

Agricultural Matters.

HUSKING CORN.

By Geo. T. Pettit, Oneida, Kas.

To begin with the little end of the subject, the simplest form of husking-peg is a straight, round piece of wood or iron properly tapered and two small holes bored through to receive the ends of a leather string, which passes over one or more fingers. This form of peg has been used much in the past and is to some extent yet, though its faults are driving it out. Being straight, and all sides necessarily tapered alike, the point lacks grasping power and is too liable to slip and let go. Then the point comes too far up on the fingers, too near the hand, preventing the rapid and effective manipulation that is possible with the point located farther down toward the end of the first finger. This objection obtains in nearly all single bar pegs, regardless of whether the point is round and straight or flat and curved. And while a peg of this kind may be just right as to length and "set" when simply held in the hand, it cannot be properly supported by the slender string alone, and upon being pressed against the ear of corn it pushes back through the hand, requiring more time and greater strain upon the hand and arm to properly grasp and open the husk. This defect is found in all string pegs unless so shaped that there will be a bearing against one or more fingers to prevent peg from slipping through hand when brought into use. Many pegs are made with elaborate but almost useless tail-pieces to curve up over the little finger; the curve would better be at the opposite end of the peg, so there would be a bearing against first finger, then peg will not require a long, needle point, in fact, is better without. Most single pegs having flat, curved points are so made that the point stands at right angles with the direction of the holes or rivets by which the strap is attached, and in grasping an ear quickly and naturally the peg does not strike the ear squarely, but on a twist, hence many huskers prefer a thin, flat point, which can be twisted to suit. The common form of peg faces the thumb when the hand is closed tightly, whereas it should do so with the hand half closed, as when grasping an ear of corn. Pegs attached to gloves or cots set better, I think, than single pegs, as they can be thus held firmly beyond second joint of first finger; but the cots soon wear out, then the peg is useless.

Here in the West, where there is so much corn to husk, the hands must be protected, and in this section most huskers use mittens made of heavy cotton flannel. These are easier on the hands, being soft and pliable, and are cheaper than leather husking gloves. It is important that a good fitting pattern should be used, so there will be neither undue binding or bagging to hinder quick action. Some of our merchants buy a bolt of extra heavy flannel expressly for mitts and they can be cut out and run up on the machine quite rapidly. The wrists do not require hemming or binding. Best wear is secured by making them with nap side out. Some daub the mitts occasionally with pine tar, then rub them in dry dirt, which adds to the wear in dry weather and perhaps helps to hold the husks a little more firmly, though somewhat objectionable to those who desire to keep their hands looking well. One of the best pegs I ever used with a mitt was one extensively advertised several years ago and called the "American," I think. I believe it is no longer made, so will not be out of place to describe it briefly. It was made of wire a little larger than common smooth fence wire. Beginning at the base of the little finger the wire passed through the hand, then curved up and back over hand, thence downward and into hand close to starting point, thence through hand diagonally, the point projecting close to first joint of first finger. The peg slipped right on over the mitt and was very convenient, though liable to make the hand sore when used without the mitt. The newer "hook" huskers also go right on over the mitt. The year these first came out I paid 75 cents for one and never used it much, though some of our rapid huskers who have become accustomed to them will have nothing else, as they claim to perform the same work with fewer motions. Motion and plenty of it the rapid husker must have, but false motion he must avoid.

When husking bare-handed the skin at the joints of the fingers is apt to become thick and crack open, and I never found anything better for this than a small-sized, well-twisted and well-waxed shoemaker's wax-end wrapped rather

loosely around the finger over the crack.

It has not been so very many years since people in this country were husking standing corn all around the wagon, always including the inevitable "down row." To-day each full hand takes his team and wagon, the latter provided with great high sideboard opposite the husker to prevent throwing the ears over, and a "scoop-board" end-gate to facilitate unloading. Down rows are made only in starting, after which team and wagon straddle the last row of husked fodder, while the husker passes between and husks the two adjoining rows, the team soon learning to "move up" without much attention from the husker.

Where seed corn is to be saved, a convenient box should be fastened outside of wagon bed, so good seed ears can be tossed into it without loss of time. This is ever so much better than the oft recommended plan of having a measure or box located inside the wagon bed. A few years ago I made a seed-box and fitted it with hooks to hook over top of bed. Arriving at the crib, it could be lifted off and dumped, avoiding the necessity of picking the ears out with the hands. For husking shock corn I made a pair of light trestles of 1x4 pine twelve feet long. Corn laid on these is very convenient to husk—no back-breaking work about it. Whenever enough is husked to make a good-sized bundle of fodder, it is tied and tossed to one side. For binding fodder, we used to raise rye and cut it

grasses of our pastures and the alfalfa of our meadows.

Alfalfa hay has a very high percentage of protein compared with other dry feeds. It contains 10.6 per cent. of digestible protein, while corn contains but 7.8 per cent. Colorado Experiment Station has proved that the leaves of alfalfa hay contain 14% per cent. of digestible protein. This makes a ton of alfalfa leaves equivalent in feeding value to 2,400 pounds of bran. Taken stems and all, alfalfa hay is worth for its digestible nutrients 86 per cent. as much as wheat bran. In other words, if bran sells at \$10 per ton, alfalfa hay is worth \$8.60 per ton. Few farmers know or believe this to be true. If they understood its value, they would not sell their alfalfa hay on the market at \$3 to \$4 per ton, as many of them do.

Banker and farmer, S. Larrick, of Lenora, Norton county, Kansas, says that good alfalfa hay is worth as much as corn, pound for pound, to feed to fattening steers. A ton of shelled corn contains 35.71 bushels. At 25 cents a bushel, corn would be worth \$8.92 per ton. If a farmer can realize 25 cents a bushel for his corn by feeding it, he can just as certainly realize \$8 to \$9 per ton for his alfalfa hay by feeding it.

Last winter, H. F. Sims, of Phillipsburg, Kas., fed 480 head of steers, weighing about 800 pounds per head at the start, as follows: Fed snapped corn a few weeks to get them started, then ear



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(From Secretary Coburn's September Report.)

green to prevent the seed from getting in the fields. It made good bands, but I think even better ones can be made of good binder twine by cutting it in lengths of, say six feet, and looping the center around a piece of cob or stalk. This makes a double band which, when placed around bundle and free end given a few turns around twine close to cob, is sure to hold.

The Feeding Value of Alfalfa.

Few farmers comprehend the feeding value of alfalfa, though they may have grown the plant for years upon their farms. The digestible nutrients of any food for either man or beast consist of fats, carbohydrates and protein. The fats and carbohydrates are generally found in excess in the common feed-stuffs produced on the farm. Protein, a substance indispensable to the vital processes of all living beings, is the scarcest and most expensive constituent of the different feeds. Protein contains nitrogen, and is the most essential constituent in the formation of the tissues of the nerves, muscles and brain. This important substance is quite abundant in gluten meal, linseed meal and cottonseed meal.

Though these artificial feeds possess a very high nutritive value, their prices are usually out of reach of the practical Kansas farmer. Is it not possible for us to find natural feeds that furnish the all-important protein at a nominal cost? We have such feeds in the tender green

corn, alfalfa hay and some millet. He next fed shelled corn and alfalfa hay, and finally finished them off with soaked shelled corn, corn meal and alfalfa hay. His cattle gained 420 pounds per head in seven months, consuming about sixty-five bushels of corn per steer.

The following is a report from E. J. Ryan, of Lincoln, Kas., who fed 486 steers, beginning the first of last March: "Threw alfalfa hay into the bottoms of the feed boxes and put corn meal upon it. As soon as the first crop was large enough to mow, green alfalfa was fed in the same way. Never had steers do so well in any previous feeding. The cattle gained 365 pounds per head, with good wintering and four months' feeding."

T. E. Scott, of Tescott, Ottawa county, Kansas, put 500 pounds per head upon his steers in one year, using buffalo grass pasture in the summer and alfalfa hay, with thirty bushels of corn per head, in the winter.

