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Herd bull, Imported British Lion 133692.
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Herd composed of Young Marys and Galateas.
Young Bulls for sale. Sired by Phyllis Duke
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BILL BROOK HERD
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REGISTERED SHORTHORN CATTLE.

Headed by Iowa Scotchman 2d. Young bulls
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**RECORDED HEREFORD BULLS
FOR SALE.**

The get of Marmion 66646 and Anxiety Wilton A--
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FRED COWMAN, Lost Springs, Kans.
Breeder (not dealer) of HEREFORD CATTLE.

Registered Herefords.

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SPECIAL OFFERINGS:
FOR SALE--Seventeen bull and 15 helper
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Wild Eyes, Crags, Peach Blossoms, Duchess Crags,
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Agricultural Matters.

Seed Saving.

Some years ago this experiment station harvested corn while the grain was in the milk. When the ears became dry the kernels were shrunken and very loose on the cob. This corn was thoroughly dried when harvested and was kept in a dry, well ventilated place through the winter. It germinated well in the spring. Under ordinary conditions but little of such corn will grow.

A test of forty varieties of corn was made by this station one cold, wet spring when many good farmers were compelled to replant. A number of varieties were secured from a firm who kilndried their seed-corn. This kilndried corn was planted in plats scattered in various parts of the field, and when the plants from the kilndried seed were six inches high those from the seed not dried were only half as high.

The tests with well dried corn cut in the milk and with the kilndried seed both show the value of thoroughly dried corn.

It was very dry the past summer at the time the corn was filling and much of the seed will be loose on the cob, immature and weak. Especial care will be needed this winter in taking care of this seed. As solid ears should be selected as possible and if the most vigorous growth is desired for next spring these ears should be thoroughly dried by artificial heat as soon as gathered. A loft through which a stove-pipe passes is a good place to dry corn. After the ears become thoroughly dry they should be stored in a dry place in such a way that they will not heat.

Kaffir-corn has been nearly a failure in many places in the state this year and even more care will be needed in selecting Kaffir-corn seed than with corn. Only well-matured, compact heads should be selected and these should be kept in a dry, well-aired place until planting time. Do not thresh until just before planting. Thousands of acres of Kaffir-corn had to be replanted in the spring of 1900 and in most cases the fault came from using seed that had become heated in the bin after being threshed. Many times Kaffir-corn will grow even after it has been threshed and stored all winter in a bin, but most of the failures come from using such seed and we advise that Kaffir-corn intended for seed should always be stored through the winter in the head.

Recently the newspapers have had many discussions about wheat running out and many of the millers and wheat growers have advocated fresh importations of the hard wheat, chiefly grown in Kansas on the ground that this wheat is deteriorating. This station has no data in regard to hard wheat, but from our experience with other wheats and other grains we doubt if a new importation is either necessary or advisable. Zimmerman soft wheat has been grown on the college farm more than twenty-five years without any renewal of seed and is superior in yield, hardness and quality to any other of the thousands of varieties of soft wheat that we have tested. Many farmers have bought Zimmerman seed-wheat from the college, and in one case a farmer purchased seed of this variety three different times, the last two times because his seed had run out.

Why did the Zimmerman run out for this farmer and keep up to its best standard for the college? Difference in method of selecting the seed-wheat is probably the reason. Wheat intended for seed on the college farm is carefully cleaned through a good fanning mill. The cleaned wheat is recleaned, using coarse sieves and strong blast in the mill. The second cleaning gives us not only clean seed but the largest and heaviest grains. The wheat used for seed is taken from that part of the field which gives the heaviest yield. Where wheat is taken from the bin to be cleaned for seed without regard to what part of the field it is grown, it will be found that the largest and heaviest grains come from parts of the field where the plants have stooled the least and are thinnest on the ground. Continuous selection of such wheat in time will breed up a strain that is not prolific.

While there are exceptions, in general it may be said that the best seed for any particular locality in Kansas is well-bred seed from stock that has been grown for a number of years in or near that locality. Seeds from eastern Kansas are not adapted to the western part of the state. When this station first be-

gan to push Kaffir-corn, we found that when seed grown on the college farm was planted one hundred and fifty miles west of us, but few plants matured seed. A careful selection from the heads that did mature soon produced a grain that matured well in this western section. Norton is situated two hundred and eighty-five miles west of the eastern line of Kansas, so that it is pretty well out west. We met farmers this summer in the western tier of counties who had found that seed from as far east as Norton did not produce nearly as good crops as home-grown seed.

What we need in Kansas is not new "blood" in seeds nor seeds from other states or countries, but a careful selection and breeding up of plants that have already become acclimated and thrive under our conditions.

H. M. COTTRELL.

Echoes From the Farm.

EDITOR KANSAS FARMER:—The average Kansan's labor on the farm is now no longer so pushing as it was a few weeks ago. The larger part of the corn crop is in the cribs and no other work remains to be done except looking after and feeding the stock, and perhaps hauling out what manure has accumulated since the last cleaning up was done.

For the next three months this vacation—the nearest to a vacation the farmer has—will only be broken by just enough odd jobs and regular chores to keep the farmer in good health, if he takes proper care of himself, and as the common saying is, just enough to do to keep from "gitten' lazy." Perhaps the subject has been worn threadbare, and to speak of it here would seem to some to only be threshing over old straw, but so good a chance can not be passed by, and that is the idea of doing a little more thinking about next year's farm work when you have plenty of time to do it. The farm is no longer a place where men who have failed in some other business can seek refuge and succeed. It is now a business in every sense of the word and returns as much when studied thoroughly as any other branch.

So, brother farmers, let us be up and thinking. Subscribe for two or three farm papers to help you think. Attend farmers' institutes, take an active part in them and if you are so inclined write some of your thoughts and ideas to the aforementioned farm papers. This will keep you interested in the doings and sayings of other farmers as tabulated in the papers and you will confer a benefit on others who may read your experiences or ideas.

While we are speaking of hauling out manure it might not be out of place to remark that no amount of labor on the farm returns so much as this, even though it makes you tired and lame and gets down below your breakfast about two hours before the dinner bell rings. Much of this back-breaking, tired feeling can be dispensed with by procuring a low-wheeled wagon to haul on. Get one with broad tires and your fields will not suffer so from ruts. When not used for this purpose they make an ideal feed wagon when a solid platform is built over them about 8 by 16 feet in size. A special box for hauling manure may be made, and should be about 12 feet long with only 6- or 8-inch sideboards. This preserves the low down feature without diminishing the size of the load. Any farmer who has just used a rig of this kind will invariably feel like hiring some one to lick him for not purchasing one before.

As we all know, this year's corn crop is smaller by several bushels to the acre than the previous one. The earliest corn that was cut for fodder has spoiled to a lesser or greater extent in most localities. The extremely wet weather seemed to be determined to destroy what the dry spell of a few weeks before failed to. In some instances not only the fodder but the grain itself has been badly molded. Corn damaged in this way should not be fed to horses or cattle. It might not hurt hogs, but certainly can not be expected to take the place, even in the hog yard, of good sound corn. One case has already been reported where a farmer lost the only team he had by feeding shock-molded corn. It was the only feed he had and he did not feel able to buy good corn or oats at a high price.

The man who cut his cane or Kaffir-corn early also paid the penalty of his thriftiness by having his fodder damaged to some extent. An unusual case where the tardy one was rewarded for his tardiness. The broad-cast fodder that was cut with a mowing machine

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and raked into piles where it was topped out by hand with forks seems to have suffered worse. It is in all stages of decomposition, according to the size of the shock. The larger the shock and the one with the best top being the ones that kept the best. Wherever the binder was used and the bundles shocked in a workmanlike manner the fodder has kept very well. In fact, very little of it has spoiled at all. This is a very quick way of harvesting sowed fodder when it does not grow too large. The experience of this fall will result in more binders being used for this work another year.

The late rains have kept the fields sodden, an unusual occurrence for this time of the season. It has made corn husking a thing to be dreaded by the teams as well as the men. Since it has for the most part been gathered, the turning of stock into the fields comes up for discussion. Considering the present state of the fields turning any animal out that would sink to any depth into the soil is not recommended. Now the scarcity of feed has to be contended with, but the loss incurred by this practice is greater than the gain. It is noticed, too, that the standing stalks have not the leaves which make them valuable for feed that they usually have. If the huskers have done their duty there ought not to be much grain left in the field. So by all means do not let your fear of not having feed enough cause you to allow your stock to wallow through a muddy field. You will pay dearly for it next year if you do, by having lumps galore.

HENRY HATCH.

Barry, Kans.

Sugar Beets in Kansas, 1900.

PROF. J. T. WILLARD, KANSAS EXPERIMENT STATION, MANHATTAN, KANS.

The Kansas Experiment Station has continued during the past season to assist the citizens of the state who desire to test further its possible adaptation to the profitable production of sugar beets. The chemist of the station is a special agent of the United States Department of Agriculture, and, as such, authorized to distribute sugar-beet seed furnished by the Department, through the mails free of charge, and to receive samples of beets for analysis in the same way. Previous years' experience have shown that no proper test of the capacity of the state to grow good beets for sugar manufacture can be made by the culture of isolated plats, grown in most cases without proper regard for the conditions essential to the production of a root rich in sugar. The station has, therefore, practically discontinued furnishing seed for such isolated trials, but has been, and is ready to cooperate with any groups of farmers who wish to experiment with this crop further.

The very considerable growth of the beet-sugar industry in some of our northern states naturally directs our capitalists to this possible field for investment in this state. The sorghum-sugar experience has not gotten so far into the past that its value as an object lesson is entirely lost, and a proper degree of caution is being exercised before large ventures are to be made in the manufacture of sugar from beets here. The station has cooperated this season in the most extended and best

conducted series of tests yet made in this state. Gentlemen interested in the matter secured the growing of a considerable number of plats in the eastern part of the Kansas River Valley, for the most part, under the supervision of an experienced man. Seed was furnished by the station and the beets analyzed there. The total number of samples taken was eighty-three, grown by sixty-five different men. The average amount of sugar found was 9.93 per cent. The beets analyzed early were the best, and it is possible that at a still earlier date higher results might have been obtained. Those analyzed before September 20 averaged 10.99 per cent of sugar. W. J. White, of DeSoto, and N. W. Noberston, of Lenape, produced the best samples, with 12.31 per cent of sugar. The average results of analysis made in three preceding years were as follows: 1897, 11.88 per cent; 1898, 11.56 per cent; 1899, 10.89 per cent.

A proper view of the prospects for a successful inauguration of this industry in this state must include a comparison of these figures with those yielded by beets grown in regions where beet sugar is being successfully manufactured. The sugar journals report the production of beets this season with percentages of sugar as follows, at the places stated: New York, 10 to 17.65; Nebraska, 13.5; Indiana, 13.7; Michigan, 14 to 15; Washington, 18; California, 17; Colorado, 17 to 22. Comment would seem to be unnecessary.

The Races of Corn.

PROF. A. S. HITCHCOCK, KANSAS EXPERIMENT STATION.

Indian corn has been in cultivation by the native races of America for an indefinite period. It probably originated from a wild form somewhere on the Mexican plateau. Botanists usually refer all our forms to one species, *Zea Mays*, with several well-marked subspecies or races.

There are five important races of corn grown in the United States on a commercial scale:

1. Dent corns. A part of the starch in the grain is of a close, hard texture. This is called the horny endosperm and is found along the sides of the kernel, while the softer portion, or starchy endosperm, is found in the center extending to the summit. In drying the center shrinks more than the rest and hence leaves a dent at the apex of the grain. Dent corns are the common field varieties grown in the corn belt and are almost the only kinds exported. There are various colors, white, yellow and mottled (calico), being the most common. There are also red and blue varieties. Three hundred twenty-three varieties are described.

2. Sweet corns. These are chiefly found in gardens, but sweet corn is grown on a commercial scale for canning purposes, and some of the large sorts are grown for fodder. The first variety cultivated was obtained from the Indians, New England, in 1779. In 1854 there were ten varieties. Now there are sixty-three. Corn as a vegetable is practically unknown outside the United States.

3. Flint. The horny endosperm en-

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tirely surrounds the starchy, and hence the grain is smooth at maturity. Color various. Many varieties have eight rows and hence are known as eight-rowed corn. Flint corn can be grown much farther north than the dent corn, since it matures earlier, hence it is the prevailing form in Canada and the northern United States. Since it is the common corn of New England it is often called Yankee corn.

4. Pop-corns. These resemble the flint corns, but differ in the ability to "pop" when heated. This phenomenon depends upon the fact that the starch is in the form of horny endosperm and the moisture present can not easily escape, but finally explodes, turning the grain inside out. Pop-corn seems to be the least modified from the original type. There are twenty-five varieties.

5. Soft corns. In these the starch is all in the form of starchy endosperm. It seems to have been common among the Indians of the Southwest. Some of the blue Squaw-corns belong to this race. Brazilian flour-corn sold by seedsmen is a soft corn. There is no dent in these varieties.

Besides the above there is a pod corn grown as a curiosity, in which each kernel is enclosed in a husk; and some ornamental varieties derived from the flint corn, grown for the striped or barred leaves. The latter are usually sold under the name of Zea Japonica.

The varieties of corn are very variable in size, shape, and other qualities. The late Doctor Sturtevant, an authority on corn, said: "The height of the plant in varieties and localities has been reported from 18 inches for the golden Tom Thumb pop to 30 feet or more for varieties in the West Indies, and single stalks in Tennessee at 22½ feet. I have seen ears 1 inch long in the pop class and 16 inches long in the dent class. The rows in varieties may vary from 8 to 24 or more, and in individual ears are reported from 4 to 48. A hundred kernels of miniature pop weighed 46 grains; of Cuzco soft, 1,531 grains. A variety that ripens in one month is mentioned from Paraguay, and seven months is said to be required in some southern countries."

The tables show that the average composition of dent corn is, protein 10.3 per cent, fat 5 per cent; flint, protein 10.5 per cent, fat 5 per cent; sweet, protein 11.6 per cent, fat 8.1 per cent. Sweet corn is thus richer in protein and fat, and correspondingly poorer in carbohydrates.

At the Kansas State Agricultural College, experiments are in progress to increase the protein-content of field corn by crossing and selection. Any increase in the protein will greatly extend its usefulness as a feed for stock.

Good Country Roads.

A. C. WOERNER: READ AT INSTITUTE AT WAKEFIELD, KANS.

This all-important subject that interests and should interest every farmer, is one that receives the least attention and is a secondary matter with nine-tenths of our farmers. Our townships are systematically divided into several road districts, each district has a regularly elected road overseer. This of course we are all familiar with. These overseers have certain roads assigned to them to repair and keep in repair, and what an awful job these men have, not muscular work, but to get the farmers to answer their call. This is one reason why our country roads are not in as good condition as they should be, considering the amount of tax paid in labor.

Now the question arises, "Why is the condition of affairs?"

First—Because we (the farmers) do not take the interest in the agitation of good roads that we should. If we did we would not say to the overseer, when he requests us to work on roads on a certain date, that we can not come out; we are too busy.

Second—That after the road overseer has finally succeeded, by several attempts, in getting us out, we take too little interest in the matter of constructing and maintaining good roads. That all we aim to do, in the eight hours, if we get there at the proper hour, is to kill time. Road-working is too much a day of rest and visit.

Third—In too many instances our road overseers are not sufficiently experienced in the proper construction of good roads, hence as a matter of fact, can not work to the best advantage, and in many cases do not work the roads at the proper time—when the ground is in a condition that the best results could be obtained, thereby doing more good work in one day than the same amount would do in two.

Let us look at the matter of constructing good country roads from a practical standpoint. I am about con-

vinced that prevailing methods are very extravagant and ineffectual, and do not accomplish the best results in furnishing to the public satisfactory roads. This system of requiring a road overseer in each neighborhood to call out the farmers once a year at an inconvenient season to repair the damages caused by neglecting them all the rest of the year is not well adapted to this business-like age. The ordinary country roads do not wear out, they wash out and freeze out. Water is the great road-destroying element. This should be recognized in the maintenance of roads, as well as in their construction. The action of water upon the road surface is the chief cause of poor and unsatisfactory roads. The damage caused by water on the road surface can be prevented by keeping the center of the road more or less elevated, according to the inches of slope of the surface, with the water where it will do no damage. Muddy roads are prevented by excluding the water. Whenever water stands upon the roads, or in the pools beside the road, during the fall weather, we have the troublesome mud, the road-bed being perfectly saturated, the process of freezing and thawing gives us muddy roads during the fall and part of the winter.

All of this can be prevented by getting rid of the water in the center of the road and also in the ditches along side of the road. Ordinarily the chief work done by the country people, on the roads, is repairing the damage consequent upon neglect. Why this neglect? Simply because the farmers are trying to follow the old methods, poorly adapted to this time of intense business energy and economy.

Much may be learned from the methods employed in maintaining the railroads. The means adopted to keep up our highways would be considered extravagant to them. The principle of economy forces them to a better system of constant and continuous repairing. How are we to accomplish all this with the present system? It is absolutely necessary that we have better roads for the encouragement of the rural mail routes being established all over the section, and in order that we may receive the convenience of getting the daily mail at our door we must necessarily construct and maintain good roads not only for the benefit of the United States mail but for the benefit of the general public.

What we need and should have, in my judgment, is our road-tax paid in money and expended properly. Good road engineering is a science. It requires a degree of skill to make a good road with moderate expenses. The conclusion must follow that skilled labor must be employed, at least for supervision. But skilled labor is costly and requires money to purchase it. Hence every township must have some money wherewith to purchase the supervision required to get good highways, but it may be said, on the other hand, that the average town or road district will not employ expert supervision, that road-building is regarded as a kind of playing spell which every man who lives in the district and pays taxes should have the privilege of enjoying. To the man that reasons this way the argument is unanswered; he does not regard the construction of a highway any more difficult than plowing, and his ideal method is to plow up the road or dump it full of earth from the ditches. Whichever method of collection of taxes is used it must be admitted that there must be an overseer of highways. * * * If careful men are elected to direct the use of highway funds (men who have sufficient knowledge of building highways) by all means give them the money to work with. They can have better help at a time when the work can be done at best advantage, and procure better tools and machinery. One dollar in cash will go further this way than two in the ordinary highway tax.

I am very much in sympathy with the work for good roads and trust that they will be thoroughly discussed in every town in Kansas in the near future, so that before long every man will hold up both hands and say, "Give us good roads." Let every one pay his road tax in cash the same as his school tax. The money thus collected should be spent under the direction of the town board, through a competent and practical road commissioner. This commissioner may keep that office until he proves himself incompetent or until there is a better man found for the place—that is, one who can do better work and more of it. And let the tax-payers have the chance to work on the roads for cash, providing they will do good work and as much of it as a man who does the work by the job. It may be true that we have had no experience with the



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cash system in this part of the country. But there are countries where this system is working very satisfactory. I believe this to be the right way to collect highway tax, and I hope that public sentiment will rapidly tend in this direction. I am convinced that more and better work can be done with \$1 paid in money than has usually been done with \$2 paid in labor; not that it is impossible to do just as much by the labor system, but the fact is it never has been done.

I know well enough that money can be squandered on roads as well as anywhere else, but there is this difference—that we are more likely to keep our eyes open when we pay money for a certain purpose, and demand to see the equivalent for the money we have spent.

Town officers, as a rule, are held to strict account for the manner in which they have dispersed public funds, but who has ever been called to account for squandering the labor tax?

