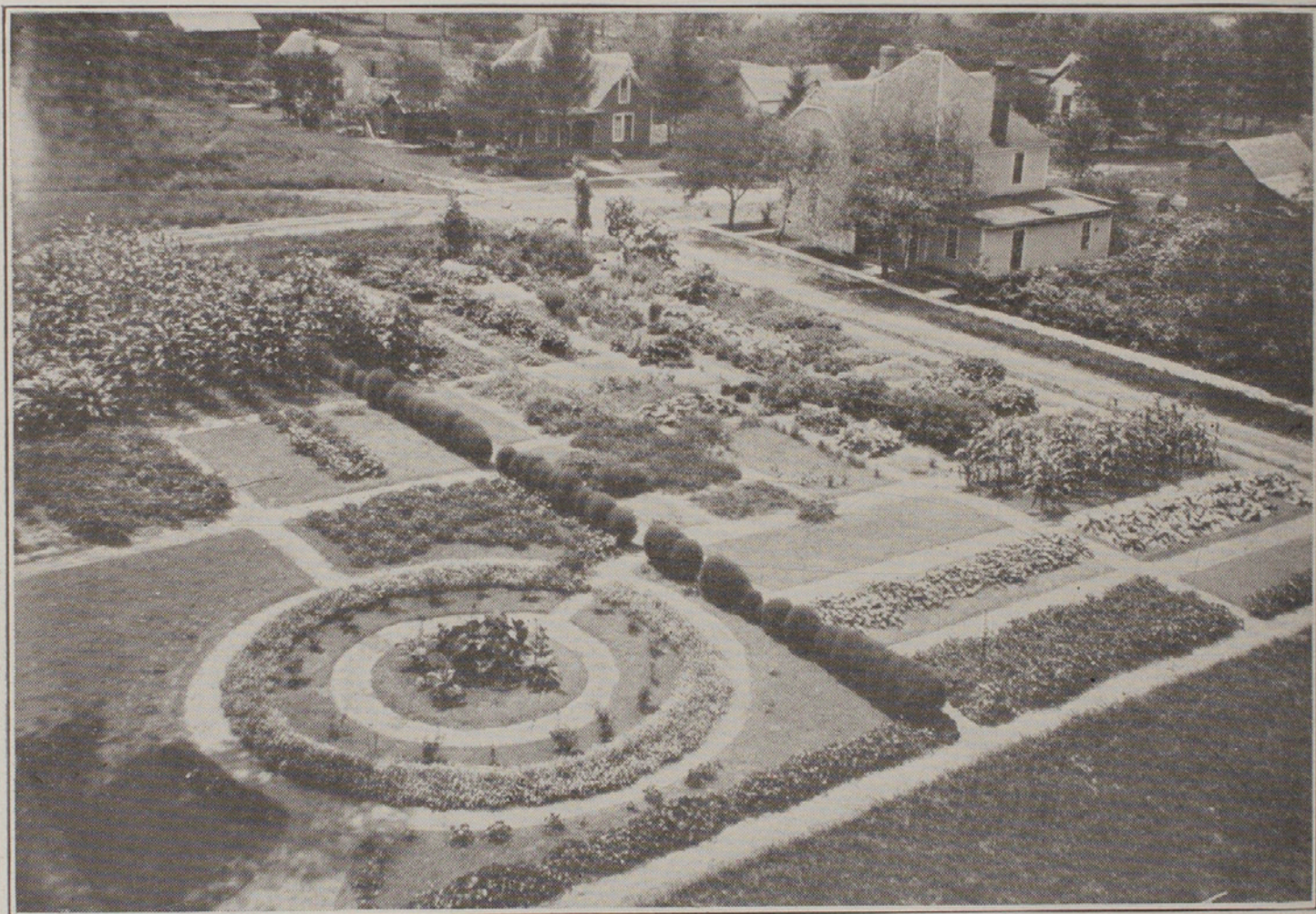
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GARDENING DONE BY TEACHERS WHO NOW TEACH IN MISSOURI SCHOOLS.

## Education for Service.

Education, public and private, has always been for a vocation. Sometimes it has been for the vocation of war, at other times for religious ministry, much of the time for law, medicine and politics.

Right now, social, industrial and commercial life is undergoing mighty changes. Need for increased resources and capabilities confronts us all.

But public school education is the public utility most widely called upon to meet the most common needs.



THE MISSOURI MULE IN THE TEAM CLASS, ON THE NORMAL SCHOOL ATHLETIC FIELD.

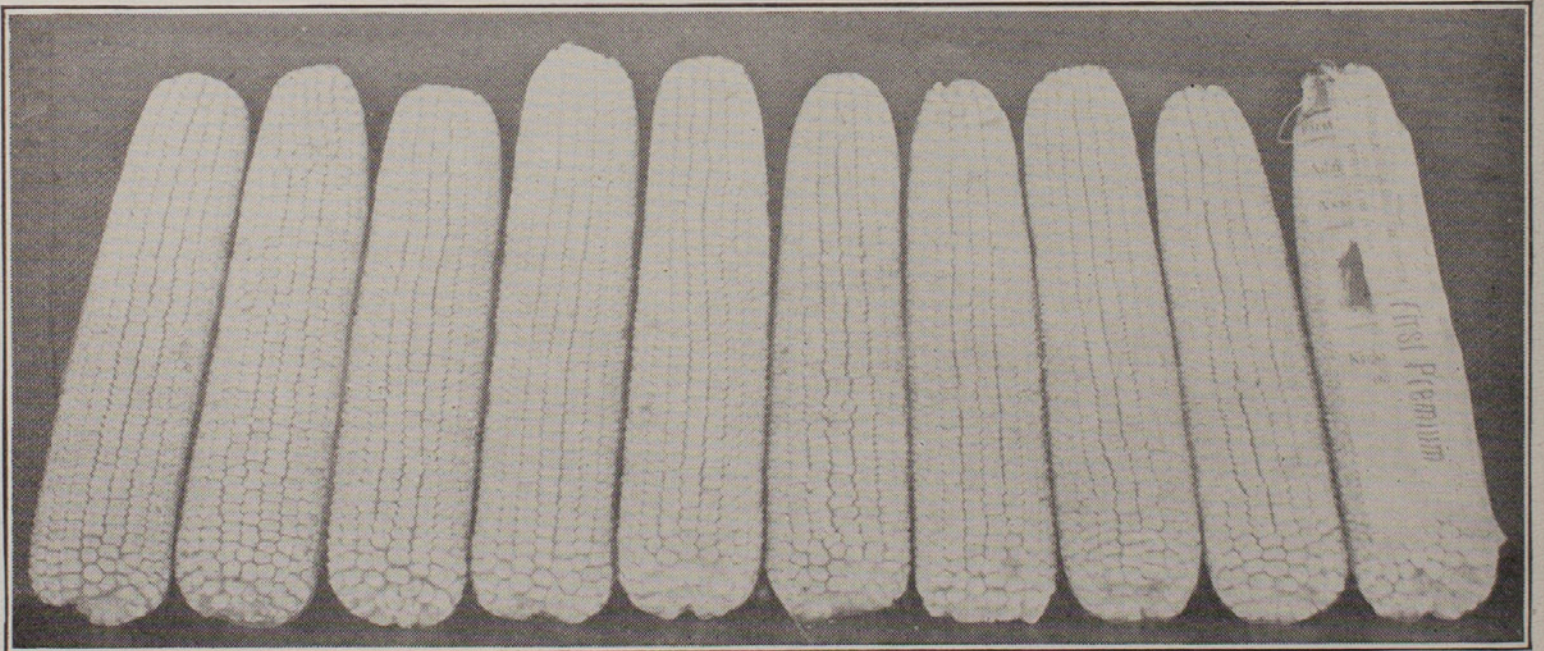
Hence, we see the traditional idea of scholarship in science for the sake of science is untenable. The teaching of dead languages and the deeds of dead monarchs for the sake of culture belongs to the past ages. Science and language and history and literature that do not affect the mind and the habit of children and youth so as to send them back into their homes with increased disposition for service and enlarged resources for rendering service are no longer defensible. Moreover, it is now quite clear and generally conceded that the studies of immediate value in human service are also as good as any other studies for mental discipline and for culture.