The feeding value of alfalfa hay depends very largely upon the methods of curing and handling it. Geo. R. Allaman, of Wallace, Wallace county, Kansas, gives the following directions for harvesting the crop: "Mow it and let it lie in the sun two or three hours, until wilted; then rake it into windrows and let it lie two or three hours longer. In five or six hours after it is mown, the hay should be put into bunches or "cocks" with as little stirring as possible. The following day, if the weather is good, put it into the stack and cover

FACTS ABOUT HEALTH

It is Easy to Keep Well if We Know How—Some of the Conditions Necessary to Perfect Health.

The importance of maintaining good health is easily understood, and it is really a simple matter if we take a correct view of the conditions required. In perfect health the stomach promptly digests food. The blood is employed to carry nourishment to the organs, nerves, muscles and tissues which need it. The first great essential for good health, therefore, is pure, rich blood. No medicine has such a record of cures as Hood's Sarsaparilla and it is because it is the one true blood purifier. Hundreds of people are alive and well today who would have been in their graves had they not taken Hood's Sarsaparilla. It is depended upon as a family medicine by thousands.

Hood's Pills are the only pills to take with Hood's Sarsaparilla.

the stack with prairie hay or other long grass. The stacks should be in the form of ricks, not exceeding twelve or thirteen feet in width. To have good feed, it should be handled quickly, carefully and properly."

In eastern Kansas, farmers often have trouble with alfalfa molding, even after it has been perfectly cured. If two or three weeks of cloudy, wet weather should follow the harvesting of the first crop, the chances are that it would be almost ruined, even though stored in a good barn. The hay frequently absorbs moisture from the atmosphere and becomes very seriously damaged. This difficulty can be overcome by stacking or storing alternate layers of good, dry wheat straw with the alfalfa hay, in the proportion of two loads of alfalfa to one of straw. Farmers in central and eastern Kansas annually have thousands of tons of wheat straw that could be used in this way if it were only preserved. When fed out, the straw would be partly eaten and the rest would form the finest of bedding for the animals. Alfalfa handled in this way could be safely harvested much younger than it usually is and would contain a very much higher percentage of protein.

No farmer can afford to get along without alfalfa. It is the cheapest known source of protein. By means of the nitrogen-fixing bacteria which inhabit nodules upon its roots, it increases the fertility of the soil the longer it grows upon the land. No other plant can compare with it as a fertilizer. It will be the means, in the not far distant future, of doubling the value of every acre of land in Kansas. GEO. L. CLOTHIER.

Kansas Experiment Station.

Farmer's Handy Feed Cooker.

Reader's attention is called to this device, which is sold at \$12.50 for fifty-gallon capacity. By feeding poultry and animals cooked food during winter at least one-third of the feed is saved; also



having stock in a healthy condition, preventing hog cholera among your hogs and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill., a catalogue giving full description, may be obtained. They are made in all sizes.

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Why not investigate southwest Missouri, southern Kansas, northwest Arkansas, Indian Territory or the Texas coast country? The manufacturing, farming and stock raising industries of these sections are attracting considerable attention. The chief centers are reached via the Frisco line. For ticket rates and full particulars, address Geo. T. Nicholson, Gen'l Pass. Agt. St. Louis, Mo.

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KANSAS FARMER CO., Topeka Kas.

As the Kansas Farmer goes to press this (Wednesday) morning the election of Stanley by 5,000 plurality is claimed at Republican headquarters, while the election of Leedy by 8,000 plurality is claimed at fusion headquarters.

The Kansas Farmer has only a few copies of "The Future by the Past," by Mr. J. C. H. Swann, now deceased. It is considered an exceedingly valuable work by many, as Mr. Swann gave his life's work to weather and crop observations. Until the supply is exhausted, the Kansas Farmer will fill all orders at \$1, postpaid.

Sounds a Warning.

E. W. Melville, of Eudora, Kas., writes the following warning to his fellow farmers: "There has been an outfit going around getting orders for groceries, making up car-load orders from each section worked. It is not necessary to warn those to whom they have sold, as the goods delivered have made them stick enough; but a word to others may not come amiss. The local dealer may be trying to make a little profit, but he is the safest and most reliable man to deal with; besides, when your spices are manufactured stuff and your extracts colored water, it is much more satisfactory to have some one handy to take the 'blessing.'"

It is not generally realized that the wilderness of the Maine woods, that paradise for sportsmen, embraces an area larger than Vermont, Massachusetts and Rhode Island together. In an article entitled "Hunting in the Maine Woods," in the November number of the New England Magazine, Mr. Sid H. Neely thus enthusiastically describes this region: "In these Maine Woods lakes lie hidden that have been undisturbed for years save by the flutter of the wild duck across their surface or the ripples started by leaping fish. These lakes and streams are the home of the bass, the pickerel, the speckled trout and the muscalonge. The brush on these mountains has given shelter for years to that giant of the woods, that king of game, the moose. The woodland caribou and deer wander unmolested through the network of woods and streams. Miles upon miles of these forests, where the sound of the logger's axe died years ago, have echoed with naught since but the bellowing challenge of the buck moose, the screams of the hawk, or the honk of the wild goose. The boughs of the hemlocks rustle and bend with the weight of the awkward porcupine as he ventures far out in search of his favorite food—the tender ends of the new grown shoots." The article, an enthusiastic account of life

and sport in the Maine woods, is illustrated from drawings by the author, picturing many incidents of the moose hunt which he describes.

INQUIRIES ABOUT CATALPAS.

Editor Kansas Farmer:—Can you give, in your next issue, the relative value of catalpa, honey locust and Russian mulberry for post timber? Also, how did Mr. Yaggy protect his catalpas from rabbits? WM. R. DOTY.
Burrton, Kas.

These inquiries were submitted to Hon. Geo. M. Munger, of Eureka, who is probably the most extensive grower of catalpas in the State. Mr. Munger says:

"In answer to Mr. Doty's questions would say that it would be impossible for me to give the relative value of the three varieties of trees named. I have had experience to a limited extent with planting the catalpa and Russian mulberry. Both trees are highly recommended for their durability in exposed situations. I have in use a few thousand fence posts of the catalpa, but the longest set have been in the ground but about five years. I cannot speak from experience of either of the other trees named as to durability. There is this to be said, however, that others have had extended experience with the catalpa and have left their testimony on the subject. I fail to remember more than one authority that I have read, which is Dr. Warder's 'Monograph on the Catalpa or the Catalpa Speciosa or Hardy Western Catalpa.' I send you by this mail an extra copy that I found, from which you may possibly extract something that will be helpful to Mr. Doty and others. You will notice the great difference in the two varieties that Dr. Warder speaks of. I have been told by a friend that the old fort at Vincennes, Ind., is made of catalpa logs, that it is still standing (or was about ten years ago), and that the logs are still sound after over a hundred years in place. No one could question the beauty of the timber after seeing a polished specimen. Probably you could obtain much fuller information by application to Robert Douglass' Sons, at Waukegan, Ill. Their father was a staunch advocate of this tree for Western planters, and during his lifetime accumulated a vast fund of information regarding it, and doubtless left it to his sons."

In Dr. Warder's address referred to by Mr. Munger occurs the following as to the lasting qualities of the Catalpa speciosa:

"Very many of this Western form of catalpa have been produced from seeds of General Harrison's trees at North Bend, O. Among these are several on the lands of his neighbor and connection, the late John Cleves Short. In 1852, some of these had attained a size sufficient to cut and hew for gate posts. In order to subject the durable qualities of the timber to what he considered the severest test, that gentleman had them cut in the midst of their summer growth, on July 2, 1852; they were immediately dressed and at once planted by the roadside, and he proposed to a companion that they should examine their condition in fifty years. They are still perfectly sound, thirty years planted."