The state has committed to the citizens of each town two great systems—that of common schools and that of highways or country roads, on the proper maintenance of which often depend the intelligence, wealth, and general welfare of the citizens. It is in the power of the citizens to make either or both good, bad or indifferent.

Has it ever occurred to our laboring tax-payers, to demand the privilege of working out the school tax? Why not? Mr. A., who has a large tax, could teach the school for four weeks. Mr. B. could work out his in two weeks. Mr. C. could teach out his in three days. D. and E. could haul fuel. If Mr. A. should be ill or have business in town he could send his boy or hired man to teach in his place. Of course the school would not make the progress that it does under the management of our competent teacher, but the tax would be paid and the result as a whole would not be worse than that obtained under the present system of working out the road taxes for the betterment of the roads. The two causes are parallel in many respects.

I hope that this proposition will be accepted in good faith, and bring forth good fruit, create a growing sentiment in favor of improved roads, and this sentiment demands further methods. The heaviest tax the farmer pays is the mud roads over which he is compelled to haul his produce. We can not have good roads all over this community too soon, and this can be accomplished, I believe, when the road taxes are paid in money instead of labor and that money properly expended.

The Cost of Paint.

The mistake commonly made by people who invest in paint is to look at the question from the cost side. It can not be too often repeated that the least important factor in painting is the cost of the material.

The saving that can be effected by selecting a cheap paint in preference to a good one is so insignificant an item in the total cost of painting a building that it is not worth consideration. The cost of the labor required to apply such a paint is the same as that for the best grade. The difference then resolves itself into a matter of a few cents per gallon, and will scarcely amount to more than \$5 or \$10 on an ordinary house. The difference in value received, however, means at least the cost of one extra job of repainting every ten years, and it is the labor of painting that runs up the bill.

There is no paint so good that we could not imagine a better, but being forced to put up with the best available, we can save the cost of that extra job of repainting for an original outlay that we shall not feel, and still save something over the cost of the most expensive paint. For the most expensive paint is not necessarily the most satisfactory.

It is generally admitted by the largest regular consumers of paint, such as railway companies, shipbuilders, etc., that the most economical paint (and economical in this sense means that which gives the best results for the least money) is a combination based

on zinc white, with enough lead to give satisfactory opacity. Most of them require also about one-third the total pigment to be some inert material, such as sulphate of lime, barytes, or silica. Such paint, while costing more than a cheap emulsion, is cheaper per pound than any other form of straight linseed oil paint, and will certainly last longer. It has also the advantage of holding color better and of covering more surface per pound. The saving in material is anywhere from twenty to thirty-five per cent.
STANTON DUDLEY.

Myer—"Who is the man across the way with the gold medal on his coat?" Gyer—"Oh, that's Downing. He holds the automobile record." Myer—"Automobile record?" Gyer—"Yes; ran over thirteen people in one afternoon."—Boston Journal.

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January 9, 1901—J. F. True & Son, Topeka, Kans., Shorthorns.
 January 9—Combination sale of Galloways at Omaha, Frank B. Hearne, manager.
 January 9, 10, 1901—Combination sale of Galloways, South Omaha, Neb.
 January 17, 1901—J. J. Dimmook, Shorthorns, Kansas City.
 January 23, 24, 25, and 26, 1901—T. F. B. Sotham, Herefords, Kansas City, Mo.
 February 6, 7, 8, 1901—Combination sale of Galloways, at Omaha, Neb.
 February 7 and 8, 1901—Steele Bros., Eagle & Son, and others, Herefords, Kansas City, Mo.
 February 19-20—Armour, Funkhouser and others, at Kansas City.
 February 27-March 1, 1901—C. A. Stannard, Scott & March, and W. S. Van Natta & Son, Herefords, Kansas City.
 March 5, 1901—T. J. Wornall, Mosby, Mo., Shorthorns, Kansas City, Mo.
 March 12, 1901—Gifford Bros., Milford, Shorthorns Manhattan, Kans.
 March 19, 1901—H. O. Tudor, Shorthorns, Holton, Kans.
 March 27, 1901, Combination sale of Galloways, at Chicago, Ill. Frank B. Hearne, Manager, Independence, Mo.
 March 29, 1901—B. O. Cowan, New Point, Mo., Shorthorns, Kansas City, Mo.

A Good Ration for Steers.

M. B., of Rossville, Kans., writes that he is feeding 3-year-old grade Shorthorn steers that weighed 965 pounds when put in feed lot. The cattle have been on feed a little over two months and are eating per day per head as follows: Corn-meal 21 pounds, wheat bran 5 pounds, oil-meal 1 pound, and alfalfa-hay, of medium quality, about 6 pounds. He wants to know whether the ration is properly balanced.

The following is a comparison of what is fed, to the standard:

| | Protein lbs. | Carbo-hydrates lbs. | Fat lbs. | Nutritive ratio. |
|----------------|--------------|---------------------|----------|------------------|
| Standard..... | 3.00 | 14.8 | .7 | 1:5.5 |
| Being fed..... | 3.17 | 18.41 | 1.88 | 1:7.1 |

The standard being computed for a steer weighing 1,000 pounds, while the cattle in question weigh, no doubt, close to 1,200, makes the difference much less. I have also assumed that the cattle are near the middle of the feed, at which time the ration should be somewhat narrower than the beginning and closing period.

Considering the price of feed—corn 33 cents per bushel, bran \$13 per ton, oil-meal \$28 per ton, and alfalfa-hay \$7 per ton—the ration is a good one for the cattle being fed. Three or four pounds of cottonseed-meal might be substituted for the oil-meal if the cattle are doing well, and being carefully fed. The cottonseed has a constipative effect, and as alfalfa is loosening, there might be a little advantage in this change. The mechanical balancing of the rations—that is, to make it coincide exactly with a standard which is more or less arbitrary in any case—is a small item in feeding. The feeder must understand the needs of the cattle, and with the proper feed at his disposal, he will balance the rations by the way the cattle eat and lay on flesh. I have said before that there is a great deal in the feeder as well as in the cattle and feed.

However, if every feeder in Kansas and the United States understood, and approached as nearly the feeding of the balanced rations as is being done in this case, there would be a wonderful stride forward in one of the most important industries of the land.

J. G. HANEY.

Clydesdales.

JOHN SPARROWHAWK, WAKEFIELD, KANS.

We all know that each one of us is better fitted for some things than for others; that some attainments we strive for, while others have no chance for us. It needs no great discrimination to see that the public platform is not the goal of my ambition. Much as I love horses, I would enjoy talking about them a great deal better at home, sitting in a comfortable buggy behind a good team traveling over a smooth road at a 2:30 gait, or taking wheat to market at a dollar a bushel with my trusty Clydesdales who pull shoulder to shoulder through thick and thin, than here. But the "powers that be" have ordained it otherwise.

The good draft horse is the one for the farmer to raise. There is no comparison between the drafter and the trotter as the farmer's horse. When the farmer can afford to keep trotters as well as drafters, all well and good, but the drafters he must have. The Clydesdale is at home at any kind of work on the farm, plowing or harrowing, seeding or gathering the grain; is quite in his element hauling heavy loads to market; always commands a ready sale, and if he is a few seconds longer in running

to town than his trotting brother, he gets there all the same.

An authority on the subject says: "It takes a much larger and better horse to be a drafter now than it did some years ago." "Good draft horses are all built on the same plan; they have size, width and quality, good constitution and so on, but they differ marvelously for all that. Really high-class drafters have a certain amount of range. The little, close-to-the-ground chunk, the Dutchman's horse so-called, is not the horse to make a high-class drafter. No one wants a leggy horse but if the depth of rib and flank are right, if width, substance and quality are right, the horse that is far enough off the ground to move himself properly is the one to raise. He will have a prouder, more masculine carriage and set to the head, and his presence will be more impressive than if he approaches the deformed stage in his shortness of limb. Chunks sell to-day from \$85 to \$140, drafters from \$125 to \$260. The draft horse, the upstanding chap, is the one to buy." "It has never been disputed that Colonel Holloway, 'a great Clydesdale breeder,' has succeeded in permanently fixing those excellences of under pinning which are of prime importance in the Scotch standard of Clydesdales and which are cardinal points in the wearing draft horse." One of his horses is described by an expert as follows: "He possesses that breadth and depth which constitutes the typical draft horse, he is very sweet about the head and yet sufficiently masculine, and is highly finished in all points; he has a grandly ribbed back, his quarters are level, his stifles strong, ankles cleanly carved, and hoof heads round and open; he has a grand walk and a fine trot."

In conclusion let me quote, "Nowhere does the breed appear to the same advantage or so clearly outstrip all other draft breeds as when shown in harness or when seen at hard work on the city streets, in the pineries or on the prairies. The superior quality, mechanically true movement, wonderful courage, and splendid natural method of drawing heavy loads combine to stamp the Clydesdale not only as the ideal draft horse but one of the greatest products that the nineteenth century has evolved. Our breeders ought certainly to appreciate the importance of their mission and try to raise the standard of merit, preserve purity of blood, keep up their registrations, educate the people as they have opportunity regarding Clydesdale points and advertise the merits of the breed verbally, through the agricultural press, and by exhibition at state and county fairs. And if we all do our duty in this respect, the time is not far off when throughout this country the Clydesdale will be unanimously proclaimed what he really is—the king of all draft horses."

A Foreigner's View of the Cattle Trade in Kansas.

FARM AND HOME (LONDON).

Mr. Young, British vice-consul in Kansas, in a report recently issued on the great cattle trade of that state, says that under Kansas for this purpose must be included Oklahoma, the Panhandle of Texas, and other districts, the cattle being moved from one to the other to suit changing conditions, so that the same cattle are at one time running on the open ranges of New Mexico, and at another fed in the maize and Indian-corn fields in eastern Kansas. The region has three sections from the point of view of cattle-rearing: One, like eastern Kansas, which is rich, well watered, with an abundant rainfall, and ample crops of Indian corn for feeding. Here the blue-grass of Kentucky, corresponding to the fresh sweet grass of England, has been introduced. The second, of which central Kansas is typical, has an uncertain rainfall, valuable feeding-crops along the streams, and none which can be relied on in the upland districts, where, however, a valuable grazing-grass, known as blue-stem, is produced, which, with the hard quality of the water arising from the limestone in the district, causes a hardness of growth, enlarging and strengthening the frame and putting the cattle in excellent condition for fattening for the market. The third area includes land which is valueless for anything but grazing, rarely producing anything but grasses, especially a variety known as buffalo-grass.

The amount of grazing in each district varies widely; in the arid regions of New Mexico it is not safe to allow less than 80 acres to each animal, although in a very wet season good grazing may be obtained. In the Panhandle district of Texas 10 to 15 acres are usually enough (while in the blue-stem country 3 or 4 acres a head are

sufficient. It is impossible to give statistics of the trade, as the cattle are moved about so much, frequently changing hands by the way; but a large part of all the produce of the state is devoted to feeding cattle. The tendency all over the Western States of late years has been to improve the breed to the very highest point, the increase in the meat yielded by each animal compensating for the initial expense. The most popular breed at present is the Hereford, while the Shorthorns and Polled Angus are also favorites. The breeding of registered bulls has now become a recognized branch of the industry. Indian corn is the great staple grain food, and most farmers prefer to keep it for feeding to selling it. When the crop is ready they buy cattle, usually 3-year-olds, borrowing the money for the purpose. The Indian corn and other crops are then given to the cattle, which are sold when ready for the market. Scientific feeding now receives much attention, and the increasing growth of alfalfa, to supplement the Indian corn, is a boon to the cattle industry. Kafir-corn, sorghum, soy-beans, clover, millet, etc., are also used. The chief market is Kansas City, where cattle are sent fresh from the grass and also full fed for killing. The grass-fed cattle are bought by farmers or feeders, who send them out for fattening and bring them back when ready. The arrangements of the yards are excellent for feeding and watering the cattle, as well as to enable buyers to examine them easily, and also for their speedy reception and removal. On the whole the vice-consul thinks the whole of the southwestern parts of the United States specially suited for the cattle industry. "In the western portions excellent grazing is afforded in a country of little value for agriculture, while in the country tributary to Kansas City there is also abundant agricultural land largely used for the growth of crops consumed in cattle-feeding, while the facilities afforded by Kansas City as a market for mature cattle for beef are unexcelled, and everything is arranged to accommodate the cattlemen who operate an industry of so vast an importance to the whole district."

Pigs at a Profit.

The following are the methods of Forest Henry, of Minnesota, who, the Practical Farmer says, has paid for a large farm and improved it by raising pigs, and who hasn't lost one pig by disease in the 23 years he has been at the business. This is a wonderful record, when you take into account that pigs have died by the hundred on farms around him, for years back, of cholera. Mr. Henry is very modest and does not boast, but simply states the fact.

As shelter for his swine Mr. Henry has a room on the ground floor, 24 by 36 where his pigs sleep. It is warm, has a cement floor, and is kept well littered. The litter is removed once a week and replaced by fresh. The pigs do not pile up in this room during the coldest weather. They keep warm enough lying single. It is injurious to have pigs pile up in their efforts to keep warm. I have heard them squeal all night many a time in the West, says the writer in Practical Farmer. This is inhuman and a money loss to the owner. One hundred pigs, even when they get to weigh 200 to 300 pounds each, sleep comfortably in this room.

PENS FOR FARROWING SOWS.

Mr. Henry now prefers single pens for farrowing sows. They are made cheaply and light so two men can readily move one. These are distributed around in a permanent 5-acre pig pasture. The pens are 6 feet square. First, there is a base spiked together of four 2 by 4's, each about 6 feet long. Then a gable roof is made out of boards 6 feet long. A 2 by 4 is used at the top to nail the boards to. They are also nailed to a 2 by 4 at the base, of course. The back side of pen is boarded up tight. The front side is boarded down to within 2 feet of the ground. This space is left open for the sow to go in and out. Bedding is put in. The pen is placed on ground where water would not run under in case of rain. It is also placed facing the sun. The roof boards prevent the sow from rolling on her pigs on two sides of pen. On the back side Mr. Henry fastens a rail about 6 inches away. These pens are scattered considerably, as a sow likes to be off by herself. She will seek one of these pens and make her bed when ready. Of course the sows are not allowed to farrow until the weather is reasonably mild. Mr. Henry prefers to have it this way. In case of a storm from the south the pen is sometimes turned partly if there is a sow in it.

Perhaps it would be well to repeat

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O. L. THISLER.

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briefly Mr. Henry's general plan of management. It is not likely that you could find a farm in the West where a more perfect an economical system is practiced. The aim is to keep the pigs perfectly healthy first, and then to grow them as cheaply as possible. Three 5-acre lots are used particularly for the pigs. The middle one is permanent pasture. Blue grass and the clovers are used mostly. More seed is sown often so as to keep a thick, heavy sod. The pigs go onto this every day in the year. The feeding floor is at one end, right out of doors in the sunshine and rain. Rain washes it and sunshine destroys bad germs. The floor is made of plank nailed to timbers, but Mr. Henry intends to lay a cement floor as soon as this plank one gives out. This feeding floor is 16 by 60 feet. Mr. Henry is careful to sweep it off before feeding if there is any dust on it. In the pasture lot there should be plenty of shade. Apple-trees make good shade and then when the fruit is cheap, let the pigs have all of it. Given a little each day one could hardly market cider apples better. Mr. Henry never feeds in the mud, or in manure, or in dust, but always on this clean floor, that is used for no other purpose.

CLOVER AND CORN.

On each side of this 5-acre pasture is a 5-acre lot of good, rich land where corn and clover are grown, alternately. The clover is used for pasture in connection with the permanent field. Clover seed is sown in the corn in the other lot at the last working, a peck to the acre. Mr. Henry always gets a stand in this field, even when failure comes on the farm generally. Tremendous crops of corn and clover are grown. The corn stalks are left standing, to catch snow and protect the young clover, and the system works perfectly. Late in the season the pigs are sometimes turned onto meadows. A field of rape and barley is sown also for fall pasture, but Mr. Henry prefers clover; but the variety pleases the pigs. Then a small lot is made very rich and pumpkins are grown alone for the pigs. These are fed with the corn late in the season with excellent results. The pigs eat as much corn, or more, than they would without the pumpkins, and then gain faster and are very healthy. The plan given above, sleeping room, feeding floor, pasture, etc. is about right for 100 pigs. Mr. Henry has tried 150 but they did not do so well. No rings are put in the pigs' noses, and still they do not root enough to do any harm. Mr. Henry tells how he has turned pigs into one meadow three seasons and intends to mow it next year again. They do not disturb it much. When a pig roots something is wrong, perhaps too much corn is fed, or ashes or charcoal needed. You see the care that is taken to provide good food for the pigs and still do it cheaply. Then in addition there is no in-breeding, or breeding from immature stock. Some may think this is too much trouble; if so, let them go on and lose 100 or 200 pigs after they have got them almost ready for market. Thousands of people have seemed to things, by their practice, that pigs could stand any amount of unnatural treatment and still thrive. As a result, in due time, terrible losses have taken place.

Advantage of Raising Pure-Bred Stock.

READ AT WAKEFIELD FARMERS' INSTITUTE. DECEMBER 10, 1900, BY J. G. COWELL.

In speaking for a few minutes on this subject I shall take the word advantage to mean benefit or profit and apply it not especially to those who raise the pure-bred stock but to those who get the benefit in grading up common stock, no matter of what kind. All of you who have lived here a number of years, can remember the stock of horses we had to commence on, principally ponies; but by the use of the Percheron, Clyde and other pure breeds we now have good, serviceable horses as large as we need them for our use on the farm. In the same way with cattle, starting in with the long horned Texas cow because she did not cost much, and by the use of Shorthorn, Hereford, Polled or other stock, we now have our native cattle which, though not all good, yet as a whole are good common-purpose cattle.

Then when the extra butter cow is wanted we look to the Jersey blood to help us out. And so it goes on through all our farm stock—hogs, chickens, etc.

The benefit derived from the use of the pure blood is generally in the size, shape, or the ability to turn our feeds into more money. As regards the advantage to the man who raises the pure bred stock, some have made a good profit while others have failed altogether. The demand is not always alike and at one time a man may sell

the same quality of stock for three or four, or perhaps ten times as much as another time. Personally, I think there is a benefit in it, that is, if the people will start in with one or two and grow up their herd.

They can cull out the poorer ones and in time have a good herd, selling out the male animals at a price that it will pay to raise them.

I have followed this line myself and have a herd of Shorthorns without a very heavy expense.

Kansas Breeders' State Meeting.

The 20th century session of the Kansas Improved Stock Breeders' Association will be held at Topeka, on Monday, Tuesday, and Wednesday, January 7, 8, and 9, 1901. It will be the most important meeting of the association ever held by reason of business matters of a state and national character that must be given attention at this session.

The following comprise the list of speakers and topics for consideration: Some New Points in Regard to Alfalfa, H. M. Cottrell, professor of agriculture, Manhattan.

The Year's Work in Feeding at the Experiment Station, Prof. J. G. Haney, Manhattan.

Kansas Semi-Centennial Celebration in 1904, Hon. John E. Frost, president Kansas Exposition Company, Topeka.

Personal Observations of Kansas Breeding Establishments, Ted W. Morse, Mound City, Kans.

An Address, E. M. Thrall, Eureka, Kans., president American Galloway Breeders' Association.

Observations of Improved Stock Abroad, O. O. Wolf, Ottawa, Kans.

Forage Crops for Live Stock, John M. Fitch, of the Kansas Seed House, Lawrence, Kans.