### **A Reorganization.**

It is proposed to curtail in the Normal School the old courses in botany for botany's sake, in chemistry for chemistry's sake, in physiology for physiology's sake and in zoology for zoology's sake.

Botany for practical purposes becomes a division of farm and garden crops. Zoology subordinates itself to the principles of stock breeding and the concrete study of domestic animals. Chemistry takes practical form in a study of commercial products, permanent soil fertility and food values. Biology turns itself into a concrete study of practical bacteriology. It reaches all the way from the yeast in the bread to the fever germ in the well water and the food. The old course in physiology becomes a topic, a concrete division, under sanitation.

We are about to effect a re-organization of several subjects in the Normal School. It is thought that a half dozen departments can be combined under the one enlarged utilitarian department of Farm and Household Economics.

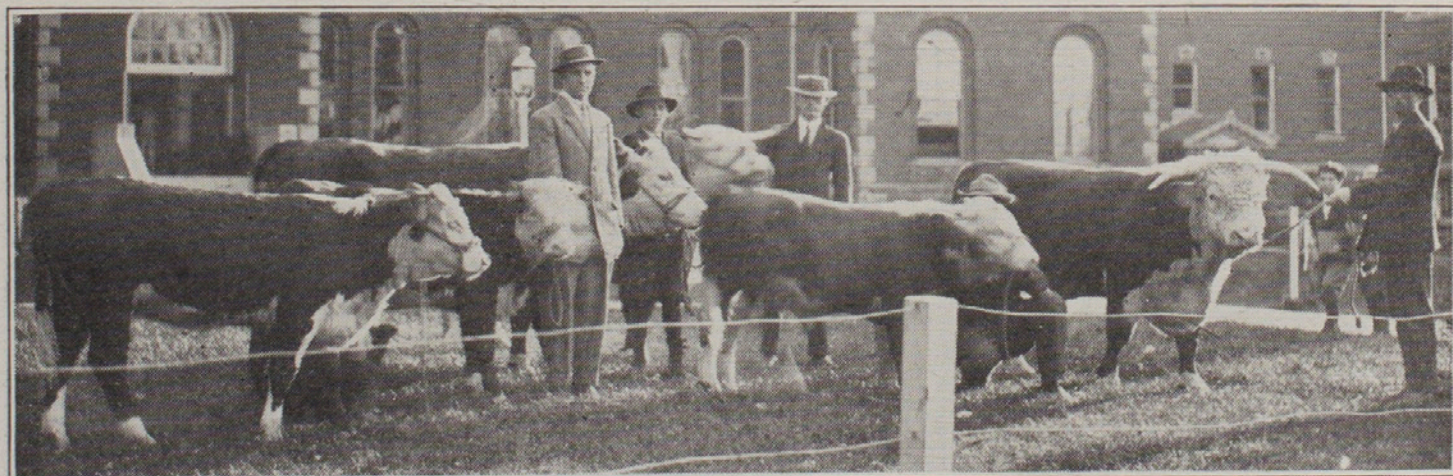


PRIZE WINNER AT THE NORMAL SCHOOL CORN SHOW.

Our talented teacher of Domestic Science soon to be installed in suitable quarters will not teach mere cooking. That will be a part of an enlarged course. It will be coordinated with a variety of equally important courses preparatory to efficient service to be rendered by the prospective teachers of Northeast Missouri.

Ours is a farming community, pre-eminently so. Through trips to the garden and the School Farm, and experiments and observations participated in our students are securing knowledge and experience and working skill in some new things that are worth while.

We are, among other things, to restore the early skill in preparing meats. We are to have experience as well as book knowledge and bulletin knowledge as to all varieties of poultry raising. We are to have a real laboratory of dairying on a small scale. We will furnish our own hot lunches on stormy days and other days and learn by our own experiences how to connect our own indoor laboratories with the larger laboratories, i. e., the farm, the garden, the pasture, the poultry yard, the dairy, the orchard and the grain field.



AN EXCELLENT IDEA. CO-OPERATION OF THE STOCK MAN WITH THE SCHOOL TEACHER. NORMAL SCHOOL BUILDINGS IN THE BACKGROUND.

### **A Discovery.**

It seems rather surprising that schools, and above all the Normal Schools, should be called upon to teach any such general and far reaching subjects as biology, botany, agriculture, physiology, and geography from text books, indoor laboratories and little patches of flower gardens. And it certainly is quite impractical to think of teaching the general subject of agriculture by means of gardens and text books, while the labor on the farm and in the garden is done by hired hands and the work is merely witnessed and talked about by the students.