"The wood of the catalpa is light, and yet sufficiently strong, and it is hard enough for most purposes of construction. It has been highly approved for bridge timbers, where it is exposed to the weather; it has been the favorite material for fence posts in a large tract of country; it works easily in making shingles, which have been found to last longer than the houses they covered, and in one case we are told that they were really taken off and used in another building."

"Mr. Barney, on page 8 of his pamphlet, gives the following results of experiments to test the strength and resistance to pressure of this and other woods:

"I subjected pieces one inch square to a breaking pressure twelve inches between supports. Catalpa broke under a pressure of 703 pounds; ash, 800 pounds; oak, 709, 577, 1,141 pounds, mean 809 pounds. The catalpa deflected three times as much as the ash or oak before breaking."

"Five thousand pounds pressure on blocks of one inch square by three inches long compressed the oak 10-16, 10-16 and 8-16 of an inch; catalpa, 7-16, 9-16 and 7-16; white pine, 5-16; Norway pine, 6-16; white walnut, 5-16; yellow pine, 6-16; black walnut, 10-16 and 8-16; ash, 14-16 and 6-16."

"These samples were taken at random and would indicate that catalpa will bear the pressure to which it is subjected when used as a railway tie. Catalpa ties placed in the track near our office all hold their spikes well, and show no signs of mashing more than oak on each side of

them. Over these heavily loaded trains pass almost hourly. The road-master, who has watched them with much interest, says he has no better ties on the line of his road."

"On the St. Louis & Iron Mountain railroad, near Charlestown, Mo., there is a portion of the track laid eleven years ago on catalpa sleepers, which are yet sound, while many of the oak fence posts inclosing the road, though planted since it was built, have had to be replaced. The oak ties last scarcely five years on the same soil and exposure. Mr. David Axtel, the intelligent engineer in charge of this part of the road reports that catalpa holds the spikes well enough, and that when the ties become mashed they are no longer rejected, but simply turned over, so as to present a new bearing. Some that had been thrown out by the trackmen have been used as fence posts, and bid fair to last for many years."

"In his letter to Mr. Barney the same gentleman writes: 'There is nothing to indicate that the catalpa ties in our track do not hold spikes sufficiently well. Nearly all the spikes are in the same holes originally made when driving the track. I have examined the few ties the rails have settled into, and find none that will not last a number of years by turning them over. These ties are six and eight inches face; if they were wider, as you suggest, there would be more resistance to crushing.' * * *

"Before passing from this branch of the subject, the peculiar ligneous structure of this tree should be more particularly noted. The alburnum or sap-wood is very limited, and consists of but one or two of the concentric layers, generally, indeed, that of the last year's growth only; so that, in the preparation of cross-ties, a stick, twelve inches or more in diameter, needs only to be split or sawed so as to make two sleepers, instead of the more expensive hewing required to make but one from the same material. The timber, in this shape, with the maximum extent of bearing for the rail, and having only the bark and a thin layer subject to decay, may be laid with its convex side next the road-bed, in the best position for tamping the tie when placed in the track."

"Little need be added to the mass of facts collected by Mr. Barney, going to show that the wood of the catalpa is strong and hard enough for most economic purposes; that it works smoothly and takes a beautiful surface, and is sufficiently varied in its tints to make it highly ornamental for inside finish. At the same time, though light, it is perdurable for all purposes where it is exposed to the elements."

"Dr. Schneck, of Mt. Carmel, Ill., states that the lumber, on account of these qualities, has been in great repute near the mouth of the Wabash, 'for the building of skiffs, and that it is being rapidly exhausted in other localities by the constant demand upon the trees for fence posts; these are taken to a great distance, and the trees are often cut at night and stolen.' Similar testimony is borne by James Bell, an extensive dealer and manufacturer of lumber at Ullin, Ill. J. T. Mills, Esq., of the Evansville & Terre Haute railroad, is purchasing many thousands of these posts to fence the road; and he has also planted largely on the White river for future use."

"In all the delta region of four or five States surrounding Cairo, Ill., particularly on the west bank of the great river, catalpa has been in such demand for fence posts and foundation logs that the accessible stock of standing trees is well nigh exhausted. In that low tract of humid soil, sections of catalpa logs are used to support the corners of the buildings erected there, and they make the most permanent foundations—'corner-stones.'"

"Near New Madrid there are many fence posts which have stood and remained perfectly sound for long periods—twenty, thirty and even forty years. The story of the standing catalpa trees that were killed by the disturbances and submergence of land, caused by the earthquake of 1811, which we have all been disposed to doubt, is to this day fully confirmed by ocular demonstration. In the lagoons, there stand the broken shafts of noble trees; all other species, submerged by the same catastrophe, have crumbled and fallen into the water long ago, but these silent monuments of that convulsion still remain, not as living witnesses, but as dead memorials of the disturbance of level, which caused their death, and their now approaching dissolution; but there have they stood for seventy years, under conditions most favorable to decay, and thence are they brought, when cut, and used for fencing."

If trees are damaged by rabbits of the cotton-tail variety, the best remedy is to trap the rabbits, using the Wellhouse trap, which has been illustrated and described several times in the Kansas

Farmer. Not unlikely, however, our correspondent's most numerous and troublesome rabbits are jack-rabbits. There is no known way of trapping these. Some apply the grayhound remedy, combining sport with utility. Boys with guns are somewhat effective. But the extermination of wolves and coyotes on the plains has left the jack-rabbits without competent natural enemies and they are likely to prove too many for both dogs and boys. Small orchards may be protected by tree-protectors, furnished by some manufacturers. Screen wire cut to proper lengths and bent around a fork handle makes good protectors. But for a catalpa plantation these would probably be thought too expensive. There has been introduced lately a wash which has proven very satisfactory. Hydraulic cement and skim-milk are mixed to the consistency of whitewash and applied with a brush. This has been used in the great Wellhouse orchards, and found both effective and durable. It has the merit of being cheap and easily manipulated.

GRAIN WEEVIL.

Editor Kansas Farmer:—Please print again the recipe for killing weevil in wheat. WILKIE BLAIR.
Beulah, Kas.

Farmers' Bulletin No. 45, which treats of insects injurious to stored grain, has the following:

The simplest, most effective, and inexpensive remedy for all insects that affect stored cereal and other products is the bisulphide of carbon, a colorless liquid with a strong, disagreeable odor, which, however, soon passes away. It vaporizes abundantly at ordinary temperatures, is highly inflammable, and is a powerful poison.

It may be applied directly to infested grain or seed without injury to its edible or germinative principles by spraying or pouring, but the most effective manner of its application in moderately tight bins or other receptacles consists in evaporating the liquid in shallow dishes or pans, or on bits of cloth or cotton waste distributed about on the surface of the infested material. The liquid rapidly volatilizes, and being heavier than air descends and permeates the mass of grain, killing all insects and other vermin present.

The bisulphide is usually evaporated in vessels containing one-fourth or one-half of a pound each, and is applied in tight bins at the rate of a pound to a pound and a half to the ton of grain, and in more open bins a larger quantity is used. For smaller masses of grain or other material an ounce is evaporated to every 100 pounds of the infested matter. Bins may be rendered nearly air-tight by covering with cloths, blankets, or canvas.

Infested grain is generally subjected to the bisulphide treatment for twenty-four hours, but may be exposed much longer without harming it for milling purposes. If not exposed for more than thirty-six hours its germinating power will not be impaired. In open cribs and badly infested buildings it may sometimes be necessary to use a double quantity of the reagent and repeat treatment at intervals of about six weeks during the warmest weather.

Mr. H. E. Weed, entomologist of the Mississippi Experiment Station, claims that one pound to 100 bushels of grain is amply sufficient to destroy all insects, even in open cribs.

Mills and other buildings, when found to be infested throughout, may be thoroughly fumigated and rid of insects by a liberal use of the same chemical. A good time for this work is during daylight on a Saturday afternoon or early Sunday morning, closing the doors and windows as tightly as possible and observing the precaution of stationing a watchman without to prevent any one from entering. It is best to begin in the lowest story and work upward, to escape the settling gas. The building should then be thoroughly aired and the grain stirred early Monday morning.