Pure-Bred Stock at the Kansas Agricultural Farm—General Discussion, opened by C. A. Stannard, Emporia, and J. E. Hoagland, Holton.

Hints to Young Breeders, John Warner, Manhattan.

Good Roads for Good Stock and Good Farmers, by Hon. John K. Wright, president Kansas Good Roads Association, Junction City.

Progress of Black Leg Vaccination, by J. E. Shurtle, Kansas City, and Dr. Geo. C. Pritchard, Topeka.

Object lessons from the Show of Beef Breeds at the International Live Stock Exposition, Chas. E. Sutton, Russell.

True Education for Farmers' Sons, Hon. G. W. Glick, Atchison.

Hints on Hogs and Alfalfa, J. H. Sayles, Norcatur.

Kansas City Hog Show and Sale in 1901—General Discussion, H. M. Kirkpatrick, Walcott, and Col. R. E. Edmondson, Kansas City.

Red Polled Cattle—the Dual-Purpose Breed, Wilkie Blair, Girard.

Combination Show and Sale of Stock at Time of Annual Meeting—a General Discussion, Opened by James Mains, Professor Cottrell, O. P. Updegraff, and H. M. Hill.

Definite Information as to What Cattle Do in the Feed Lot, W. J. Tod, Maple Hill, T. M. Potter, Peabody, J. D. Small, Atchison.

A Bull Hunt in Canada, by Your Uncle D. Tennyson of Frankfort.

Breeding Poland-Chinas, Line Upon Line, and Remarks on the Hog, C. M. Irwin, Wichita.

The Horse to Raise to Meet the Permanent Market Requirements, J. M. Grant, Kansas City.

The Best Thing on Milk—Sanitary Remarks, G. G. Burton, Topeka.

Sheep Feeding in Kansas, Actual Results for Five Years, J. W. Higgins, Jr., Hope.

Pink Eye, Contagious Abortion, and Other Ailments of Live Stock, Dr. Tait Butler, veterinarian Agricultural College, Manhattan.

Shipping Pedigreed Stock—A General Discussion, opened by D. P. Norton, Dunlap.

During the week of January 12, 1901, a number of state industrial associations will hold their annual meetings at Topeka, in addition to the breeders. The Kansas State Dairy Association, Kansas State Poultry Show, Kansas State Board of Agriculture, and the regular biennial session of the Kansas legislature. Everybody invited to come early and stay all week. There will be reduced rates on all railroads in the state, good from January 5 to 14. Ask your local agent for particulars.

Every Kansas breeder and every farmer interested in improved stock is most cordially invited to become a member (\$1 pays all membership fees and dues for 1901) of the Kansas Improved Stock Breeders' Association.

Don't fail to attend the eleventh annual or the Twentieth Century session

of this great live stock organization. Also the Breeders' Annual Banquet on Wednesday night, January 9. For further information address H. A. Heath, secretary-treasurer, Topeka, Kans.

American Chester-White Record Association.

Members of this association will hold their annual meeting at the Great Southern Hotel, Columbus, Ohio, the morning of Wednesday, January 16, 1901. A swine-breeders' institute will be held at same place the evening of Tuesday, January 15. Breeders and feeders of swine of any color and breed are invited to attend this interesting and instructive meeting.

Dayton, Ohio. CARL FREIGAU, Sec'y.

Ohio Poland-China Record Company.

The annual meeting of the stockholders of this company will be held at Phillips House, Dayton, Ohio, Wednesday, January 23, 1901. All members are requested to be present. A swine-breeders' institute will be held at same place, Tuesday, January 22. All who are interested in breeding and raising swine of any color and breed are invited to attend this instructive and interesting meeting. CARL FREIGAU, Sec'y. Dayton, Ohio.

His Principal Utterance.

The expert counterfeiter laid the various samples of his work on the table before him and examined them with a critical eye.

"This," he said, finally, picking up a well-executed imitation of a \$100 bill, "I think I shall make my paramount issue."—Chicago Tribune.

Catarrh Cannot be Cured

with LOCAL APPLICATIONS, as they cannot reach the seat of the disease. Catarrh is a blood or constitutional disease, and in order to cure it you must take internal remedies. Hall's Catarrh Cure is taken internally and acts directly on the blood and mucous surfaces. Hall's Catarrh Cure is not a quack medicine. It was prescribed by one of the best physicians in this country for years, and is a regular prescription. It is composed of the best tonics known, combined with the best blood purifiers, acting directly on the mucous surfaces. The perfect combination of the two ingredients is what produces such wonderful results in curing Catarrh. Send for testimonials, free.

F. J. CHENEY & Co., Props., Toledo, O. Sold by all druggists, price 75c. Hall's Family Pills are the best.

Yeast—"I thought you told me your wife didn't know what fear was?" Crimsonbeak—"So I did." "Well, my wife heard her scream when she saw a mouse the other day." "Oh, well, that wasn't fear; it was nervousness."—Yonkers Statesman.

H. R. LITTLE,

HOPE, DICKINSON CO., KANS.,

Breeds Only the Best

Pure-bred

SHORTHORN CATTLE.

The herd numbers 135, headed by ROYAL CROWN 125698, a pure Cruickshank, assisted by Sharon Lavender 143002. For Sale just now 16 Bulls of serviceable age, and 12 Bull Calves. Farm 1 1/2 miles from town. Can ship on Mo. Pacific, R. I., or Santa Fe. Foundation stock selected from 3 of the great herds of Ohio.

GALLOWAYS.

Largest Herd of Registered Galloways in Kansas.

Young bulls, cows, and heifers for sale.

E. W. THRALL, Eureka, Kans.

CORN IS KING!

PLEASANT VALLEY

SEED CORN

FARM

J. B. Armstrong & Sons

SHENANDOAH IOWA.



Originator and Grower of Early Yellow Rose and White-Snowflake

SEED CORN THAT PAYS AT FARMERS PRICES. Don't fail to send 5 cents in stamps for 4 samples of the corn that was awarded Gold Medal at Omaha Exposition, and a 40-page book, "Hints on Corn Growing." The Iowa Agricultural College grew 95 bushels per acre that shelled 62 pounds from 70 pounds of ears. Many farmers are beating this wonderful yield. J. B. ARMSTRONG & SONS, Shenandoah, Iowa.

HOGS, SHEEP, POTATOES.

Two Registered Duroc-Jersey Gilts, bred to registered Duroc-Jersey boar not akin, \$15 each.

Two Registered Poland-China Gilts, bred to registered Poland-China boar not akin, \$15 each; Poland-China pigs, registered, \$10 each. Registered Poland-China and Duroc-Jersey boars, 250 pounds, \$15 each.

Registered Shropshire Rams and ewes in Lamb, \$20 each.

A New Potato. "The Kansas Snowball."

Best keeper and table potato ever grown in Kansas. One pound by mail, 50 cents; peck by express, \$2; bushel, \$5. "Early Kansas" all sold.

J. CLARENCE NORTON,

MORAN, KANS.

Leavenworth County...

JACK FARM.

Twenty-five Jacks and Jennets for sale; also a registered trotting-bred stallion, 16 1/4 hands high, weight 1,300 pounds. O. J. CORSON, Potter, Kansas.

GRAND YOUNG BOAR.

An April 18th boar, by Ideal Black Chief, successor to Missouri's Black Chief, dam, Jewell Wilkes 2d, the sweepstakes show sow by Knox All Wilkes. He is a grand individual with grand breeding. Five boars ready for service at low prices. Extra good gilts safe in pig to Ideal Black Chief or to Imperial Chief, first in class at Iowa State Fair 1900.

DIETRICH & SPAULDING, Richmond, Kans. Farm one mile from station.

R. S. COOK, - - Wichita, Kans.,

Breeder of POLAND-CHINA SWINE.

The Prize-Winning Herd of the Great West. Seven prizes at the World's Fair. The home of the greatest breeding and prize-winning boars in the West, such as Banner Boy 2844, Black Joe 28608, World Bester and King Hadley. FOR SALE—An extra choice lot of richly-bred, well-marked pigs by these noted sires and out of thirty-five extra large, richly-bred sows. Inspection or correspondence invited.

LOCKRIDGE STOCK FARM

GEO. CHANNON, Proprietor Hope, Dickinson County, Kansas

BREEDER OF PURE-BRED SHORTHORN CATTLE,

POLAND-CHINA SWINE,

PLYMOUTH ROCK POULTRY.

FOR SALE: The young Shorthorn herd bull, Glendower 2d, a half brother to Bothwell's heifer, Strawberry, that sold at the Kansas City Sale for \$700. Will also sell a few young bulls and heifers. Now offer in Poland Chinas 40 spring gilts, bred or open, and 100 fall pigs. Also 200 Plymouth Rock cockerels. Prices very reasonable as feed is too scarce to carry so many over winter.

PATENTS

COMSTOCK & ROSEN

P. M. COMSTOCK, J. A. ROSEN,

Mechanical Engineer, Patent Attorney.

Solicitors of Patents.

We prepare expert drawings and specifications. Working drawings made and construction superintended. Rooms 3, 4, 5, Rosen Block, 418 Kansas Ave., Topeka.

The Home Circle.

WHAT I LIVE FOR.

I live for those who love me, Whose hearts are kind and true, For the heaven that smiles above me, And awaits my spirit, too;

I live to learn their story Who've suffered for my sake, To emulate their glory, And to follow in their wake;

I live to hold communion With all that is divine, To feel there is a union 'Twixt Nature's heart and mine;

I live to hail that season, By gifted minds foretold, When men shall rule by reason, And not alone by gold;

I live for those who love me, For those who know me true, For the heaven that smiles above me, And awaits my spirit, too;

How Shall We Keep the Boys From Leaving the Farm?

READ AT WAKEFIELD FARMERS' INSTITUTE, DECEMBER 10, 1900, MRS. A. L. SOUTHWICK.

While this problem is being anxiously considered and widely discussed, I am reminded of that hackneyed but excellent advice of Punch, "Don't." If your boy has arrived at the age when he must choose an occupation with an inherent and constitutional distaste for farming and is possessed of a determination to seek his fortune in some other calling, you would better let him go.

bondage? Keep them on the farm? He would better take Punch's advice: "Don't."

But there are others. There is the man who never takes his boys into his confidence; issues orders like mandates to be obeyed without question. The first personal pronoun always in evidence. They hear a great deal about what "I am going to do."

Another type of man who is managing to drive the boys away from the farm is the chronic grumbler—the pessimist. How he ever became a farmer is a mystery, and why he continues to be one is a greater.

To the man who is in love with his business, farm life is a very different thing. To him it is a work shop, laboratory, and experiment station. And a Farmers' Institute is held around his own fire-side every night, where each member of the family is represented.

House Work is Hard Work without GOLD DUST.

important to them than the accumulation of more land, to raise more corn, to feed more hogs, that the boys be inculcated with a love of farm life, that the foundation of a strong, sturdy manhood be secured, that an opportunity for education be afforded, so they may be mentally, morally, and physically equipped for the battle of life.

"From homes like these our country's grandeur springs That makes her loved at home, revered abroad: Princes and lords are but the breath of kings, An honest man is the noblest work of God."

American Wares Abroad.

Next to China in importance as a market for American goods come Japan, but the cleverness of the Japanese is an obstacle to extended trade.

Germany, thoroughly wideawake as she is in matters commercial, has not been blind to the merits of American goods and wares. A great deal of the caviare which is served at the tables of our hotels and private houses, and fetches a high price owing to the belief that it is manufactured abroad, really has its birth within the confines of the United States.

In matters of the toilet, too, we are in the front. Even the Moscovite, who, if we are to believe the pictures, should not have much call for shaving appliances, is a good customer of ours for barbers' chairs and toilet clippers.

About the Archbishop of Canterbury.

At a public meeting held shortly after his elevation to the episcopate, Bishop Temple told the following story on himself, seemingly in extenuation of some line or attitude he had taken:

A boy at Rugby, where the bishop had been headmaster, had described the doctor as "a beast;" but he explained that though "a beast," yet he was "a just beast."

The archbishop prides himself on this appellation and tells it gleefully to this day.

Alluding to the archbishop's abrupt and rather repellent manner, somebody remarked on one occasion:

"There are no polished corners on that temple."

Here are two more stories concerning the archbishop. The first Dr. Temple tells of himself. One night he attended a popular service in a London east end church, and, standing in a back pew, joined in the singing of a Moody and Sankey hymn.

The second story goes back to the Exeter days of Dr. Temple, when he

was suspected of heterodoxy. One day a young curate came to him and said, "My lord, it is rumored that you are not able to believe in special interpositions of Providence on behalf of certain persons."

"Well," grunted the bishop. "Well, my lord, there is the case of my aunt. She journeys to Exeter every Wednesday by the same train and in the same compartment of the same carriage. Last Wednesday she felt a disinclination to go, and that very day an accident occurred by which the carriage of the train in which my aunt would have traveled was smashed to pieces.

There Was a Mistake.

"I think," he began as he halted a pedestrian; "I think I made a mistake with the cabman who drove me to the Corcoran Art Gallery. I am quite sure I gave him a ten-dollar bill, but he must have mistaken it for a two-dollar."

"And you hope to find him again?" asked the man of the stranger in the city. "Why, yes, I have hopes."

"Well, you are about as green as they make 'em. That cabman deliberately swindled you out of many dollars."

"I can hardly believe it. He looked so honest and truthful, that I—I—" "That you ought to have asked him to hold your watch and the rest of your money! My dear old Josh from the cornfields, let me say—"

At that minute a cab rattled up and the driver dismounted and said: "See here, old man, there is a mistake. You probably meant to give me a two-dollar bill and I thought it was one when I gave you a dollar in change."

"But I think it was a ten, my friend." "No, it was a twenty, and I have been driving about for half an hour to find you and restore the money. Here it is."

"And what was it you were going to say to your dear old Josh from the cornfields?" asked the old man, as he turned to the wise person.

But the wise person was there no longer. He was flying for a car as if running for his life.—Washington Post.

"Say," remarked the first boy on the way to school, "I just heard the minister tell another man 'at my pa was a 'horrible example.' Wonder what 'at is?" "I guess," replied the other, "he must have a lot of fractions in him."—Omaha Bee.



Tied Up

When the muscles feel drawn and tied up and the flesh tender, that tension is

Soreness

and Stiffness

from cold or over exercise. It lasts but a short time after

St. Jacobs Oil

is applied. The cure is prompt and sure.

Mothers! Mothers!! Mothers!!!

MRS. WINSLOW'S SOOTHING SYRUP has been used for over FIFTY YEARS by MILLIONS OF MOTHERS for their CHILDREN while TEETHING, with PERFECT SUCCESS. IT SOOTHES the CHILD, SOFTENS the GUMS, ALLAYS all PAIN, CURES WIND COLIC, and is the best remedy for DIARRHEA. Sold by druggists in every part of the world. Be sure and ask for "Mrs. Winslow's Soothing Syrup," and take no other kind. Twenty-five cents a bottle.

The Young Folks.

WISHING.

Do you wish the world were better?
Let me tell you what to do:
Set a watch upon your actions,
Keep them always straight and true.
Rid your mind of selfish motives,
Let your thoughts be clean and high.
You can make a little Eden
Of the sphere you occupy.

Do you wish the world were wiser?
Well, suppose you make a start
By accumulating wisdom
In the scrap-book of your heart.
Do not waste one page on folly;
Live to learn, and learn to live.
If you want to give men knowledge
You must get it, ere you give.

Do you wish the world were happy?
Then remember day by day
Just to scatter seeds of kindness
As you pass along the way.
For the pleasures of the many
May be oftentimes traced to one,
As the hand that plants an acorn
Selters armies from the sun.
—Ella Wheeler Wilcox, in Youth's Companion.

Eben Brown's Combination Snake.

EDWIN J. WEBSTER.

"Eben Brown never forgave Tom Wilson for deciding against him in the great Pike County handicap snake race," said Deacon Todgers, when the boys asked him for a tale of life in the old Pike County days.

"I'm a good man, and a forgiving," said Eben earnestly the day after the race, "but I'll get even with Tom Wilson if I develop premature baldness trying to think up some scheme. And when I strike I will aim at his tenderest part." "Now if there was one thing Tom Wilson thought more of than another it was his pet hog. There's no denying he was an animal of parts, an animal that would have been a source of joy to his owner in any part of the world. The hog could count up to ten, he could spell out his name with blocks, and do other things which are not generally included in the repertoire of a fat, placid-looking, middle-aged hog. But the long suit of that hog, and the thing that most delighted the soul of Tom Wilson, was his ability to kill snakes.

"There isn't but one thing for a snake to do when my hog comes in sight," Tom used to say with a look of honest pride on his face. "And that is to commit suicide. For if he lingers on the premises he will only meet with a painful death, and add to the laurels of that noble animal of mine and his worthy owner."

"One evening, when there was quite a crowd in the tavern and Tom Wilson was holding forth on the beauty and numerous attainments of his gifted animal, Eben Brown came in. He listened in a sort of sneering way, and finally broke in on Tom's eulogy.

"A hog's a hog," said Eben, sort of contemptuously. "Even when he has a talkative owner, who is able to goldbrick people into thinking he is an animal of talents. And I don't deny that your pet can fumble about with blocks and delude strangers into believing he can spell. But when it comes to killing snakes, I don't think he is on hand with many claims for bounties."

"Well, Tom Wilson was one of the most grieved and shocked men in the county at hearing his pet run down in that manner. For Tom had educated and trained his hog, until it was almost like a child to him.

"Don't go around blaspheming the good qualities of a dumb animal that knows more than any one by the name of Eben Brown can possibly appreciate," answered Tom in his most emphatic manner. "Out in my storeroom are skins and rattles of hundreds of snakes that bear testimony of the sincerity and single-heartedness of my pet's good work as a reptile slayer. It's easy for the envious to throw conversational jibes at my hard-working, innocent-minded pet. But I haven't heard you make any remarks about wishing to back your heretical opinions with coin of the realm."

"I don't want to bet against any alleged evidence you may bring forth as to your hog's record," said Eben, still sort of sneering like. "It would be easier and quicker to get rid of my money by putting it in an envelope and shoving it under your door. But if you want to bring your prize animal out in the open I might make a small wager with you. But I don't suppose you would care to match him against anything larger than a garter or milk snake and he could probably beat one of them."

"Tom was mad clear through. "Milk or garter snake!" he exclaimed, angrily. "It's at killing rattlers and blacksnakes that my hog has won honors and records for himself and good money for his owner. I'll back him against any snake in Pike County

and take up any bet you choose to make. It's robbing your family to do it, but it is the only way to keep the money in the county and prevent you from buying gold bricks with it."

"So it was agreed to match the hog against any snake Eben might produce. The fight to take place in the big field at the side of Tom Wilson's tavern. I was considerably worried over what I considered Eben's foolishness.

"Tom is a vessel of wrath," I told Eben, "and it's a worthy and pious scheme to try and bump him and deplete his pocketbook. But I can't see but that your present game is going to result in the transfer of painful experience to Eben Brown and good money to Tom Wilson. For, despite your jeering words the other evening, there is no manner of doubt that hog is a wonder at killing snakes. I've seen him wade through a bunch of rattlers ragtime step. And it's just fun for him to add to the list of blacksnake fatalities."

"But Eben Brown, instead of seeming worried, took me into the house and showed me an item in a paper about a man that lost a finger and by quick work the doctors had grafted on the finger of a healthy individual, who had more use for money than fingers.

"There," said Eben, with the air of a man who had made a great discovery, "there is the essential idea in my plan that will lead in the downfall of Tom Wilson's hog, and teach his owner not to give decisions against the good man who trained the original Pike County racing snake."