The only way to learn any science is through experimentation. The only successful way to learn the various agricultural sciences is through the laboratory in which the concrete subject matter of the science can be seen and handled and manipulated and lived with and watched. In other words, the whole process of preparing, planting, sowing, tilling, reaping and using must be participated in by those who are to be serviceable in the community as teachers of the subjects. Hence we see that the school teachers' preparation through the school farm is to bridge the chasm between the teacher and the farmer.



ARIZONA LAMBS SPENDING THEIR FIRST HOUR IN A MISSOURI COWPEA FIELD, AUG. 11, 1911.

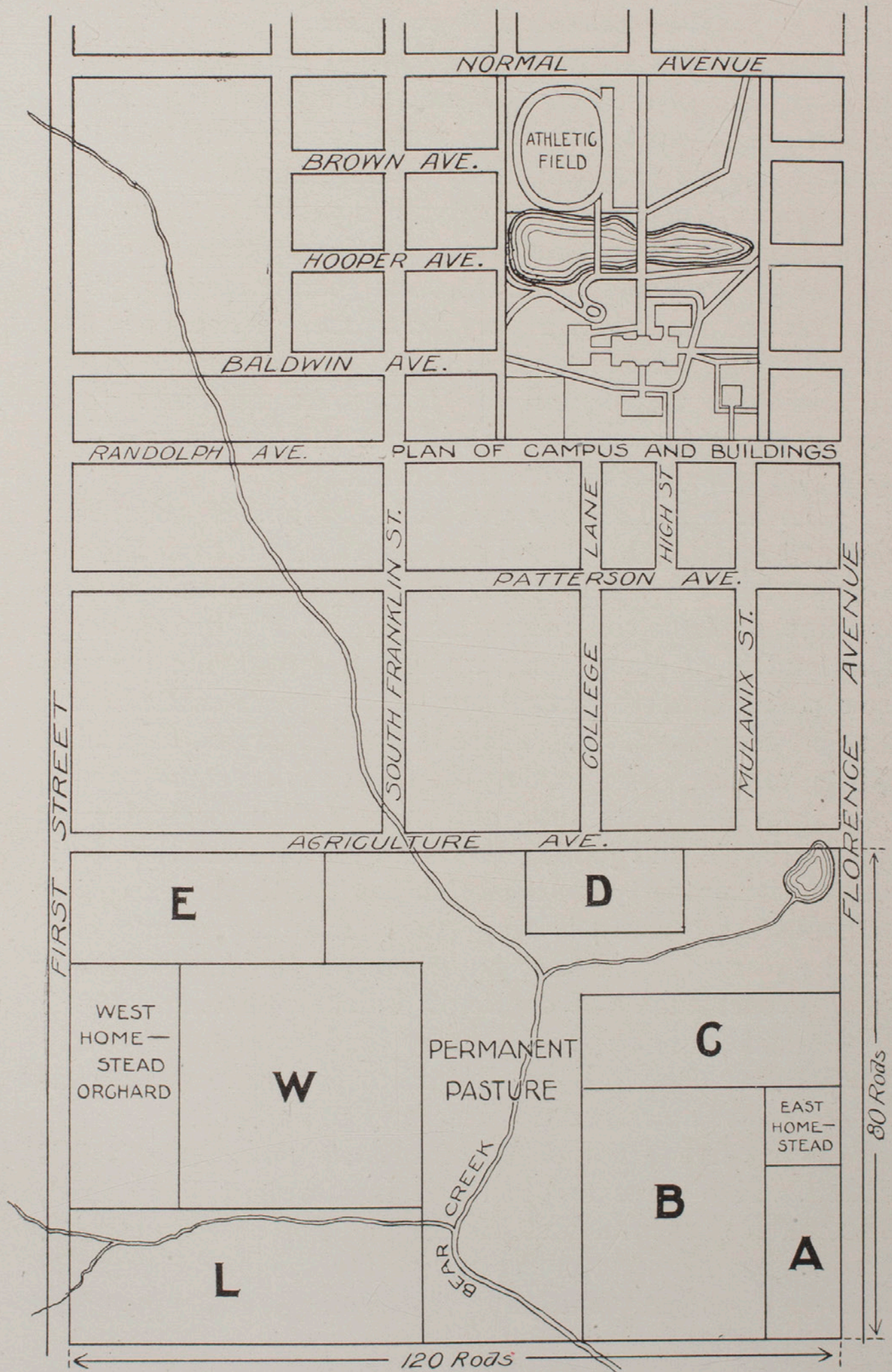
### **One Season's Experience.**

Three blocks south of the Normal School Campus is the north line of the School Farm. The Board of Regents, in 1910, discovered that there were, lying within the city limits, some six tracts of land, totaling about sixty acres. Leases were, therefore, secured for a period of years and steps taken to use this land for educational purposes.

On the west side of the tract is a good homestead property, on the east side, a very poor one. When complete control of the tract is secured, it will be the purpose of the Institution to transfer all the homestead buildings to a new north side site, which will put the buildings of the farm just three blocks from the School.

The farm is 120 rods east and west and 80 rods from north to south. Its general form can be seen from the accompanying cut. The tract of land is rolling. It has nowhere a black soil more than five to six inches deep. The land is of glacial origin. There is a ravine running from near the north central part to the south central part, thus crossing the farm. There is another ravine beginning at the northeast and joining the main ravine some twenty rods from the north line, and still another beginning at the southwest and joining the main ravine near the south line of the property. All of this land, with the exception of about three acres, is very poor. A yellow, sandy clay can be plowed up almost anywhere on the farm without going deeper than the depth of ordinary plowing. Much of the surface is clay. Just why land so advantageously located should have been allowed to get into such a condition is not known and not necessary to find out.

Thirty-five acres of the farm are now under cultivation. Five acres are included in the west homestead, fifteen acres in permanent pasture and five acres in streets. The pasture has, scattered through it, some good elm shade trees and has the possibility of becoming a rich blue-grass pasture.



LAKE AND CAMPUS IN UPPER RIGHT HAND CORNER. SCHOOL FARM (60 ACRES) BELOW "AGRICULTURE AVE."

The farm land that is now under cultivation presents all the problems of revitalizing, replenishing and the prevention of washing. As much so, at least, as any farm in Northeast Missouri.