For the fumigation of a building or a reasonably close room it is customary to evaporate a pound of the bisulphide for every thousand feet of cubic space in comparatively empty rooms, and in such as do not admit of being tightly closed a considerably larger quantity of the chemical is sometimes necessary.

Certain precautions should always be observed. The vapor of bisulphide is deadly to all forms of animal life if inhaled in sufficient quantity, but there is no danger in inhaling a small amount. The vapor is inflammable, but with proper care that no fire of any kind, as, for example, a lighted cigar, be brought into the vicinity until the fumes have entirely passed away, no trouble will be experienced.

Bisulphide of carbon retails at from 20 to 30 cents a pound, but at wholesale, in fifty-pound cans, may be obtained for 10

cents a pound. A grade known as "fuma bisulfide," for sale at the latter rate, is said to be more effective than the ordinary commercial article.

THE KANSAS APPLE WON.

There was occasionally some criticism of the Kansas fruit display at the Omaha Exposition. Finally the Commissioners sent for Judge Wellhouse to reconstruct and supervise the display. He arrived with the fall and winter apples. These were quickly placed and presented a fine appearance. Though not as large in volume as some other fruit exhibits, Kansas was in the first rank as to quality. But a party of Kansans, who rated everything by its size, happened along. The widest-mouthed one of these denounced the fruit display as a disgrace to the State. Judge Wellhouse is a quiet man, a typical Kansas farmer, loyal to his State, and especially to her fruit interests. He stood the wide-mouthed individual's railings as long as he could, and then asked him if he was sure he knew what he was talking about. The mouth had no doubt on that score. Mr. Wellhouse then told him that his mistake lay in his supposition that he knew a fruit display when he saw it; that Kansas had a first-class display; that in quality it was the best on the grounds. The mouth wanted to bet on this proposition. Mr. Wellhouse replied by wagering a dinner for the crowd, giving the mouth the right to select the judge, provided, only, that said judge should know fruit and be governed by the rules of the Exposition in judging. The mouth was to select a specimen apple from any display of any State or Territory to compete with a Kansas apple. The wager was promptly accepted. A Wolf River apple as big as a pumpkin was as a result put in competition with a Kansas Jonathan. The judge selected was a very competent and impartial fruit-grower from Colorado. The Kansas apple scored nearly double as high as the Wolf River apple on every point except size. On size Mr. Wellhouse said: "Give him 100 and give us 50. His apple is big enough." When the points were summed up, the Kansas apple was about 600 points in the lead. But the man who was ashamed of the Kansas exhibit had disappeared,

The Balanced Ration.

Press Bulletin Kansas Experiment Station.

Many feeders have asked us to explain what a balanced ration is. There are three important groups of substances in feeds—protein, carbohydrates, and fat. Protein includes all materials in feeds which contain nitrogen. It enters into the composition of milk, blood, muscle, hair, and the brain and nerves, and is necessary in the formation of these, and no other substance can take its place. Protein is also used in the body in producing heat, energy and fat. Carbohydrates include the fiber of feeds, the sugars, starch and gums, and furnish heat, energy, and fat to the body. The fats in the food produce heat, energy, and fat in the body. Carbohydrates and fat can take each other's places, one pound of fat being worth 2.2 pounds of carbohydrates for production of heat in the body.

Extended investigations have shown that, to obtain the best results, feed should be given which will furnish these materials in the following proportions: Dairy cow, protein 2½ pounds, carbohydrates 12½ pounds, and fat ½ pound; fattening steer, protein 2½ to 3 pounds, carbohydrates 15 pounds, and fat ½ to ¾ pound; growing cattle, protein 4 pounds, carbohydrates 12½ pounds, and fat 2 pounds, for a young animal, gradually decreasing the proportion of protein until at the age of 2 years the proportions are similar to those for the fattening steer but less in quantity. A pig 2 to 3 months old needs feeds containing 7½ pounds of protein to each 30 pounds of carbohydrates and fat; while a year-old pig needs 7½ pounds of protein to each 48 pounds of carbohydrates and fat. Feeds containing a greater proportion of protein than called for by these standards can be fed, because protein can take the place of the other materials. Carbohydrates and fat cannot take the place of protein, however, and no matter in how large quantities they may be fed, if protein is lacking the growth or gain will be reduced.

The weak point in Kansas feeding is that the average rations are greatly deficient in protein and have too much carbohydrates and fat. Every feeder knows that good pasture produces rapid growth, good gains and abundant milk yields. It furnishes nutriment in the proportion of 3 pounds of protein, 12 pounds of carbohydrates, and ½ pound of fat. The proportions in some of our feeds, in pounds per hundred pounds of feed, are as follows:

	Protein.	Carbohydrates.	Fat.
Corn	7.8	66.7	1.8
Kaffir corn	7.8	57.1	2.7
Prairie hay	3.5	41.8	1.4
Corn fodder	2.0	33.2	0.6
Sorghum hay	2.4	40.6	1.2

It will be seen that none of these feeds contains a sufficient proportion of protein to secure best results, and all combinations of these feeds will have the same defect.

Some feeds have too great a proportion of protein to be fed alone, as shown below, the figures indicating pounds per hundred pounds of feed:

	Protein.	Carbohydrates.	Fat.
Alfalfa hay	10.6	37.3	1.4
Gluten meal	31.1	43.9	4.8
Linseed meal	23.8	32.8	7.1
Cottonseed meal	37.0	16.5	12.6

Making a balanced ration is combining the feeds deficient in protein with those having an excess of it, to make a ration which will contain the right proportions for the animal fed.

A balanced ration will produce much better results than the ordinary ration, which is too high in carbohydrates. A cow gave 5 pounds butter per week on an ordinary ration, and 12 to 14 pounds on a balanced ration. Two pounds per day is a good gain for steers on the usual fattening ration. By increasing the protein by substituting 4 pounds of linseed meal for an equal amount of corn in the regular ration, a feeder made 3 to 4 pounds gain per steer per day. Fattening pigs made a gain of 9½ pounds per bushel of Kaffir corn eaten. When one-fifth of the Kaffir corn was taken out and soy bean meal substituted for it, increasing the protein, a gain of 13 pounds was made for each bushel of grain eaten.

Alfalfa is the cheapest source of protein for the Kansas farmer, and with a sufficient supply of alfalfa he can use the other feeds usually raised, and secure proper rations for growing and fattening cattle, dairy cows, pigs, and fattening hogs. Without alfalfa, the farmer to secure the best results must purchase some of the expensive feeds rich in protein. In this case, the markets should be closely studied and the feed furnishing protein at least cost should be purchased. Sometimes this is cottonseed meal, at other times it may be linseed meal, or gluten meal, or some other feed. Some feeds rich in protein, how-

ever, are not adapted to all kinds of stock. Bran and cottonseed meal are not good feeds for young pigs.

Annual Meeting of Galloway Breeders.

The annual meeting of the Galloway Breeders' Association was held in parlor "S" at the Midland hotel, Kansas City, on Thursday evening, November 4. The attendance of the members was fairly good and the meeting an enthusiastic one. The Secretary's report showed a gain in all departments during the year just closed. Galloway men are waking up and taking more interest in their herds. With one exception, the Galloway association was the only one maintaining an office during the cattle show at Omaha. Eighteen new members were elected during the year.

Along with all pure-bred cattle, the Galloways have advanced the past year, and it was generally thought by those at the meeting that they were 100 per cent. higher than a year ago.

By unanimous vote, the association agreed to spend a part of its surplus funds on hand in advertising the breed.