"Even then I couldn't see what Eben was driving at.

"How grafting fingers on a prize hog will help you is a problem far beyond Deacon Todgers," I replied, puzzled like. "Even if Tom will consent to let you interfere with the unalienable right of every hog to go through life ungrafted, a few fingers more or less won't retard the snake-killing energies of that hog. And do you propose to sacrifice your own toil-worn digits in the interests of science and Pike County snakes?"

"Eben was vexed at my keen sarcasm.

"The hog isn't my prize card, deacon," he answered impatient like. "Snakes are what I'm putting my money on. I don't deny that Tom's pet is a recordmaker as a slaughtering of ordinary snakes. But when he runs up against your Uncle Eben's grafted, double-snake combination, he'll think he's fighting the creation of some weird dream. And, even if he is a hog of talents, I don't believe his nerve will be strong enough for him to do efficient battle. Pet hogs will find themselves outclassed when they bump up against science and Eben Brown's intelligence. A grieving spirit for Tom Wilson and a decent burial for the prize hog are going to be the results of the coming contest."

"At that I couldn't understand how Eben would make good with his grafting scheme.

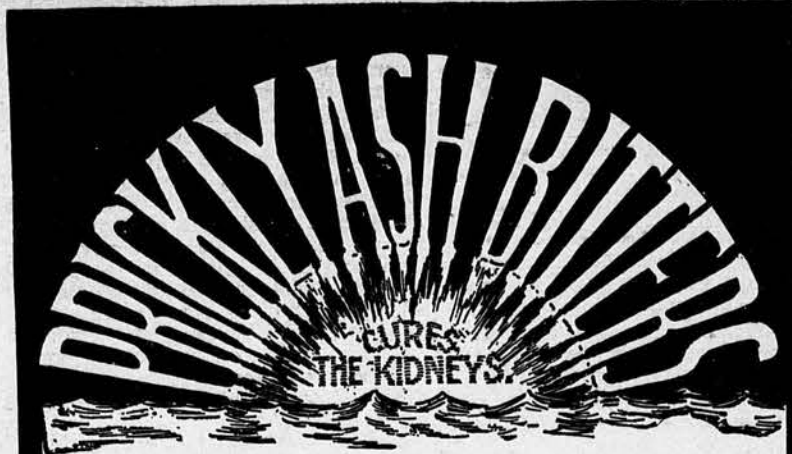
"Endless chains are all right in their way," I warned him, "but I don't see how you are going to apply the principle to Pike County rattle and blacksnakes. And even if you do succeed in grafting together a few snakes, it's my belief it will interfere with their fighting qualities."

"I don't propose to make a living rope of Pike County rattlesnakes and have it hang the hog, deacon," Eben said, in a slow, earnest fashion, like a man explaining things to a child. "It's by working on the snake's moral qualities and worrying him by the novelty of the game that I expect to win coin and honor and revenge. If you were wandering through the woods and met a blacksnake you would probably kill it. If you ran up against a rattler the sight wouldn't cause you keen joy, but still you wouldn't be especially alarmed. But if you met a blacksnake with rattles, you would probably hunt a tree. And that is what will be the effect on the mind of Tom Wilson's hog when he prepares to do battle with my champion."

"So Eben caught a big blacksnake and a rattler of corresponding size. Then he cut their tails off and grafted the rattling end of the rattlesnake on the blacksnake. The blacksnake didn't take kindly to the operation, but his wishes weren't consulted. Eben kept the combination snake in a long narrow box where he couldn't do much twisting. In a week the grafting has taken effect, and Eben was the proud possessor of an animal that was unique in the annals of Pike County—a big, bad-tempered blacksnake, but equipped with an exceptionally fine set of rattles.

"Eben was the proudest man in the county.

"Coming generations will bow their



THE COMMON ENEMY ...

Kidney disease is the enemy we have most to fear as a result of the feverish restlessness of our modern civilization. It is a treacherous enemy, working out its deadly effect under cover of the most trifling symptoms. The first indication of changes in the urine, frequent headaches, digestive troubles, should be the signal for prompt remedial measures. PRICKLY ASH BITTERS is a kidney remedy of great merit. It is soothing, healing and strengthening, quickly relieves the aching or soreness that always appears in the advanced stage, checks the progress of the disease, and through its excellent cleansing and regulating effect in the liver and bowels, it brings back the strength and ruddy glow of vigorous health.

Sold at Drug Stores.

Price, \$1.00 Per Bottle.

heads in reverence at the name of Eben Brown, the able and modest old man, who first recognized the possibilities of animal grafting," he said, proudly. "This attempt of mine is the opening wedge for a long line of discoveries. It won't be many years before we will see dogs with cat's heads and tails, giraffes with eagle's wings, and all sorts of things that seemed impossible until your Uncle Eben entered the scientific arena. Evolution has done big things for the progress of this world, but even Evolution will have to take a back seat and blushing retire when your Uncle Eben's brain begins to get in its fine work."

"Well, putting Evolution on a back seat seemed considerable of an achievement for a little, bald-headed old man, but it can't be denied that his snake was the real article. It took the snake a few days to sort of get used to himself. Most of him was a blacksnake, but the rattles were there, and in good working order. When the snake got excited and made a sudden move the rattles would give out a whirr. Then the snake, being at heart a blacksnake and a natural enemy of the rattler, would whirl around and look for a fight. But the only rattles in sight were his own. So the snake would calm down. But the effect of being so often stirred up was to make it about as bad-tempered a reptile as could be found in the state. He was a powerful big creature, always ready to fight anything that walked or flew. And any one that ran across him was apt to think he had been indulging too freely in stimulants and give the ugly-tempered combination snake a good wide berth. Eben was the only one who could do anything with the snake, and Eben kept him in the box most of the time, for if anything went wrong the snake would fly at him.

"Viewed as a fighter," Eben said, sort of sorrowfully, "that combination reptile of mine certainly is a wonder. But he isn't an animal that will ever take kindly to fond caresses or make heart-to-heart friendships."

"When the day for the fight came, Eben toted his snake to the field of battle in a big box. Tom Wilson and his prize hog were on hand and ready for business. Tom was gloating over the money he expected to win from Eben, but even more at the manner in which he felt certain his hog would vindicate his reputation as a snake-killer. For it never occurred to Tom that his pet could be beaten.

"Whenever you are willing to deliver that poor snake over to death," said Tom, in his sneering way, "just shove back the lid of your box. My hog has a number of important business engagements and he would like to dispose of your deluded victim as quickly as possible."

"Eben didn't make any reply, but pushed back the cover of the box. Out shot his combination snake. The snake was always short-tempered, and just then he was pretty well stirred up at

having been carried around in a hot, stuffy box. He didn't waste any time in formalities, but started for the hog. The hog, as soon as he had seen the snake, had begun to stroll towards him in the nonchalant manner of a hog who could kill a dozen snakes, just as his early morning exercise. But when he got closer to the snake the hog stopped in a puzzled way. The rattles were whirring that would seem to indicate a rattlesnake. But the head and body bore all the signs of a blacksnake. You could see the prize hog's mind was disturbed. Besides this, he was accustomed to seeing snakes of every kind hunt cover when they saw him, but this new variety of reptile seemed to be ready and anxious for a fight. The hog prepared to step on the snake near the head, after his regular manner of killing rattlesnakes. Then he took another glance at the head and body and tried to change his plan of attack. The result was that he wasn't more than half prepared when the snake reached him and was a pretty well alarmed hog. At the last second the hog shot out his forefeet. His move would have been all right if he had been up against a slow-moving rattler. But it didn't count against a combination snake that was quicker and stronger even than the ordinary blacksnake. The snake made a spring, seized the prize hog by the throat, and began choking him to death in the calm, business manner of an extra big combination snake. And when the snake finally let up on his grip an honorable burial was the only thing needed by the prize pig.

"It was the first time Tom Wilson had ever been hit very hard at the betting game, and he was a disgruntled individual when he handed the money wagered over to Eben Brown. But besides feeling the loss of the money he was honestly grieved at the thought of his pet's defeat and death.

"Rattlers were easy for my poor, deceased pet," said Tom sorrowfully. "Blacksnakes had no terrors for him. But when he ran up against that combination article he was evidently out of his class. Defeat was his portion, but not disgrace. For he died on the field of battle."

"But Eben Brown fairly bubbled over with jubilant joy.

"Prize hogs are all right in their day and generation," exclaimed Eben triumphantly, "but when they match themselves against science and your Uncle Eben's massive mind, what chance have they? Evolution had to take a back seat. And if Evolution, why not prize hogs?"—Omaha Bee.

Health for 10c. Cascarets make the bowels and kidneys act naturally, destroy microbes, cure headache, biliousness, and constipation. All druggists.

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SHOULD BE IN EVERY BODY

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Published every Thursday by the KANSAS FARMER CO., : : TOPEKA, KANSAS.

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SUBSCRIPTION PRICE: \$1.00 A YEAR.

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Every advertiser will receive a copy of the paper, free during the publication of the advertisement.

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It is reported that the immigration authorities of the United States have decided that tuberculosis is a contagious disease and that aliens afflicted by it will not be allowed to land in the United States.

The show of the Kansas State Poultry Association will be held at the Auditorium, Topeka, January 7-12, 1901. The premium list shows that the management expect the greatest show ever held in the state. All classes of poultry and pet stock will be represented. The display of Belgian hares promises to be immense. Incubators, brooders and other appliances will constitute a school of object lessons in the modern art of poultry culture.

TRANSPLANTING EVERGREENS.

EDITOR KANSAS FARMER:—I would like to see something in the horticultural department of your paper in regard to planting, caring for and growing evergreens—cedars, pines, spruce, etc. I tried some last year and made a failure of it. The trees seemed to be and were in fine shape when I received them. They consisted of pines, cedars and spruce. I dug large holes about 3 feet wide by 1 1/2 deep in which to plant them. I put in some thoroughly rotted manure well mixed with the original earth and two or three buckets of water to each tree. They were looking fine and I was congratulating myself on my success. But about that time a severe dry spell came on; the ground cracked and I was afraid my evergreens would suffer. I took a spade and loosened the earth around them about 4 to 6 inches deep and applied as much water as the ground thus prepared would absorb. I thought I had fixed them about right and I guess I did as they gradually turned brown and died. But as this was my first attempt I thought I would try it again, hence would like to learn something about the subject. Oak Hill, Kans. J. KIRKLAND.

If transplanted trees fail to grow the experienced planter usually attributes the blame to the nurseryman, alleging wrong handling at the nursery, improper packing, thereby permitting the roots to dry, freezing in transit—always to some fault, somewhere, by somebody, before the trees reached the hands of the planter. Not infrequently the experienced planter is right. In like manner, when complaint is made to the nurseryman he with perfect confidence attributes the blame to delay or freezing in transit, wrong handling or wrong setting. Not infrequently the nurseryman is right.

Trees, especially conifers should on removal from the nursery immediately have their roots covered with moist earth, moist moss, or some material which will prevent drying. This material should be so arranged as to maintain the freshness of the roots until they again go into the soil. This is the part of the work for which the purchaser of trees has to depend upon the nurseryman.

After the trees have been received by the planter they should be set in their permanent positions without unnecessary delay. Such as can not be planted immediately may be "heeled in." This is done by making a trench, placing the roots therein and covering

with soil. The soil should be moist and crumbling and should fill the spaces among the roots. If the trees are to remain in this trench many hours the soil should be well tramped about the roots. Some careful planters take even more care than is above described, especially when receiving conifers. This extra care consists in giving the roots a mud bath as soon as received. For this purpose a thin mud is prepared and the roots are thrust into it. The adhering mud prevents drying. It is a good plan to have a vessel containing the mud mounted on a sled and to convey the trees with their roots in this mud to the places where they are to be planted.

The soil in which trees are to be planted should be moist, but not muddy. It is doubtful whether manure should be mixed with the soil in the tree holes. The soil should come into direct contact with the roots. This may be prevented and air cavities may be caused by even well rotted manure. Rotten manure may safely be used as a mulch. The entire plot where the trees are to be planted should be in a good state of cultivation. If only the soil near the trees be cultivated the hard soil adjacent gives its moisture to the air and absorbs the moisture from that around the trees.

Watering trees is a problem which involves some of the principle of irrigation. After watering a mulch of some kind should be provided to prevent the water from being stolen by evaporation. If no mulch is provided it is important to cultivate the surface soil after watering and before a crust is formed. It is not well to cultivate very deep next to the trees because of the direct contact of the soil with the roots which should not be disturbed during the first season at least.

When large evergreens are to be moved some prefer to do the work in winter. When the ground is frozen the trees are dug so as to leave most of the roots encased in a great ball of frozen soil. They are carefully loaded upon a low sled and as carefully unloaded into the holes in their new positions. In transplanting some large pines and cedars in this way several years ago the writer lost none. This method is of course unapplicable to long shipments.

NEED OF BLOODED STOCK ON THE AGRICULTURAL COLLEGE FARM.

Last year the agricultural college gave instruction to 1,094 boys and girls. The increased attendance so far this year indicates that the enrollment will reach nearly 1,500. These boys and girls are very largely from the farm and expect to return to the farm. About three-fifths are boys and they come for instruction largely in agriculture. Perhaps the most important branch in agriculture is stock raising, animal industry, so-called. These boys came to the agricultural college to study and learn the different breeds of farm animals; what the distinguishing qualities of the different breeds are, how they should be managed and cared for to obtain the most profit. There are boys who came to study these subjects who do not know the difference between a Jersey and a Polled-Angus. The boys are not to blame; they have simply never had the opportunity of learning. Many boys know the breeds by their looks, but can not distinguish the different points of the various breeds which make them adapted to their purpose. They have never had it pointed out to them that the cow for giving milk should have a back that comes to a point just back of the shoulders like a letter "A," while the beef animal should be rounded at this point like the top of the letter "O."

All practical stockmen know that these things can not be taught with any appreciable success without animals to represent the different points. It is also important that there be more than a single individual of the different types so that the individual variation may be pointed out. It is not well either to teach all these points on a single representative breed. One of the greatest stimulus to the betterment of breeds has been the honest competition of the breeds. Representatives should be kept before the student so that he may see and know for himself.

It will be seen by the items that the Kansas State Agricultural College is not at all prepared to teach these important lessons. We have one Guernsey bull, and a herd of scrub cows and their calves. The Kansas agricultural college is the largest of its kind in the world, yet it will be seen how very far behind our neighbor states we are in this important particular.

The following are the reports of a

number of agricultural colleges, showing the stock possessed by them:

KANSAS.

Horses—6 head, grades. Cattle—1 Guernsey bull, 26 scrub cows, 64 scrub calves. Sheep—none. Swine—none.

COLORADO.

Horses—5 head, Clydesdale. Cattle—42 head, Shorthorn, Jersey. Sheep—60 head, Shropshire. Swine—30 head, Berkshire.

IOWA.

Horses—50 head. Cattle—100 head. Sheep—100 head. Swine—200 head.

The flocks and herds comprise 25 distinct and pure breeds, and Iowa is still buying. They paid \$905 for a Short-horn heifer at the Kansas City national sale, and offered \$800 for a pure-bred Angus heifer from our own state.

INDIANA.

Cattle—Jersey, Holstein-Friesian, Shorthorn, Hereford. Sheep—Shropshire, Rambouillet Merino. Swine—Poland-China, Chester-White, Large Yorkshire.

MASSACHUSETTS.

Horses—24 head, Percheron, French Coach, Clydesdale. Cattle—100 head, Ayrshire, Jersey, Guernsey, Holstein-Friesian. Sheep—50 head, Southdown. Swine—75 head, Small Yorkshire, Poland-China, Berkshire, Tamworth, Chester-White, Belted.

MINNESOTA.

Cattle—Shorthorn, Hereford, Aberdeen-Angus. (Besides a dairy herd of 40 head.) Sheep—Oxford Down, Shropshire, Southdown, Cotswold, Lincoln, Dorset, American Merino, Delaine Merino. Swine—Tamworth, Large Improved Yorkshire, Poland-China, Berkshire, Cheshire.

The directors have \$6,000 to expend during the present year in the purchase of typical animals of the pure breeds.

MISSISSIPPI.

Mules—30 head. Cattle—350 head, Jersey. (Both pure-bred and grade.) Hereford. (Both pure-bred and grade.) Aberdeen-Angus. (Both pure-bred and grade.) Sheep—50 head. (Both pure-bred and grade.) Horn Dorset.

This station expects to purchase some pure-bred beef cattle this winter.

MISSOURI.

Cattle—Jersey, Shorthorn, Hereford, Angus, Polled Durham. Sheep—Shropshire, Hampshire, Delaine Merino.

At the same time they have 100 head of representative Herefords, Shorthorn, Angus and Polled Durham breeds, all under inoculation, and will have 150 more before the season closes.

NEBRASKA.

Cattle—Hereford, Jersey. Sheep—Shropshire. (These are pure-bred animals.) Swine—Poland-China, Yorkshire, Jersey Red, Tamworth.

NEW JERSEY.

Horses—Hackney, Belgian Black. Cattle—15 head pure-bred and 40 grade; 6 Ayrshire (pure-bred), 4 Guernseys (pure-bred), 2 Jerseys (pure-bred), 3 Holsteins (pure-bred). Swine—16 head, Berkshire.

NORTH DAKOTA.

Horses—22 head, Precheron, Clydesdale, Cleveland Bay. Cattle—40 head, Shorthorn (pure-bred), Herefords (pure-bred), Jerseys (pure-bred), Holstein (grade). Sheep—22 head, Shropshire (pure-bred). Swine—29 head (grade).

VIRGINIA.

Horses and Mules—12 head. Cattle—77 head, Guernsey (pure-bred), Jersey (pure-bred), Holstein-Friesian (pure-bred), Aberdeen-Angus (pure-bred), Shorthorn (pure-bred). Sheep—20 head, Dorset (pure-bred). Swine—70 head, Berkshire (pure-bred), Poland-China (pure-bred).

WISCONSIN.

Horses—17 head, Coach, Percheron, Clydesdale. Cattle—63 head, Shorthorn, Holstein, Jersey, Guernsey. Sheep—156 head, Shropshire, Southdown, Dorset, Lincoln, Oxford, Merino. Swine—130 head, Berkshire, Yorkshire, Razorback, Poland-China, Duroc, Chester-White.

CONNECTICUT.

Cattle—Jersey (pure-bred), Guernsey (pure-bred), Ayrshire (pure-bred). Swine—Berkshire, Cheshire.

The college has just been authorized to spend \$300 for Southdowns, Dorset and Merino sheep.

The above statements speak for themselves. The Kansas State Agricultural College should be better provided with pure-bred stock than any other of the agricultural colleges in the world. First, because it has the largest attendance of any college of the kind in the world, and second because the live stock industry is the

greatest and most profitable branch of farming in the state.

The college has absolutely not a single dollar which it can spend for the purchase of live stock. The recent doubling of attendance has taken every cent of the college income for teaching and running expenses. The only way in which the college can secure pure-bred stock is for the legislature to make an appropriation for their purchase. Will you use your utmost endeavors to secure such an appropriation as will purchase for the college representative animals of the leading breeds of horses, cattle, swine, sheep and poultry?

DURABILITY OF CATALPA POSTS.

EDITOR KANSAS FARMER:—I desire information about catalpa posts. Do they stand long in the ground before rotting? How do they compare with hedge posts? E. GABRIELSON. Hutchinson, Kans.