The Normal School took charge of six acres of the farm the 1st of Oct., 1910, removed the heavy crop of smartweeds and put in wheat and rye. The fall and winter season was utilized in removing buckberry bushes, trimming trees, tearing out and repairing fences and cleaning up the land so far as it could be done. On the 1st of March, 1911, the entire sixty acres, less the five acres of the west homestead, passed, under terms of the lease, into control of the Normal School.

As soon as possession was secured, six young men were



WHEAT ON SCHOOL FARM, FIELD B, JUNE 20, 1911.

placed in the homestead on the east side of the farm. Four of the boys run and operate the farm and two work on the Campus of the Normal School, caring for the lawn and for the trees. Each of the boys receives ten dollars per month, and in return labors for some time each morning, for three hours each afternoon on school days, and all day during Saturdays and other vacation days.

Mr. Earl Peltz, one of the young men, has the office of over-seeing and controlling the farm work. The boys divide themselves into shifts of two persons each. This is for the purpose of cooking the meals, caring for the house and managing chores and errands, each shift doing certain work for a week at a time. This plan was followed from the 1st of March to the 1st of December. The plan of housekeeping now adopted is that one of the boys is to put in all his time managing the house and the housekeeping. The others do their respective shares of work on the farm. The latter plan in proving more satisfactory and the results seem to be better.



AN EXAMPLE OF MODESTY—ON THE CAMPUS.



PLOWING CORN FIRST TIME, JUNE 6, 1911, IN FIELD W.

Operating the School Farm began with a team of mules, a cultivator, a stirring-plow, a harrow, a wheat-drill and a corn-planter. On securing control of the farm, there was, of course, a large amount of work to be done before cropping season. The first step was to remove rubbish, the accumulations of years, out of yards and buildings and nooks and corners. This took time. On the 20th of March there were sown four small fields of oats; a half acre of white oats, a half acre of black oats, an acre of Texas rust-proof, and six acres of common white oats. The first three small fields were sown side by side in the same sort of ground, Field B, to test their productiveness in the soil under use. The six acre tract was sown a considerable distance from this, in Field W, and was used for the purpose of furnishing feed.



COWPEAS ON WHEAT STUBBLE, FIELD B, SEPT. 10, 1911, PICTURE TAKEN 82 DAYS AFTER PICTURE OF WHEAT FIELD SHOWN ON PAGE 9.

Owing to an exceptionally bad season, the oats yielded little better than a half crop, making only an average of thirty bushels to the acre. Although the seed was sown on poor land, the preparation of the seed bed should, in our judgment, have produced at least sixty bushels per acre. There was no fertilizer or manure used. We relied on the preparation of the seed bed; and from our experience, we believe that on the poorest of the soil on which we sowed the oats, we would have had scarcely any oats at all had we not put such a large amount of labor upon the soil.

Our experience with the oats crops of the summer is as follows: That the ground which was fall plowed and double disced in the spring, having the oats drilled with a wheat drill, produced a crop at least twenty per cent better than fall plowing single disced and having the oats drilled with a wheat drill. The oats double disced and drilled with a wheat drill on the fall-plowing produced fifty per



CLASS IN FARM CROPS, STUDYING THE FOOD VALUE OF SHREDDED CORN FODDER,  
AND THE METHOD OF SHREDDING.

cent more per acre than where the ground was not fall plowed and the oats were not drilled, but sown broadcast and disced in. Our experience taught us also that in this particular case, at least, to fall plow and double disc and then drill the oats with a wheat drill, will produce thirty per cent more oats than simple corn stubble double disced and drilled will produce.

From the above stated results, secured on the farm, it would seem that the fact was plain to the effect that fall plowing and double discing with sowing by the use of the wheat drill is the best way for seeding the oats. But there are two or three reasons why it might not be profitable to fall plow for oats. It subjects the ground to fall and early spring rains and the consequent liability of washing, and the expense of fall plowing is a considerable item. Another argument against this method might be the desire to use the stock field for roughage.

However, we shall again next year try similar fields, side by side, one with fall plowing, one with spring plowing, and one without any plowing. We will see whether we cannot determine to our own satisfaction whether the expense of labor in plowing is compensated for by the increased yield of oats.

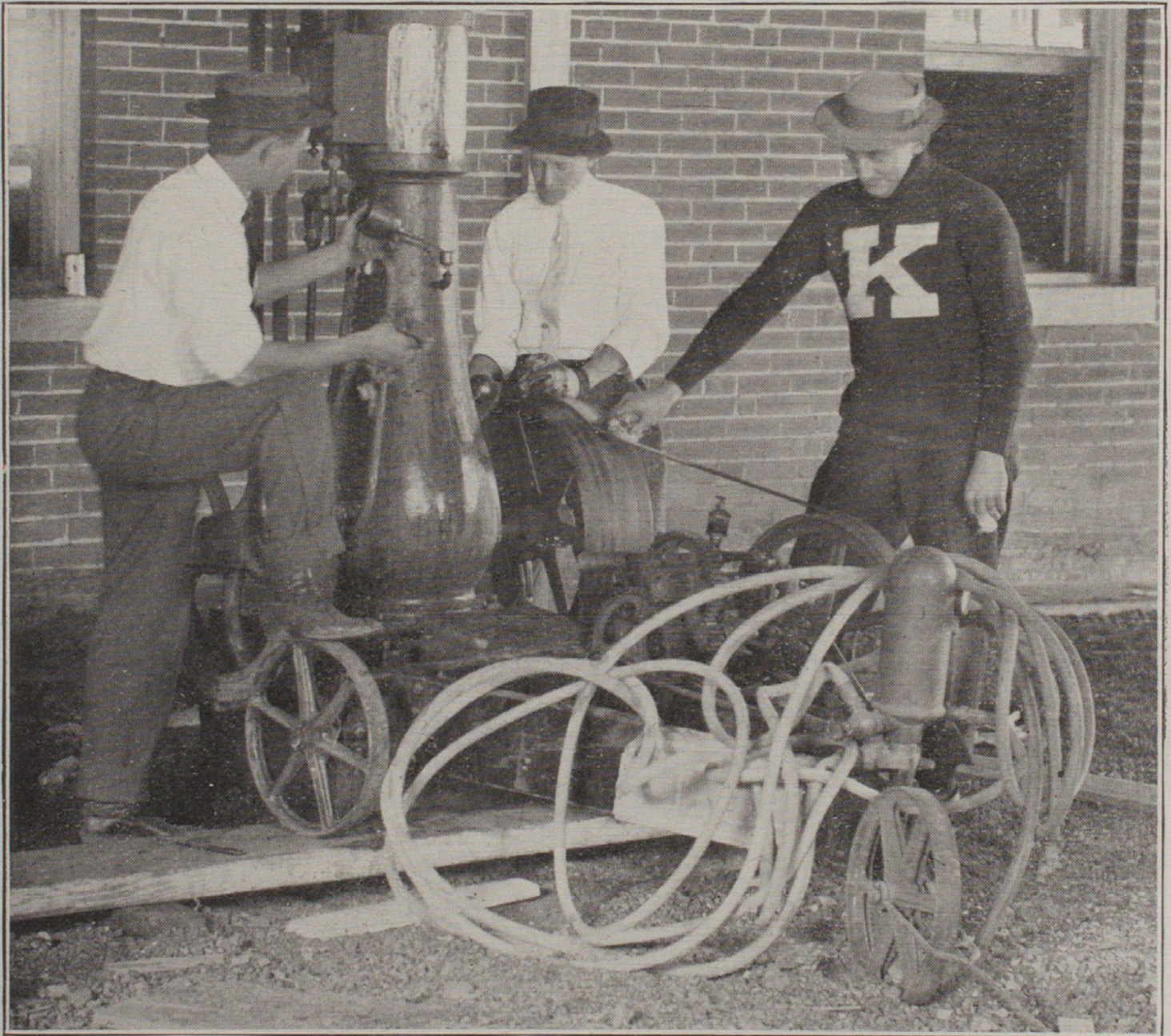
Now, we are very sure that the farmer, the agricultural college man and the legislator who read these lines may say: "Why?" "What for?" We are impelled to answer by the question: "What is this Normal School for?" Do you have any idea that your law requiring agricultural instruction in the public schools means anything, or is it mere verbiage?"