The officers elected for the ensuing year were: President, Stephen M. Winslow, Okaloosa, Mo.; First Vice President, I. C. Huntington, Rocheport, Mo.; Second Vice President, J. M. Lowe, Kansas City, Mo.; Third Vice President, E. W. Thrall, Hamilton, Kas.; Secretary and Treasurer, Frank B. Hearne, Independence, Mo. Executive Committee—I. C. Huntington, Rocheport, Mo.; J. M. Lowe, Kansas City, Mo.; M. R. Platt, Jr., Kansas City, Mo. Directors—D. McCrae, Guelph, Ontario, Canada; S. M. Winslow, Okaloosa, Mo.; I. C. Huntington, Rocheport, Mo.; James Morrison, Milo, Mo.; W. H. B. Meed, Dundee, Minn.; Marion Parr, Cooksville, Ill.; M. R. Platt, Jr., Kansas City, Mo.

The next annual meeting will be held in the city of Chicago, in November, 1899.

J. K. Nelson, Chelsea, Kas., offers to sell his herd of Short-horn cattle, consisting of about ninety head, which he will close out at private sale cheap for cash. Parties desiring some good Short-horns will undoubtedly find it to their advantage to correspond with him at once.

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Horticulture.

CELERY.

Press Bulletin Kansas Experiment Station.

Celery is one of the most palatable vegetables to be found on American tables. Its cleanness, brightness and crispness, together with its delightful odor and flavor, are the qualities that make it welcome and that have caused the demand for it to increase more rapidly than the supply.

Its culture has, however, spread rapidly in recent years as a variety of soils has been found upon which its production is certain and very profitable. At the present time there is scarcely a town of any size in our State whose gardeners do not include celery among market crops, while it has also found an honored place in many family gardens.

During the last four years celery has been grown as an experimental crop at this station. Its culture has become more successful as better methods have been worked out and adapted. Our work with the crop during the past season has been attended with marked success. From the results obtained at this station and from data collected in various portions of the State, we feel confident in making the following cultural observations:

OBTAINING PLANTS.

Home-grown plants have given better results than those obtained from commercial growers. Fresh seed should be sown in rich soil in hot-bed or cold frame about April 1. Rows should be six inches apart and the seed covered to a depth of one-eighth inch. Firm the earth over the seed and shade lightly. Water to keep the soil moist but not wet. Regulate temperature of the frame at from 60° to 70°. When the plants are two or three inches high they should be transplanted into other beds or else thinned and sheared off, in order to make them strong and stocky. Plants should be well hardened off before transplanting into the field.

LOCATION.

The best location for celery is a moist, cool spot, of rich loamy soil, protected from the wind and suitable for irrigation if possible. Enrich the soil heavily with well-rotted stable manure early in the spring. Give deep plowing and cultivate thoroughly, in order to have the ground mellow at time of transplanting.

TRANSPLANTING.

Several methods are in practice. Setting plants in trenches, in furrows, on the sides of furrows and on the level surface are methods employed by various growers. Our best success has been attained in the following way: Mark off rows four feet apart and furrow with stirring plow, turning the ridges in the same direction. Set the plants six inches apart on the side of the furrow next the ridge and a little above the bottom. In subsequent cultivation keep the furrow open and use it as a ditch in irrigating.

CULTIVATING AND BLEACHING.

Thorough cultivation should be the rule from the start. Permit no weeds to grow. If irrigation is practiced, the ground should be cultivated after each application of water.

When the plants have attained the proper size for use, the leaves are brought into an upright position by boards placed on either side of the row, so that they slope toward the plants at the top, or else by dirt drawn against the plants and packed firmly around them. The object of this is to cause the leaves to take an upright position and exclude the light from the heart of the plant, so that the later growth is white or "bleached." The process of bleaching requires from two to four weeks, depending upon the variety and time of year.

DIGGING AND STORING.

After the bleaching process is carried as far as desired, the plants are dug. For early celery, this may be in September or October, but the late crop should not be taken up until there is danger from freezing. The plants are usually lifted with a spade or potato fork, and the decayed outer leaves removed. They are then ready for storing. This may be done in a damp, cool cellar, or in trenches outside. If in the cellar, the roots should be bedded in moist sand or earth, leaving the plant to stand upright. Boards should be put in every eight or ten inches to separate the plants and allow ventilation. When the crop is stored outside, trenches are dug eight inches wide and deep enough to allow the tops to be even with the surface of the ground. For a cover, nail two boards together, making a trough. Set this over

the tops and spread on a light covering of hay. As cold weather increases, cover with earth to avoid all possibility of freezing. If sound when stored, celery treated in this way should keep until February.

VARIETIES.

We have as yet found nothing better than such well-known varieties as Dwarf Golden Heart, Golden Self Blanching, and White Plume.

There is no royal road to success in celery-growing; but painstaking, watchful efforts have been and will be successful whenever put forth. We are hoping for the increase of such efforts among gardeners and farmers in the business of celery-growing.

Hydrocyanic Acid as an Insecticide.

Feeling that in the use of this substance we have an elegant agent for the destruction of insect life, and that through its management not being well understood it has done and is likely to do much harm to plants under glass, thus discouraging its employment, I desire to present a few considerations concerning its use. The directions heretofore given are to employ one ounce of the cyanide for each fifteen cubic feet of space, with thirty minutes' exposure only. My experience, though somewhat limited, indicates a better and more satisfactory way, attended with no objectionable features.

For a house, say 100 feet long, 20 feet wide, with an average of six feet in height, containing 12,000 cubic feet, I would proceed as follows: Take two glazed vessels of about two quarts' capacity and measure into each six fluid ounces of commercial sulphuric acid (if by weight, ten ounces), with three times the measure of water. The mixture will heat but do no harm. These vessels are to be placed near the middle of each half of the house. Weigh out from a package of cyanide of potassium c. p. (chemically pure), which comes in sealed tin packages containing one pound each, resembling loaf sugar, and costing from 40 cents per pound upward, depending on the source from which obtained, two lots of six ounces each. Place each one on a paper by the side of a dish containing the acid and water. This preparation should be made at the close of a day when all is still.

Having closed the house go to the vessel farthest from the door just before dark and empty the contents of the paper into the acid mixture. Proceed to the other and repeat the operation there and walk out, closing the door, which is not to be opened until the next morning.

If you are very timid you can hold your breath and be active, but it will require five to ten minutes to complete the chemical action and the diffusion of the gas will take longer. It will, however, be all dissipated before morning.

It will be seen that instead of one ounce of the cyanide to 150 feet, this is one ounce to 1,000 feet, less than one sixth the strength heretofore used, but a much longer exposure under cover of darkness. This will render it much more reliable as an insecticide and be vastly less likely to injure tender plants. One half the strength, viz., one ounce to 2,000 feet may be sufficient for some insects, and I think it will be found that somewhere between these two limits lies the best strength for the different classes of insects with the least risk of injury to tender foliage.

In a recent case a tomato house badly infested with a species of Alerodes in all stages, from the egg just deposited to the full grown little white flies, a single application of the strength above given absolutely exterminated every individual, and for five weeks afterward not one developed and the plants were uninjured.—Dr. Jabez Fisher, in American Gardening.

The fact that hydrocyanic acid is one of the most efficient destroyers of the scale insects whose ravages are threatening the entire country, gives great interest to Dr. Fisher's suggestions as to methods of using it. It is necessary in case of outdoor plants and trees to throw a suitable tent over them. Hydrocyanic acid gas is deadly poison to man as well as to insects, and must therefore be handled with care.

Do Plants Transmit Their Qualities?

Editor Kansas Farmer:—A very interesting article appears in the Farmer of October 20. I refer to the article from M. F. Tatman, on the Kieffer pear. He says the pears sent him by W. A. The-manson were good, while his are not, yet they claim that they are both Kieffers. Now, if both are Kieffers, would each reproduce their kind? For years I have thought much over that subject. Are all trees of one variety equally valuable for propagating purposes? An or-

chard of Ben Davis apples will have one or two trees of special value; it may be in size, productiveness or keeping quality. Will scions from these trees transmit their qualities? A group of Concord grape vines has one that excels in the vigor of growth of vine and number and size of bunches. Will cuttings from it transmit those qualities? In the animal kingdom, one thoroughbred Short-horn cow is worth \$100, while another is worth \$1,000, yet both are pure-breds. Is it the same in the vegetable kingdom?

