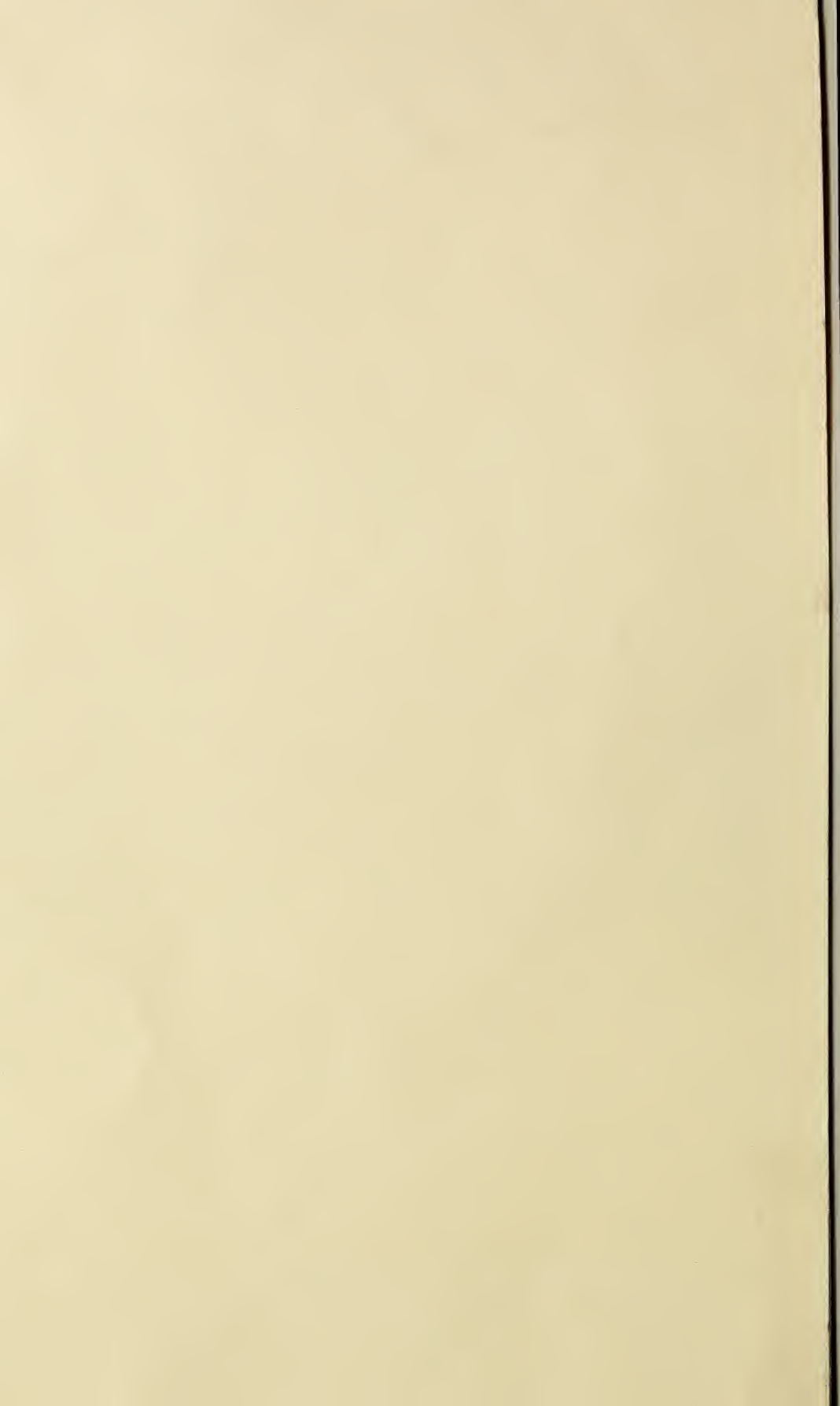


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VOLUME XXIV

NUMBER 4

THE AGRICULTURAL STUDENT

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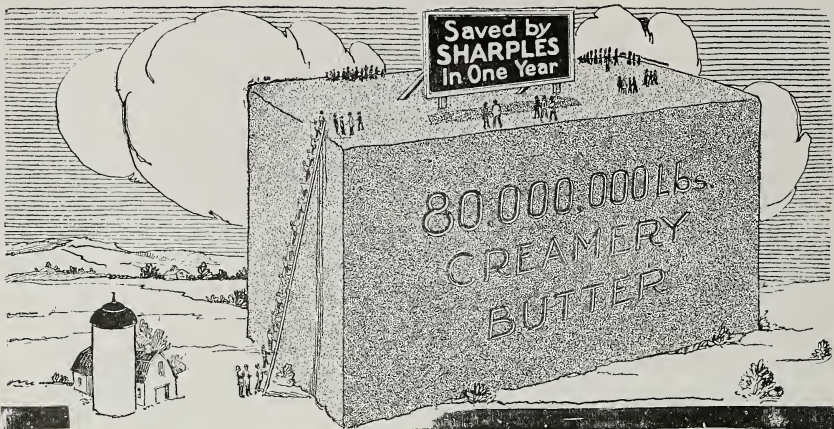
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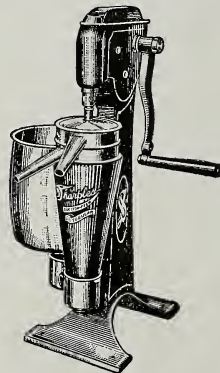
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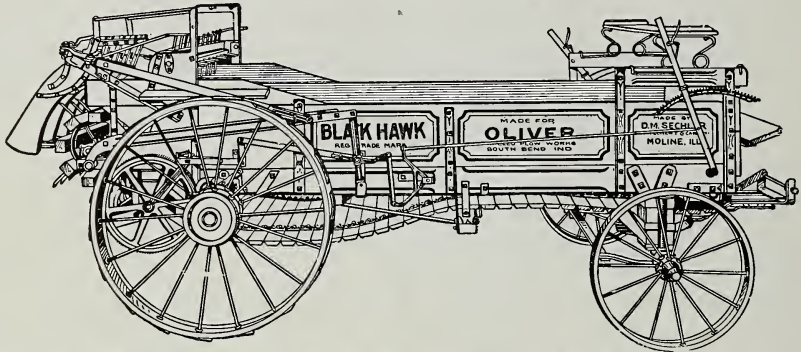


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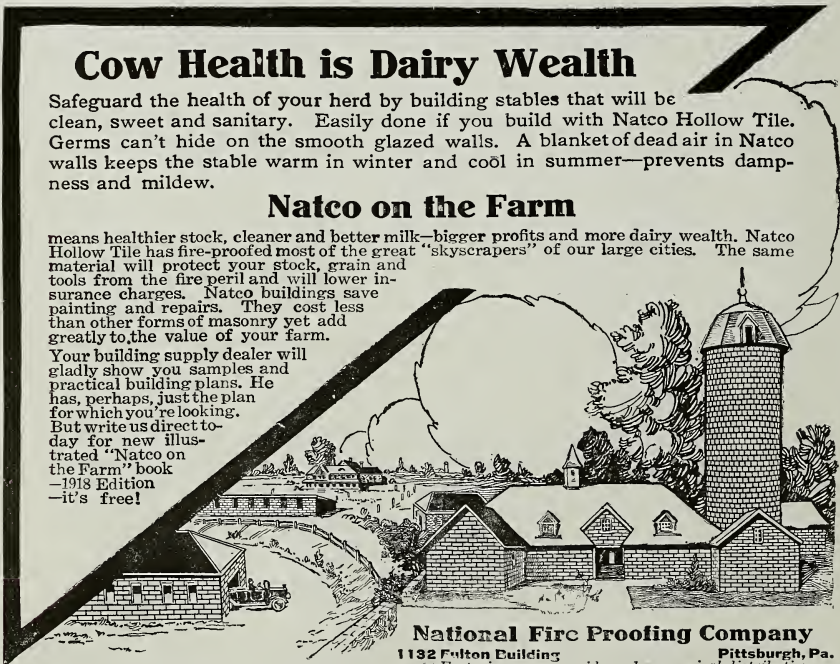
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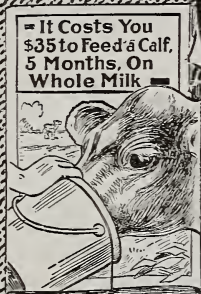
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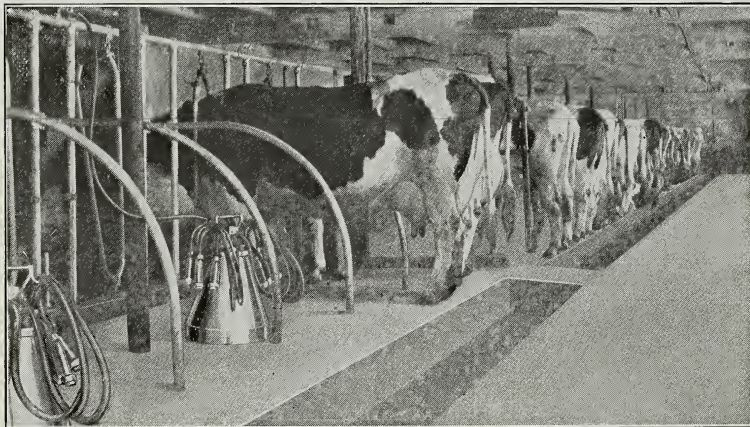
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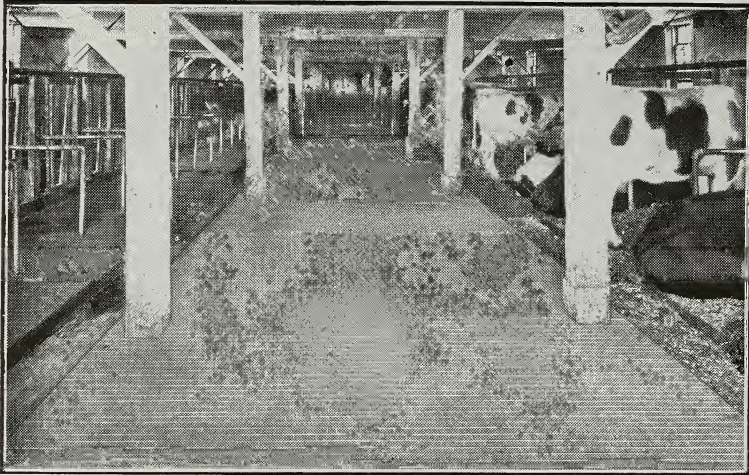
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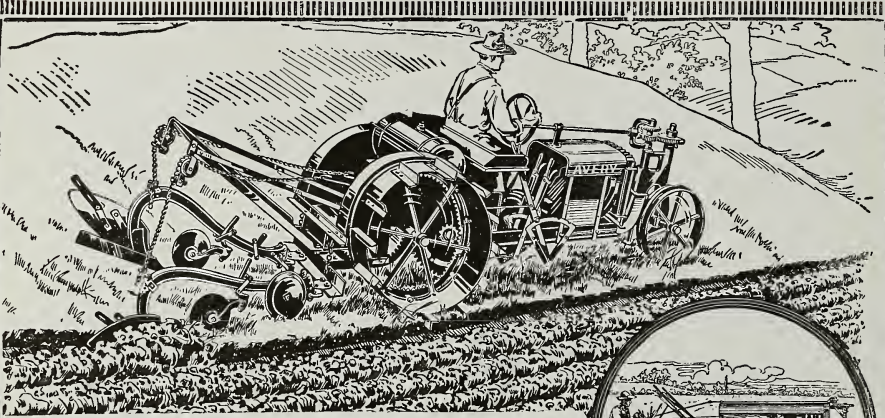
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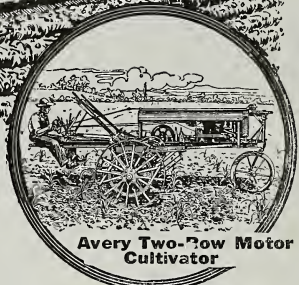
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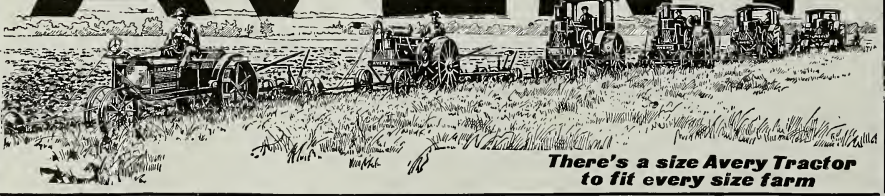
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THE AGRICULTURAL STUDENT

Vol. XXIV.

OHIO STATE UNIVERSITY, COLUMBUS, DECEMBER, 1917

No. 4

EXPERIENCES IN LAMB FEEDING

Some of the Mistakes That Have Been Made and Suggestions for Improving the Methods of Management When Feeding Western Lambs; Lessons That Thirty Years of This Business Have Taught

WILLIS O. WING, Mechanicsburg, Ohio

I SUPPOSE that I will have to admit that I have been feeding lambs for nearly 30 years and it would seem as tho in this period I should have learned something about the lamb. I must confess that there is something new to learn about a lamb each year and that so far as the loss of lambs has been concerned, the last two seasons prior to this were the most disastrous years I have had. However, some of the things that I thought we had learned many years ago were reasonably basic truths; for example, the western lamb needs, when he first arrives, only easily digested feeds. Well-cured clover hay is perhaps safe as a feed, or in the event of an undue amount of scouring, some timothy hay for a few days; or they should be turned into a stubble field where there is plenty of rag weed and some young clover that has not yet been frozen. Bluegrass pastures are all right sometimes. They are better if there should be some dry cured grasses in the green grass. Timothy stubble is a safe place if there should be anything there for the lambs to eat. My neighbors have even pastured green alfalfa successfully, but I confess that I have not the nerve to try this. As we have no large pastures at Woodland Farm it is our custom to put the lambs in the barn immediately on arrival. Now, these

shabby old barns are well supplied with plenty of ventilating doors and in most weather I think these doors should be left open. They are also well supplied with rack room. I do not hesitate to put 775 lambs in one barn, but this barn allows close to 12 square feet to the lamb. Formerly I supplied the water for the lambs from a number of troughs scattered around thru the barn but of late years I have had a prejudice against any trough that the sun did not shine into and as a consequence the small troughs have been taken out and the lambs are allowed one large trough to a barn, built of concrete, safely covered with slats to safeguard the lambs from committing suicide by drowning and high enough so that the water is kept pure. We place a number of salt boxes around about the barn, but do not fill them upon the first arrival of lambs. In fact, we give the lambs no salt for possibly 10 days and then place it in the bottom of the feed racks, some five gallons to 775 head, and watch the result. If they eat this readily we renew the salt in a few days and gradually increase the amount until they are not too anxious for salt when the boxes are filled.