These experiments, above mentioned, are done by Normal School students. Nearly two hundred of our students of agriculture have had some part and share in the above mentioned experiments. They are tramping in and out daily. Our best students of agriculture and best prospective rural teachers and village teachers are the young men that live in the farm homestead. But the classes in agriculture are sharing in the experiment, and the text book lessons are accounted of trifling value, excepting in so far as they relate themselves to these school experiments and to the greater life long experiments back on the farms from which so many of our students come.



VALUABLE FALL PASTURE, COWPEAS ON OATS STUBBLE, AUG. 13, 1911.

The wheat and rye that had been sown during the month of October, 1910, proved to be of exceptional quality. The rye stood approximately five feet in height and was large and of fine quality. The wheat approached three and a half feet in height. It was large, plump and heavy. The wheat yield was considerably above the average for wheat yield in this locality. The rye represented about an average, favorable season's yield.



STUDENTS IN FARM MACHINERY TESTING OUT STEAM AND GASOLINE ENGINES.

About sixteen acres of the farm was planted in corn, six acres being on old land with scarcely any black soil on the surface. On four acres of this tract no manure was used. On two acres we put a thin coat of barnyard fertilizer, eight tons to the acre, manure spreader measurement.

The map on page 8 will show that the sixteen acres were divided into four fields of corn: C containing four acres; D, two acres; E, four acres, and part of field W, six acres. Last year the fields C, D, and E had been in semi-blue grass, timothy and fox tail sod. We plowed the ground late in April. By examination, it was easy to be seen that the ground was full of wire worms and cut worms. For this reason the corn was not planted until the 20th of May. This was in the hope and expectation that we would be able to escape the ravages of the worms. Prep-



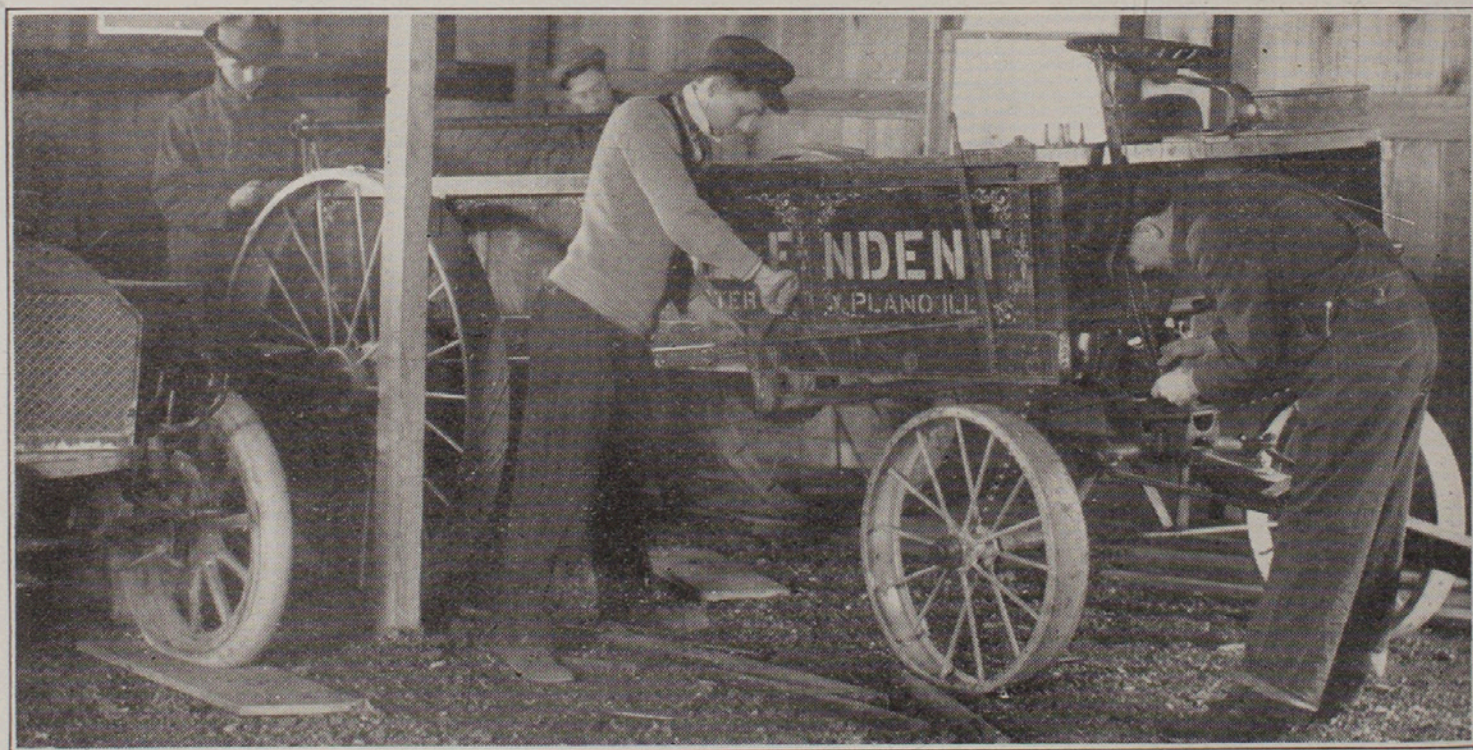
COWPEAS AFTER CORN WAS CUT, OCT. 1, 1911, FIELD D.