The authorities on durability of timber agree that in this respect the catalpa has great value. In a recently published leaflet, Hon. John P. Brown, secretary of the Indiana Forestry Association, brings together the following statements as to the value of catalpa timber:

"It has been the custom to take the oak, a tree which is slow to develop, as a standard by which to measure every forest growth, and thus impatient Americans are discouraged from forest planting. However, in the catalpa we have a tree combining many of the qualities of oak, besides possessing several features of great value to the quercus family, and, withal, coming quickly to maturity, producing merchantable sawing timber and several cross-ties in from fifteen to twenty years.

"The Indian tribes who dwell in the valley of the Wabash, or traversed this region, sought such trees as could be easily wrought with their rude implements, and those which were most enduring, from which to fashion their canoes, and the catalpa was their favorite wood.

"Usually those woods which are dense, and slow to mature, have great durability, while the quick growing trees with softer wood, soon perish. The reverse is the case with catalpa, its chemical constituents being permanent antiseptics preserve the fibers from decay.

"The early white settlers in the valley of the Wabash were instructed as to the valuable qualities of the catalpa and they made use of it in constructing their houses, boats and stockade forts, which have endured through more than a century.

"General William H. Harrison often spoke of the catalpa and urged its cultivation, since he had known of its many valuable qualities during his residence at Vincennes. He had seen this wood sound and bright more than a century after it had been placed in the stockades, and he used catalpa for posts in his fence ninety years ago, some of which are still standing.

"The writer procured one of these posts for the New Orleans Exposition in 1885; it was sound and good for many years additional service.

"Evidences of the durability of catalpa wood are numerous and convincing.

"The earthquake at New Madrid, Missouri, in 1811, threw down many catalpa trees and others were killed, but left standing. These were sound and well preserved a few years since—as mentioned by Mr. Barney in his book.

"Several catalpa cross-ties were placed in the C. C. C. & St. L., Cario division, in 1879, one of which was taken out last summer, (1899), having been in constant use for twenty years.

"Mr. J. W. Cowper, engineer maintenance of way, officially reports of this tie as follows: 'This catalpa tie, taken out of the track three miles north of Harrisburg, was put in in 1879, in mud ballast. The wood is perfectly solid showing very little signs of decay. * * * With tie plates and good ballast, these ties would, I think, without doubt, last fully thirty to thirty-five years.'

"Mr. Cowper furnished the Indiana Forestry Association with a half of this tie. The writer had part of it sawed into boards and a frame was made and finished to determine its value as a furniture wood.

"In appearance it resembles white walnut, Julans cinerea, also similar in texture. It is as easily wrought as white pine; the polish which it receives places the catalpa upon a plane with walnut, cherry and our finest cabinet woods.

"The late E. E. Barney, the veteran

car builder, of Dayton, Ohio, who was one of the best judges of timber in America, took a very great interest in the catalpa, having published an exhaustive pamphlet, which is now quite rare, giving the results of his investigations, experiments and correspondence, upon the subject.

"Many railway officials in early days experimented with catalpa trees, the testimony of several being quoted in this booklet. Mr. Barney spent several thousand dollars in painstaking research and demonstrated the value of this wood to railway interests."

It is stated that when the catalpa has been forced to make an abnormally quick growth the wood is liable to remain for some time in an immature condition, and that such wood rots quickly. So far as the writer has observed no careful experiments have been made for the purpose of comparing the durability of the catalpa with that of the Osage orange. The latter is popularly reputed to "never rot." The above showing as to catalpa wood is almost equally satisfactory. One is reminded in each case of the boy who knew that a fence made of chestnut rails and locust posts would last forever because his father had tried it twice.

Numbering Roads and Country Properties.

A few weeks ago the KANSAS FARMER proposed and described a method for numbering all roads and country properties in Kansas. The system proposed is similar to that used in the larger cities and there found essential, except that the plan proposed for country properties is simpler than that used for any city and under it there can be no duplication, a fruitful source of confusion in many cities. Several Kansans have written their approval of the proposed plan. Among these is Hon. R. F. Bond, postmaster at Sterling. Mr. Bond is a public spirited, broad minded man, whose approval of the plan is a compliment indeed. His experience of several terms in the Kansas legislature and the fact that he is the author of several laws on our statute books whose enactment has saved much trouble and expense, give weight to his commendation of the proposed system to the attention of statesmen.

Following is Mr. Bond's letter:

EDITOR KANSAS FARMER:—I have examined your plan proposing to cittyfy the state. Your plan—with a sign to a section—would be a hospitable, useful public provision, readily giving the traveler and everybody true knowledge of any ground they are on or any they are in search of within the state as concerns direction and distances. The mariner travels oceans by fixed stars, but no one has a very safe, expeditious way for zigzagging about the prairies of Kansas. The present mapping is good for the land agent, the old resident who stays at home, and for conveyancing, but not so to that portion of mankind among us who are from the land of guide boards. Unfamiliar with meridians, townships, ranges, sections, and quarters, they evidently would appreciate an added system from which to get quick knowledge. I like your graduated continuous and non-duplicated numbers for purposes in view. With bicycles, rural delivery mail wagons, automobiles, and pleasure vehicles, more and more, flying all about the state, and a better revelation of local geography will become simply imperative. As to cost and compensation by your scheme I am unable to pass judgment. If your plan meets with popular favor, as I hope it will, it may well be joined with a good roads issue and with that be developed for Kansas. I would approve your issue, for its general and many objects rather than for its service to rural mail delivery, which you have most particularized. For mail directions the plan would be very valuable because it seems to me it would be employed where the section plan is not, in the work of tracing people upon the farms. Our statesmen ought to be prompt in entertaining yours and kindred topics from a just expansion standpoint.

R. F. BOND.

For a County Assessor.

EDITOR KANSAS FARMER:—I notice a statement in "the papers" that some fellow has proposed a new law providing that a county officer shall assess the whole county. I second the motion. I have been the assessor of my township twice. I did my work in a systematic manner and worked industriously. When my time was figured up I found my bill was 50 per cent to 60 per cent of the amount the township had usually paid the assessor. At the next caucus, according to rule, another chap took it, and the charges went back to the

old standard. The average assessor makes all he conveniently can out of the job. Furthermore, he has his favorites, and they get off easier than others. When he gets over his ground, his wife helps him to make returns, and her time counts at \$3 per day. I have known such instances. Give one good business man the job of assessing a county, and he can do it for one-half the cost under the present plan. But the expenses may be reduced much further by requiring every tax payer to come to the county seat in person with a statement properly made out on a blank to be furnished, and report to the probate judge, who can take his affidavit as to its correctness. The probate judge can do all this in addition to his other duties, which are not onerous. The county might pay him \$25 extra, which he would be glad to get, and it would relieve him of the necessity of holding down his chair to the great extent that is common with probate judges. I would not grudge him \$50 or even \$75 or \$100 for the work. The idea is that an extra county officer is not necessary. The probate judge can do it on a small increase of salary.

FARMER.

The Course of Prices.

The great London statistician, Prof. A. Sauerbeck, enjoys the honor of having established the study of statistics on a basis which makes comparisons easy. This authority has recently published a comparison showing the course of prices of 45 commodities during the last twenty years as compared with the prices of the same commodities during the eleven years 1867-77, which are assumed as standard.

This study, though made by one who evidently considers manufacturing rather than agricultural industries of first importance, is well worth considering. It will be found interesting enough to pay well for the labor of following the comparisons.

The statement of values is in the form of "index numbers," in which the average price during the period, 1867-77, is taken as 100 and the relative price in the years named, from 1880 to 1899, is based thereon. The 45 articles considered are arranged in six great groups: Vegetable food, animal food, sugar, coffee and tea; minerals, textiles, and sundry materials. In vegetable food, the index number of the year 1880 was 89; for the year 1885, 68; for the year 1890, it was 65; in 1886 it reached the lowest point, 53; and in 1899 averaged for the year, 60. In animal food the figure for 1880 was 101; for 1885, 88; for 1890, 82; in 1896, again the lowest point, 73; and in 1899, 79. Sugar, tea and coffee stood in 1880 at 88; in 1890, at 70; and reached their lowest average, 51, in 1898, and in 1899 stood at 53, though for coffee and tea, as shown in the discussion accompanying the tables, the 1899 figures were the lowest recorded in the tables. In minerals, the index figure in 1880 was 79; in 1885, 66; in 1890, 80; in 1895, it reached its lowest point, 62; and in 1899 stood at 92, by far the highest point in the twenty years' period, 1880-1899, under consideration. In textiles the index figure for 1880 was 81; for 1890, 66, and reached the lowest point in 1897 and 1898, when it stood in each year at 51, returning in 1899 to 58. In the list headed "sundry materials," the index figure for 1880 was 89; for 1885, 76; for 1890, 69, and reached its lowest point in 1897, when it stood at 62, and in 1899 returned to 65. Taking the grand total of the 45 articles considered in the various classes of vegetable food, animal food, sugar, coffee and tea; mineral, textiles, and sundries, the index figure for 1880 was 88; for 1885, 72; for 1890, 72; and in 1896, reached its lowest point, 61, returning in 1899 to 68.

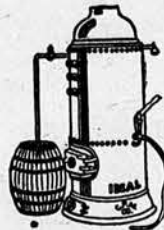
Discussing the table from which the above figures are taken, Professor Sauerbeck says:

"The index number for all commodities was 68, against 64 in 1898, or 32 per cent below the standard period, 1867-77, and 14 per cent below the ten years 1878-87, but 3 per cent above the average of the last ten years. As compared with 1898 the advance amounted to four points (or 6 1/4 per cent), while the rise on 1896, the lowest year on record, was as much as seven points (or 11 1/2 per cent). The rise was smaller than was probably expected by many observers, and this is explained by the fact that the average advance for the whole year applied principally to minerals, to a smaller extent to textiles, and to a very slight extent to sundry materials. Articles of food, on the other hand, were in the aggregate lower—an advantage no doubt to consumers—and were exactly on a level with 1897, so that the advance obtained in 1898 was again lost.

"Four articles out of the 45 contained

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This is a reliable farm boiler for cooking feed, heating water, etc. They are made from boiler iron and have regular lap-welded boiler flues, making them durable, rigid and strong in all their parts, and will last, with ordinary care, a lifetime.

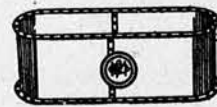
Cash with order
No. 2, Complete, \$26.00

Our Galvanized Tank Heater is made of heavier Galvanized Steel than any other heater on the market; consequently is much more durable. Burns anything. Large opening in top to feed the fire. Bottom is cast on to the heavy galvanized sides, making no seam. Sides made of heavy Galvanized Steel with cast-iron top and bottom. Ashes can be removed without disturbing the fire.



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All Sizes and Styles in Stock.

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CREAMERY PACKAGE MFG. CO., Kansas City, Mo.

in my tables showed records of lowest prices, viz: Brazil coffee, flax, coarse wool, and the average import price of tea. Articles of food were a little lower, but materials 24 per cent higher than in December, 1898, while the rise for materials from the lowest point in February, 1895, amounted to as much as 36 per cent in the aggregate. Articles of food, on the other hand, were only 8 1/2 per cent above lowest record point in July, 1896.

"In the course of last year prices of corn [grain] remained generally on a low level, the small wheat crop of the world of 1897 (283,000,000 quarters [1 quarter equals 8 bushels] having been followed in 1898 by the largest crop on record (358,000,000 quarters), and in 1899 by another good crop (324,000,000 quarters). Meat and butter were somewhat dearer, the latter being affected by the drought in August. Sugar and the common sorts of tea ruled a little higher than in the preceding year, though both articles are still on a very low basis, the average import price of all sorts of tea imported having been the lowest on record. Brazil coffee, under the influence of four large crops in succession, was lower than ever before. Santos, touching 25 shillings per cwt. in September, but improving again to 32 shillings towards the end of the year. Metals generally reached their highest points between July and October, but gave way to some extent later on, while coal obtained almost famine prices at the end of the year and early in 1900. Iron has not been so high since 1874, but copper and tin, although very dear, were still higher during the speculation in 1887-88.

"Among the textiles we have to record an advance for cotton, in view of a large consumption and lower estimates of the current crop, but prices during the past year were still very low as compared with former periods. Flax touched the lowest price on record, improved gradually, and realized a sharp advance in December. Manila hemp experienced great fluctuations in conjunction with the policy of opening and again closing the port; the price was £17 per ton at the end of 1897, and about £64 at the end of last year, probably the highest figure on record. Merino wool advanced over 60 per cent, and has not been so high since 1880, while the bulk of coarse wools occupied the lowest level on record for the greater part of the year, improving to some extent towards the end. Silk was considerably higher.

"The past year will, on the whole, be considered a very prosperous one, and the activity of the manufacturing industries in Europe, as well as in America, was greater than at any time since 1871-73."

Farm Notes.

Never compel horses to eat moldy hay.

Properly cared for, blue-grass pasture improves with age.

Proper training will develop many good qualities in a horse.

Overfeeding of hogs is an unprofitable as starving.

With hogs, dampness and filth often cause mange.

A pig that has been stunted should never be used as a breeder.

Mixed farming is the best because it permits of a greater variety of crops.

more stock, more manure and better yields.

A hog with bristles has a coarse and thick skin.

During the winter is a good time to train the young horses to work.

It seldom adds to the beauty of a horse to rear his head out of the way he naturally holds it.

All waste places on the farm should be cleaned up and made to produce their share.

Manure adds to the productiveness of land as soon as applied, but all of the substance is not used in one season.

The farm products should be put in the form in which they will command the most money.

High calks on horses shoes have a tendency to cause contracted heels and quarter cracks.

After obtaining good colts by properly mating the parents the next thing is to fully develop them.

Exercise is an important item in the growth and development of all breeding animals.

Cream should have a uniform consistency as well as being of uniform ripeness when it goes into the churn.

Very cold weather does not injure stock so much as dampness. A moderately cold day with a driving rain storm causes much suffering.

Some foods like wheat bran, cottonseed and linseed-meal return a value in manure nearly equal to their cost, besides benefiting the stock.

On the average farm, with proper care taken to make and save the manure, it should pay for the labor of feeding and caring for the stock.

With the improved condition of the farm comes the ability to carry more stock, and with this change there must be increased manure.

Save the wood ashes and keep them dry, and early in the spring apply them broadcast in the orchard, they supply the elements needed for fruits.

One advantage in running the bedding through a cutter is that the shorter the manure the more evenly it can be distributed over the land.

The pastures and meadows will be better next season if the stock is kept off of them in wet, muddy weather during the winter.

As fencing is one of the most considerable items of expense on the farm, it is good economy to make the fields of that size and shape which will require the least fencing.

Eldon, Mo. N. J. SHEPHERD.

Railroad Rates for Annual Meeting.

The secretary of the Kansas State Board of Agriculture has been notified that, at his request, the railroads in Kansas have made an open rate of one fare and a third to all who desire to attend the thirteenth annual meeting of the board in Topeka, January 9-11, from all points in the state, also from St. Joseph and Kansas City, Mo. This rate, too, has been made applicable for those attending the annual meetings of the Kansas Improved Stock Breeding Association, State Dairy Association, State Poultry Association, etc. The rate will be sold January 5 to 10, and will be good to return until the 15th. Credentials will be required.

Horticulture.

Hunter on the Apple Worm.

PROF. S. J. HUNTER, KANSAS STATE UNIVERSITY.

We have found it to be the best policy only to direct and suggest what is to be done, leaving the farmer to do the work, report the results and express his opinion on the treatment. Our fight against the apple worm last summer was conducted in this fashion, entirely through correspondence. Now the yield has been measured, and that of the treated apples found in most cases to be greater than those which were not. The apples which were experimented upon have been found to be of better quality than the others, and the long winter evenings will be spent by the farmers in discussing the merits of the treatment.

THE WORK OF THE APPLE WORM.

The apple worm is the progeny of a silky brown moth called the codling moth, which lays eggs on the leaves of the apple tree, and occasionally on the sides of the apple, from one to two weeks after it has developed from the blossom. About one week is required for the worm to hatch out from the egg. After emerging from the egg the worm's first move is in the direction of one of the apples, where its work commences. Now the skin of the apple, which is still hard and green, makes the fruit invulnerable at the sides to the attack of the worm, but the soft blossom end is the apple's weak joint, and it is at this that the little worm immediately goes. The first few days of the apple worm's life are spent in eating around in the blossom end.

This period of eating in the blossom end is the vulnerable point in the life of the insect, for it is at this stage that it can be killed by the poison spray in a manner which will be described. Leaving here after a few days, the worm begins to tunnel in the apple, with the core as his objective point. The center once reached, the apple worm remains there until he is full grown, feeding upon the core and the seeds, of which he seems particularly fond. When he has reached maturity the worm starts for the outside world again, digging his burrow straight out for the side of the apple; in the darkness of the night he leaves the apple and hies himself to a place of concealment in a hollow or crotch of the apple-tree, in the bark, or in some pile of rubbish nearby, where he spins a cocoon about himself.

The first worms to spin themselves up in June and July soon transform to pupae, from which, in about two weeks, the adult moth emerges and goes about laying the eggs for a second brood of the worms. In the northern parts of the country only a few of the worms develop into moths in the same season, but in the West a second and sometimes a third brood are developed. The little worms of the second brood, when hatched out, immediately attack the apples—this time from the side—eat their way through and out, weave a cocoon about themselves as did their parent, and go into retirement for the winter. They emerge in the spring, just as the petals are falling from the apple blossoms, full grown moths now, and begin the work of egg laying.

The effects of the moths' occupation of the interior of the apple on the fruit is most disastrous. The early varieties ripen prematurely and drop from the tree, becoming what is called "wind-falls," fruit which is used only to feed cattle and—must it be said—to make apple cider. The later varieties remain on the tree, but become bitter in flavor. The destruction wrought by the second brood is even greater. No longer does the side of the apple—soft and ripe now—offer any resistance to its progress, and straight in through the side the worm goes, disfiguring and ruining the fruit.

SPRAYING IS DEATH TO THEM.

It is with the little worm just out of his shell that the horticulturist concerns himself. Many ways of fighting the pest in other stages of its development have been tried; killing the moth by smudges—fires of green fuel built under the trees—and collecting and destroying the pupa in its cocoon, but the moth is wary of smudges and the time taken to collect enough of the cocoons to have an effect on the breeding of the worms is worth more than the apples saved. Spraying is the only prac-

tical way of attacking the worm. As has been shown by the experiments last summer it is a successful way.

The spray which was used in the experiments was made from the following formula: Paris green, 1 pound; freshly slaked lime, 2 pounds; water, 160 gallons. To have an effective mixture the Paris green must be pure, since some of the Paris green placed on the market is made up of colored lime, flour and other adulterants. A sure test for the quality of the article is to dissolve a small portion of it in ammonia. If the Paris green dissolves leaving no sediment, it is undoubtedly pure. Having been tested, the Paris green should be mixed with the lime in enough water to make a thin paste, the paste stirred into the rest of the water and allowed to stand twenty-four hours before using. A good spraying pump with a nozzle throwing both a coarse and a fine spray and having an agitator of some sort at the bottom of the tank, should be used to apply the mixture to the trees.