I feel reasonably safe to recommend these few simple things; plenty of barn room, plenty of ventilation, plenty of pure water, and plentiful space, pre-

ferably one whole side of the barn, for ingress and egress, but the Western lamb has run a very trying gauntlet. He was brought from high altitude, very likely from desert-cured grasses that were easy for him to assimilate, he had a trying trip part of which was the dipping in Chicago or Omaha, and he lands here where there is comparatively a low altitude, less stimulating air and a complete change of feed. Many times I have grown suspicious of my feed because upon first arrival some symptoms

wrote and complimented the commission firm who had bought them for me. My letter had scarcely reached them before these lambs were beginning to act sick. They were receiving alfalfa and I promptly bought clover to substitute, but this was of no avail and the death rate became so alarming that I summoned the state veterinarians. They expressed sympathy for me and told me they hardly thought I would lose to exceed one-half the bunch, but could offer no helpful suggestions to arrest



Western Lambs Need Pasture After Arrival in Ohio

would be shown of forage poison, but I am inclined to believe that while, in instances, lambs have yielded to forage poisoning upon arrival here, they have done so because of their low vitality upon arrival. The feeds that poison them because they contain a trace of mold so slight as to be invisible to the naked eye, when they have been safely acclimated, will grow and fatten the same lambs. With us the biggest problem is to get the lambs safely by the first month or six weeks.

Two years ago I brought in 1500 head of lambs that were so good that I

the loss. These lambs had been dipped in Kansas City, allowed to dry a very short time, loaded on cars, and the weather turning cool, yielded to something like shipping fever.

In one 24 hours I lost out of this band a lamb an hour, but the total loss probably did not exceed 110 or 115 lambs.

Last year we received another band of 1500 that were just about as good to look upon and after a few weeks the lambs gave evidence of something like forage poisoning with which there is a partial paralysis and which in my case always proves fatal finally. This be-

came so serious that I called in the state veterinarian and the local veterinarian again. They found this band of lambs to be infested with a disease that I had thot mythical. These lambs really did have grub in the head, as we were able to determine by post mortem and it was the work of the grub that produced the paralysis rather than forage poisoning. We never had a healthy barn from the time the lambs were put in until the last ones were shipped and this, with a loss of 100 head strung out thru 180 days' feeding period was hard upon the nerves of the feeder. I am inclined to the opinion, however, that one does not run a likely chance of buying into this grub and if the premises are free from sheep for a period of three or four months, they should clear themselves from this pest. This year, however, in anticipation of further troubles I took some precautions that it seems to me it may be well enough for one to practice. I cleaned the barns and yards as clean as we could get them with a scoop shovel and hoe and then disinfected barns, racks and yards with a strong solution (1 to 5) of lime and sulphur. If I had been eating off of a plate for 20 or 25 years and in the meantime this plate had not been washed, I would be glad to have it at least disinfected. Whether this treatment was beneficial or not I may not know, but of one thing I am certain, that I have had less trouble with this band so far than with any band I have fed for the last 15 years. Furthermore, I am going to refrain this year from feeding any corn fodder upon the ground in the yards except at such times as the ground is entirely dry and clean, for I believe that one may get into trouble with lambs eating feed that is soiled. When the yards become covered with fresh

falls of snow or are even frozen solidly, it will be reasonably safe to feed fodder.

I have a feeder who has been with me a long time and who is wise in the ways of sheep and skilled in the way of placing the feed and I am glad to be able to say that in the last two wears he has killed with corn only one lamb each year. I think this would be as surprising to some feeders as the heavy losses from other causes would be surprising. I think the reason we lose so few now with corn is because of our manner of starting them and times for feeding them. We are starting them now (November 15 with a little chopped corn, only about 5 bushels to 1500 head, which is about as thin as one can place it in the racks. If this corn is not eaten we may feed no corn, or only thicken it up a little. As they learn to eat it, it is gradually increased until next spring they may be eating between three and four bushels of corn to a 100 head of lambs per day, but no matter how much we are feeding, it is all given them in one feed in the morning. This would not be a good way to feed a horse but a sheep is much better supplied with stomachs than a horse. If you should feed a lamb a hearty feeding of corn in the morning and should butcher that lamb the next morning, I think that you would still find that he had a reasonable amount of corn to be digested.

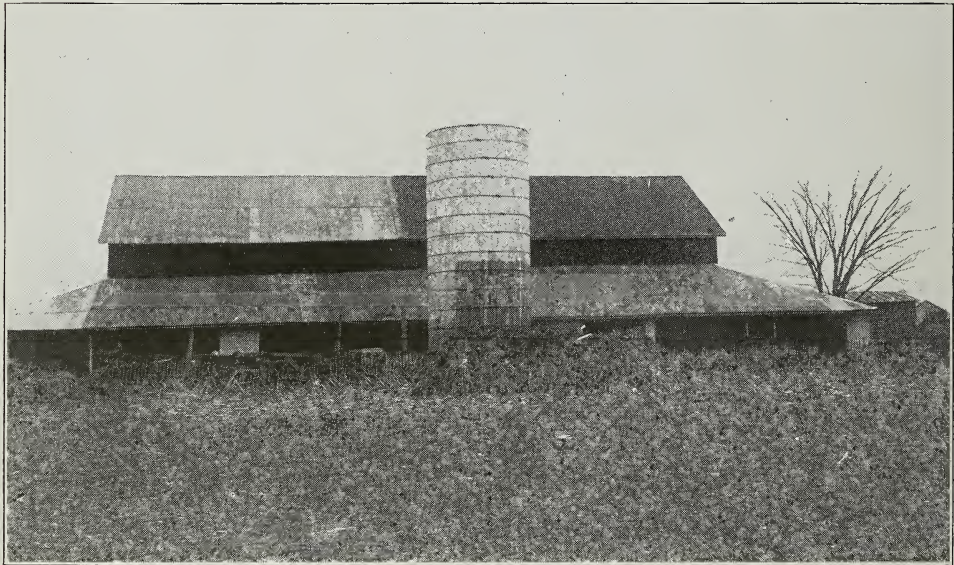
We generally carry lambs something like two of the ordinary periods, or close to 200 days. This would not seem to be an economical thing to do, but we find that while we are unable to get on an average two pounds for the entire period, and likely do not put on just now more than one pound a week (and lambs are doing reasonably well) that

we are able to put on a maximum of five pounds a week for the last 30 or 40 days. This, as you readily see, would be a condition not paralleled by cattle or hog feeding. We like to put on a gain close to 50 pounds for the entire period. Last year we did do that well and our lambs are considered plenty heavy for the market at selling time, but if they do not discount us more than 10 to 15 cents a hundred on account of excess weight I feel complacent.

We shear these lambs generally about the first of April and they do some better after being shorn. I will not care

to shear in February or March, simply to see them eat ravenously, as it is my opinion that they are compelled to eat to keep up the bodily heat.

As to the profit there is to be derived from feeding lambs, this nearly always consists with me in the increased fertility given to the farm. On a 20-year average, I think it is safe to say that the feeds would bring more money if sold off the farm. Last year, of course, was exceptional. This year can scarcely extend any hope of profit on the feed, owing to the excessively high cost of the feeding lamb.



An Efficient But Cheap Feeding Plant

PERMANENT AMERICAN HUSBANDRY

Factors Which May Determine the Future Method of Procedure

M. W. HARPER, Cornell University, Ithaca, New York

IN the United States during recent years food production, both plant and animal, has scarcely kept pace with the increase in human population. This is especially noteworthy in the production of most farm animals. This ratio of food production to population will be more difficult to maintain in the future, particularly if the population continues to increase as in the past. Since the foundation of the Republic the population has practically doubled each 25 years. While such remarkable increase is not likely to continue the time may be near at hand when the food situation will become sufficiently serious to make imperative certain adjustments in our methods of procedure, if indeed we are not at the present time entering this stage of re-adjustment.

In a consideration of this matter, some light may be gained by a brief comparison of Europe with America. A review of agricultural operations in the more advanced European countries and in North America reveals striking differences especially in the animal industry of the two continents. By experience the European farmers have learned that the most economic procedure depends upon conditions and most farmers in a given community pursue the same general lines of husbandry. This applies to general agriculture as well as to the animal industry.

There is concentrated effort in each community to produce that which gives best results and few indeed are the farmers who depart from this accepted plan of procedure and try to introduce other methods simply because they suit their fancy or are more economical un-

der other conditions as is so frequent in this country. This exceptional case serves to confuse the situation for it is probable that the farmer would be more successful if he were not an exception. The fact that a farmer succeeds does not prove that he has the best system. No doubt there are individuals who are more successful when handicapped by conditions as such handicap stimulates them to greater effort whereas were conditions favorable they would take matters with ease and fail.

The European procedure of producing that which gives best return under specific conditions, aided by other factors, has resulted in large yields per acre. We are likely to understand the importance of this as there have been no serious famines in the countries under discussion since the advent of modern agriculture which consisted in adopting procedure to conditions. In the final analysis, after all new land was occupied, this was essential to the increase of population which was limited to the producing capacity of the land. Such methods were fostered because of inadequate transportation facilities.

If the population of America continues to increase as suggested, we will find ourselves obliged to readjust our procedure according to conditions, similar to that of European countries. However, just here we come to a parting of the ways as American conditions differ widely. Many a conservative and well meaning person has been misled in this and has suggested or attempted European procedure in America because such had been successful abroad. As would be expected, since conditions were dissimilar, unlike re-

sults were obtained which were more or less disappointing and often resulted in failure. In America as in Europe, to attain best results we must mould our procedure to suit our conditions. Not until this is accomplished and desired results attained, can we hope for permanency in our system of farming.

Because of the wide range of conditions in our own country it is rather difficult to outline procedure that could be adopted generally. Possibly the best examples are to be noted in attempts to proceed when conditions are unfavorable as in growing dent corn in Colorado and Vermont because it yields abundantly in Illinois and Iowa; in growing spring wheat in New York because it yields well in North Dakota and in growing buckwheat in North Dakota because it does well in New York; in growing rice in California because it is economically produced in Louisiana; and in growing beans in Utah because they are grown in Michigan, as well as growing potatoes commercially in Arizona because they are so grown in Maine.

In animal industry, the misfits are even more numerous and of farther reaching consequence. One observes these wherever he goes, from the Atlantic to the Pacific, from the Hudson Bay to the Gulf of Mexico. True we find the so-called "butter cows" in communities where market milk production constitutes the major part of the farmers' business; and the so-called "milk cows" in regions better suited to other types; we find the lard hog in regions adapted to bacon production and attempts to produce bacon hogs in regions favorable for growing the lard hog; we find attempts to grow sheep commercially in dairy regions and attempts to make cheese in regions suited to the production of sheep.

We find white hogs in the corn belt where sold afoot, and black hogs near large cities where sold dressed; we find attempts to produce draft horses in the mountains of New England and attempts to produce trotting and coach horses on the prairies of the Central West; and other misfits often without profit but occasionally with marked success due to the application of a superior method which overcomes the lack of suitable conditions. However, had such advantageous methods been applied under suitable conditions, in all probability success would have been more marked.

Each of these cases is an attempt at production on a commercial scale. In general it is economical to produce material needed for home consumption, when reasonably convenient to do so. The inability to differentiate in this has confused many an American farmer who frequently attempts to extend that which he initiated to meet his needs and desires.

While the principle of the use of advantageous conditions is well established, yet we should proceed within the limits of suitable rotation in the production of both animals and plants. In America, this is significant as there has been a tendency to underestimate the advantage of such rotation, which has been fostered by lack of knowledge concerning conditions as well by the virgin fertility of the land.

The permanency of procedure is of course affected by permanency of conditions. This is often confusing and many persons fail because they seem unable or unwilling to take advantage of changing conditions. We have numerous illustrations of this, one of the most striking in the dairy husbandry of New York State. Formerly when there was less demand for market

milk, New York State produced large amounts of butter and cheese, which permitted extensive use of high testing cows giving a small flow of milk and such cows were very common. Conditions have changed lately and the demand for market milk has been so extensive that the making of butter and cheese no longer occupies a position of first magnitude with New York farmers. Notwithstanding this change in marketable product, the small high testing cow of butter and cheese fame remains on the farm tho the farmer finds it exceedingly difficult to compete with his neighbor who has adopted the "market milk" cow—the large cow giving a large flow of milk moderately rich in butterfat. The breed is unimportant so long as the cows meet the requirements.

This procedure is also often complicated by conditions. Some farmers, especially those of the valleys where the soil is rich and the land rather level, feed an abundance of rich nutritious food whereas some other farmers, notably those in the region of poor soil and in the hills, oftentimes do not feed so liberally. In the former case conditions are more suited to the phlegmatic cow capable of consuming tremendous amounts of bulky food; and the latter to the rather small, active cow capable of traveling far and wide

to procure her daily food. Notwithstanding this, in practice we frequently find the types reversed—the good grazing cow kept under conditions suitable to the heavy producing, phlegmatic cow and the latter under conditions suitable to the former.

So long as our procedure is at such variance with conditions we cannot hope for best results or permanent methods. There will be continual shifting from one plan to another as the appearance of profit rises and falls. This of course will be accompanied with all the disadvantages following such shiftlessness. This is more marked at certain times as following periods of under production, business expansion generally and expansion in credits. Hence this is an important matter at the present time, when we are striving to increase production. Care should be exercised not to introduce procedure where conditons are unsuited and thus limit maximum production, simply because of the appearance of profit. It is quite possible that the next few years are to be fraught with tremendous consequence in the production of human food. This may result in the adopting of that procedure which will return the maximum amount of human nutrients per acre and thus result in a readjustment of the kind of plants and animals produced under specific conditions.



OHIO'S SHRINE OF SPEED

Historic Incidents of Two Famous Race Horses of Fayette County

CLIFFORD T. CONKLIN, Department of Animal Husbandry, Ohio State University

ONCE each year, so the story runs, not a few lovers of the standard-bred horse journey to Orange County, New York, for a week of devotion about the historic half-mile track. After viewing the modest stable that housed Rysdyk's Hambletonian, gazing on the "tall shaft of Missouri granite which marks the last resting place of the hero of Chester," and gossiping with the grey-haired worthies who intimately knew Hambletonian, Dexter, American Star and Volunteer these pilgrims return to their every-day life with a strengthened devotion and a quickened faith in the trotter and pacer.