aration of the ground for planting of was as follows: The boys used an ordinary fourteen inch John Deere Walking Plow and bolted to the beam of it a four inch jointer. This jointer is a miniature plow. It is for the two fold purpose of turning the upper edge of the furrow so that no ragged sod will be shown and also to cut the grass roots free from the stocks. So successful was the use of this



COWPEA STUBBLE OCT. 5, 1911, AS LEFT BY THE SHEEP. FIELD W.

jointer that when the plowing was done, there was scarcely a piece of the sod to be seen in all the field. During the plowing we set the disc with the rollers parallel with the tongue and made one trip over the field following the direction of the plow. This was for the purpose of packing the sub-surface and eliminating the usual air space found in sod plowing. This sub-surface packing was also made more certain by crossing the field at right angles to the direction of the plowing. The value of this process was shown later on, for during all of the summer drouth there was plenty of moisture in the ground for the growing of the crops. No one could find anywhere open space in the sod ground. Following the sod packing, the discs were set to cut and all of the semi-sod ground was disced twice. This system of working the ground put it into the best possible condition for the growing of corn and according to a statement of a government farm expert, it was one of the best pices of seed bed preparation that he had ever seen.



STUDENTS IN FARM MACHINERY SETTING UP MANURE SPREADER.

All of the tracts, C, D, E and W were treated as above described and during the summer there was not a time when we could not remove three inches of dust mulch and secure dirt moist enough to make a mud ball. This seems sufficient proof that it was worth while to take such great care in seed bed preparation.

The first of the corn was planted on the 20th day of May; the last, on the 25th of May. The corn was checked on most of the land, not because we thought that the way to raise the best corn, but because the ground was so foul, and there seemed to us no other method by which we could keep the field clean. Two acres out of the sixteen, field D, however, were drilled with the attempt to put the stalks sixteen inches apart. This produced by all odds the best corn.

On the sixth day of June, there were planted by the use of hand planters, three cow pea seeds between each two hills of corn, and on the fifteenth day of June, the corn stood about six inches high with the cow peas about four inches high. On the tenth of June, there were planted on the west end of field E, about one and one-half acres of soy-beans. These were planted with a corn planter by simply putting in the large plates and setting the drill to plant as thickly as possible and making three trips to the row so that when the soy-beans came up they were three times as thick as one trip would make them.

By the fifteenth of June, the soy-beans were out of the ground and about three inches in height. About the tenth of June we had our last shower. Then began the strenuous fight to raise crops in spite of the hot dry summer. The only two tools used during the summer by the boys in their effort to raise and save the crop of corn and beans and peas, was an Avery cultivator and a V-shaped fourteen toothed spring toothed harrow. The program was followed all summer, cultivating the corn, stirring the ground once a week to keep the mulch loosened.

The cultivator was used solely until the corn became so high that it could be used no longer. Then the stirring of the dust mulch was done with the spring toothed harrow, drawn by one mule. This constant stirring of the dust mulch was continued until the corn tassled and the first heavy rain had come. All told, from the first cultivation to the last, the time covered a period from June 5th to the middle of August and represented a period of ten weeks. At no time during the ten weeks of plant killing drouth could there be found any of the corn ground that was cracked. At any time during the ten weeks one could by removing about three inches of the driest sort of dust mulch, find dirt moist enough to make a pretty sticky mud ball.



COWPEAS KEPT DOWN TO THE GROUND BY THE HEAVY GROWTH OF CORN. FIELD  
W, SEPT. 9, 1911.

The cowpeas in the corn shaded the ground, and so far as we could tell, did not injure the corn during the dry weather. In the picture on the cover page of this bulletin are shown the cowpeas growing to such proportion among the corn that they cover the ground like morning glories. This picture was taken Sept. tenth. Our judgment is that the cowpeas were rather more of a help than a hindrance during the dry summer. We wish to make this statement, however, that we didn't make any actual plot test, but from plots in the corn field, we found that where the cowpeas most nearly covered the ground, there was the best corn. The soil was, so far as we could see, no better in one place than in another. The cowpeas did not in tilling time interfere with the cultivation of the corn. It was just as easy to plow the corn as if the cowpeas were not there.

For planting on a large scale, we would recommend that instead of using a hand planter for planting the cowpeas, after the corn had come up, a cowpea attachment should be on the corn planter and the cowpeas planted at the same time the corn is planted. This would be labor saving and the results secured would be just as satisfactory.

The best result we secured was in the field where the corn had two or three stalks of corn to the hill and from one to three stalks of cowpeas per corn hill. The picture on the front page, where we show the corn with the cowpeas growing in it was taken on the 10th day of September. The pictures on pages 22 and 25 show the soy-beans on the same day. The picture on page 20 shows the cowpeas very small and almost smothered in the heavy growth of corn. Nevertheless, it shows that the cowpeas covered the ground.

The soy-beans grew until they developed good sized seed pods. They were not cut until about the 10th of October. They produced three tons to the acre. They now furnish part of the rations for our milk cows, sheep, and hogs. The soy-bean hay was cut with an ensilage cutter and put into the silo. This silage is furnishing very rich feed.

About the last of September all the corn was cut and shocked, leaving the cowpeas covering the ground in luxuriant growth. See page 16. The first week of September the Normal School placed on the School Farm eighty-seven head of Arizona lambs, averaging sixty pounds in weight. They were run on blue-grass pasture three or four days until they became used to rich grass. Then they were turned on the young cowpeas an hour or two daily until they became accustomed to and enjoyed the cowpeas. See page 6. When they became used to the green cowpeas, they were turned into the corn field, where they could help themselves to the cowpeas that were mature and podded. They were allowed to run in the cowpeas and corn fully three weeks before the corn was cut and shocked.

It was observed that they did not bother the corn or corn leaves at all, being apparently satisfied with the cowpeas.