The time for spraying is within a week after the blossoms fall. The object of the spraying is not to cover the leaves, the branches, nor the apple itself, but to fill the rose or blossom end of the apple with the poisonous mixture so that the worm's first meals, taken while tunneling around in the blossom end, shall be largely composed of Paris green, a substance which will send him to the worm Valhalla before he has had time to commence his burrow towards the core. After the apple has been set four or five days the calyx lobes at the outer end of the apple begin to fold up, closing up the blossom end of the apple. If the blossom has been sprayed at the proper time, when the calyx lobes fold in, the Paris green is held safe and snug for the worm when he shall make his appearance. If the blossoms have not been sprayed it is now impossible to get any fluid into the cavity, and the work of spraying the apples after the closing of the calyx lobes is labor lost. Hence the necessity for spraying the blossoms within a week after the falling of the petals. The developing fruit must be carefully watched; the falling of the petals is a sign that it is almost time to begin spraying, and the closing of the blossom end must stop all spraying. One or two thorough sprayings are sufficient unless it rains within twenty-four hours after the work. There is no danger from poisoning the fruit by spraying. The quantity of poison which lodges in the blossom end, while sufficient to kill the little worm, is infinitesimal, and tests have shown that before the apple has matured, wind and rain have removed from it all traces of the Paris green.

ORCHARDS CAN BE CLEANED OF IT.

The apple worm—or, rather, the codling moth, its parent—is not a migratory insect. Once eradicated from an orchard, it is gone never to return unless it may come in barrels of apples shipped in from abroad. In that case, by placing the apples in storage in a cellar, where every exit is carefully screened, the moths which come out in the spring will be imprisoned and will die without laying their eggs. By perseverance the worm can be rooted out. With the trees sprayed in the spring many of the first brood are killed and the number of the more destructive second brood is reduced. Eventually the apple worm goes for good.

Below are given the results attained by some fruit growers, who experimented with the spray last summer. It will be noticed that some of them experimented upon fruits other than the apple, but these were side issues. The real fight was against the worm on its native heath—in the apple.

A. Obendorf, of Centralia, mixed the spray according to directions and applied it to the Missouri Pippin, Ben Davis, Winesap and Genet varieties. The number of trees sprayed, the manner of spraying and the cost, and other particulars are not known to Mr. Obendorf, as he was not living on the farm when the work was done. He reports, however, that while there was no appreciable difference in the size of the yield, the fruit or the sprayed trees was much superior in quality to that on the unsprayed trees, and less damaged by the worms.

A. E. Dickinson, of Meriden, believes that he has obtained no benefit from the spraying. Mr. Dickinson expended about \$16 in the work and sprayed three blocks of trees, Ben Davises, Missouri Pippins, Genets and Jonathans, only one block of which was sprayed twice. The fact which Mr. Dickinson communicates to the department—that bitter-rot was prevalent in his orchard during the summer—changes the circumstances somewhat. The effect of the experi-

ments can best be observed only on healthy trees.

HE NOTICED THE BENEFIT.

"On May 3 I commenced spraying my apples, finishing May 9," William Mitchem, of Argentine, writes to the department. "I used from two to three pints on each tree, spraying 7-year-old Ganos, Winesaps and Ben Davises. April 28th I sprayed my Keifer pears.

"In mixing the spray for convenience I put 5 pounds of Paris green and 10 pounds of lime separately in water to soak and slake. When the lime had slaked I stirred it into a paste and placed it, together with the Paris green, in a barrel, added sufficient rain water to make twenty gallons and mixed it to a paste, allowing it to stand twenty-four hours, as directed. To each 40-gallon barrel of water I added 1 gallon of this mixture, stirring thoroughly and spraying with mist spray. The pear-trees sprayed produced a large crop of fruit and a crop of good quality, but the effect of the spraying was most noticeable in the apple-trees. The Ganos and Winesaps were not entirely free from the insect pest, but produced an average good crop, and the Ben Davises, which have been badly infected for the last three years, were much improved and there were fewer windfalls than formerly. I intend to spray another year: when the apples are at the same stage of growth, but the next time I will make the spray twice the strength and spray twice if possible. I was so busy last spring I could only spray once. I consider the spraying a benefit."

A SUCCESS FOR THIS GROWER.

"I sprayed for the moth according to directions on May 5, 8 and 10. Sprayed twice and covering six or seven trees each of the Missouri Pippin and Ben Davis variety," writes Willis K. Folks, of Lawrence. "The whole operation cost me \$25. Half of the orchard was left unsprayed for comparison. The yield on the sprayed trees was much larger than on the others, the apples remaining on the trees better and the sprayed trees produced larger apples of finer quality. I shall spray again in 1901."

Resistance to Frost.

FROM AMERICAN GARDENING.

Among the many difficulties which confront a gardener is the frost susceptibility of certain plants. The importance of breeding for frost resistance has not been given much serious attention with regard to the general run of garden plants and vegetables, although some of the older European horticulturists have discussed the possibility of raising up varieties of orchard fruits that would be resistant to the spring frosts inasmuch as they were very early or very late bloomers.

But the subject at present in mind is quite different. Here the possibility of selecting a type of vegetable, for instance, that would be constitutionally resistant to frosts is indicated. Much good might be accomplished in this way. It is a work that could be carried on indefinitely and with excellent results by many private gardeners and amateurs. If the garden could be made something more than a mere manufacturing shop; if it could be made a place of investigation and research, the owner would find his interest greatly growing and horticulture in general would reap the benefit.

It is almost unnecessary, but may as well be remarked, that every cultivator will recall how, on the first touches of frost, two individuals of the same varieties, whether it be a vegetable or decorative garden flower, standing side by side will show that they are very different in their susceptibility to frosts. The one may be killed outright, while the other, if not passing unscathed, is but very lightly touched.

The differences of the atmospheric conditions may be influential in this. But it is more than probable that the vitality of the plant has in some way been brought to be more resistant to frost and that it is an integral attribute and not an accidental atmos-

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pheric condition. We all know that these differences of individuals exist. They may be small in degree in the generality of cases, but that individuals do differ is recognized and this difference must rest upon some scientific cause.

Modern research will do well to look into these matters with a view to giving the culturist a very substantial benefit. Certain varieties of plants are more resistant than other varieties; thus, Dr. Halstead has told us that the Palmetto variety of asparagus is much more resistant to the rust fungus than

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any other that he has seen, not only in the restricted area of the college and experiment grounds, but the same thing held good throughout the state. Dr. Woods in his communication to the section of horticulture and botany at the New Haven Convention of the American Association of Agricultural Colleges and Experiment Stations discussed this problem at length and urged the paramount importance of station horticulturists and botanists following out the lines of research here indicated.

The question arises, is it possible to develop by continued selection of and breeding from individuals which show a tendency to resistance a hardy strain in the case of plants now classed as tender? The problem has interested the Rhode Island Agricultural Experiment Station and the garden bean has been put to the test.

Three varieties of bush beans were planted in a hotbed in the spring of 1899. After they were well up the sash covering was removed so that the frosts of a succeeding cold night reached the young plants. Differences in constitution were at once apparent. While many of the plants were killed outright, others were severely hurt, and a few showed but little injury. For the purpose of experiment seed of these was saved and their progeny subjected to similar treatment in the spring of the present year. It so happened that on the night when the sash was removed one of those exceedingly cold snaps arrived and the station report shows a record of 28 degrees. Even on that occasion a few plants remained unharmed, but the majority were killed outright.

Other seeds also saved from the resistant plants were set in the open ground for the purpose of making a comparison from plants raised from ordinary stock of seed, and it is interesting to learn that the plants from these selected seeds have shown greater vigor in resisting cold and other untoward conditions and have produced plants decidedly better than the general stock of seed.

It is to be hoped that the experiment station will continue its investigations along these lines of selection towards the hardier stock, for if it could be that they led to the production of a bean which is practically proof against spring frosts, what a boon it would be to horticulture!

In the Dairy.

Conducted by D. H. ORIS, Assistant Professor of Agriculture, Kansas Experiment Station, Manhattan, Kans., to whom all correspondence with this department should be addressed.

Coburn's Quarterly Report.

"Dairying in Kansas" is the title of Secretary Coburn's report for the quarter ending December, 1900. A large part of the report was written by the dairy editor of the FARMER. A little of it has already been published on the dairy page. What seems appropriate of the portion that has not been published will be inserted from time to time with such modifications or additions as will record our experiments up to the time of publication. It is to be hoped, however, that every Kansas dairyman will avail himself of the opportunity to get a copy of this report by sending 3 cents in stamps, to cover postage, to Secretary F. D. Coburn, Topeka, Kans.

The First Essential in Successful Dairying.

The first and absolutely necessary essential to successful dairying is a successful cow. Not a few farmers, when hearing of the profits to be derived from private dairying, or from a newly established creamery, become intoxicated over the prospects, and as a result every cow on the farm and every cow that can be bought in the neighborhood, regardless of quality, is drafted to contribute its mite at the milk pail. A partial record is kept for a few months, or perhaps a year, and after estimating the cost of labor and the cost of feed and subtracting this total cost from the total income the profit is either a minus quantity or so small that the conclusion is reached that dairying don't pay.

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This dissatisfaction is frequently contagious and a number of farmers in a single community have been known to quit milking their cows because they found by experience that there is no money in the business.

A man might with just as much propriety go to Arkansas, buy up all the razor-back hogs he could find, and after a year's experience declare that there is no money in raising pork, as to say that there is no money in milking cows. Undoubtedly there are far too many "razor back" cows in Kansas as elsewhere, cows that are actually eating their heads off, to say nothing about the expense of labor or interest on the money invested. D. H. O.

Some Conditions Necessary for a Successful Creamery.

J. H. STEARNS.

Working Along Special Lines.—Nature in her methods of general development seems to have worked along special lines. The earth as it exists to-day is the product of the specific eras of the past. It has had its primary, secondary, tertiary and post tertiary periods, in each of which some special work was being done. Thus during the carboniferous age gigantic germs and other luxurious forms of vegetation were being grown and the carbonate of the air fixed in our great coal beds so that animal life, as now developed on the earth might have an existence. So, too, man must work along special lines to accomplish great results. The farmer, if he wishes to be successful in the dairy business, must work along the lines which lead to successful dairying. He must not spend his time in hunting an all-purpose cow. He has no more use for such a cow for creamery purposes than he has for an all-purpose wagon for a pleasure carriage. The all-purpose cow, if such there be, is not more suitable for a creamery than the so-called all-purpose horse is for the race track. The all-purpose cow, the all-purpose horse, and the all-purpose man are a trinity worthy of each other. Like the historical jack of all trades, they never achieve a marked success. These are some wayside thoughts which are perhaps somewhat irrelevant to the main object of the discussion, yet they have some bearing on it.

Technical, Executive, and Commercial Ability Required by the Dairyman.

(ABSTRACT OF ADDRESS OF GEORGE M. WHITAKER, OF MASSACHUSETTS, AT FARMERS' NATIONAL CONGRESS.)

The dairyman is a manufacturer, and the ordinary laws of business apply to him as well as to the manufacturer of cloth or jack-knives. The essentials in manufacturing are three: First, the technical, the know how; second, executive, the ability to produce at lowest cost; third, commercial, the ability to sell, and at a profit.

As a result of the information given freely by state and national bulletins and at a nominal price by newspapers and books, the average American dairyman is an extremely intelligent man; yet strange to say thousands are deficient in available knowledge. Ignorance is not the only stumbling block in the way of the best quality of dairy products; carelessness is its twin, and the bane of dairying.

The manufacturer must have executive ability to keep down the expenses per unit of finished product so that the goods can be sold at a profit. Too much idle or unprofitable capital is frequently found in dairying. The cost of making butter at different creameries varies 100 per cent, according to the amount of business done. If the millions of dollars invested in farm and dairying machinery could be made to turn out a little more work without extra expense the cost of production would be thereby decreased. Cost of production is greatly enhanced in many cases because cows are kept which produce much less than they should do. When some cows product 455 pounds of butter per year and the average is only 150 to 175, there must be a wide range in the cost per pound.

Commercial skill is not confined to Yankee shrewdness at a bargain, but comprehends ability in catering to and anticipating the public wants, a knowledge of statistics and the world's markets, transportation problems, economic questions, legislation relating to fraudulent imitations.

The annual value of the dairy products of the nation is, in round figures, \$500,000,000. In the forty years previous to the census of 1890, population had increased 174 per cent. But the number of milch cows had increased but 166 per cent. In the East, the old dairy center, the increase in milch cows was but 50 per cent, while in the north-central division the

increase was 700 per cent. In the Dakotas the increase in thirty years was 1,050 per cent.

The production of butter has increased more rapidly than the increase in population. The census of 1850 reported 13.51 pounds per capita; the census of 1890, 19.24 pounds. One-half of the butter production is in seven states. The largest butter state is Iowa, making 10.4 per cent of the country's production; next comes New York with 9.3 per cent, and Pennsylvania third, with 8 per cent. This large increase of production shows the importance of a foreign outlet to prevent the surplus from unduly depressing the home market. Exports during the last ten years have fluctuated between 6,000,000 and 31,000,000 pounds. For the year ending June 30, 1899, the amount was 20,000,000 pounds.

The production of milk for consumption is the second largest branch of the industry, using the product of 5,500,000 cows. The production of sale milk has received less attention than its magnitude warrants. Being a perishable product, and often marketed in small quantities, statistics have been hard to gather. In Boston, with a population of three-fourths of a million people, the large wholesalers brought into the city in the year 1899, 95,000,000 quarts. Estimating the amount from other sources at 25,000,000 we have 120,000,000 quarts. The farmers netted on an average at least 2½ cents per quart, which makes the business to them worth \$3,000,000. In New York, with twice the population of Boston, figures based upon the amount required to furnish the sale of milk, cream and condensed milk used in the city are placed at 584,000,000 quarts per year. At 2½ cents per quart this amounts to \$14,600,000. When we consider the large number of cities and towns dependent upon the daily milk man, we can partially realize the importance of this business.

Condensed milk is a feature of dairying which has been increased rapidly during the last twenty years. None is mentioned in the census of 1870, but the census of 1890 reports 38,000,000 pounds. Exports of condensed milk are increasing rapidly and in 1899 were \$1,000,000. The exports go largely to England, Hawaii, Cuba, Japan, China, and Burma.

Cheese is relatively of the least account in American dairying, calling for production of 1,000,000 cows. While the production of butter increased one-third during the decade included between the census of 1880 and 1890, the production of cheese declined one-third. Two states produced near three-quarters of the whole quantity of cheese manufactured in the country. New York leads with 40.3 per cent, while Wisconsin is second with 21.3 per cent. The manufacture of cheese in factories has practically killed out farm dairy cheese.

In conclusion: The dairy outlook seems to me to be bright, though not without some discouraging features. The high prices of the past have gone and there is danger of sharp competition from foreign markets, and the outlook seems very promising. With increasing intelligence and skill the quality of dairy products will increase and this will create a larger demand. Increasing prosperity and refinement will also swell the demand for the choicest dairy products and give ability and willingness to pay advanced prices for fancy cream, butter and cheese. Greater intelligence will also make the consuming public better appreciate the food value and the relative cheapness of milk and cheese. The rate of increasing production of butter can not be maintained. The comparatively newer portions of our country which at first were purely agricultural, are developing flourishing cities and towns, whose population will be consumers without producers. The central and western portions of the nation will hereafter show a smaller number of cows in proportion to population, and larger amounts of dairy products will be consumed at home. I am told that already these places are making such demands upon the Chicago market that it is less dependent upon Boston and New York than it was a few years ago. This large increase in population will do much to relieve any congestion in the markets at the great centers. As regards cheese, it would seem that the bottom of the ladder had been reached, and that the business could not be much

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worse than it is. This means that there must be an improvement. New inventions and increased coöperation will reduce cost of production, and all things considered I do not know of any form of manufacturing, unless it be something protected by patent, where the outlook is more favorable than is the manufacture of dairy products.

Salt in Butter.

J. F. ODLE.

In a recent article in Hoard's Dairyman, a correspondent, in advocating liberal salting of butter, gives his reasons as follows:

First, "butter salted heavily will keep much longer than lightly salted butter." This assertion is true only to a limited extent. Deterioration in butter is due to germ growth, and salt is not, properly speaking, a germicide. It destroys germs only to a limited extent, due to its strong affinity for water. In this way it may absorb the moisture from the germ cell ("plasmolysis") thereby destroying some cells. But the effect along this line is limited.

The second reason he gives is that he buys salt at a cheap price and sells it at the price of butter. But if he will study analyses made of salted and unsalted butter, he will find that the loss in water in salted butter is about equal to, if not greater than the gain due to the weight of salt the butter contains. Unsalted butter looks dryer than salted butter, but a chemical analysis shows the reverse to be true. Salt tends to cause the moisture to collect in large drops and be expelled or drawn to the surface of the granules. The moisture thus collects on larger drops and is more easily removed in the process of working. The moisture thus removed carries with it much of the salt added, and also considerably more buttermilk than would otherwise be removed. The removing of this buttermilk accounts largely for the increased, or prolonged keeping quality of the butter, while expelling the moisture to the surface causes one to suppose that it contains much more moisture than is actually present.

At the Wisconsin Experiment Station, a few years ago, a series of analyses of salted and unsalted butter were made. The butter was washed in the churn and divided into two lots. To one was added 6½ per cent of salt, being one ounce of salt to a pound of butter. Both lots were worked alike, and from these lots samples were taken for chemical analysis. In the average of eight tests in which the butter was worked once, the salted samples contained 2.74 per cent of ash (including salt) and 12.74 per cent water. In the duplicate samples not salted, there were found .27 per cent of ash and 15.12 per cent of water, showing the salted samples to be only .11 of 1 per cent heavier. In samples worked twice, there were found 3.8 per cent of ash and 10.53 per cent of water in the salted, and .36 of 1 per cent ash and 14.33 per cent water in the unsalted samples, showing a gain of .36 of 1 per cent in favor of the unsalted butter. So upon the whole, there is little or no gain in weight due to the salt which is retained in the butter over the excess of moisture removed in working due to the presence of salt.

The principal office of salt in butter is to give it a desirable flavor. As a preservative, its powers are limited, being confined largely to the more nearly perfect removal of the buttermilk and slightly decreasing the germ content. But it is not so valuable as a preservative as is often supposed.

CHOICE ALFALFA HONEY.

Two cans, 120 lbs. net, whitest \$9, slightly tinted, part from other bloom, \$8.40. Also smaller sizes; prices on application. Reference Kansas Farmer Company. Address, Arkansas Valley Apiaries, Oliver Foster, proprietor, Las Animas, Bent County, Colorado.

Sharples Cream Separators Profitable Dairying

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LEADING SCHOOL OF BUSINESS, SHORTHAND, PENMANSHIP & TELEGRAPHY

Large School. Reasonable Rates. Good Positions. Catalogue Free. Address L. H. Strickler, Topeka, Kans

The Poultry Yard

The Louse.

As the delicious flesh of the turkey is enjoyed; as the children make merry over the child's favorite dish—chicken—or as one comfortably remembers the acceptable sums of cash derived from sales of poultry and eggs, and the thoughts run over plans for raising more poultry and eggs for the ever increasing demands of the markets, the nightmare that disturbs the pleasant dream obtrudes his disagreeable form into the vision. The remembrance of last year's battle with the louse causes his bulk to magnify until his dark shadow in many cases hides the desirability of further excursions into the poultry business.

Strange what things will run in people's heads! Strange that a creature so small as a louse or an army of lice should dismay so mighty a being as man—or woman, either.