It is true that Ohio has no Goshen; in fact hardly a Lexington, but down in the heart of the corn-belt, about the little city of Washington C. H. may be located "Ohio's Shrine of Speed." About this town were born and reared horses and horsemen that have certainly left the stamp of the standard-bred on the community. Most of the horses have passed away, and are now forgotten, but a goodly number have earned the iron cross of the race-horse—a winning race in standard time. As one gossips about the stables, the sales barn or the hotel, many a reminiscent tale is told of the golden days of the half-miler. In one season in the late 90's more than 100 standard bred stallions stood for public service within Fayette County. And even tho the local interest is now waning, such horses as Bobby Burns, Blue Bell, The Bondsman, Wallace McKinney, Major Mallow and their contemporaries have left an impression on the good folk of the community that can only be ef-

faced by a few more gasoline decades.

Just inside the quarter-stretch of the Washington C. H. track is a neatly walled mound of earth which covers the withering bones of Major Mallow and Bobby Burns—heroes of Fayette County. Here they lie, side by side, stallion and gelding, never again to respond to the starter's gong, while around their humble sepulchre race the sons of Bobby Burns as they try to emulate the speed and cunning of Old Major.

Until 8 years of age Major Mallow was used as a general purpose horse on the Mallow farm in southern Fayette county. It is true he was sired by Box Elder and his dam was by Bobby Burns, but his awkward gait and plainness of make-up had stamped him as a poor track prospect, so Major earned his hay and oats by menial labor. Not infrequently he was called to pull a top-buggy over the country pikes in an effort to cancel a social obligation for the Mallow boys. And in after years when Old Major appeared on the track the heart of many a Fayette county lass must have kept time with the old horse's hoof-beats as the moonlight scenes were recalled. It was on returning home one evening in a rain storm that "young Wirt" Mallow found that the old horse could pace extremely fast. The next morning the Senior Mallow received an offer for Major, which he accepted, and Wirt Mallow started out to make a name for himself and the old horse.

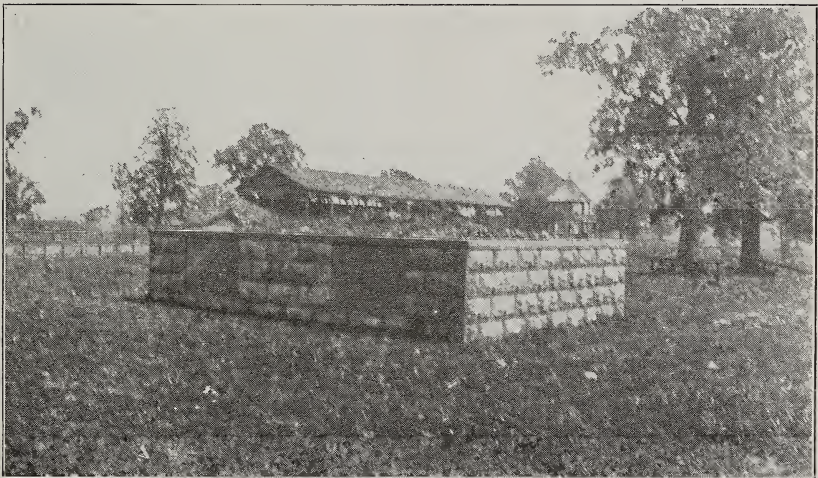
Altho a hobbled pacer Major was very consistent and successful from the beginning of his long campaign. His first season, 1906, gave him a race rec-

ord of 2:16 $\frac{1}{4}$. During the remainder of that season and the half dozen that followed he proved to be a great bread-winner, earning over \$30,000 in stakes and purses, and over 100 heats in standard time—a really remarkable record when one considers that small purses on half-mile tracks were generally his lot. Records were smashed by him on every side. Forty-nine winning heats in 2:10 or better he paced over half-mile tracks, more than any other horse in his time ever paced. As a fourteen-year-old horse, in his last campaign he started in 14 races, winning six and being placed second or third in all the others but one in which he was fourth. On August 8, 1910, when 12 years of age, Major took his record of 2:03 $\frac{3}{4}$ at North Randall, Ohio. On September 9, 1909, at Fairmont, W. Va., he paced his fastest mile in a race over a half-mile track, in 2:06. He paced an exhibition mile over the Washington half-mile track in 2:05 $\frac{1}{4}$.

On June 3, 1913, after a workout mile in 2:17 Major Mallow dropped dead on the Washington C. H. track.

Heart failure was the ascribed cause of his death. Thus passed away the king of the half-milers—an old horse that never quit until he had done his best. He was not a beautiful creature. In fact his plainness of feature was one of his outstanding characteristics but what he lacked in beauty he made up in speed and good sense. As a rule he was not a trailer but delighted in shaking off the field at the start. His prowess in getting around to the first turn ahead of his rivals is still a common topic of conversation with his admirers.

Without minimizing the other good horses, it was the beautiful Bobby Burns that was largely responsible for the harness horse craze in Fayette county. Foaled in 1888 in the stables of J. Cook & Co., of Georgetown, Ky., he remained in his native state until 1891, when as a 3-year-old he was purchased by J. L. and F. M. Rothrock, of Washington C. H. Almost from the first this horse was recognized as a sire of speed. At the time of his death at 25 years of age there were 137 of his sons and daughters in the lists. In 1907



In Memory of Major Mallow (2:03 $\frac{3}{4}$), World's Champion Half Mile Track Pacer, and Bobby Burns (2:19 $\frac{1}{4}$), Ohio's Greatest Sire, Inside the Track at Washington C. H., Fayette County, Ohio.

Bobby Burns proved to be the leading 2:20 sire and tied the great McKinney for new 2:15 performers. Farmers and horsemen in southwestern Ohio became aroused over the possibilities of owning a "speed hoss," and as a consequence Bobby Burns and his sons had ample patronage. The old horse's fees leaped from \$50 to \$60 and thence to \$80 and \$100. In one year 134 mares were mated to him at his highest fee.

Bobby Burns came from a line of horses that were remarkable in transmitting speed. General Wilkes, his own sire was by George Wilkes and he by Hambletonian 10, while his dam was Dixie by Dictator and he by Hambletonian 10. Joe Patchen 2:02 $\frac{1}{4}$; Roy Wilkes, 2:06 $\frac{1}{2}$; and Rubenstein 2:05 $\frac{1}{2}$ were grandsons of George Wilkes, while Dictator sired the wonderful Jay-Eye-See, 2:06 $\frac{1}{4}$, and was the grandsire of Directum, 2:05 $\frac{1}{4}$ and Direct 2:05 $\frac{1}{2}$. Real foundation stock was on both sides of his pedigree and they proved to be breeders. Such latter day performers as Directum I and Napoleon Direct, son of Walter Direct trace to the dam's side of Bobby Burns' pedigree. Little wonder that he proved a prepotent sire of speed, notwithstanding the large number of cold-blooded mares that were mated to him.

Glenwood M, 2:07 $\frac{1}{4}$, proved to be Bobby Burns' fastest son and was one of the few good trotters which he sired. Bernice, 2:07 $\frac{1}{4}$; G. W. D., 2:08 $\frac{3}{4}$; Lydite, 2:09, and Jim Kennedy, 2:09 $\frac{1}{4}$, were some of Bobby's pacing offspring that became well known on the half mile tracks.

When first brought to Ohio, Bobby Burns was trained to trot but later was given a chance to pace and acquired his race record of 2:19 $\frac{1}{4}$ at the latter gait—but that reminds me of another

story. I was watching the races one afternoon this fall at the Warren County fair at Lebanon, Ohio. There was a good field of 2:13 pacers and among them, Archie Burns, a handsome son of Bobby Burns, but going a little lame. "Uncle Steve" Phillips, now past the allotted three score and ten, who years ago so successfully campaigned the well known Blind Tom was driving Archie. The first two heats were sizzling "wire-to-wire" drives, with Uncle Steve bringing Archie home in the dust, well behind the field. As he climbed into his seat for the third heat I heard him tell the stable boys that Archie wasn't going to have "any buggy ride" that time, and such proved to be the case, for the old man fairly carried that lame pacer from start to finish. He fought for a place on the turns, then opened up on the back stretch. As they headed home he wedged Archie between two of his rivals, and driving with all his old-time spirit he brought him home a winner, just nosing out the speedy Patsy Dumas.

As I walked back to the stables with Uncle Steve I asked him if he didn't find it strenuous, not to mention dangerous, to drive in such warm contests. Then the old gentleman told me how just 25 years ago he had driven Bobby Burns, Archie's sire, to victory at Columbus. And as there were not many youngsters from the old horse yet to be raced to a record he had tried his best to drive Archie Burns home in front of the field. Then Uncle Steve told me about Bobby's race, how they used the old-time high-wheeled sulky, and how many of the horsemen believed that the pneumatic tire was not fair because in going over tiny pebbles the tire would assume its former shape and thus

aid the horse. Those were the days of Budd Doble and John Splan, when Nancy Hanks was claiming the crown of the track.

A story of Bobby Burns would hardly be complete without mention of that husky "gentleman of color," "Buck" Cole, who cared for the old horse during his entire life in Fayette County. To Buck, Bobby was all that made life worth living. Across his ample chest Cole now wears a chain with a cast figure of his charge, which Mr. Rothrock gave him as a reward for his 19 years of faithful service in caring for the grey stallion. In a reminiscent vein "Buck" tells how the populace of Washington C. H. pointed out Bobby Burns as their local celebrity as each evening he was given his exercise on the city streets. Every detail of the night in which the venerable Bobby died he graphically recites, and on each occasion he concludes his remarks with the statement, "An de nex' mawnin' dey past de wo'd aroun', Bobby Bu'ns is de'd."

But when he has finished his hearers know that they have heard a horseman speak. To him Bobby Burns was an ideal, "a perfect hoss," as he says. He lived with him, watched over him in sickness and in health, and when the old horse died he was robbed of a friend that was closer than a brother.

But enough of Bobby Burns and

Major Mallow, interesting though their stories be. They lived in a period when the standard bred was writing chapters in its history. Perhaps they are fast becoming a thing of the past, but surely their influence is not yet entirely spent. The country folk, their love for the race horse, the trainer in almost every small town with his string of prospects, the periodic horse sales on the streets, and the big sales barn are all there today as evidence of the life that once was.

This summer 3100 army horses were shipped from Washington C. H. on a contract filled by Harper Bros., of Atlanta, Georgia. The inspecting officers examined horses in Cincinnati, Lexington, Louisville, and Washington C. H., and according to their statements the Fayette county horses as a class were superior in substance and conformation to any that they inspected on their circuit.

And as I saw some 200 cavalry mounts munching their hay in the corals that had been improvised about the big sale barn, I thot that perhaps the standard-breds of Fayette County were still "doing their bit." No longer an economic factor in agriculture, these horses were maintaining the old-time standard of excellence for Fayette County in helping to win the world war.

WHAT OF OHIO'S SHEEP INDUSTRY?

Causes of Decline and Outlook for Future of the Buckeye Flocks

J. W. HAMMOND, Ohio Agricultural Experiment Station, Wooster, Ohio

THE decline of the sheep industry in Ohio is a story too well known to those familiar with Ohio agriculture to need further comment. To state the real causes of this decline is more difficult. The practical sheepman, however, is not much interested in a discussion even of the influences which have caused Ohio to surrender her former position as the leading sheep state in the Union, except as it may throw some light on the future and enable him to avoid some of the obstacles he has encountered in the past. For this reason it is worth while to consider some of these alleged causes and their probable influence on the future of the industry.

Factors of Decline.

When the owners of sheepless farms are asked why they do not keep sheep the answer is probably "dogs." Statistics from the Auditor of Ohio show that the number of sheep paid for, both killed and wounded by dogs, is somewhat less than 1 per cent of the total number in the state. While it is impossible to determine the extent of the indirect damage caused by dogs, it would usually seem to be a liberal estimate to say that it is no greater than the direct loss from killed and wounded making the total loss due to dogs from $1\frac{1}{2}$ to $1\frac{3}{4}$ per cent. While this loss is greater than should be tolerated it probably is not so serious as the deterring effects which keep many men from keeping sheep. The dog nuisance is serious in some sections close to large towns and cities and in the mining regions but with a direct annual loss from dogs of less than 2 per cent, it seems that the

danger from dogs is overestimated except in the localities mentioned. Public sentiment against the dog and favorable to sheep seems to be growing as is evidenced by the enactment of better dog laws and if this sentiment is sufficient to call for the enforcement of these laws, the dog will be less of a nuisance to the sheep industry than it has been in the past.

Even the complete elimination of the dog menace could scarcely be hoped to restore the sheep industry to its former proportions because other factors of equal importance have been at work to eliminate the sheep. Chief among these should be mentioned the introduction of the dairy cow into localities where sheep formerly were the leading class of livestock. In many localities dairying is more profitable than sheep raising and it is neither expected nor desired that the sheep should regain their former popularity. On the other hand there are localities more remote from centers of population that have adopted dairying and finding it a less remunerative business than they expected, are again turning their attention to sheep. There is room in Ohio for more dairy cattle and for more sheep whenever our needs demand them and the same causes which will demand more of one will likely demand more of the other.

Low prices, blamed by many to a lack of tariff certainty, also come in for a good share of the blame for lack of sheep in Ohio. With but few exceptions, men who have raised sheep persistently and intelligently have profited, but the industry has passed thru

periods of low prices which have caused all but the most optimistic to lose faith. It is not expected that present prices for wool and mutton will be maintained but the world's consumption has so nearly caught up with production that, tariff or no tariff, it seems fair to assume that he who produces any class of goods to satisfy the legitimate wants of man will receive a fair reward.

Parasites are one of the chief causes

the business. This is particularly true of those sections of the state where the sheep business has been run on a fine wool basis to the neglect of mutton production, where too many wethers and too few ewes have been kept. Even in the most conservative sections however, the wether is coming to be a thing of the past. Breeders are learning the advantages of selling their wethers as lambs and also that the most profitable type of ewe that will yield a good fleece



Merino Ewes on the Farm of C. M. Cleaver, Delaware, Ohio

of poor returns from sheep. In past years good flocks have gone to pieces in spite of the best efforts of the owner because of "paper skin" which is caused by internal parasites. No panacea for such troubles has been discovered but by the use of such preventive measures as clean pastures and the regular feeding of blue vitriol or gasoline parasites can be held well under control.