It should be noted, however, that if sheep have wide



SOY-BEANS, FIELD E, SEPT. 10, 1911. PREVENT WASHING BY LEAVING SOD IN DRAW.

range in too large a field of cowpeas and corn, they are likely to taint the cowpeas and then eat the corn blades and ears in preference to the tainted cowpeas.

Cowpea pods filled with peas grew to the great length of ten or twelve inches and even longer. These pods the sheep ate with great relish. The picture on page 17 shows how thoroughly the sheep stripped the cowpea vines. It also shows how uniform was the work. The sheep fattened very rapidly while feeding on the cowpeas, and showed no apparent ill effects at any time on account of over-eating. We encountered one discouraging feature in this manner of feeding sheep. It was very difficult to get the sheep to do well while we were having frequent heavy rains. They were chilled by the heavy rains and it was very difficult to keep the flock intact, the tenderness of the lambs being very noticeable.

When the oats, wheat and rye had been harvested, the stubble was disced and on it was drilled whip-poor-will cowpeas, about three pecks to the acre. By the first of September these cowpeas had grown to a height of about fifteen inches. They furnished excellent fall pasture. See page 12. In one of the fields oats were sown at the same time with the cowpeas. By the first of October these oats were in milk. The mixture of oats and cowpeas made very rich and enticing feed. It was then mown and put into the silo with the soy-bean hay.



LINED UP FOR JUDGMENT IN THE MULE TEAM CONTEST, ON THE NORMAL SCHOOL CAMPUS.

The crop secured this year upon the stubble following the harvesting of the oats, wheat and rye was profitable to raise for fall pasture if for no other purpose; but we believe it is worth while to have a crop sufficient to be harvested and used as feed during the winter season.

This is our first year in experimenting with a school farm. We are pretty confident of future good results. Ours is a school farm through which to produce school teachers



SILO CONSTRUCTED AND FILLED BY STUDENTS OF AGRICULTURE AT SCHOOL FARM.

who will have sympathy with things that farmers' children should know and have sympathy with. Some practical farmers have already expressed the notion that we are visionary. Some of them would do it differently. None of them doubt that we ought to do something for the teachers of their children. Our students who will be the future teachers are learning literature, history and science more thoroughly than they would without the farm experiments to engage part of their time. Their sympathies are going in the right direction. They have a better attitude towards farming and all labor, by virtue of these struggles which they are now encouraged to make. We shall keep at it and hope to produce practical results.

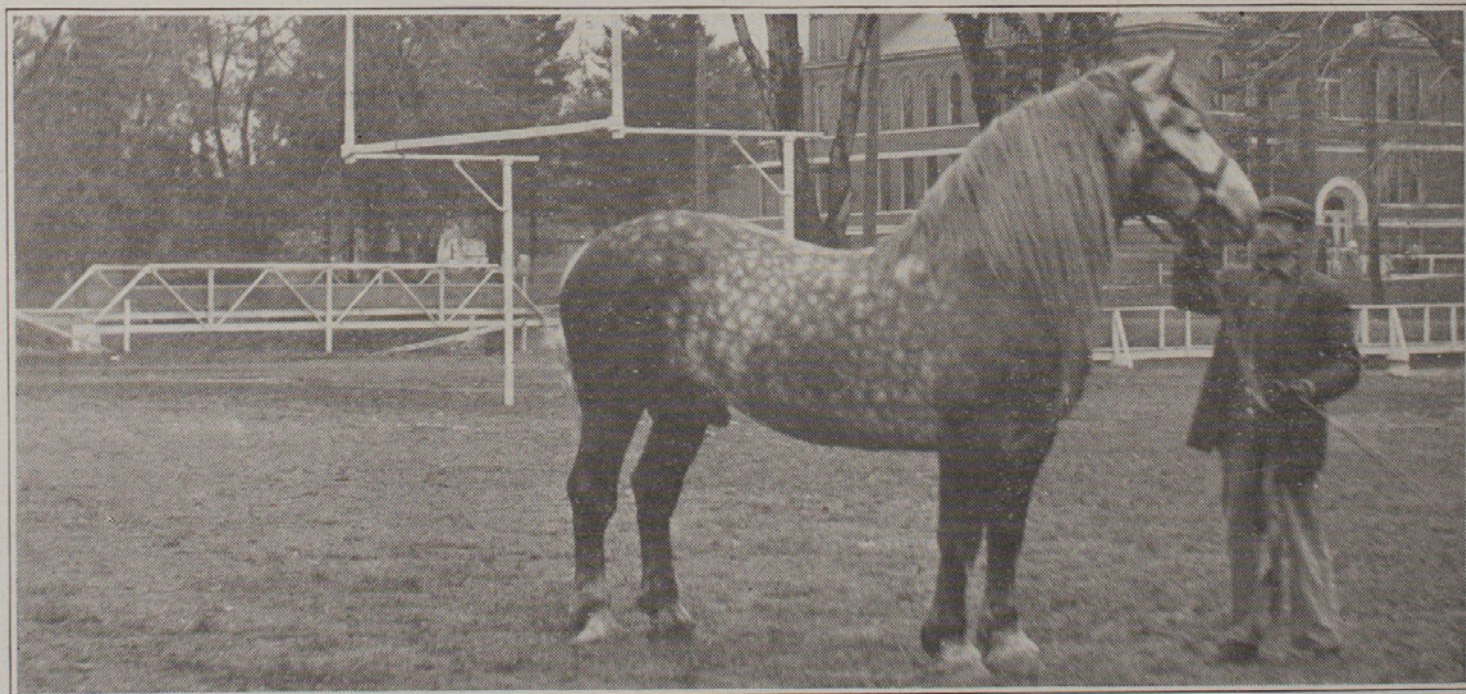
The School Farm has some dairy cows. They are used for a two-fold purpose: For the production of milk and butter and for the purpose of experimentation in dairy feeding. But our experiments with the cows have been conducted for only a month or two. We consequently have no results to state. The School Farm is also beginning the breeding of a few hogs. It begins with four Poland China and three Duroc Jersey sows. We have



SOY-BEANS, 3 TONS PER ACRE. FIRST CROP ON THIS LAND. FIELD E.

ten breeds of chickens. These are used partly for the purpose of studying meat quality and partly for the study of egg producing qualities. No one doubts that Northeast Missouri is very perfectly adapted to great profits through chicken raising. We expect our chickens to become incoming producing. All in all, does it not seem as if prospective teachers of Northeast Missouri might profit, both in culture and in practical attainments, by experimentation and scientific study of chicken raising?