I would like to have an expression from the editor and leading horticulturists on that subject. J. B. DOBBS, Lima, O.

Pushing the Fruit Region of Missouri.

From the Mississippi Valley Democrat and Journal of Agriculture of June 23:

"The development of the fruit region of southwest Missouri has become a matter of world-wide interest, and all that has been done to make it so has been done within the last ten years. Ten years ago Missouri fruits were virtually unknown outside of local markets; now they appear not only in New York, but in London, Berlin and wherever else there is a demand for a first-class article. That the development of the fruit-growing regions of the State is only but begun, however, there is every reason to believe. Much of the prospect of future development is due to the aggressive and persistent pushing of such public-spirited Missourians as Mr. H. C. Townsend, who has recently put at the service of papers interested in the development of our splendid State a series of photo-engravings of the fruit district tributary to the Iron Mountain railroad. Mr. Townsend is General Passenger Agent of the Missouri Pacific system, but the only interest the railroads with which he is connected have in this work of development is the indirect one that by developing their tributary territory they will also develop their own possibilities of traffic and profits from it. That this wise and far-sighted policy will do more to popularize them than could be done in any other way it is unnecessary to say. The work of one man like Mr. Townsend in lines like these is worth more to any railroad than that of all the political lobbyists and 'fine workers' in existence could ever be. The pictures Mr. Townsend has had made up are from actual photographs and are faithfully engraved by photography. They report actual conditions in the most convincing way. They are thus worth more than any description could be. Work of this kind is in its infancy, and Mr. Townsend is one of the pioneers in it. He has set a good example of the best possible way to promote the development of the agricultural and transportation interests of the State."

Drawing a small bank of earth around the stems of young trees is a good preventive of mice girdling.



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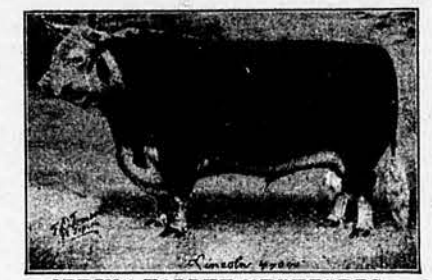
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In the Dairy.

Conducted by D. H. OTIS, Assistant in Dairying, Kansas Experiment Station, Manhattan, Kas., to whom all correspondence with this department should be addressed.

HOW MILK IS HANDLED AT THE AGRICULTURAL COLLEGE DAIRY.

Every effort is made to keep the stables clean, the stalls well bedded, and to have as little dust floating at the time of milking as possible. To accomplish this latter point, the feeding is done after, rather than before, the milking. The handling of the hay, ensilage or even grain, fills the atmosphere full of dust and carries with it millions upon millions of germs, many of which will fall into the milk, and not only cause it to sour, but will develop undesirable flavors in the butter and cheese made from it. The hay bacillus, a germ that has great tenacity of life, exists in immense quantities in cured hay, and when allowed to develop unchecked in ripening cream will cause the butter to have a very disagreeable, offensive flavor.

Before beginning to milk, each milker sees that his hands are clean, not merely that they look clean, but that they are as free as possible from germs. For this purpose it is often necessary to wash in hot water previous to milking. Each milker is provided with a cotton flannel cloth, which is moistened and used to wipe off the sides and udder of the cow. This removes the loose particles of dust and moistens the rest so that they will not so readily fall into the milk bucket. These cloths, as well as the cloth strainers, are thoroughly washed and sterilized with boiling water after each milking.

The milk pail used is called the "sanitary dairy pail," is made of heavy tin, and, as will be seen from the accompanying cut, is covered on top. In this cover is a six-inch hole, into which fits a circular removable strainer. The milk is



SANITARY MILK PAIL.

milked directly into this strainer. This style of milk pail keeps out of the milk the dust and hairs that fall in spite of the precautions already mentioned. Any one doubting the desirability of such a milk pail need doubt no longer after once seeing the appearance of the pail after milking. In spite of the best precautions, the top of the pail will be covered with numerous hairs and dust particles, enough to spoil the digestion of any man if he only knew what he was swallowing when he drinks milk out of an open-top milk pail.

Each cow's milk is weighed, sampled, and again strained through a wire strainer, and finally through four thicknesses of cheese cloth. From the accompanying cut, it will be noticed that this wire strainer is so constructed that

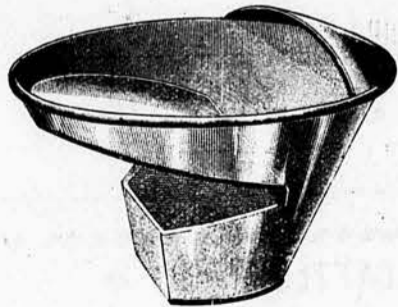


Fig. 1.

the milk is strained on an upward pressure. Any particles of dirt remaining in the milk and settling to the bottom will not be forced through the strainer by the pressure of the milk above.

From the cheese cloth strainer the milk is received into forty-quart milk cans. We have two styles of cans, the New York and the Chicago. We prefer the former, for two reasons. In the first place, the lid is oval and will not collect dust like the lid of the Chicago can, and can be cleaned much easier. In the second place, when it is desired to keep the milk any length of time, the New York

can can be immersed in water. The lid projects below the top of the can and the pressure of the air inside keeps the



Fig. 2.

UPPER PRESSURE MILK STRAINER.

water from the milk, on the same principle as the cans of the Cooley creamer.



NEW YORK CAN.



CHICAGO CAN.

The milk is brought to the dairy room as soon as possible after being milked and strained, and is aerated, a half a can at a time, with the Hill aerator. A tin pipe projects above the roof of the dairy room, where fresh air is secured and conducted through absorbent cotton (to remove any germs or dust particles) into bellows, where it is forced through the milk. Any one standing near the can of milk while this operation is being performed cannot fail to notice the cowy odor that is given off. This is kept up until the animal odor is removed. In this way nearly all the taints in milk, not due to germs, can be removed, and it has been found by experience that milk is much more digestible after being aerated. After aeration, the milk is cooled over a Star or Champion cooler to between 50° and 60° F., at which temperature it is kept until delivered to the college dining hall, the creamery or warmed up for the separator. When separation takes place immediately after

milking, the milk goes directly from the aerator to the separator without being cooled.

To some, and perhaps many of our busy readers, this process may appear long and tedious, but practical experience has proven that after once accustomed to it much of this work can be done in less time than it takes to tell it, and the difference in the quality of the milk is the difference between pure, wholesome milk and dirty, filthy milk. Straining through wire and cloth will not take out the dirt that has once become dissolved in the milk, nor will it remove the taints that arise from the feed. A man may have a right to use filthy and tainted milk if he wants to, but the consumers of both milk and its products also have a right to enter a vigorous protest against this same man selling his filthy milk as a pure food product. Milk adulterated with filth and dirt is to be condemned even more than butter adulterated with oleomargarine. Both are deceiving the consumers. While the dairyman is protesting against the manufacture and sale of oleomargarine as butter, and every true dairyman should be, let him at the same time make sure that he is not open to criticism by adulterating his milk with dirt or filth of any kind. D. H. O.

Fall Calving.

The greatest yield is obtained from cows that calve in the fall, if proper care, feed and shelter are provided during the winter. The prices of butter fat and butter are higher during the winter, and with cows fresh in the fall or early winter this higher price comes during the period of greatest yield.

A cow owned by the college gave the following yields of butter fat in pounds, by months, for ten months: 21.3, 31.9, 31.2, 30.5, 32.9, 29.0, 28.7, 28.8, 26.2, and 22.2. If this product had been sold to one of the leading Kansas creameries at the prices paid last year, and the cow had calved April 1, the returns would have been \$44.80, while if she had calved September 1, the same product would have brought \$49.44—a difference of \$4.64 for a single cow.