Failures to receive profitable returns from sheep are sometimes due to a failure to keep abreast of the changes in

possesses sufficient constitution, milking qualities and mutton conformation to produce a lamb with good killing qualities.

Effects of the War.

Conditions brought about by the war have given the sheep industry a great impetus, but the increased activity can not be credited solely to the war. Before the outbreak of the war indications were that the industry was taking on a new life. The shortage of meats of all kinds had been becoming acute for almost a decade. The United States

produces less than one-half the wool necessary to clothe her people and with the world's wool production decreasing in proportion to the consumption it was apparent that America must raise more sheep both for wool and meat. If any increase in sheep raising comes about, it certainly will be shared by Ohio whose topography makes it one of the best sheep breeding and finishing states of the Union. From one-third to one-half of the area of Ohio is hilly or rolling and better adapted to grazing than for any other line of agriculture. This area could produce several times the amount of wool than it does at present and at the same time produce many feeder lambs to be finished in those parts of the state where a surplus of corn is raised.

Methods of Breeding.

Increasingly strict economic conditions make it imperative that any permanent increase in our sheep industry must be based upon efficient methods of production. First of all the sheep raiser must get started with that system of production which is best suited to his local conditions and which will best meet market requirements. The question most frequently arising in this connection is concerning the relative merits of the fine wool and of the mutton breeds. This is a question to which no answer can be given that will fit all cases. Under some conditions and in the hands of some men one type will be the most profitable and vice versa. One thing that seems certain, however, is that in some sections where Merinos predominate, more attention should be paid to mutton production. Ohio possesses some of the finest Merino blood in the world, the loss of which would be an irreparable damage. Merinos outnumber any other breed in the state and because of their peculiar fitness the

ewes will doubtless continue to be the basis of sheep raising in Ohio. The raising of Merinos and the production of choice mutton are not incompatible as was largely true at one time. Types of Merino have been developed which will produce a fleece of good quality and weight and will also raise a lamb with a creditable carcass. Crossed with rams of the English Down breeds, such ewes will raise lambs but little surpassed from the standpoint of the butcher or in the rate and economy of gains.

While the practice of crossing mutton rams on Merino ewes is rather common in Ohio, altho not so common as in some of the range states, it meets with some opposition among Merino breeders. The argument advanced against it is that it would ruin the Merino breed. An abuse of this practice would have just such a result but there are conditions under which it would probably have opposite effects. Such conditions prevailed for several years prior to the outbreak of the war. Wool was cheap and the demand for mutton lambs was good and many owners of fine wool flocks were to the point where they were to sacrifice their sheep entirely or to dispose of their Merinos and replace them with more strictly mutton breeds, as was done in many cases. To avert such a course a campaign was conducted mainly thru the farm press, to urge owners of grade or unrecorded Merino flocks to breed their ewes to rams of some of the Down breeds. The fact that conditions brought about by the war have perhaps lessened the need for such a practice does not mean that the advice given was not sound, as it doubtless resulted in the saving of many Merino flocks that would otherwise have been dispersed. Experiments are in progress at the Ohio Agricultural

Experiment Station to secure data concerning the merits of crossing rams of the down breeds on Merino ewes. It is too early to draw definite conclusions but the data thus far indicate that, because of their maturity, the cross-bred rams are the most profitable when they are to be sold during the summer or fall at from 4 to 8 months of age but when lambs are to be kept thru the winter and shorn before they are marketed there seems to be no advantage in crossing.

With the present shortage of breeding ewes it is doubtful if even cross bred ewes should be sent to the butcher but under normal conditions it can not be too strongly urged that all cross-bred ewes be marketed and enough of the best Merino ewes bred to Merino rams to maintain the ewe flock with respect both to size and quality. Any other ewes or crossing mutton rams on fine-wool ewes would ruin our fine-wool flocks and is to be condemned.

Whatever breed of sheep is kept, constant care should be exercised to preserve the best individuals and to weed out the poor producers and loafers. Records kept upon the breeding flock at the Ohio Agricultural Experiment Station show that some individuals are not only far superior to others as producers but that merit or lack of merit in this respect is, in considerable measure, transmitted to their offspring. This emphasizes the need for rigid selection if the most profitable flock is to be maintained.

Another item which must receive more attention from flock owners in the future is the selection of proper rations. Poor returns from sheep are too frequently due to scant or poorly balanced rations. Ewes that are required to subsist during the winter on oat straw, or even on timothy hay with but little or no grain, are not likely to produce a crop of lambs with sufficient vitality to make rapid or most profitable gains. The practice of letting lambs run with their mothers summer and fall, particularly if the pasture is scant and unpalatable is usually responsible for the scouring, emaciated, parasite-infested lambs too commonly seen in the fall and winter. Leguminous roughages combined with a moderate amount of grain, at least after the ewes have lambed, will stimulate a milk flow that will be reflected in the vigor and rapid growth of the lambs. More extensive use of silage should be made and more annual pasture crops should be raised to supplement the permanent pasture during the fall droughts. A small patch of rape for the lambs after they are weaned, from 4 to 4½ months of age, may mean the difference between a profit or a loss on the lamb crop.

So far as it is possible to forecast the future, the indications are that sheep raising will be more profitable than in recent years, but to make it so flock owners must exercise greater care in the breeding and feeding and other details in the management of the flock.

LIVE STOCK SHOWS AT COUNTY FAIRS

Experiences and Evils Connected With Poorly Conducted Exhibitions

HENRY W. VAUGHAN, Iowa State College, Ames, Iowa

BEGINNING ten years ago at a little district fair in Ohio, down near the Ohio river and five miles from a railroad, the writer has had some experience in judging live stock at county fairs which have made a lasting impression. Some of these experiences have been highly entertaining, some have been instructive, and some have been more or less fraught with peril. Summing up the entire round of experience the one fact that stands out in bold relief is that the stock show at the average county fair falls far short of being truly educational and beneficial to all concerned.

At the first show down there near the Ohio river we were judging Shorthorns. The cattle superintendent instructed the marshal to call in the bull calves. The marshal rode his horse down around the barns crying, "Bring in your Shorthorn bull calves!" Soon he returned and said, "Mr. Superintendent, there is only one calf on the grounds, and he got loose and is back there somewhere in the woods. They are looking for him now." The superintendent pondered for a moment and then handed the marshal a blue ribbon saying, "Well, here's the ribbon, when they find the calf just tie it on him." This made it easy for the judge, but a question might be raised as to the ethics and the educational value of awarding blue ribbons to calves running loose in the woods and which the judge and the management had never seen.

Recently at a fair in Iowa a class of foals was lining up for inspection. All kinds of foals were being brought in—

draft foals, trotting-bred foals, Shetland pony foals, mule foals, pure-bred foals, grades, and some that could not be classified other than to say they were foals. "How's this?" asked the judge of the superintendent. The latter consulted the premium list, read the brief requirements of the class, and finally announced that so far as he could see they all had a right to show in that class, and so the judge proceeded under protest to award the ribbons. Where was the educational feature of that show?

At another fair the judge learned to his dismay that it was the custom of that fair to allow all animals to show for sweepstakes, whether they had been winners in the various classes or not, and furthermore that another judge was always selected to award the sweepstakes ribbons. Protest against this method of procedure availed nothing. It was stated that a change of judges created interest in the show and gave the losing exhibitors a chance to win in the sweepstakes ring. All of the beef bulls of all the breeds were brought into the ring and inspected by the local cattle buyer who selected for championship a bull that had been placed only second in his class. Now the cattle buyer may have been right in his decision, but where is the educational feature of such a system of showing and judging?

The average county fair holds its stock show on any level piece of ground, no ring being roped off, and no seats provided for the onlookers. The crowd presses in closer and closer, interfering with the showing and the judging, and

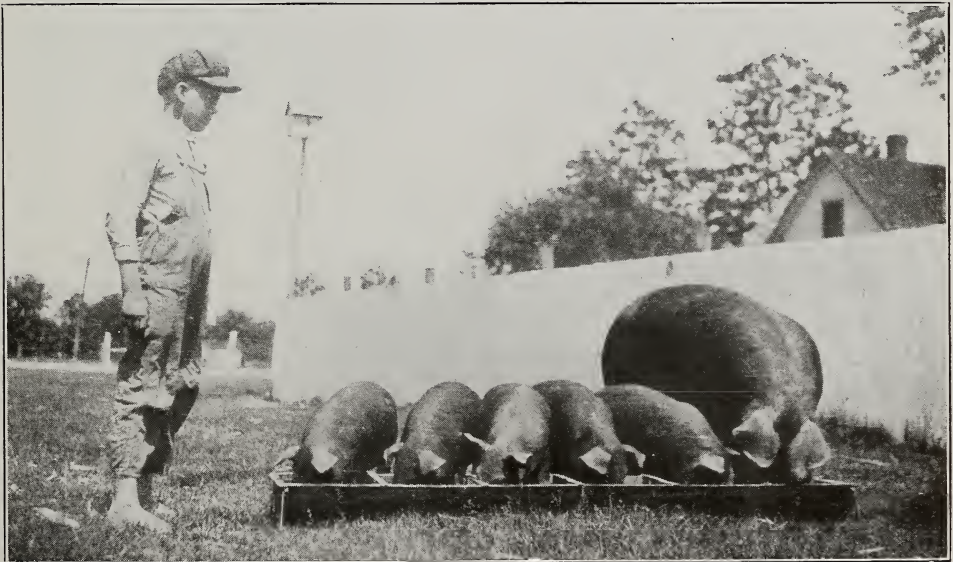
the superintendent usually engages in conversation with someone in the crowd and cannot be found when needed. The judge often finds it necessary to not only award the prizes, but also to act as ring steward, policeman, and clerk. This is often a man-sized job.

Too often the crowd has no way of finding out what is being judged. No announcement is made of what class is being judged, of the conditions imposed by the premium list, or of the awards when they are made.

Many county fairs still persist in offering prizes for general purpose horses and some still provide classes for grade stallions. Many also provide for the showing of all breeds together for the championships. There is nothing educational or worth while in such shows but they do much harm and no good.

How refreshing it is to find a county fair once in a while that does things

right. A regular judging ring is provided which is kept clean and in which no persons are permitted except the officials and the exhibitors. Seats are provided for the onlookers. The superintendents are efficient, the classification is clearly defined and modern, the stock is presented promptly and in good condition, and the show moves along in a business-like manner. Announcement is made of the class to be judged, and of the winning animals and their owners when the decisions are made. The dominant idea of such a fair association is to make the show educational for all the people and an inspiration as well. The public likes to watch such a show, the exhibitors prefer to show there and the judge enjoys his job. Such a show fulfills its mission. The only regret is that there are so few such shows among the county fairs.



Picking Out the Prize Winner

PROFITABLE PRODUCTION OF BABY BEEF

How This System of Farming Can Be Used to Utilize Unredeemed Land

CLARENCE M. BAKER, Department of Journalism, Ohio State University

WHEN Felix Renick drove his first bunch of cattle from the Scioto Valley into Baltimore in the pioneer days the event was heralded as the beginning of the beef industry in the United States; likewise when it was found that feeder cattle of the West could be secured and fattened at a good profit the beef industry was given an unusual impetus. At the present time however, a new era seems to be dawning which in short is the growing and fattening of baby-beeves as one operation on the corn-belt farms. At least a commendable system is being developed on the farm of Byron Hawley, Woodstock, Champaign County, where from a 400-acre farm of which 110 acres are in bluegrass, from 45 to 50 prime beef calves are produced each year in connection with the regular system of grain farming.

On the Hawley farm however, the baby-beef production is dependent almost entirely on the pasture land and the roughage from the farm. One hundred and ten acres of bluegrass pasture with the other farm roughage makes it possible to turn off a calf crop valued at approximately \$2500 each year; these calves with their mothers were fed entirely during the summer from the pasture and the matrons are wintered on hays and corn stover. Practically no grain is fed except at calving time until the calves weigh about 550 pounds or just at weaning time.

Ordinarily Mr. Hawley feeds out the calves until they reach the 1200 or 1300-pound mark but during the past few years he has sold them just as soon as they are weaned. Last year he re-

ceived 10 cents per pound for them as feeders and this year 11 cents was realized. His 46 head this season averaged 550 pounds on November 1 and the total income from the baby-beef was \$2783 gross. In previous years the buying feeder has always made money in feeding out the calves so that the proposition is practicable.

Mr. Hawley's system of farming is carried on in such a manner that the yields of grain crops are: 90 bushels of corn, 40 bushels of wheat and 80 bushels of oats per acre. The wheat is generally sold; the corn is fed to hogs and the beef herd is dependent entirely on the 110 acres of bluegrass pasture. Generally from 300 to 400 hogs are fattened each year.

The bluegrass pasture system is used so profitably that this system of baby beef production stands as a lesson in farm management to Ohio farmers who have considerable areas of land not adapted to grain farming. The bluegrass pasture land may be regarded as unredeemed or at least difficult to drain for field crops. A part of it is cut-over timber land with just enough shade trees standing for cattle pasture. However, this kind of land grows good bluegrass and in many places it stands from 18 to 24 inches high even in the autumn affording luscious feed for the cattle. The care and management of the pasture has considerable to do with the success of the baby-beef production. This pasture is never overstocked and no cattle are turned on it in the spring until the grass has a good start.

A breeding system that produces a uniform product is the only one that is

considered by Mr. Hawley. A cross of a pure-bred Angus bull on Shorthorn cows is always black or blue-roan in color and carries all the desired characteristics of a good beef animal. This cross is practically the same as is used in Scotland, a country long known as producer of prime beef. Desirable heifers of a solid black color are saved for breeders and used to replace the matrons that are sold because of old

backs and deep loins at once proclaim themselves as the kind that will go into the feed-lot and utilize every bit of grain and roughage to the best advantage. The uniformity is due to a commendable system of management. Mr. Hawley plans to have all or a greater part of the calves dropped in March or early April. In fact in the lot of 46 head, there is scarcely three weeks difference between the age of the oldest



Mr. Hawley's Herd On Bluegrass

age. However, the aged cows bring as much for beef after 10 or 12 years of service as if they were sold as baby-beef, so the depreciation of working capital in the form of beef cows is small. Because the breeding cows are always secured from the herd no disease like abortion has found its way into the herd.