A writer in the Inland Poultry Journal says:

"About 99 per cent of all the writers on poultry culture laws for beginners as well as the older heads, have for years—and, in fact, are still hammering at it—insisted that to rid our chicken houses, roosts, nests, etc., of lice, mites, red bugs, and vermin of all kinds, all one has to do is simply saturate houses, etc., with kerosene, two or three times a month. Now I would not dare controvert so much able and scientific advice—some of it given honestly to aid a troubled brother and some of it written to help fill up some of these cheap poultry books that show how one can find an easy and rapid road to wealth by keeping 'a few hens'—but this I would dare, and that is to make the frank and honest avowal that the lice and mites that have honored my chicken houses with a visit take just as much pleasure in their weekly swim in kerosene as does the 'gutter snipe' in his hurried dip in the river or lake (when the policeman's back is turned) on a hot July or August afternoon. As the books have it, it was a ceaseless warfare, with myself on the losing side every time, until one day, many years ago, a lady acquaintance asked me if I ever tried crude petroleum. I never had, but it did not take me long to procure five gallons of it, and with an old discarded paint brush I put a good thick coat on perches, nest boxes, cracks and corners, and before I left that chicken house every pest that had come in contact with my pungent smelling—but at the same time, death to lice—mixture, was a dead duck. I could never understand why these men that claim to have had years of experience in poultry culture always make use of kerosene and never seem to have heard of the virtues of crude petroleum. If you are having trouble in keeping the pests in subjection, brother fanciers, (and sisters as well), just buy a gallon of the crude oil, or if you can not obtain that, residuum will answer just as well. One coat of either, applied to the infected places, will last three to four weeks, for it does not evaporate as rapidly as the coal oil. Its only objection is that it will make the perches and boxes look black or dark-colored, but this defect, if defect you would call it, is more than compensated for in that it does the work thoroughly and well, and you have not got to spend the time, twice a week or such a matter, in going over your houses with kerosene."

Gas tar painted over every part of the hen house on which a louse might lodge will put the louse so out of patience that he will emigrate.

Getting the Hens on a Paying Basis.
JOSHUA, IN NATIONAL STOCKMAN AND FARMER.

In starting out to make a practical success with chickens there is one question or thought that one must keep constantly in view, accompanied by a stiff determination to meet the requirements of the situation. That is, what are the necessary conditions of success in my particular case?

A satisfactory answer can only be reached by a close observation of chicken nature in general and the individual habits of your own flock in particular, noting carefully the results of any change or experiments in feeding or care, and picking up whenever and wherever opportunity offers valuable hints from the experiences of others. All phases of the poultry business have been pretty thoroughly written up, but the great number and variety of breeds, and the widely differing circumstances under which, and purposes for which they are kept, make

it a rather difficult matter for the beginner to pick out just what will be best for him to adopt.

We all know that the natural time for hens to lay is during the spring months. The reason is easily understood. Pleasant weather, the great variety and abundance of forage, and the insects that fowls delight in, and the necessary exercise they get when allowed the privilege of hunting what they need. Here is a pointer to the key of the winter egg question. If we want the hen to change her season of greatest usefulness from a time when nature furnishes her with the most favorable conditions, to one that will better suit our purpose, we must first bring about the conditions which make it possible for her to comply with our wishes.

Our ability to secure winter eggs will depend very much on our skill in carrying out this idea.

It is not practicable to secure spring temperature in the poultry house during the winter, neither is it absolutely essential. But it is necessary to keep them warm enough to prevent the birds from suffering with cold. Making the hens comfortable (which, of course, means more than an agreeable temperature), is certainly the most important point in trying to get winter eggs. For if one will take the pains to do this he will very likely soon learn to meet other requirements.

There is no set of rules for winter feeding that will be applicable to all breeds and the various climatic and other conditions under which they are kept. But the general principle must be observed, that the laying hen needs a variety in her bill of fare, and foods containing those elements of which eggs are composed.

Selection of Stock.

BY AN EASTERN WRITER.

It is now time to select the breeding stock for the coming season. On farms where there is any pretension to keeping the pure breeds of poultry there is generally little or no attention given to proper selection of the breeding stock. Selection with an object in view is just as essential, not only for the improvement of poultry, as any other livestock on the farm, but it becomes necessary to maintain size, vigor and utility qualifications. The selection of the breeding stock of poultry should be made as the surplus is sold, retaining only such as conform to the breeder's ideal. The flock should be mated up at least two weeks before eggs are saved for incubation. In considering the advantages to be derived from selection and mating of the selects in a flock of poultry the pure breeds only should be considered. They alone possess uniformity in size and many other distinctive characteristics. Scrubs invariably differ in many respects, especially size and shape, so that even if careful selection for such is made the result that is expected to follow can not be depended upon. Whether poultry-raising is carried on with an idea of furnishing eggs or poultry for market, better returns will surely follow the keeping of pure breeds than scrubs. It should be borne in mind that all the good qualities scrubs or cross-bred fowls possess are inherited from some pure-bred ancestors, either near or remote. With a flock of pure-breeds there is a chance to select so as to secure uniformity of size and shape. Where poultry is sent to market dressed, packages containing specimens uniform in size and shape command a more ready sale and bring better prices than packages containing various sizes and shapes.

BUSINESS ATTENTION.

The poultryman who gives his flock business attention is, in a sense, much like the practical dairyman who knows which of his cows are the best milkers. The poultryman, if he is properly observing, has discovered that there are certain hens that will lay considerably more eggs in a season than others. By selection these desirable qualities can be perpetuated, and there can be constantly a "building up," so to speak, of the useful qualities—meat and egg production—of fowls. The poultry-raiser who follows nature's plan by keeping the "survivals of the fittest" can conscientiously improve size, vigor and all

other desirable qualities of his flock of poultry.

THE MALE.

In making a selection of the breeding stock remember that the male should always be a good typical one of his breed. For instance, if Plymouth Rocks are being selected, the characteristics that should govern the selection of the male to head the breeding yard should be as follows: A broad, round, full breast, running down so as to have a good space between the legs; broad across the back, especially so near the tail or lower part of back; well-rounded sides; legs stout and well apart, and they should not be too long in proportion to the size of the body. The neck should be medium in length, and if there is considerable expansion or thickness on the lower part so much the better. If an ideal comb and pure yellow beak can be had with such a male bird, so much the better, but they are not strictly essential from a useful point of view. We say nothing about the plumage other than a brassy-plumaged male should be avoided. A strictly pure-bred Plymouth Rock male should be properly plumaged.

THE FEMALES.

In selecting the females size should be considered a governing feature, and those that observation has proved are good layers should be given the first consideration. Remember, it is wise to save eggs from the very best females, and it is better to breed from a few very choice ones than twice as many and some of them only "fairly" good. Where a flock has been raised with a definite object in view, the plan of "breeding in line," as it is called, has been followed. The introduction of "new blood" into such a flock may prove a very disastrous venture. Unless the new blood comes from a flock that has been bred with similar ideas such a male will be of doubtful value.

HEALTH.

Healthy specimens should, of course be the only ones used in the breeding yard. All the known devices, such as proper food, housing, furnishing means to secure exercise, etc., to keep the flock in perfect health are very important. The chicks that are hatched from the eggs of a healthy, well-cared-for flock of hens will be vigorous, hearty eaters and rapid growers. The complaints of chicks being delicate, if investigated, would, in a majority of instances, prove that they were hatched from hens that had been sick or had been sired by a weakling male. The fact that there is such a very wonderful difference in the vigor and growth of young chicks in a brood is no hazardous matter. It is simply cause and effect. It is admitted that the strongest chicks result from 2-year-old hens mated with a male bird of the same age. Nearly as good results come from mating a year-old male with 2-year-old hens, providing the male has been the pick of some good early hatched ones. The mating of yearlings will rarely result in having as good a per cent of strong chicks as the matings specified. Where no attention is paid to selection for breeding, the percentage of loss in chicks is sometimes more than 50 per cent. This results from the fact that so many eggs from weakling hens are among the number set. Really, the time to commence the selection of the breeding stock is when the chicks are about 10 weeks old. Then all the broods should be examined, and the three or four that have grown away from the others to a very marked degree in such brood should be marked to be saved. The others are the ones to sell. The poultry-raiser who selects the best of each of his broods and sends them off to market and keeps the slow-growing weaklings is continuously running down the vigor of his flock and laying a sure foundation for innumerable troubles. Good selection will soon bring a flock of poultry up to a good paying basis.

Breeding.

With poultry, as with everything else on the farm, the management given is an important item in securing the largest profits.

At the start, it is of importance to select a good breed, one that is well adapted to the purpose for which the poultry is kept.

One should begin with chickens of a

POULTRY BREEDERS' DIRECTORY.

BLACK • LANGSHANS.

Cockerels and pullets for sale that are purely bred and of high grade...
J. C. WITAM, - - Cherrryvale, Kansas.

ORCHARD PARK POULTRY YARDS—Thoroughbred Barred Plymouth Rocks—cockerels and pullets Breeding cockerels \$1; show birds \$3 to \$5. Mrs. J. R. Whitney, Garnett, Kans.

B. P. ROCKS, AND COLLIE DOGS—Early hatched cockerels, very large and finely marked, and some yearling hens and a few cock birds. Two fine litters of Collie puppies. One fine male pup 2 months old from imported Royal Lassie's litter left. To secure bargains write at once. W. B. Williams, Box 142, Stella, Neb.

FOR SALE—Pure-bred Barred Plymouth Rock cockerels \$1 each; bred from prize-winning stock. Mrs. Horace Normington, Box 174, Yates Center, Kas.

75 BLACK MINORCAS—(Northrup's strain). Mostly pullets, \$5 per dozen. A. S. Parson, Garden City, Kans.

WHITE HOLLAND TURKEYS—Toms and hens; pairs and trios. Barred Plymouth Rocks, Pekin ducks. Prices reasonable. J. C. Curran, Curran, Kans.

FOR SALE—Pure-bred Bronze turkey cockerels \$2.50 each. E. L. Pitzer, Sawyer, Kans.

BARRED PLYMOUTH ROCK—And White Wyandotte cockerels, 50 cents to \$1 each. J. A. Sawhill, Edgerton, Kans.

READY FOR SHIPMENT

A LIMITED NUMBER OF HIGH-SCORING BARRED AND WHITE PLYMOUTH ROCKS,

Lash, Ringlet, and Roberts strains. Also a few Part ridge Cochins—Skinner strain. As fine stock as can be found anywhere. Cockerels, \$1 to \$3; pullets, \$1 to \$2. Write for descriptive circular. Printed receipt for making and using Liquid Lice Killer, 25 cents.
T. E. LEPTWICH, Larned, Kansas.

Standard Poultry.

Barred Plymouth Rocks, White Plymouth Rocks, Partridge Cochins, Buff Cochins, Light Brahmans, Black Langshans, Silver Wyandottes, White Wyandottes, Silver Spangled Hamburgs, S. C. Brown Leghorns and Belgian Hares. First Class Stock of Standard Birds of Rare Quality. Fine Exhibition and Breeding Stock. Write Me Your Wants. Circulars Free.
A. H. DUFF, Larned, Kans.

1000 BREEDERS FOR SALE. 40 PAGE Catalogue and Poultry Book. Articles on winter egg production, diseases, houses, incubators, how to feed, etc. Send stamp. F. Foy, Des Moines, Ia.

SHOEMAKER'S POULTRY BOOK on and Almanac for 1901, 160 pages, over 100 illustrations of Fowls, Incubators, Brooders, Poultry Houses, etc. How to raise chickens successfully, their care, diseases and remedies. Diagrams with full descriptions of Poultry houses. All about Incubators, Brooders and thoroughbred Fowls, with lowest prices. Price only 15 cents. G. C. SHOEMAKER, Box 120, Freeport, Ill.

200-Egg Incubator for \$12.00. Perfect in construction and action. Hatches every fertile egg. Write for catalogue to-day. GEO. H. STAHL, Quincy, Ill.

VICTOR INCUBATORS are made in many sizes to meet every want. Reliable, simple, self-regulating. Circular free; catalogue 6 cents. GEO. REITEL CO., Quincy, Ill.

BELGIAN HARES.

BELGIAN HARES FOR SALE. Pedigreed stock, healthy, and good in every particular. Correspondence solicited. S. W. STEWART, ALDEN, RICH CO., KANS.

SEND NO MONEY. Until you have seen and tested our watch. We sell at Factory Price at One-Half and less than what you have to pay elsewhere. Our watches are fitted with the unequalled im. 17 Jeweled Special Limited, or 7 jewel Waltham or Elgin Movement, known the world over as the best, and WARRANTED 20 YEARS. Case is hunting, solid gold pattern engraving, extra 14 karat gold plate; good enough for a railroad president. Special Offer for the next 60 days: Send your address and we will send watch C. O. D. with privilege of full examination. Call in any expert and if found perfectly satisfactory and the best watch ever offered for such a price pay \$5.75 and express charge, otherwise not one cent. FREE \$2.00 chain for next 30 days with every watch. State if Ladies or Gents watch is wanted. Write at once as we may not advertise this watch at this price again. Catalogue free. Excelsior Watch Co., 346 Central Bank Bldg., Chicago.

FREE RUPTURE CURE!

If ruptured write to Dr. W. S. Rice, 359 Main St. Adams, N. Y., and he will send free a trial of his wonderful method. Whether skeptical or not get this free method and try the remarkable invention that cures without pain, danger, operation or detention from work. Write to-day. Don't wait.

KLONDIKE INCUBATOR

them successful. Low prices make them popular. What more do you want? For free illustrated catalogue which gives full descriptions, prices and much information for poultrymen, address KLONDIKE INCUBATOR CO., Box 915, Des Moines, Iowa.

You cannot fail to appreciate the value of Klondike Incubators and Brooders if you examine the principles of their construction and operation. Their simplicity makes them easy to run. Lack of delicate parts makes them durable. Results make them successful. Write for free catalogue which gives full descriptions, prices and much information for poultrymen, address KLONDIKE INCUBATOR CO., Box 915, Des Moines, Iowa.

good breed, those that are medium in size, good layers, good table fowls, and good foragers, as on the majority of farms the poultry may be reasonably expected to pick up more or less of their food, and if they do this, they must have good constitutions and must be naturally thrifty.

Introduce new blood each year by purchasing a sufficient number of young roosters. Select a sufficient number out of the best of the pullets which were hatched early, to take the places of the older hens that have passed their prime.

Maintain the vigor of the flock by careful breeding and a long step will be taken towards maintaining good health.

Notes in Passing. FROM "A FEW HENS."

Profit by your mistakes. Judge a man by his hens. Are you easily disheartened? Does bad weather discourage you? Have you got the snow shovel handy? No animal will be profitable if neglected.

Gentleness is a virtue in the poultry yard. Always aim to improve your stock and farm.

Always buy the best; it is the cheapest in the end.

What will succeed with one man may fail with another.

Filthy runs and dirty houses may do for hogs but not hens.

The moment you think you know it all, get out of business.

Experiments may be expensive, but they are our best teachers.

Neatness and convenience are useful implements on the poultry farm.

Overcrowding your pens in winter will cripple cold weather egg production.

Putting off until to-morrow what you should do to-day is often the cause of failure.

Clean out the chicken coops and put them away so as not to be exposed to winter storms and snow.

Farm Journal says 40 hens can no more eat from one plate than 40 people. Broadcast grain and provide long troughs for feeding soft food.

Justice: "What were you doing in Colonel Pullet's chicken coop?" Uncle Mose: "For, de Lawd, judge, I was jes takin' de census."—Harlem Life.

Farm and Home attributes poultry failures to cold, dark, dirty, unventilated poultry houses; improper food; unintelligent feeding and bad care; keeping a breed of fowls not egg producers.

Fanciers' Review says the trap nest has come to stay. By its acts it has proved its efficiency and all poultrymen are now united in the opinion that it is no longer a convenience, but really a practical necessity.

Charles J. Stuckey, in American Poultry Journal, says it is tiresome to hear so much about "bad luck" in the poultry business. If these persons could stop the cracks in the house, keep the door shut at night, and have a solid dirt, gravel, or cement floor which can be kept clean, we should hear less about luck. It is care that wins, and not luck.

Mistakes in poultry keeping should not discourage, says American Stock Keeper. Mistakes are object lessons that arouse one to a sense of closer observation and point out facts. The man who makes the same mistake twice is not a very observing one. Carelessness and mistakes are near relatives.

Success depends on management in any kind of business, says American Stock Keeper. No business will manage itself. The farmer who pays little or no attention to his flock should only expect little or no returns. Business attention given to a flock of properly housed hens would be a great revelation to many farmers.

Transfers of Pedigreed Stock.

POLAND-CHINA SWINE. Boar by Guy Darkness 18292, Sam W. Hill, Hutchinson, Kans., to C. W. Parfith, Langdon, Kans. Boar by Guy Darkness 18292, Sam W. Hill to Sam L. Lippitt, Hutchinson, Kans. Boar by Guy Darkness 18292, Sam W. Hill to C. W. Wood, Buhler, Kans. Boar by Graceful Chief 20939, Elm Beach Farm, Wichita, Kans., to W. J. Stewart. Boar by Graceful Chief 20939, Elm Beach Farm to G. D. Smith. Boar by Graceful Chief 20939, sow by Black Corwin 20800, Elm Beach Farm to J. D. Turner. Boar by Graceful Chief 20939, Elm Beach Farm to Arthur Sites. Boar by Graceful Chief 20939, Elm Beach Farm to S. L. Russell. Boar by Graceful Chief 20939, Elm Beach Farm to J. R. Logan. Boar No. 8 by Graceful Chief 20939, Elm Beach Farm to A. T. Calvert. Boar by Graceful Chief, Elm Beach

Farm to W. H. Chase, Hutchinson, Kans. White Face Corwin, boar, Elm Beach Farm to F. P. Maguire, Haven, Kans. Boar by Chief Wilkes 46217, M. O'Brien, Liberty, Kans., to C. Baker, Cherryvale, Kans.

Boar by Chief Wilkes 46217, M. O'Brien to John Furse, Elk City, Kans. Boar by Chief Wilkes 46217, M. O'Brien to Jasper Swan, Coffeyville, Kans. Sow by Chief Wilkes 46217, M. O'Brien to Robert P. Starr, Nowata, I. T. Boar by Martin's Model 56045, M. O'Brien to Robert P. Starr.

Three gilts by King Lawrence 22520, H. Arndt, Templin, Kans., to Lewis Jones, Wabausee, Kans. Five gilts by Young Victor 22520, H. Arndt to L. A. Abbott, Pavillon, Kans. Boar by Young Victor 22520, H. Arndt to Wm. Wahl, Templin, Kans.

Boar by King Lawrence 22521, H. Arndt to Bill Meyer, Dwight, Kans. Boar by King Lawrence 22521, H. Arndt to Theo. Moege, Alma, Kans. Sow by Black Queen's Chief 21046, F. B. Linn, Lenexa, Kans., H. Arndt, Templin, Kans.

Three gilts by Young Victor 22520, H. Arndt, to J. Schaal. Boar by King Lawrence 22521, H. Arndt to A. Dieball, Alma, Kans. Boar by King Lawrence 22521, H. Arndt to A. J. Wertzberger, Alma, Kans.

Boar by King Lawrence 22521, H. Arndt to Ben Johnson, Alta Vista, Kans. Boar by King Lawrence 22521, H. Arndt to F. B. Linn, Lenexa, Kans. Boar by King Lawrence 22521, H. Arndt to H. Stellwagon, Alta Vista, Kans.

Boar by King Lawrence 22521, H. Arndt to Thomas Burns, Briggs, Kans. Boar by King Lawrence 22521, H. Arndt to Carl Benkula, Templin, Kans. Two gilts by Young Victor 22520, H. Arndt to Carl Benkula.