A cow that calves in the early fall on grass is in the best condition to make a high yield when fresh. Good feed and care through the winter will maintain a good yield, and when the cow is turned to pasture in the early spring a fresh flow will be started that will considerably increase the year's yield.

A cow that calves in the spring has the best milk-producing feed at a time when she will do well with any good ration. As the flow begins to slacken the quality of the feed grows poorer, and flies and heat help to cut it down still lower. In the fall when the milk begins to drop rapidly on account of the time from calving, the cow goes from green pastures to dry feed—a change that tends to reduce the yield and dry up the flow entirely. Winter dairying avoids injury to flavor of butter from weeds in summer and fall pastures.

Cows, with fair surroundings, can be made more comfortable in winter than in summer, and with fall calving will be dry when heat, flies and drought are severest and when butter prices are the lowest.

Winter dairying furnishes profitable employment for the farmer and his men at a season of the year when, without it, farm forces are either idle or work for low wages.

Another advantage of fall calving is that the calves can be raised at a season when there is time to give them that careful attention which is so great a factor in calf-raising by hand, when losses from heat, flies, diarrhea, and sour milk can be avoided and when, at weaning time, the calves can go from milk to green pasture without a check in growth.—From Kansas Experiment Station Bulletin No. 81.

November and December are the months in which cows should be bred for fall calving. Fall calving is specially advantageous where cheese is made. The milk can be used for butter-making through the winter, the skim-milk being fed to the calves. In the spring the calves are ready to be turned to grass and do not need skim-milk. The whole

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milk can then be used for cheese-making. With this system as good calves may be raised as if butter was made all the time, and during the spring and summer months good cheese usually brings more profit than butter.

Treatment of Cow Before Calving.

With most cows the highest yield for the year can be obtained by having them go dry six to eight weeks before calving. This is especially true of those cows whose milk is rich in butter fat, and continuous milking of such cows without rest before calving usually results in a serious lowering of the yield for the entire year following calving, and also frequently in a weak, puny calf. From these cows the most milk and butter fat can be obtained in a series of years by milking ten months in the year only. It is frequently the case with this class of cows that if milking is continued to the time of calving the milk of the last eight or ten weeks has a bad flavor and odor, is hard to churn and will injure the butter made from any milk with which it is mixed, and it is profitable to dry up the cow on this account as well as for the effect of the rest. Rest does not seem so essential for cows giving milk low in butter fat, and it is impossible to dry up many heavy yielders of thin milk without injury to the udder. In such cases the only reasonable plan is continuous milking; but if too much difficulty is not experienced in drying up this class of cows, it should be done, as better results will be secured by the rest. Dairy-men handling cows of the beef type have hard work to keep their cows in fair flow for the ten months, but with dairy cows, and the number is increasing in Kansas, the rest before calving should be provided for, and the general rule to follow is that the average dairy cow and the cow giving milk with a high per cent. of butter fat should go dry six to eight weeks before calving; and heavy yielders of milk low in butter fat may be milked continuously if there is much difficulty in drying them up.

To dry up a cow, reduce the feed, take away the grain, and when the milk yield drops, milk first once a day, then once in two days, and in one to two weeks the average cow will be dry and her udder in good condition. With persistent milkers there is seldom difficulty if hay only is fed for a time. If a cow continues to give milk under this treatment or if the udder is hard and feverish, the work of drying up must stop, and the ration be changed to a light milk ration, with loosening feeds, and the cow milked regularly. Forced drying up under these conditions injures the cow. If by oversight the drying-up process has been neglected until within three or four weeks of calving, do not attempt it, as there is risk of injury to the health of the cow and her udder.

After becoming dry, the cow will need little attention before calving if she is on good pasture, except to see that she has plenty of good water and shade, is comfortable and not annoyed or injured by other cattle, particularly steers. If the cow is on dry feed, more attention is necessary. She must be in fair condition but not fat, and should have bulky feeds—both roughness and grain—and succulent feed is exceedingly desirable, either ensilage or roots. One of the best grain mixtures for cows before calving is, by weight, two-thirds bran and one-third linseed meal. This grain mixture is a good one for the first two weeks after calving. Alfalfa hay is excellent for roughness. The bowels should be kept loose. This is essential and needs more attention than any other condition, and for this purpose roots and silage are very helpful. Corn and corn meal should not be fed.—From Kansas Experiment Station Bulletin No. 81.



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The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the Kansas Farmer. Give age, color and sex of animal, stating symptoms accurately, of how long standing, and what treatment, if any, has been resorted to. All replies through this column are free. In order to receive a prompt reply, all letters for this department should give the inquirer's postoffice, should be signed with his full name, and should be addressed direct to our Veterinary Editor, Dr. Paul Fischer, Professor of Veterinary Science, Kansas State Agricultural College, Manhattan, Kas.

RINGBONE.—I have a horse, about 7 years old, that has ringbone on right hind foot, said to have been there one year and to have been blistered once, but has left no sign. He is some lame, worse when first led out of stable. G. E. V. Coffeyville, Kas.

Answer.—This disease of the joints is in itself incurable. In some favorable cases, where the coronet articulation (the joint lying between the pastern and hoof joints) is alone affected, we can remove the lameness by producing an anchylosis (union of the bones forming the joint). This is practicable only in the joint named, and even in that case a slight stiffness of gait will remain. The anchylosis is produced by applying a blister, either in the form of an irritant ointment or the red-hot iron; this is followed by a period of absolute rest extending over four to eight weeks, and during which the patient must not be moved from the spot, not even to be watered, but must have food and water brought to it. After that period, if the anchylosis has been produced, the animal must be gradually accustomed to regular exercise and work. This must begin with a slow walk of a few hundred feet the first day, and gradually increased, day by day, until by the end of the week a trot of half a mile can be indulged in. This is the only rational method for treating this disease; and is successful in carefully-selected cases only. The personal examination and advice of a veterinarian would be very desirable in such a case, as he would know from the beginning whether or not it would probably pay to treat the case.

GARGET.—We have a young three-year-old heifer, three-fourths Jersey, dark in color, which has a bad case of garget—at least we suppose it is. In the first place, last year, just before she became dry, it was noticeable that there was some obstruction to one of the front teats, and we were obliged to "strip" when milking that one. When she came fresh this fall it was impossible to obtain any milk from the teat. We had it opened by a veterinarian, inserting a probe, then, by using a milking-tube, drew out all the milk. We were not able to keep it open, and some one advised us to insert a lead pin, which we hired a man to do. At first we thought it was going to work all right, but as the pins would sometimes come out, we found it was growing over again, and the last time the man inserted the pin it was a difficult task. Shortly after that, pus formed and discharged from that teat. A great deal of corruption has been discharged. The past few days it has ceased, but two lumps have formed, one in front of the teat and one between that teat and the other front one. The one in front has broken and discharges. Now, is it garget, or would that lead pin poison it? As we milk but one cow, we are anxious to know if there is danger in using the milk. The cow is in good health and the milk from the three unaffected teats looks as good as ever. As she is a fine cow, we are anxious to save the udder if possible, but do not wish to risk the health of the family. What would you advise us to do? **READER.** Topeka, Kas.