The Department of Agriculture of the institution now has the following tools and machinery for demonstration work in our classes in farm management: A plow, tooth harrow, disc harrow, cultivator, corn planter, wheat drill, grain binder, mower, manure spreader, wagons, silage cutter, shredder and husker, rebuilt Case separator, and a twelve horse power portable steam engine. The homestead where the boys live has the following buildings: A five room cottage, coal and wood house, stock barn, milk house, chicken house, machinery barn, hog and sheep house and a silo.



AT THE STOCK SHOW ON THE ATHLETIC FIELD.

It is our hope that we may be able in the future to combine the two homesteads into one and build the permanent homestead on the north side of the farm. This will then bring the headquarters of the farm, the stock and the machinery all within three blocks of the Normal School Buildings.

Concluding note: The Normal School is to serve the people. That is its purpose. Those directing the school seek to learn and interpret what the people want and need. It is difficult for the people to express themselves. Their daily difficulties in home and business life are great enough. They have not discovered ways of communicating to the school what ideas and habits they would have brought back into their homes from the school by their children. They have merely stated their wants in oft repeated generalities.

In order to get to the people and hear their views and know the concrete conditions, the Normal School recently made and shared in a number of rural life and village life surveys. The people have told us many things face to face. They have modified the attitude of the Normal School. They claim that we must send them teachers who are willing to live close to the people and who will discover ways of making the children happier and more serviceable in their own homes.

Heretofore, it is quite clear, the school tended to draw the sympathy of the children away from their homes and to create artificial desires, to awaken the ambition of the country boy for village life and the village boy for city life and the city boy for the professions and the more leisurely ways of life.

In this bulletin and elsewhere we talk much about student activity and student experience through experiments. It should be noted all the time that the experiments in the Normal School are not in any sense for such

purposes as those in the research laboratories and fields of the agricultural experiment station. This is a Normal School, "a school teacher factory." We do not seek for students, excepting those who hope to be teachers. We cannot bother with students who do not intend to be teachers. Our experiments are to give necessary practical experience to public school teachers. We are to produce efficient workers and leaders in public schools.



TENTS FOR STOCK SHOW ON CAMPUS. NORMAL SCHOOL AND CITIZENS OF ADAIR COUNTY IN CO-OPERATION. OCTOBER 25-26, 1911.

Our experiments, therefore, are not for the discovery of unknown truth. Our experiments have been performed before. But the effort in performing one experiment many times does not imply that the same conclusion will be reached every time. We direct hundreds of students in performing their first experiments. Their work is much of it crude. They have to gain skill by experience. They can't lead and teach others so long as they themselves are crude in their experiments and in their experiences.

Is it not clear, therefore, that we are to give the prospective teachers versatility and readiness and skill in leading their school pupils into the knowledge and the appreciation of the things that the pupils should learn to do for themselves? Often our students or even our professors may omit important factors or vital factors in an experiment. They thus reach erroneous conclusions. Then they retrace the ground gone over. Ultimately they draw correct conclusions and by repeated efforts acquire accuracy in judgment and skill in performance.

So the Normal School seeks to give the young prospective teachers experience in doing things and interpreting things and afterwards reading and studying with more definite and intelligent purpose and on the whole becoming efficient in performance of the service which the people want. Our effort, therefore, is to illustrate the very rational and practical doctrine of "learning to do by doing."

For further information address,

W. A. LEWIS, Professor of Agriculture; or,  
JOHN R. KIRK, President.



SADDLE HORSE COMPETITION ON THE ATHLETIC FIELD.



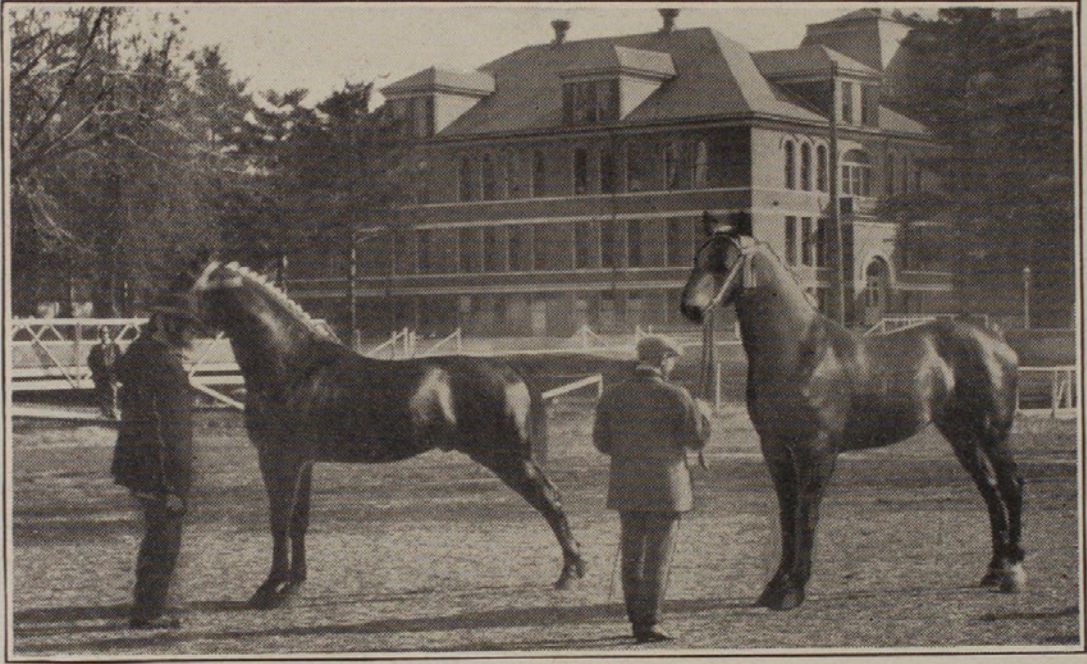
INDIVIDUAL MULE CONTEST ON THE ATHLETIC FIELD.



THREE PRIZE WINNERS, THE PRIDE OF AN ADAIR COUNTY FARMER AND STOCK BREEDER.



A PRIZE WINNER AT THE STOCK SHOW, OCT. 26, 1911.



A BEAUTIFUL SIGHT FOR SCHOOL TEACHERS TO BECOME  
ACCUSTOMED TO.