The uniformity of the calves produced is perhaps the third factor that will stand out prominently after one has considered the feeding and breeding side. A lot of 40 or 50 calves, all solid black or blue-roan in color with broad

and the youngest. This plan makes the period of calving come at a time when the activities of the farm have not begun for the season. The calves, with their mothers, are kept in a box stall for three or four days and then turned with the rest of the herd. As soon as the pasture is ready, the calf with its mother needs no particular attention until fall. Last spring 47 dams raised 45 calves and during the last 5 years a calf crop of 85 to 90 per cent has been realized. During the winter the breeding cows are generally fed corn stover, corn silage and alfalfa and only receive but

little grain near calving time. They also have the run of the corn-stalk fields until January 1. This conserves and utilizes all the roughage from the 400-acre farm and turns it at a good profit.

The fourth feature of interest is that the service of only one man is required to look after the herd. In summer practically no attention to the cattle is required and one man feeds them in the winter. Of course, extra labor is required to run the 400-acre farm, but as far as the beef cattle proposition is concerned, none of the farm labor except for the one man, can be charged to it. A tight barn yard, handy silos and a good bank barn makes it possible for the cows to be kept in comfort.

The Hawley system of beef production, as applied to Ohio farms has many advantages. And in considering these, it must be recognized that after all food conservation and war-time dieting, the American people will never forget the tempting beef steaks and roasts. Meats must be had under all circumstances. Even tho the cuts of beef would only be utilized for producing good gravies, so that other foods could be rendered more palatable, the producer of prime beef would be needed.

First of all there are many acres of waste land in Ohio not profitable for grain farming and another class of land that will not stand the necessary capitalization to render it profitable for dairy farming. Coupled with this is the extraordinary shortage of labor. In many cases it is impossible to practice more intensive farming because of the scarcity of labor. On high-priced land, which is fertile and productive, dairying will be more profitable than beef production.

The economics of the system is apparent. By valuing the 110 acres of

unredeemed land and pasture at \$125 per acre and the 47 head of matrons at \$125 each, the total capitalization of the enterprise is in round numbers, \$20,000. At 6 per cent interest, a profit of \$1200 would render it a fair business investment, but from \$2400 to \$2600 is realized annually. The fact, too, must be considered that when a cow becomes unprofitable as a breeder, her beef value has not materially reduced so that her money value is realized after 8 to 10 years of service as a breeder. The introduction of new stock and the sale of old renders the proposition almost self-sustaining as far as working capital is concerned. The profit realized above \$1200 would go a long way in paying for the roughage consumed during the winter and the labor required. (However, the roughage consumed by the cows is a kind that practically only beef cattle can utilize at a profit and a class of roughage that is often allowed to waste on corn belt farms, namely foders and coarse hays.)

The value of the manure also adds a profit not heretofore considered. The fact that Mr. Hawley can maintain the grain yields of 90 bushels of corn, 40 bushels of wheat and 80 bushels of oats per acre with a minimum amount of fertilizer makes the system as near to a permanent agriculture as one could ask. The value of manure in this case would offset a considerable amount of labor and the value of the roughage consumed. While the herd of the Hawley farm is made up of quite a number of pure-breds, he does not deem it necessary for a beginner to start with pure-breds, but rather with grade cows possessing a considerable amount of beef blood. Mr. Hawley began his beef herd when cattle were cheap and by persistence made the proposition profitable. At the present time, however, there are

many cattle on the market of sufficient beef breeding to make them profitable dams for a farmer starting to produce baby beef. At least the opportunity holds more assurance now than it did when Mr. Hawley instigated his system eight or ten years ago. Whether the breeder will choose to feed out the calves after he has raised them will depend upon his taste and ability as a feeder; range cattle are becoming scarcer and the demands for beef greater. The present day need is to grow the 600-pound kind and the feeding out will take care of itself. Ordinarily when Mr. Hawley feeds out his calves, they average from 1200-1300 pounds at 14 months of age.

After considering all angles of the baby-beef proposition, the utilization of the bluegrass pasture with the unredeemed land presents itself as the most singular of the entire system.

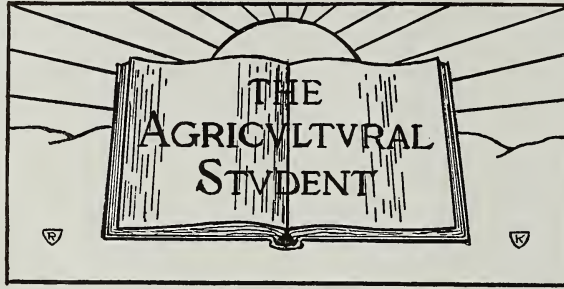
Even though seeded 24 years ago the bluegrass stands as thick as ever and

shows no signs of losing out. When the land was partially cleared it was given a thoro harrowing to remove the briars and small growth and then 24 bushels of seed applied to the 11 acres. Another harrowing was given the following year but no livestock was allowed to pasture on it until two years after seeding. Thus every opportunity was given the bluegrass in the start, a consideration which every livestock grower will find profitable to make where bluegrass pasture enters into the problems of management.

In short, the application of this baby-beef system would fit best with the land owner or operator who has unredeemed land and farms sufficient crop acres to produce considerable amounts of roughage. Even on hilly land and farms where only enough roughage could be grown to maintain the cows and provide plenty of pasture, the system would be more profitable than grain feeding.



Where the Matrons Are Housed in Winter



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COLUMBUS, OHIO, DECEMBER, 1917.

EDITORIAL

DECEMBER.

WHEN December makes her yearly call the mind turns toward Christmas, snowstorms and the New Year. To thousands, yes to all Americans, Christmas and the New Year will have a far different meaning from what they have had before.

The thousands who have left their homes and entered the service of Uncle Sam will not be able to experience the joy of a real Christmas but they will realize that the Spirit of 1917 is not one of peace and good will but rather of war and hatred. To them and to others even the snowstorms will be an unwelcome guest because it is only the foreboding of the intense suffering, want and desolation that will settle upon the world ere this winter has passed.

The New Year will see extended and

unlimited preparations for carrying on the conflict that is to decide the fate of humanity. But it may also bring new hopes and higher ideals to men and nations so that before another Christmas has come we may all be able to see the results of the real Christmas spirit—peace and good will.

SHEEP DESERVE CARE.

WITH the present scarcity of wool and the corresponding increased demand, it is important that as much as possible be grown and marketed in good condition. The need for more wool has already passed the soldiers and entered the civilian ranks so that it has become almost as great as the need for food in some places.

Since the pastures are so short this fall, it becomes necessary to feed large

amounts of leguminous hay to the flock in order to keep them in good condition to start the winter. If they can be fed cheaper on roughage, some grain should be used along with a protein feed to balance the ration. This will keep the ewes in good condition and also increase the growth of wool.

Special attention should be given to keeping straw and chaff out of the wool during the winter as the buyers always prefer a clean fleece and usually pay a higher price for it. A clean place to run, good bedding and proper care in feeding will eliminate much of this trouble.

The coming lamb crop has an important part to fill in supplying wool for our future use, hence it becomes a duty for each flock owner to care for his sheep and feed them in such a way as to produce the largest possible number of lambs. Proper management and intelligent feeding of the small flocks mean more than ever before in the history of the sheep industry.

LIVE STOCK OPPORTUNITIES.

THOSE who travel considerably over the State of Ohio say that there is a noticeable lack of live stock on the farms today. No difference whether it is a dairy farm, a beef cattle farm or a sheep farm, the one statement will apply to all. The dairy farmer is raising only enough to keep up his herd, feeders are not stocking their pens and a flock of sheep is so rare as to cause remarks when seen grazing in the fields.

There are two outstanding reasons for this: live stock has brought high prices in all markets and feeds were too high to grow and finish the young stock. As a result of this thousands of head of breeding stock have been sold

rather than kept to eat the high priced feeds, and nearly all young stock have been marketed more profitably than they could have been kept and finished. Other factors have contributed their share in this severe reduction but these have been the main ones.

This condition offers an opportunity to the man who is farming on a permanent basis and who has faith in the future of live stock. High prices for feeds will undoubtedly prevail for some time but they necessarily must become cheaper long before live stock becomes plentiful. The farmer who has a supply of live stock or the foundation for producing one will reap the result of his foresight in the reorganization of normal conditions.

Live stock will prove a good investment in conserving the fertility of the soil and affording a market for coarse or waste feeds produced upon the farm. This has been recognized by nearly all farmers but many may fail to realize its importance in this time of high prices for feeds and stock.

It is true that live stock causes more work but it is better distributed throughout the year. Distribution, not the amount of work, causes the labor problems. The man who furnishes employment for the entire year can secure help easier than those who want aid only thru the harvest season. From many standpoints, live stock offers greater opportunities than ever before.

WATCH FOR TUBERCULOSIS.

LAST year hog tuberculosis sent 66,000 carcasses into the fertilizer tanks causing thousands of farmers to turn their corn, alfalfa, concentrates and skim milk into low priced grease instead of edible meats. A repetition of this great loss would be disastrous

to the country in this time of poor food supply. Most of these tuberculin hogs came from the dairy districts but there are two ways of preventing this loss in those regions.

In the first place all skim milk from the creamery should be pasteurized or cooked before it is fed to the hogs. This has been found to be the easiest and surest way to kill the germs which cause the disease. All hogs should be kept away from the dairy cattle unless the cattle have been tuberculin tested. It is also necessary that the drainage from the dairy be kept out of the hog lots as this is just as dangerous.

Hogs are not apt to get the disease from beef cattle as they are less liable to have the disease and are generally sold before the disease develops to the point where the droppings will be infected.

It is important to keep the healthy hogs in clean, well drained lots and supply them with plenty of fresh air, sunlight and water. If the herd was infected last year it is best to sell the herd and raise clean healthy hogs from fresh stock.

KEEPING FARM ACCOUNTS.

THE growing season is over, the crops have been harvested and partly sold, the live stock is in the barns and the farmer who has planned and worked has a good sized bank account for his trouble. But there are only a few who can fully explain just where the money came from because most people do not keep accurate accounts to explain their gains and losses.

The crops have yielded fair returns and the live stock has done as well but the problem that confronts everyone is—which has been the most profitable and which has been a loss. There may be some crops which you have

raised at a loss or there may be some individual animals in the herd which are not paying for their feed. If no record has been kept of the cost of producing each crop and feeding each animal, then it is only guesswork and no decision can be made.

On the other hand if accurate, systematic records have been kept it is only a small problem to check up each crop and each class of live stock to see just where they will stand on the balance sheet. When this is known there is a basis for increasing profits by discarding the unprofitable animals and keeping the young stock from the most profitable individuals. It is safe to say that the time spent in keeping farm accounts will be highly profitable.

DRAFT HORSE DEMANDS.

Have we reached the "Horse-less Age" of which we heard so much a few years ago? Is the horse losing out because of the great number of tractors, motor-trucks, and automobiles in daily use? There is no doubt that the roadster type of horse has lost a great deal of the prestige which he formerly possessed but with the drafter it is a different story. The tractors and trucks are doing the work which would require thousands of horses but on account of the great increase in that sort of work they have supplemented rather than supplanted the horse. In some cases of course the motor vehicle is the most economical but on the short hauls on crowded streets where frequent stops are necessary the horse has held and will continue to hold his own. The trucks and tractors have helped to evade a crisis in the horse market for even with the great number of them in use the demand for sound draft horses is greater than ever before.

The curby hock, the spavin, the

ringbone and other defects which farmers often look upon as matters of no importance must all stand aside when the horses are selected for the armies. The various governments are encountering no small amount of difficulty in securing the proper number of equine beasts of suitable conformation and soundness to pass the examinations and be certified as "physically fit." Naturally the owner of a sound and qualified horse will receive a premium for him while the condemned animal will pass without receiving a single bid. Nor is this only a temporary demand for many of the sound horses, especially the geldings, are leaving this country never to return so the market demand for good horses is undoubtedly on the up grade. If we are going to raise horses, raise good ones which require only slightly more investment but bring the long price when placed upon the market.

STUDENTS ENLISTING.

DURING the last few weeks many of the agricultural students have left the college and enlisted in some branch of the government. There may be various reasons for this but the dominant idea seems to be that each one wants to choose that branch of the service which may particularly appeal to him and thus avoid getting into

something for which he has no liking. And since the order has been issued not to enlist any registered man after December 15, many who feel that they will be drafted in the next call are enlisting now. This is the only advantage that can be secured by enlistment.

If the government wanted or seriously needed more men, it would call them out at once so there surely can be no great showing of patriotism in the act. But the patriotic man is the one who stands ready to do his duty whenever and wherever the Government calls instead of rushing ahead and adding to the general confusion.

The next draft will not come until spring and there are many things that may turn in our favor before that. Who knows but that there may never be another draft, who knows but what the war may be over? It would indeed be a surprise but great changes have happened in shorter time than that. Whatever may happen we can lose nothing by waiting and performing our regular duties.

It does seem that those who have been trained to do agricultural work could be of more service in the fields, producing foods and supplies, than in the trenches. Farmers and their sons are not "slackers" but the government should consider the facts and place every man where he can do, not his "bit" but his "best."



USE OF CORN SILAGE IN RATIONS FOR STEERS

Results of Experiments With This Feed at the Pennsylvania Station

PAUL GERLAUGH, County Agent, Bowling Green, Ohio

IT is not so many years since corn silage was regarded as a feed unsuitable for dairy cows. This opinion has been thoroly disproven and silage is now used for feeding all classes of live stock tho its use will in all probability be largely restricted to cattle and sheep. Corn silage is now regarded as being essential in a steer's ration in order to make feeding a profitable occupation but the extent to which it may be used is not widely known.

Cattle feeders were accustomed to believe that it was necessary to use ear corn thruout the entire feeding in order to get satisfactory results. After starting to use silage in a limited way many thot that corn should also be used during the entire period. This latter statement has been found to be erroneous when profitable steer feeding is under consideration. The writer was until recently connected with the animal husbandry department of the Pennsylvania Experiment Station and had the opportunity of observing the effect of feeding silage in different amounts to steers. During the winter of 1915-16, 60 head of steers were fed in lots of 12 steers each. The amount of silage used in the rations varied from none to only silage and cotton seed meal.

Lot I was fed a ration used extensively thru Pennsylvania being composed of mixed hay and corn stover as a roughage and a mixture of corn and cob meal 3 parts and bran 1 part as a concentrate.