ENGLISH BERKSHIRE SWINE. Boar by 2d Seven Oaks Col. Mills 45718, Manwaring Bros., Lawrence, Kans., to M. C. Orton, Bolling, Kans. Boar by Prince Majestic 46000, Manwaring Bros., to A. U. Schwartz, Randolph, Kans.

Boar by Prince Majestic 46000, Manwaring Bros. to A. L. Boda, Bodaville, Kans. Boar by Columbia's Duke 38855, Manwaring Bros. to O. A. Colman, Lawrence, Kans.

DUROC-JERSEY SWINE. Boar by Adonis 7513, S. D. Murphy to Ware & Pooke, Station B, St. Joseph, Mo. Two gilts by Holloway, Wm. Kirkpatrick to Ware & Pooke.

Sow by Western Beauty 4191, Ware & Pooke to Wm. Kirkpatrick, Station B, St. Joseph, Mo. Three gilts by Western Beauty 4191, Ware & Pooke to D. H. Stanton, Agency, Mo.

Gilt by Western Beauty 4191, Ware & Pooke to Peter Blocher, Richland, Kans. Boar by Western Beauty 4191, Ware & Pooke to Keshner, St. Joseph, Mo. Boar by Western Beauty 4191, Ware & Pooke to Bermond, San Antonia, Mo.

Gossip About Stock.

The imported herd bull, British Lion 133692, is at the head of the Shorthorn herd of D. P. Norton, Dunlap, Morris County, Kansas. Other breeders than the owner believe him to be an outstanding bull as to preeminence and would not lose in comparison to any of the 1900 champions.

E. W. Thrall, of Eureka, Kans., is the owner of the largest herd of registered Galloway cattle in Kansas, and is also the newly elected president of the American Galloway Breeders' Association. His herd of Galloways is of the right sort and he is now ready to confer with purchasers, as will be seen by his advertisement this week.

Herman Arndt, of Templin, Kans., breeder of Poland-China swine, reports that he is well pleased with the results from advertising in the Kansas Farmer. He has sold all his spring pigs so that he is now advertising 20 selected early fall pigs which he thinks good enough to go anywhere.

Publishers' Paragraphs.

Corn is King, and J. B. Armstrong & Sons, Shenandoah, Iowa, are the first to make announcements of seed corn for sale grown by the seller of the improved large-yielding sorts that always please the buyer and beat everybody at the fairs. Look up the advertisement and write the firm for detailed information, not forgetting to mention Kansas Farmer.

We desire to call the attention of our readers to the new advertisement of the Carbolineum Wood Preserver Company. This is a matter of great interest to nearly every reader of this paper, for the reason that it not only preserves woodwork exposed to rot and decay, but is also a radical remedy against all forms of vermin. It is a great destroyer of chicken lice, and poultry raisers will find it to their interest to examine into the merits of "Avearius Carbolineum." Look up the advertisement in this issue and write the company for further information.

The cost of seeds compared with the value of the crop is so small that a few cents saved by buying second rate seeds will amount to many dollars lost when the harvest is gathered. Farmers have found out by many costly failures what a risky thing it is to buy seeds without being pretty sure that they are reliable and true to name. The latest catalogue of the seed house of D. M. Ferry & Co., of Detroit, Mich., is a reminder that thousands of farmers in the United States and Canada have pinned their faith to the reputation of this great firm. Ferry's Seed Annual for 1901 is a useful guide in selecting seeds for the farm, the truck garden and the flower garden. It is sent free on application.

Business opportunities on the line of the Chicago Great Western Railway in Illinois, Iowa, Minnesota, and Missouri. First-class openings in growing towns for all kinds of business and for manufacturing. Our list includes locations for blacksmiths, doctors, dress-makers, furniture, grain and live stock buyers, general merchandise, hardware, harness, tailors, cold storage, creameries, and canning factories. Write fully in regard to your requirements so that we may advise you intelligently. Address W. J. Reed, industrial agent, C. G. W. Ry., 601 Endicott Bldg., St. Paul, Minn.

Wonderful Values in Parlor Organs.

The world's largest music house, Lyon & Healy of Chicago, to sharply reduce stock is offering unprecedented values. Fine Lyon & Healy Organs formerly bringing \$85, now \$35; Organs formerly \$75, now \$42.50.



Note How This Organ is Made. It has 5 full octaves and 11 stops; the action contains 2 full sets of reeds, embracing 122 reeds in all. The 11 stops are as follows: Principal, Flute, Clarinet, Bassoon, Oboe, Trombone, Trumpet, Horn, Organ, and Bass Coupler. These are capable of producing the greatest possible variety of tone with various degrees of modulation. There are no "blind stops" on this organ; they are all active and important. There is also a Knee Swell and a Grand Knee Stop. The case is a model of neatness and beauty and is made of finely finished solid oak. It is 60 inches high, 23 inches deep and 43 inches wide. We make the terms of payment so easy that anybody can buy one. Ask your dealer for our Parlor Organ Style 100. If he does not have it write direct to us and we will see that you are supplied. Catalogue of Parlor and Church Organs FREE. Used Organs from \$10 up. The freight on an organ is a very small matter. We ship organs every where. Remember when you buy an organ from us genuine musical worth is assured. Be careful to avoid the imitations now on the market. Don't fail to write today for bargain list. 15 Adams St. LYON & HEALY, CHICAGO, ILL.

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Kansas Farmer's Handy Guide

Contributed from various sources, including correspondents, scrap-books, and farm papers. Compiled and arranged by J. Clarence Norton, Moran, Kans.

CALVES.

Easy Way of Transporting Calf.—Double a rope strong enough for the purpose; put a sling around hind legs together; now give a little pull forward, which will bring calf down in natural position; pass rope between front legs and around neck, loose, and fasten. Put calf on wheelbarrow, sleigh or wagon.

To Tie Calves, Etc., for Hauling On Wagon.—Take a stave or strip about 30 inches long and bore holes near the ends. Tie hind legs to one end and front legs to other by passing tie around one leg, and through hole in strip and tying loosely around the other leg. The animal can not curve its back much, so can not struggle; and is not liable to be hurt. This device is old, but is not in general use.

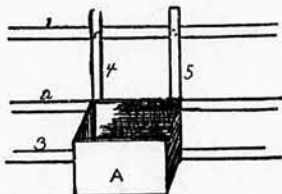
Manger for Calf.—Take a suitable box without a cover and nail on crosswise boards enough to cover one-half of it. Now, saw in the covered part a hole large enough to receive a pail to within 3 inches of top. Fasten the box wherever desired and you can feed your calf either hay or milk without loss of time, patience or milk.

How to Save Calf When Down With the Scours.—Get a teaspoonful of wheat flour, and give a tablespoonful every minute. Repeat this 2 or 3 times a day before feeding and diminish feed one-half until the calf is well. If you watch your calves and do not let them get down, they will eat the flour off your fingers. I have saved several valuable Jerseys by this simple yet potent remedy, and believe it will greatly benefit others. It is also an invaluable remedy to persons who are sick from change of water or other causes. I learned this from a backwoods cousin who was sick from changing water. I afterwards tried it on the calves with the most wonderful effect.

A Cheap Feeder for Calves.—Take a common 10-cent wooden pail; put a half circle on the bottom to bring it down even with the chine. Get a rubber teat, bore a hole right size, and put it down through. Take a piece of hard wood broom-handle, about the length of pail. Fit one end to go in rubber and bore suitable holes. Put a tin valve on end of plug to keep milk from flowing back. Anyone can contrive some way to keep it in place. I put mine in corner of pen and screwed a strip on each side of pail, putting cleat on each side of pen to slide behind. Cost of whole, 35 cents.

Handy Calf Feeder.—Calves are always knocking over the pails from which they are fed, thus wetting their bedding and wasting their food, unless the pail is held until they are finished. I have a simple contrivance to avoid this nuisance. A hole large enough to receive about two-thirds of the depth of the pail is sawed out of a plank, and the plank is securely fastened to one side of the pens, and about 18 inches from the floor. Set the pail in the hole and the calves will drink from them without being able to knock the mover or get any dirt in them.

Calf Feeder.—This may prove of value to those who have trouble with their calves while loose in the field, upsetting their feed, and two trying to get into 1 pail. One, 2 and 3 are boards



or rails of a fence; 1 and 2 are of sufficient height and width apart to allow a calf to slip its head through; 4 and 5 are 2 strips nailed upright and just wide enough apart for 1 calf to get its head through. A is a box fastened on the outside of the fence between the 2 upright strips 4 and 5. This is to hold the pail of feed. By this arrangement a calf can drink without upsetting its feed or another one coming up and getting into it too, as the space is just large enough for one. Any number of boxes can be arranged side by side in the same manner.

Raising Calves by Hand.—When your calf is from 3 to 10 hours old take it away from the cow and keep it en-

tirely out of her sight for 3 weeks; you can then turn it out in same pasture or yard with her and she will not recognize it, thereby saving much trouble and inconvenience by having to keep them separate. A cow's affection for her calf soon dies out if it is kept out of her sight, but a glimpse now and then spoils the effect. This plan is also beneficial to the cow, as she gives up fretting and worrying so much sooner if the calf is kept out of her sight. If cream and butter are scarce for family use you can (after calf is 8 days old), skim morning's milk in the evening and evening's milk in the morning and the calf will do almost as well as if fed milk right from the cow.

Muzzle for Sucking Calf.—The following will prevent a calf from sucking without bothering them in eating or drinking. Take an old piece of check-line and drive through it 10 10-penny nails. Take a piece of leather that will reach half around the nose, and rivet it over the heads of the nails. This will hold the nails firm and prevent the heads from rubbing the calf's nose. Then fasten on a strap that will reach around behind the calf's ears and you have the best and cheapest muzzle made.

Teach Your Calves to Drink.—By tying them up short to a post, putting the pail in a box so that it can not be tipped over, they will soon learn.

To Teach a Calf to Drink.—Take lamb nipple of large size, punch some holes in side of it, and tack in bottom of a wooden bucket, with the base down so as to look and feel like the cow's teat. Put sufficient warm milk in bucket to just cover nipple, and you are ready for the calf. Never attempt to teach a calf to drink until it has been from its mother nearly 24 hours, and is hungry.

To Keep Calves From Going through their fences I take and cut a small fork of some bush or tree, a peach tree limb will do. Cut limb about 15 inches below fork and fetch fork together above neck and tie with a piece of wire. I buy calves in fall of year and to keep them from getting out of pasture and going back where raised, I proceed as above until the calf is broken in.

CAKE.

"Hurry Cake."—One egg, 1 cup of sugar, beaten together; ½ cup of sweet milk; 1 heaping teaspoonful of baking powder in 1 cup of flour. Beat well; flavor and bake quickly. Cheap and good.

Hasty Cake.—Here is a good cake recipe for use when you have unexpected company. One egg, 1 cup of sugar, 1 tablespoonful of butter, 1 tablespoonful of lard, ½ cupful of water, 2 teaspoonfuls of baking powder, and flour enough to thicken. Do not make batter too thin. Bake in 4 layers.

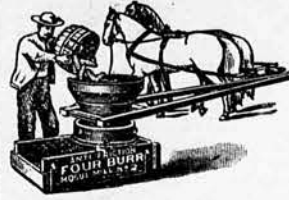
CANE.

Easy Method of Handling Cane.—Make a horse the same as is used in sawing wood, only larger; take this to the field with you, cut your cane and lay in this; when you have enough to handle easily, tie with twine or bark. This will be much easier to load or unload than if loose, and the men like it better at the factory, as they charge 1 cent more per gallon for making the molasses when it is loose.

Raising Cane.—I want all the cane raisers this year to try my way of stripping the stalks. I take an ordinary currycomb, which is better and more satisfactory than a stick. We have 15 acres to strip this year, and we are going to use the combs exclusively. If the dry weather had not affected our cane field we would have realized about 2,000 gallons. We may get half a crop. We expect to raise over 40 acres next year. There is money in it. Young people prefer it to patent syrups. Some of the merchants are sending us their barrels now to be filled. It pays better than cows or corn. The stripping, and, in fact, all the work, is done before cold weather; and it is nice to have a 5-gallon keg of sorghum to take off every week all winter, to trade for groceries. No milking 15 or 20 cows in winter for us. We do not have to shiver in cold stables all winter for a little money. And as for corn, it is to be husked in cold, frosty weather, and even winter.

CANNING.

Canning Citron Watermelon.—As fruit is going to be scarce this year, I think this recipe for a substitute will be acceptable. Take common citron melons, cut up as you would pumpkin for cooking. Take 1 gallon of citron, cook in enough water to cover it, put in a pinch of salt; boil until fruit is tender, then pour water off. Add to citron 1 pint best granulated sugar and



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½ lemon, sliced; cook a few minutes, then seal up in glass jars. Our folks like it even better than fruit.

Canning Elderberries.—I want to tell housekeepers how I can elderberries. Pick the berries off the bushes; wash them and put them on to cook. Put a tablespoonful of water with them, let them cook slowly until they make enough of juice to cover them. Can and seal while boiling hot. By canning them this way I have elderberries that are 3 years old, and I think they are just as nice as when first put up.

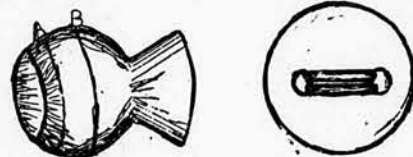
Fly Paper.—Canning Hints.—A very good article of sticky fly paper may be prepared in the farmer's kitchen. Take ½ pound resin, melt and add enough castor oil to keep it soft enough to spread on common wrapping paper. This is as good and seems to be about the same as that sold by grocers, and much cheaper. As I have canned fruit for nearly 30 years with good success and having observed what a hot, disagreeable task it is by some methods, I would like to have some young housekeepers try my way. 1—Do not prepare fruit for more than 2 cans at a time. Take a dry, coarse cloth, wrap around the can completely, set it on an asbestos fire mat, touching your boiling fruit. With a can funnel fill rapidly even full, screw on the top, and with the dry and cool cloth you can remove you cans to whatever place you like. This may all be done on the back part of the range, and without overheating one's self.

Set Glass Jars when canning, on several thicknesses of wet cloths, and fill with boiling fruit. I put the cloths on tin plate at back of stove near kettle. I have practiced this for years. Cloths may be wrung out of either warm or cold water. Unless jars are very cold they never break. Merely rinsing in warm water heats them enough.

Saving Sealing Wax in Canning.—To use sealing wax a second and third time melt and add a very little of any kind of grease, to soften it. Too much will make it sticky. I save all wax and use thus, for sealing jars containing jams, preserves, etc., and have sealed fresh fruits and vegetables with good results.

TELEPHONE.

A Farm Telephone.—One of the greatest trouble-saving devices is a good telephone. Following is a description of one that I put up from my own home to that of my mother-in-law, a distance of 40 rods. I bought 2 cuspidors and had the tinner take them apart at the seam in the middle. He then takes the lower half, cuts a 3-inch hole in the bottom and solders in a piece of copper 2 inches from bottom as shown by the dotted line A, in Fig. 1. The line B is where the vessel is taken apart by the tinner. There must be a ¼-inch hole in center of sopper bottom



and the bottom must be soldered in very firmly, running the solder around on both sides of the copper, as the entire strain of the wire will be upon these copper bottoms. After this was all done the tinner put the cuspidor together again as it was before. Now get your wire (stovepipe wire, size 16 to 20

will do) and stretch 1 strand between the 2 houses, letting it be 4 feet longer than the distance between houses. Stretch the wire taut as possible, then take your other wire and twist it around wire No. 1, about one twist to the foot every rod or so, stretching it as taut as possible, as both wires should have the same tension. Be careful not to kink the wire and if it must be spliced, use the regular telephone splice. Now bore a ½-inch hole through wall of house; also put 2 small holes through a penny. Put wires through hole in wall, through hole in copper bottom of the cuspidor receiver and both wires through 1 hole in penny. Now turn and put both back through the other hole in penny and twist around the 2 main wires on that side, thus fastening the wires firmly to the penny. Fig. 2 shows side of penny against which we talk, with the wires passing through the holes. This completes one end of the line, and as soon as the other end is finished in like manner we will be ready for the poles, which should be from 16 to 20 feet high, set 8 rods apart and deep enough so that a ladder may be placed against them in putting the wire up. The poles should be set as shown at Fig. 3, the object of the zig-zag arrangement being to tighten the wire. The dotted line shows position of wire before it is attached to the poles. It is fastened to poles by fish line or bottle necks and must not touch any wood or metal except the two pennies at the ends. My 40-rod telephone line cost \$2.05, as follows: Two cuspidors, 30c; work on some, 25c; 10 pounds wire, at 15c, \$1.50. The line works so well that I can hear the clock ticking at the other end.—Silas McGowan, Laurence, Mich., in Practical Farmer.

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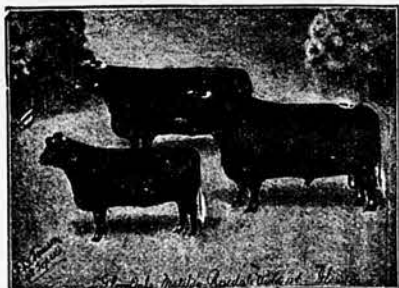
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Head of the Herd.**

LORD MAYOR was by the Baron Victor bull, Baron Lavender 2d, out of Imp. Lady of the Meadow and is one of the greatest breeding bulls of the age. Laird of Linwood was by Gallahad out of 11th Linwood Golden Drop. Lord Mayor heifers bred to Laird of Linwood for sale. Also bred Shetland ponies. Inspection invited. Correspondence solicited. A few young bulls sired by Lord Mayor for sale. Address....

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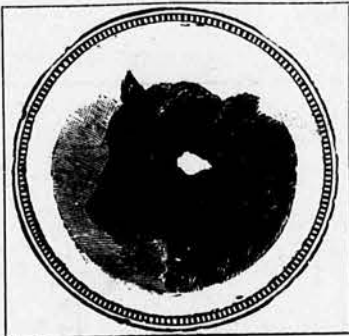
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NEW SALE BARN, KANSAS CITY, MISSOURI,
THURSDAY and FRIDAY,
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142 Head, 45 Bulls and 97 Females

The breeders making this combination, which consists of 20 Bulls and 80 Females from the herd of J. J. Dimmock, White Cloud, Kans.; 13 Bulls and 13 Females from the herd of Neal M. Gallagher, Highland Station, Kans.; and 12 Bulls and 4 Females from the herd of R. M. Lale, Odessa, Mo.

Families represented are Alexandrians, as bred by W. S. Marr, Young Marys, Beauties, Arabellas, Addelais, Aylesby Ladys, Primroses, Filberts, and others. The bulls are good, strong fellows and old enough for good service; most of them from 15 to 30 months old. The cows and heifers are a good useful lot. They have never been over-fed, and are only in good breeding condition. Cows will all be bred or have calves at foot. Catalogues on application to either owner. Special railroad rates will be in effect.

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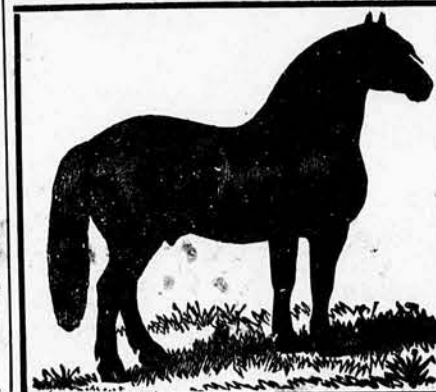
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