Lot II was fed silage as the sole roughage during the entire period. Cotton seed meal was fed at the rate of

2½ pounds per 1000 pounds live weight daily thru the period and broken ear corn was fed at the rate of 15 pounds per 1000 pounds live weight during the last 84 days of a 140 day feeding period.

Lot III was fed similarly to Lot II with 2 pounds of alfalfa hay being used in place of 1 pound of cotton seed meal.

Lot IV had the corn silage limited to 20 pounds daily per steer, the remainder of the roughage being obtained from mixed hay. Corn and cottonseed meal was fed as in Lot II.

Lot V was fed corn silage to the limit for the entire period and cottonseed meal at the rate of 2½ pounds per 1000 pounds live weight during the first 84 days and increased to 3½ pounds per 1000 pounds live weight during the last 84 days. This lot was the one about which interest was attached as it was the first the ration was being tried out by a northern station.

The steers were two year olds weighing as an average about 900 pounds at the beginning of the experiment. Hogs followed the steers in each lot and their gains were credited to the steers. Prices were representative of farm prices prevailing at that time.

At the close of 140 days feeding period the average daily gains showed that Lot V fed no corn had made the greatest gain of the five lots of steers. The average daily gain of Lot I was 1.85 pounds, Lot II 2.03 pounds, Lot III 1.79 pounds, Lot IV 1.86 pounds, Lot V 2.06 pounds.

The valuation placed upon the steers by a Pittsburgh commission man showed a difference of 5 cents per 1000

pounds in favor of Lot II over Lot V with the other lots selling 10 to 25 cents lower.

The margin between cost price and selling price in order to break even was 98 cents in Lot I; 46 cents in Lot II; 48 cents in Lot III; 74 cents in Lot IV and 14 cents in Lot V. The profit per steer not including pork was 92 cents in Lot I; \$8.47 in Lot II; \$7.44 in Lot III; \$5.87 in Lot IV; and \$15.47 in Lot V. From the profit per steer it can readily be seen that the more silage fed the greater the profit from feeding. The amount of pork produced was smaller in the lots receiving large amounts of silage but the profit per steer including the pork produced was not greatly changed.

This same experiment was continued during the winter of 1916-17 with practically the same results. The steers fed silage and cottonseed meal only, sold

for 15 cents per hundred more on the Pittsburgh market than the steers that had been fed corn in addition.

It can readily be seen that corn silage can be extensively used in steer feeding and that the more extensively it is used the more profitable to the feeder. Alfalfa hay as a source of protein when compared with cotton seed meal gave good gains but the steers did not sell as well on the market. We thot that had cottonseed meal been added during the last month of the feeding period the steers would have sold for a higher price on the market and made this combination more practicable to use.

The question is often asked as to whether Lot V would have continued their showing for 180 days. This is not known but I believe 150 days should be the maximum length of time that this feed should be used to give best results.



Steers Fed 140 Days on Corn Silage and Cottonseed Meal. Average Daily Gain, 2.06 Lbs.

Home Economics Department

BUYING AND COOKING MEATS

FLORENCE E. NOLAN, '18

MEAT is the most difficult part of the diet to manage economically. It has never been fully determined whether or not meat is absolutely essential to the human body but it is true that all nations have used meat as a staple article of diet if it could be secured.

At the present it is one of the most expensive foods placed upon the table. The cheaper cuts contain just as much nutriment as the better ones but are less tender. It must be remembered that one pound of lean meat is about equal to another pound of lean no matter which part of the beef is taken or what the difference in price is. The housewife should choose the piece which gives the most lean meat for the money but bear in mind that the cheaper price per pound does not always indicate that it is a cheaper cut.

The amount of bone and fat that is given with the meat should be taken into consideration. For example, it is cheaper to buy round steak than spare ribs at one-half the price because of the large proportion of bone in the latter.

Beef is divided by the butcher thru the backbone into sides or halves and each of these is cut between the twelfth and thirteenth ribs into fore and hind quarters. The muscles of the fore quarter are irregular so that the meat is usually of a lower grade and cheaper than that of the hind quarter. The best part of the fore quarter is taken from the ribs and is usually cut into roasts. The most tender and most ex-

pensive cuts lie just back of the middle of the backbone, decreasing in tenderness and value as either extremity is approached.

Taking the net cost of the lean meat as a basis of comparison, the most expensive steaks are porterhouse, followed by the club, sirloin, flank, round and chuck. The prime roast is the most costly and the rump roast is the most economical. The various boiling and stewing pieces furnish lean meat more economically than either the roasts or steaks. Several of the soup bones can be used to advantage as a source of lean meat, particularly the middle cuts of both shanks.

The retail prices of meat are determined by considerations other than their food value such as grain, flavor, tenderness, color, general appearance and convenience of cooking. Good meat is bright red and has fat evenly distributed thru it. The fat should be light yellow and firm. Tenderness regulates the cost of meat but the extra cost of fuel to cook the tough meat does not equal the extra cost of the meat. The tough cheaper meats unless chopped fine, must be cooked by a long slow process to make them tender and palatable. A fireless cooker is excellent for this purpose.

Whatever the process of cooking used, one should remember that a high heat hardens and toughens meat and should be used only to sear the outside when a crust is desired to keep the inside tender and juicy. Long cooking at a low temperature softens the hard tis-

sues and makes tough meat tender and digestible. In stewing meat, boiling water should be added unless soup is desired because cold water absorbs the juices.

Dr. Harvey W. Wiley says, "There is no practical difference in meats. One

can be made just as palatable as the other and the ordinary housewife can almost cut her meat bill in two and at the same time set just as good table as usual if, instead of buying the expensive cuts, she gets the cheaper ones and prepares them carefully."

THE MILKY WAY

OLGA ELIFRITZ, Department of Home Economics, Ohio State University

MILK is one of our most important food products and should be in the diet of everyone. It is indispensable for children as it contains all the nutrients for growth. A quart of milk per day is not too much for a child and it is the duty of every parent to see that the needs of the children are supplied. Variety and attractiveness must be used in serving the milk in order to overcome the notions of the child. Milk may be served in chocolate, junket, custards or with toast.

Milk is not only valuable for children but can well be used by adults. It could not be substituted entirely for meat on account of the bulk necessary but it could be used more generally than it now is.

The question of skim milk is still unanswered as to the advisability of a more general use. The only difference between the skim milk and the whole milk being the loss of fat which can easily be supplied by something cheaper. It is deplorable that so much skim milk should be given to the hogs of the country when the poorer classes of children are left without any milk. The price of milk is prohibitive in some communities and it is only through thoughtlessness and ignorance that the skim milk does not reach them, as it is such a cheap source of protein. In the present crisis, if the question of saving

babies or getting a finer quality of hogs arises, it will be decided by the people on the farms.

The care of milk is equally as important in the home as in the dairy. It should be kept in the coolest place until it is ready to be used and should always be kept in closed vessels so that it does not absorb any odors or flavors. Warm milk or cream should not be mixed with that which is cold. All vessels should be rinsed with cold water before they are washed with the hot water and finally rinsed with boiling water. Never fill a warm vessel with any kind of milk.

Cheese forms one of the most satisfactory substitutes in the meatless diets. It is a concentrated food being considerably richer in protein and fat than meat. With meat at 40 cents per pound and cheese at 32 one can see that cheese is the most economical. Some object to cheese because it is indigestible but if used as a part of the meal and served in finely divided portions it is absorbed readily. The following recipes make use of skim milk and cheese:

Cheese Fondue.

Three tablespoons of finely divided cheese, one-third cup of stale bread crumbs, one egg, one-third cup of scalded milk, one teaspoon of butter and salt to taste. Mix all the ingredi-

ents but the egg. Add yolk beaten until lemon colored. Fold in stiffly beaten white. Pour in a buttered baking dish and bake 20 minutes in a moderate oven.

Welch Rarebit.

Two tablespoons of flour, one cup milk, two tablespoons butter, one egg yolk if desired and cheese. Prepare a white sauce with flour, butter and milk. Add grated cheese and egg yolk. Remove from fire and serve over crackers or toast bread.

Cheese Vegetable Soup.

Two tablespoons of finely chopped carrots, one tablespoon chopped onion, one and one-half teaspoons salt, two table-spoons butter, two cups of stock, little mace, one cup scalded milk, two tablespoons flour and one-fourth cup

grated cheese. Cook the vegetables five minutes in onion, salt and one-half of the butter. Add stock and mace and boil for 15 to 20 minutes. Strain and add milk and thicken with flour cooked in remaining butter. Just before serving stir in cheese and cook until melted.

Cheese Croquettes.

Three tablespoons of butter, one-fourth cup flour, two-thirds cup of milk, two egg yolks, one cup grated cheese, salt and pepper to taste.

Make a white sauce using the butter, flour and milk. Add the unbeaten yolks and stir until well mixed, then add grated cheese. As soon as the cheese melts, remove from the fire and add the seasoning. Spread in a shallow pan and cool. Cut into squares and cover with an egg and crumb mixture. Fry in deep fat.

WAR RESPONSIBILITY OF FARMERS

CLARENCE OUSLEY, Assistant Secretary of Agriculture, Washington, D. C.

THE war has given to the American farmer the greatest responsibility, the greatest privilege and the greatest task any man or any class of men have ever known.

The American farmer in large degree will determine the trend of human history for all time to come, because the enormous ultimate consequences of this conflict rest primarily upon the farmers' production of food and feed to sustain the fighting forces. They might fail even with an adequate food supply; without it they are certain to fail.

But in his field, far from the fury of battle, far from either the adventures or the horrors of the firing-line, the American farmer will say whether autoeracy or democracy shall rule the world during the seasons that are to

come. The war will be won or lost in the fields, gardens, orchards, pastures and hog lots of the American farmer.

The hope of the American citizen, not a farmer, also hinges upon adequate agricultural production. Our aeroplanes are useless, our guns are spiked and our rifles jammed, our shells are but as harmless baubles, if the farmer fails. This must be understood in all its grim force by every man, woman and child in America; by farmers and by those who are not farmers.

Whether or not we produce the food depends upon whether or not each and every individual farmer does his best on his farm—produces its maximum.

The Consumers' Part.

But the "agricultural problem" means not merely the production of

foodstuffs and feedstuffs and live stock. It means the conservation of the food after it is produced. That puts the "agricultural problem" squarely up to everyone from the man on a forty-acre field to the man whose fertile lands run farther than he can see; from the tenement cave-dweller to the occupant of the costliest mansion.

The agricultural problem today means to every American, and indeed to every civilized person on earth, simply whether he shall, when this strife ends, be a free person in a free land or whether he shall be bossed from Berlin.

That is the precise interest that you, now reading these lines, have in the agricultural problem in America today. You may have been a farmer all your life or you may not know the difference between a straight furrow and a threshing machine—no matter what your condition may be, one of the two divisions of the agricultural problem is yours: to produce food or to conserve food.

Many people have thought of the war as "far away," as a remote, impersonal thing, a sort of dreadful nightmare—but not a spectre menacing our immediate persons and property. Our appreciation of the actuality is more poignant now, with our own flesh and blood upon the firing line. That firing-line is in France today. It will come to America if the farmer fails.

No matter what course military strat-

egy may take, the final battlefield of the war is already fixed. The Waterloo of the Prussian autocrat and all he stands for, or the Waterloo of American liberty—the end of autocracy or the end of democracy—the end of Prussianism or the end of freedom—will be wrought on the battlefield of the American farm.

Another Battlefield.

But even victory there will not avail if we lose in another equally fateful battlefield, the American kitchen. If we produce to the limit of farm resources and energies and do not conserve what we produce we may lose by waste.

No conceivable responsibility could be more grave, no privilege more proud, no opportunity more rich for significant service than the American farmer has today. The war has sounded a call to duty to every individual thruout civilization. The course of the individual life is not to be considered in terms of self. The question dominating every individual is for what service can be used—what can be best do to help win the war. To some the call comes to march away with uniform and gun, to some it comes for the organization and administration of parts of the great war machine—to the American farmer comes the call to feed the forces fighting for liberty. To every other man, woman and child comes the call to save.

A CHRISTMAS MEDITATION

WILLIAM L. GRAVES, Department of English, Ohio State University

THE word Christmas has a new and strange meaning for the world this year. All of our old conceptions, old associations, must be revised, must give place to others wholly out of accord with those we used to hold. From time immemorial, that word, hallowed and made beautiful by custom and tradition, has stood to us for peace, for faith in God, for the happiness of little children, for the reunion of family and friends about the home hearth-fire. Joy has been in the name Christmas, and laughter, and love.

But now, has this old world ever known such a Christmas! Torn from side to side with dissension, drenched in blood, marked by separation instead of reunion, by dread and fear in place of happiness and laughter, by multi-form death instead of life and hope and cheer, the whole world stands aghast at what hate and cruel ambition and cunning destruction have wrought.

"But peaceful was the night,

Whereon the Prince of Light,

His reign of peace upon the earth began,"

sang the old poet; but we seem an eternity away from that Prince, and that night and that peace. Under the blight of war millions of homes are desolate with no Christmas candles glowing in their windows, no happy children crowded about the glittering tree, the sons and husbands in cold, wet trenches or dugouts instead of before a glowing fire, in their ears the crash of huge shells in place of hymns of peace. What wonder that sometimes we feel as tho the very foundations of life itself had been blasted from beneath us, and that we shall never re-

turn to sanity, to hope and cheer and the blessed everyday of a world of peace!

And yet—for no matter how dark the hour there must always be a yet—hope does survive, courage does return to us, confidence in righteous victory remains unshaken. If peace seems far away, still ultimate peace there must and shall be.

If brothers and lovers and sons are far from us, we shall bring them near thru our added love and the gifts which we shall send them. If God seems not to be in His heaven, we shall still keep on looking for Him beyond the battle smoke and the clouds of burning. Tho our hearts are heavy, there shall be songs on our lips. More than ever before shall we widen our sympathies, open our purses to need, strengthen our spirit of generosity and unselfishness, develop the best impulses within us, and so make a hideous war a means for the heightening of all that is noblest in us as a people.

Our bins and granaries are full of bursting. Of money we give and give again, and yet have more to give. Never have we as a people been so open-hearted, never so inclusive in our sympathies, never so willing to be friends with every one of our fellows, never so ready to share labor and reward and to put shoulder to shoulder in the common effort to help. War has separated families, but it has drawn a nation together, it has destroyed the body but it has renewed the spirit; it has shed men's blood, but it has given men their souls again.

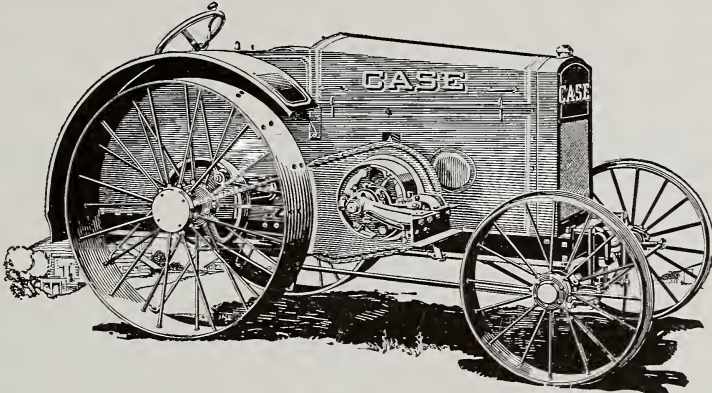
And so, after all,—Merry Christmas and a Happy New Year!



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INFLUENCE OF WEANLING COLT SHOWS

CARL R. ARNOLD, '19

WEANLING colt shows have lately attracted the attention of a great many horse breeders and farmers thru-out central Ohio and aided in creating an interest in the competition and the production of more and better colts. Since 1911 when the first one was held in Iowa the futurity classes have held

each show. Of this amount the Association gives a part while the remainder comes from the entry fees and from subscriptions by the business men of the town or locality. At Lancaster, Marion, and wherever the shows have been held in connection with the county fair a part of the premium money has



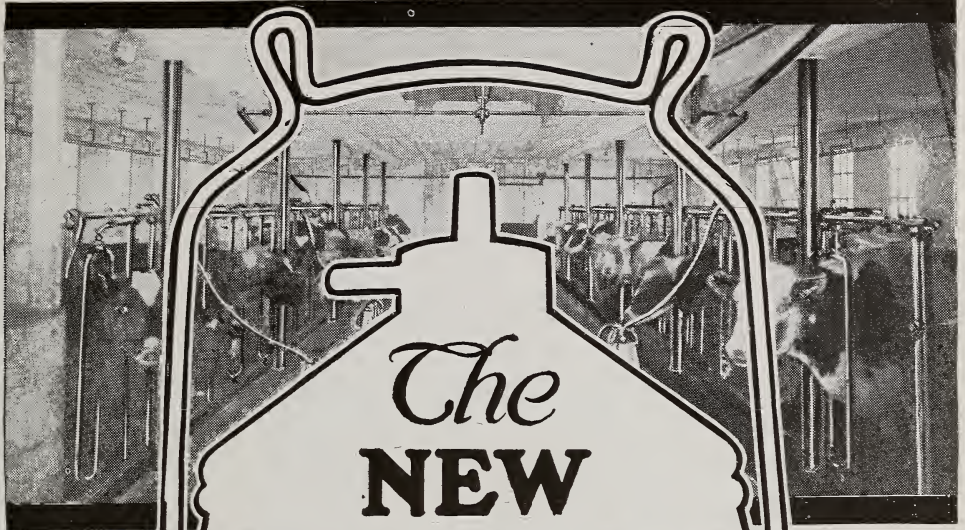
Colts at the Delaware Pumpkin Show

their place at horse shows and fairs along with the older animals but until recently few rewards have been offered to encourage the showing of colts less than one year of age.

In order to create an interest in these younger animals the Central Ohio Draft Horse Breeders' Association has held shows at a few of the smaller towns in central Ohio and at a few of the county fairs thru-out the state. These have not been simply competitions for the chance of leading away a colt with a ribbon tied to his halter but a good sized purse has been at stake at

been furnished by the fair board while at Hebron, Kirkersville, and the smaller towns the loyal business men furnished their share of the financial support.

At each of these shows as many as 25 or 30 colts less than one year of age have been lined up in competition for the blue ribbons in the two classes. Different from most competitions of this sort prizes are given to 12 different individuals in each of the classes so all of the best colts have a chance of figuring in the money. But it is not the prize money alone that has incited the interest among the horsemen of this



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Accomplishments Attained

This specialization has meant refinement in design and workmanship—insured mechanical betterments—insured adaptability to the great variety of physical condition found in every dairy herd.

The cow does not have to be adapted to the HINMAN. Odd cows—nervous cows—easy milkers—hard milkers—and cows with uneven udders are made comfortable by the HINMAN Individual Pump—Single unit adaptable—to-each-cow machine that always milks the same way day in day out.

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Capacity: 1 man—3 milkers—18 to 25 cents per hour.

Weight: 17 lbs.
Power Required: 1-6 H. P. per single unit, gas or electric.

Pail Capacity: 40 lbs.
Protected Vacuum Valve Chamber: Patented; automatic—operates with no adjustments.

Detachable Claw: Seamless teat cups, improved mouth-piece rubbers, special grade rubber tubing.

Individual Portable Pump: Eliminated tank and pipe system.

Armco Rust Resisting Pail: With patented pail rest for the teat cups.

Individual Cow Record can be kept.

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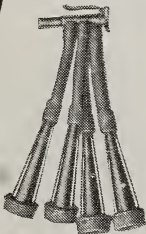
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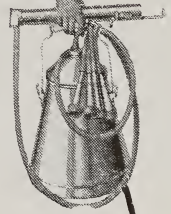


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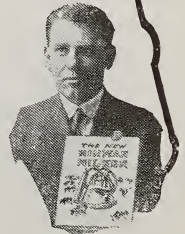


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particular section. It is the chances which are offered to the small breeder to show and compare his animal with the others of his community. If a colt is placed well down toward the bottom of the line the owner has a chance to know the reason and in the future may breed away from the defects which kept him out of the money. The colt which wins the blue ribbon or those which are near the head of the line are often taken to other shows and thus sort of a circuit is formed. If they are from nominated mares they also have a good chance of getting into the money at the futurity show the next fall. It gives the breeder an idea of the colts in the country and he can readily see whether or not it would be advisable to prepare to show his animal at other shows.

Some breeders have raised an objection to the fact that grade colts are allowed to compete in the same class with the purebreds claiming that the association does not place enough emphasis upon the pedigrees of the animals. On the other hand the man showing a grade animal claims that he should have equal rights with the breeder of purebreds and if he can produce a grade animal that excels the one of finer breeding then the latter is mate-

rially deficient in some particular point where the grade is much stronger.

These shows are usually held along in September when the farmers can spare a few days about as well as at any time of the year for it appeals to the farmer and small breeder as well as to the man who makes horse raising his profession. They have resulted in an increased interest in the production of colts and improved methods of feeding, fitting and care of the draft colts among the small breeders. They constitute a splendid opportunity for advertising the colts and their ancestors and allow favorable circumstances for the buyers to see them, giving the breeders a chance to dispose of the best of them at early ages for handsome prices.

The show at Delaware is in connection with the Delaware Pumpkin Show and constitutes one of the most interesting and attractive features of that show. At Hebron and at the other small places where it is held alone, a day is set aside for the show which is of sufficient interest to draw a good sized crowd of eager farmers and breeders who spend a profitable and an enjoyable day and go away, each with a determination to have a prize winner in the ring the next year.



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J. P. Schmidt, '16, is now a district superintendent of schools in Ross County, Ohio. During the past summer he made a Social-Economic survey for the Methodist Episcopal Church in five hill counties of the Portsmouth district. This work was done under the direction of Dr. Paul L. Vogt, who formerly taught Rural Economics at The Ohio State University. His address is Bainbridge.

Laura E. Heston, '17, formerly of the department of agricultural extension, is head of the department of home economics at Denison University, Granville, Ohio.

John M. Bell, '12, is now teaching agriculture and other related sciences in the high school at Ashville, Ohio.

Stanley B. Sink, '15, who was formerly with the University of Maine, has been granted a leave of absence and also given the promotion to assistant professor of agronomy. He is now located in Porter County, Indiana, as an emergency demonstration agent. He writes that he expects to engage in the regular county agent work in the near future.

Gilbert Gusler, '12, has been teaching animal husbandry at the University of Illinois for three years.

Harold G. Gibboney, ex-'19, is in training with the marine corps at Paris Island, South Carolina.

Ray Fife, ex-'17, was married on Oc-

tober 31 to Miss Flossie Hall, who was a teacher in the Van Wert schools. They will be at home at 23 University Place. Mr. Fife is assistant state leader of the Boys' and Girls' Club Work in Ohio.

J. Arthur Taylor, '12, is managing the home farm at Peoli, Ohio.

Arthur M. Bell, '12, is farming near Utica, Ohio.

Marion F. Detrick, '12, is managing a farm near Bellefontaine, Ohio.

Walter C. Dutton, '12, is an assistant horticulturist at the Michigan Agricultural College at East Lansing, Michigan.

Clark Wheeler, '12, is director of agricultural extension in Ohio. He is located at The Ohio State University.

Walter McCoy, '12, who was formerly farming near Washington C. H., is now agricultural agent for Clark County, Ohio.

Alva H. Benton, '12, is professor of farm management at the University of Minnesota at St. Paul.

Ralph R. Walker, '12, is secretary of the Corsicana Business League at Corsicana, Texas.

Samuel R. Guard, '12, is now an assistant editor on The Breeders' Gazette, of Chicago, Illinois.

Louis W. Boving, '12, is farming near Carroll, Ohio.

James B. Royon, '15, was drafted into the army and is now located at Camp Sherman, Chillicothe, Ohio.

Lewis E. Barb, '16, is now in the officers' training camp at Fort Benjamin Harrison.

Fred Norton, '17, who was a prominent member of the football, basketball and baseball teams while in school, and who has been in the royal flying corps since August, has been transferred to Camp Borden, Ontario, Can-

ada, to take up battalion maneuvering of airplanes.

Raymond M. Carr, '16, is in the officers' training camp at Fort Benjamin Harrison.

Floyd D. Crim, '16, who was formerly farming near Uhrichsville, Ohio, is now at Fort Benjamin Harrison.

Joseph T. Cox, '12, is assistant professor of farm crops at the Michigan Agricultural College at East Lansing.

Robert B. Stoltz, '12, is assistant professor of dairying at The Ohio State University.

Andrew S. Wing, '15, who was formerly at Woodland Farm, Mechanicsburg, Ohio, is now in officers' training camp at Fort Benjamin Harrison.

Joseph W. Ray, '13, is supervisor of the Agricultural Department of the Greensburg Vocational School, at Greensburg, Indiana.

Harl C. Hoyt, '12, is farming at North Fairfield, Ohio.

Karl G. Fieldner, '12, is managing a farm and operating a lumber business at Ney, Ohio.

Ernest D. Blaine, '12, is farming at Mt. Sterling, Ohio.

Paul Smith, '15, is managing a farm at West Unity, Ohio.

Arthur E. Taylor, '12, is assistant forester at Ohio Agricultural Experiment Station.

Otho H. Pollock, '12, is farming and breeding pure bred Percherons near Delaware, Ohio.

Ralph B. Simon, '12, is principal of schools at Woodsworth, Ohio.

Verle C. Smith, '12, is Secretary of the College of Agriculture at Ohio State University.

Samuel W. Phillips, '15, who was formerly with A. G. McCall at the Maryland Agricultural Experiment Station and who worked on the soil survey of Wayne County this summer, has been transferred to Montgomery, Alabama, to do soil survey work during the winter.

Homer C. Thompson, '09, is a federal horticulturist in Bureau of Plant Industry at Washington, D. C.

Emerson Cottingham, ex-'18, is in the Great Lakes Navy Training Camp at Radio Station, Great Lakes, Illinois.

Carl C. Lowe, '17, was married on November 17, to Miss Grace Keaner, of West Salem. Mr. Lowe received his commission as second lieutenant at the first reserve officers' training camp at Fort Benjamin Harrison and is now stationed at Camp Sherman.

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THE POPULAR KIND

It took good sows and good boars to produce them. They came from ancestors of the **big type**. Those smooth quick feeders with strength, big bone and good action. Capable of doing their own harvesting for a large part of food from blue grass, clover and alfalfa pastures.

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On East Broad Street Nine and One-Half Miles East of Columbus, Ohio.
Where Good Sows and Good Boars Meet.

DECEMBER NEWS FOR SCHOOL AND FARM

NEW HOG AND SHEEP BARN.

Two new animal husbandry buildings will probably be built next spring west of the Olentangy River to house the hogs and sheep of the University herds. Sometime in the future all of the animal husbandry departments will be moved to the new headquarters, and the present buildings will be used for some other purpose. This is a part of the plans which were made last spring that change the power house, athletic fields and drill grounds to the flat level ground just east of the river.

The new hog and sheep barns were intended to be built this fall but no appropriation was made so they were delayed. The appropriation will probably be made in February and the work started immediately in the spring. The general plans are in the hands of J. H. Bradford, the University architect.

The buildings will be located south of Lane Avenue on the slight elevation east of the Hocking Valley Railroad, and will be of brick construction. The swine building, as planned, will be 66x172 feet with a judging room 32x34 in the center. Adjoining this is an office on one side and a feeding room on the other. There is a passage leading each way from the judging room, running lengthwise of the building, and between two rows of pens. Each pen is connected with a small yard outside the building. Over the judging room is a bedroom and a feed storage room.

The sheep barn will be 26x180 feet with pens on one side of a passage way running lengthwise of the building. A judging pavilion will be constructed in the center with an office at one end. There will be a place at one end to keep a horse and wagon and roots can

be kept in a small cellar. Feed and wool rooms and a bed room will be above the pavilion. Connected with this will be a 9x30 silo which will be used exclusively for the sheep.

These buildings will enable the animal husbandry department to keep larger and better herds. Since each building will contain a judging pavilion, the trouble of bringing animals a long distance will be eliminated. At the present time the sheep are kept with the hogs in the frame structure back of the Home Economics Building.

FOOTBALL CHAMPIONSHIP.

The football team has repeated the record of last year and again won the Western Conference championship. Altho playing heavier teams in nearly every game, team work and the efficient coaching of "Jack" Wilce has been able to win each conference game by decisive scores. The result of all games were:

Case	00	Ohio State	49
Ohio Wesleyan	00	Ohio State	53
Northwestern	..00	Ohio State	40
Denison	00	Ohio State	67
Indiana	3	Ohio State	26
Wisconsin	3	Ohio State	16
Illinois	90	Ohio State	13
Alabama Poly	..00	Ohio State	00
Camp Sherman	00	Ohio State	28

COW TESTING ASSOCIATIONS.

Among the many phases of dairy field work carried on in Ohio the past year, the cow testing association movement has made the most progress. There have been 9 new associations organized, while there were 15 organized in 1916 and 2 in 1915. Many more are ready to be organized but cannot secure

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TUITION:

Gentlemen, per term of 10 lessons.....	\$5.00
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Private lessons, \$1.00; six for.....	5.00

Tuition can be paid \$1.00 per week until paid.

Private lessons can be had afternoon or evenings.

The Waltz, Two-Step and the late modern dances taught in one term.



Dance Correctly.

EVEN the personality of St. Nick is added to in a tailor made suit or overcoat.

Why don't you play Santa Claus for yourself and order an all wool suit or overcoat *now*.

You can have it in time for Christmas.
We are ready to take your measure.



Bradley, The "So-Different" Tailor

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CITIZENS 16796

the testers as the war has affected the number of testers.

The first association was organized in 1909 in Geauga County. At that time there were no funds for carrying on the work, so the expenses were borne by the members of the department. In 1913 the United States Government sent men to assist in the work, and in 1915 the Dairy Division of the Bureau of Animal Industry and the Dairy Department of the University entered into a project to divide equally the salary and traveling expenses of the testers. Since then there has been a rapid growth and there are thirty-one associations organized in Ohio, of which thirty are still alive.

Every year a record of the milk, butterfat and feed of nearly 11,000 cows is kept. In the average association there should be from 330 to 500 cows. The cost of operating an association is usually about \$500.

The Winona Cow Testing Association has the highest average production of all the associations. The average production of butterfat in this association was 285.6 pounds in 1913, 291.5 pounds in 1914, 300.8 pounds in 1915, and 310.7 pounds in 1916.

A cow testing association is a big factor in building up a high productive herd, but is not the only thing to consider," says Ivan McKellip, head of the cow testing association work in Ohio.

These associations have the advantage of giving every member a business record of the cows in his herd at the lowest cost. They also enable the dairymen to weed out the "boarders" and to raise heifers from the highest producers. The production records tend to increase the selling value of the stock and to bring about better and more economical feeding.

L. A. SUTERMEISTER, '18.



Dairy Herd at the State Prison Farm, London, Ohio

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Emerson Academy of Dancing

HIGH AND WARREN

extends to the students of Ohio State University and their friends a most cordial invitation to attend the Friday evening dancing parties given for their pleasure and to enjoy the teachings of this select school.

CALENDAR FOR 1917-1918

Class Nights—Adults, every Monday, Wednesday and Thursday evenings, also Monday afternoon at 3 o'clock and Friday at 6:30.

Assembly Nights every Tuesday, Friday and Saturday evenings. Orchestra music.

Friday evenings for young folks.

Private lessons by appointment.

Children's Class—Seven to 15 years of age, every Saturday afternoon beginning October 6th, at 2 o'clock.

Information given cheerfully by phone.

Citz. 11958—N. 8682, N. 5902.

ATTEND YOUNG FOLKS' ASSEMBLY EVERY
FRIDAY EVENING.



EXPERIMENTAL FARM.

After a careful soil survey of the Sells farm, which is part of the University farm, twenty-five acres with representative soil types in it has been taken over by the soils department for experimental work. It is composed largely of silty clay loam with a few scattered areas of both gray and gravelly clay loam. The drainage system for this area is all mapped out and the tile is on the ground ready to be put in next spring.

The plans have just recently been completed and it is possible that they will have to be changed materially.

BUTTERMILK AT OHIO STATE.

According to Professor Cunningham of the dairy department, people are learning the real food value of buttermilk. It is now selling for twelve cents a gallon, having been raised from ten cents a gallon last summer. Mr. Cunningham states that buttermilk is easily worth twelve cents a gallon when milk



County Agents of Ohio in Session at Ohio State University

The whole area will probably be divide the field into 20 large plots which are again sub-divided into one-tenth acre plots. There will be a six-inch tile on one side or the other of each small plot giving them all equal drainage.

Thirteen and 20 foot roadways will sown in wheat next season so as to give an opportunity for getting a start of clover or grass. In order that this will act as a sort of check on the present fertility of the soil no fertilizers or manure are to be used the first season.

is retailed at twelve cents a quart if its food value is considered.

Two churnings are made each week at the university creamery one on Tuesday and one on Friday morning. No definite amount of buttermilk is secured as the size of the churnings vary but from 600 to 800 pounds are sold each week. All of this except a few bottles, which are delivered on the milk wagon, is sold directly from the receiving can. Several people are not supplied every time as the buttermilk is all gone within one-half hour after churning.

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Ohio State University
APPLE SHOW
Dec. 13, 14 and 15
Horticultural & Forestry
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when you think of
"SCALECIDE"
it is all there is to
Dormant Spraying

Does *all* that any other spray will do
—but no other spray will do *all* that
"SCALECIDE" will do. Kills all kinds of
scale—all forms of fungus and insects that
can be reached in dormant season—and
invigorates your trees—and costs no
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before ordering anything else.

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CONFECTIONERY *the campus where you*
can get good things to
eat and drink.

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**Military Supplies
TAILORING**

Our Dry Cleaning Is Always
the BEST.



LATEST BULLETINS.

The following are a few of the latest bulletins published by the various experiment stations and the Department of Agriculture at Washington:

No. 202 of the Purdue University Agricultural Experiment Station on Sheep Feeding, No. 147 of the Pennsylvania Agricultural Experiment Station on Miscellaneous Experiments, Circular 83 of the United States Department of Agriculture entitled, Swine-Judging Suggestions for Pig Club Members, No. 149 of Missouri Agricultural Experiment Station on Preparation of Corn for Fattening Steers, and 150 of the same station on Corn Silage in Rations for Fattening Steers, also Circulars 36 and 39 on Sweet Clover and Farm Lighting Systems, respectively; and the following Farmers' Bulletins: 839, Marketing Eggs by Parcel Post; 846, The Tobacco Beetle and How to Prevent Damage by It; 869, The Muskrat as a Fur Bearer; 877, Human Food from an Acre of Staple Farm Products; 896, House Rats and Mice; and 902, The Silverfish or "Slicker."

UNIVERSITY FARM CROPS.

The crops grown on the university farm this year consisted of 25 acres of wheat, 20 of oats, 100 of corn, 60 of hay and 5 of soy beans. According to A. E. Smith, farm foreman, the crops were better than ever before.

The Poole variety of wheat which was sown on old alfalfa land made about 55 bushels to the acre and the entire crop averaged over 50 bushels. Oats was below the average, yielding only 50 bushels to the acre. Ensilage made 16 tons to the acre and the shock corn which is being husked is yielding at the rate of 70 bushels. Forty acres of mixed grass made 100 tons of hay

and 5 acres of soy beans yielded 30 bushels to the acre.

STOCK FOR INTERNATIONAL.

Three carloads of livestock were shipped from the University Farm to the International Show at Chicago. The exhibit consists of one horse, 12 head of cattle, 26 head of sheep and 30 head of hogs.

According to Professor Charles S. Plumb of the animal husbandry department, this is the largest and best exhibit ever shown at the International by the University. Nearly all of this stock has been raised on the university farm.

STOCK JUDGING TEAM.

The stock judging team which competed with other teams at the International was composed of: Paul C. Warner, of Greenville; Millard L. Jordan, of Pleasant City; John M. Sawyer, of New Paris, Edward A. Silver, of Montrose, Scotland; and Andrew W. Johnson, of Wooster. William C. Skelley, of Columbus, was the alternate.

The team spent 10 days visiting the stock farms of Indiana and Illinois on their way to Chicago. The first stop was made at Lafayette, Ind., where practice sessions were held at the Purdue University farm and also the farm of J. Crouch and Sons. From there the boys went to the University of Illinois where one day was spent in judging the various classes of stock on the farm. They then went to the Internatinoal for the contest which was held on December 1.

“Western Live-Stock Management” is the title of a book recently written by Ermine L. Potter, of The Oregon Agricultural College. It contains 32

Many More Bushels of Corn

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Every year millions of bushels of corn fail to mature, being caught by frost while in the dough stage. This corn is not marketable and has to be fed on the farm. But it makes poor feed, being low in starch and high in water content. Every few years, as in 1915 and 1917, lateness of corn and early frost result in hundreds of millions of bushels, instead of millions, failing to harden enough for marketing. Deep cultivation is a large cause of late corn.

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Mr. Tower found that corn roots spread near the surface and these lateral roots grow rapidly, soon filling the entire space between the rows. Deep cultivation of this root-permeated soil cuts off these lateral roots and retards the maturing of the corn, sometimes for weeks.



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chapters which are divided into five parts; the first is devoted to general conditions and this is followed by a separate part on beef cattle, sheep, horses and swine. The book covers all of the details of the present method of live stock management in the West without advocating any new or untried systems. It is intended to give the reader an idea of conditions as they now are so that there may be a basis for improvement in the future. 462 pages, 56 illustrations, \$1.75. The Macmillan Company, New York City.

As usual the State Corn Show will be held upon the campus during the week and an exceptionally good display of small grains will be on exhibition. Soy beans will be a new and special feature this year. W. T. Bruce will be the manager of the show and all exhibits should be addressed to The Ohio State University at Columbus in care of him. Men of prominence in the agricultural world will present and discuss topics of interest to the farmer, emphasizing the current problems which have arisen and will arise during the present crisis.



Harry C. Ramsower, Head of the Department of Agricultural Engineering, Demonstrating the Benefits of Tile Drainage at The Farmers' Institute Normal Held at The Ohio College of Agriculture

FARMERS' WEEK.

WITH numerous lectures and demonstrations by authorities on various subjects pertaining to agriculture and home economics, the Sixth Annual Farmers' Week at Ohio State University will be held from January 28 to February 1. Last year 4046 were in attendance, this being the largest number of farmers at any similar meeting ever held in the United States and at least an equal number are expected for this year.

Every possible facility will be used to entertain and benefit the many visitors who will be brought to the campus during that week.

WINTER COURSES.

Winter courses in agriculture including instructional work in practically every farm activity will be offered to the farmers of Ohio by the College of Agriculture, Ohio State University, Columbus, during an eight-weeks' session from January 7 to March 1, 1918.

Since the courses will be given as a war emergency, no previous high school or college training will be required; the minimum age limit is 17.

Because of the unusual requirement of trained men for milk testers and other dairy activities, two four-weeks' courses will be given. "Farm Dairying and Advanced Registry Testing" will run from January 1 to February 1 and "Dairy Manufacturers" from February 4 to March 1.


Besides instructional work in soil fertility, farm crops, horticulture, agricultural engineering, live-stock judging, rural economics and vegetable gardening, special courses in poultry husbandry are included in the curriculum.

In addition, 40 lectures to be given by experiment station workers and farm specialists have also been added to the course, one lecture to be given each day.

AT THE NITERNATIONAL.

In the stock judging contest which was held at the International Livestock Show at Chicago, between the various agricultural colleges of the middle west, Ohio State was rated as ninth among the 14 competing teams. First honors went to the University of Nebraska, with Missouri second and Texas third.

Ohio State won second on a 2-year-old Angus steer and second on carcass of a yearling steer; also fourth on a yearling Shorthorn steer. Fourth prize was the best secured on the Southdown sheep. Second prize on aged boar and third on boar pig was secured in the Large Yorkshire class. First prize was won in every class of Large Yorkshire females shown, also the Junior, Senior and Grand Champion female. First prize and the reserve grand championship were won by a pen of three Duroc barrows.



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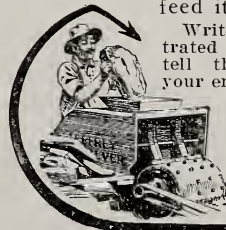
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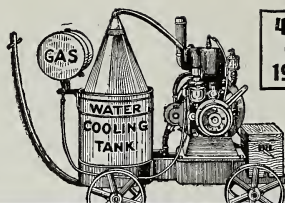
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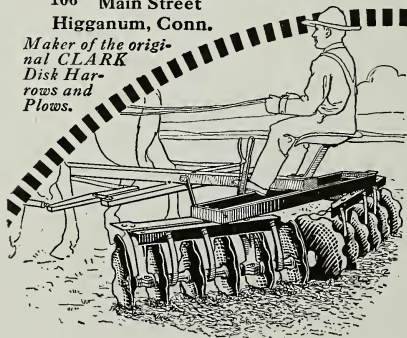
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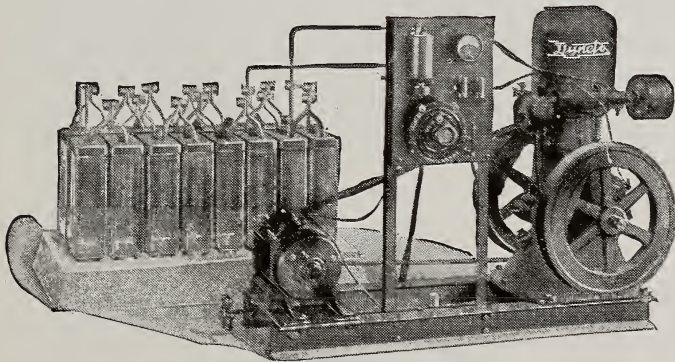
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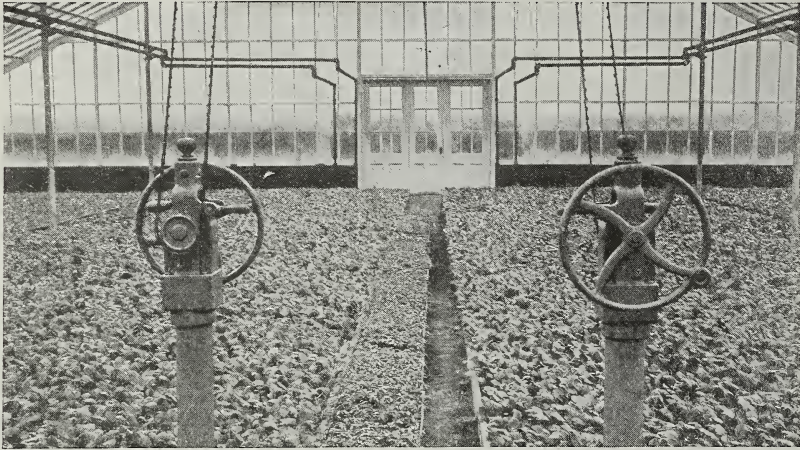
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