Answer.—This is a case of garget, that, by improper treatment, has developed into the suppurating or purulent form. Your treatment was proper until you began to apply the lead pin, which would also have been in accordance with sound principles of surgery had the pin each time been disinfected before being re-applied. Now two abscesses have formed as a result of infection by pus-producing micro-organisms. The abscess in front of the teat has opened naturally and is now discharging its contents; the one between the two front teats should be opened with a smooth incision of a knife as soon as it shows the slightest signs of becoming soft or containing liquid. Both abscess cavities should be thoroughly relieved of all their purulent contents by inserting a finger and otherwise manipulating the udder. Both should be sufficiently enlarged with a downward cut to provide thorough drainage of all their secretions and then injected twice or thrice daily with a 2½ per cent. solution of carbolic acid in water. If this treatment is carried out to the letter, healing

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 A Safe Speedy and Positive Cure
 The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. **SUPERSEDES ALL CAUSTIC OR FILING.** Impossible to produce scar or burn. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. **THE LAWRENCE-WILLIAMS CO., Cleveland, O.**

will soon follow. Now, as to the obstructed teat: Have the teat reopened by a veterinarian, and then, either follow his directions, or, milk this teat and also the three others, four or five times a day, as thoroughly as you know how. If there is a tendency to heal up again, procure thick carbolized catgut, cut into such lengths that after a knot has been tied at one end, the straight piece will be about one and one-half inches long. Preserve these pieces in carbolized olive oil (procureable from druggists) and use them as you did the lead pin. Apply a new one every day, otherwise you will have the same trouble that you had with the lead wire. The knot at the end of the catgut is to prevent its accidental slipping into the teat duct, out of reach. I would advise you not to use the milk from this cow until all abscesses have completely healed.

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The Farmer's Friend.
 C. C. More, Clyde, Kas., says he tried everything he knew to relieve a sick cow, when one of his neighbors brought Wasatusa and one dose relieved and cured the animal in thirty minutes.
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SEVENTY HEAD OF THOROUGHbred HOGS—Thirty-five sows, some bred and some not; thirty-five head of males from five to twenty-four months old. Both Berkshire and Poland breeds. These hogs are all first-class in every respect.
TERMS:—Sums of \$25 and under cash; over \$25 a credit of three months' time, on approved note with 8 per cent. interest from date; 5 per cent. off for cash on time sales.
 Also will sell at same time: One English Shire stallion, 12 years; one Hoosier wheat drill; one riding cultivator; one four-horse down-power and grist mill, on twelve months' time without interest. Sale at 10 a. m. sharp. Good lunch at noon.

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38 Bulls, 19 Cows and Heifers

Third Annual Sale Idlewild Herd.
 I will offer on WEDNESDAY, November 23, 1898,
 AT LIVERY BARN IN THE CITY OF
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75 Head of Registered Short-horns,
50 BULLS and 25 FEMALES.

All bulls but four range yearlings up to two years old. Cows with calves at foot, others bred to the undefeated show bull, Admiral 130-662. Sale opens at 1 o'clock p. m. Write for catalogue. Terms cash.

About two-thirds of the bulls are yearlings past, and big early fellows ready for heavy use. There are quite a number of pure Cruickshank breeding, both bulls and heifers. Send for catalogue. As Mr. Bothwell sells the preceding day, parties can arrange to attend both sales.

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Stock on Sale at Stock Yards Sale Barn, Also at Farm Adjoining City.
 N. B.—We have secured the services of John Gosling, well and favorably known as a practical and expert judge of beef cattle, who will in the future assist us in this branch of our business.

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Hereford Cattle. Short-horn Cattle.
47 BULLS AND 53 COWS AND HEIFERS. 30 BULLS AND 120 COWS AND HEIFERS.
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The Poultry Yard

Conducted by C. B. TUTTLE, Excelsior Farm, Topeka, Kas., to whom all inquiries should be addressed.

KANSAS STATE POULTRY ASSOCIATION. President, A. M. Story, Manhattan. Secretary, J. W. F. Hughes, Topeka.

Poultry Show—At Topeka, January 9 to 14, 1899 C. H. Rhodes, Judge.

Management for Eggs.

The price of eggs has been higher than usually known at this time of the year, and all the indications are, as it seems to us, that it will not be much less for some time...

What Shall We Feed? As the winter draws nigh, the question will be asked, "What shall we feed to insure the best results from our hens?"

bone. Be sure you get a good article when buying the commercial article. Diseased or tainted meat would do more injury than good.

Farmers, as a general thing, do not feed mash to their fowls in the morning. It certainly is a mistake not to do so.

If you have a farm boiler on the place, cook up every other day a quantity of turnips, beets, potatoes or other vegetables, and feed to the stock.

Clover hay, cut in one-quarter or one-half-inch lengths, cooked or scalded, and mixed with the mash, is also a valuable substitute for green stuff, and the hens love it.

Grit and charcoal are also valuable. On the farm will be found a lot of sharp, hard gravel which should now be carefully stored.

Cracked oyster shells should also be placed in troughs inside the house so that the hens can help themselves.

Now, if farmers will feed as above, provide good, warm houses, and keep them perfectly clean, and never let the supply of good, fresh water run out...

[The editor would prefer to feed the mash at evening, for this reason: If fed in the morning, the hens will fill themselves up on it and be lazy all day long.]

The Morning Ration.

Fifteen years' careful consideration of the question has convinced me of the importance of making the morning mash as dry as possible.

The hen is a very light drinker when not hampered as to its drinks; unless restricted from water a considerable period, will never take much water into its crop at one time.

For many years I have followed the plan of stirring more and more of the dry feed into the scalded mess until at last it would emerge as crumbly and to outward semblance nearly as dry as before wetting.

A Woman's Burden.

This is a story of a woman addressed to women. It is a plain statement of facts too strong in themselves to require embellishment, too true to be doubted, too instructive to be passed over by any woman who appreciates the value of good health.

The women of to-day are not as strong as their grandmothers.

They are bearing a burden in silence that grows heavier day by day; that is sapping their vitality, clouding their happiness, weighing them down with the woe of ill health.

Mrs. Alexander B. Clark, of 417 Michigan Avenue, Detroit, is a typical woman of to-day. A wife with such ambition as only a loving wife can have. But the joys of her life were marred by the existence of disease.

Suffering as thousands of her sisters have suffered, she almost despaired of life and yet she was cured.

To-day she is well! She wants others to profit by her experience; to grow well; to enjoy health; to be as happy as she is.

"For five years I suffered with ovarian trouble," is Mrs. Clark's own version of the story. "I was not free one single day from headache and intense twitching pains in my neck and shoulders."

"At times black spots would appear before my eyes and I would become blind. My nerves were in such a state that a step on the floor unsettled me."

"Eminent doctors, skillful nurses, the best food and medicine all failed. Then I consented to an operation. That, too, failed and they said another one was necessary. After the second I was worse than ever and the world was darker than before."

"It was then I heard of Dr. Williams' Pink Pills for Pale People. I heard that they had cured cases like mine and I tried them."

"They cured me! They brought sunshine to my life and filled my cup with happiness."

"The headache is gone; the twitching is gone; the nervousness is gone; the trembling has ceased, and I have gained twenty-six pounds."

"Health and strength is mine and I am thankful to Dr. Williams' Pink Pills for Pale People for the blessing."

Dr. Williams' Pink Pills have proved a boon to womankind. Acting directly on the blood and nerves, they restore the requisite vitality to all parts of the body, creating functional regularity and perfect harmony throughout the nervous system.

The pallor of the cheeks is changed to the delicate blush of health; the eyes brighten; the muscles grow elastic, ambition is created and good health returns.

Dr. Williams' Pink Pills are sold by all druggists, who universally consider them the most important remedial agent they have to dispense.

often cause them to turn away. Again, the question arises, why feed any ground food at all, especially as hens are known to thrive when only whole grain is furnished? And the answer is that it is a matter of economy and the correct balancing of the ration that renders a mixed and moistened ration once a day desirable.

After drudging over these pails of mixed feed, a matter of some ten or fifteen minutes, for many years, I was in just the frame of mind one day during the last Boston show to welcome any relief from a task so irksome.

My most approved ration for fowls of all ages, unless it is desired to develop flesh rather than eggs or growth, is as follows: Fourteen quarts of the coarsest bran, four of corn meal, two of ground oats and four of meat meal.

We have observed that the best fowls for farmers, as flesh- and egg-producers are Plymouth Rocks, Wyandottes, Langshans and Light Brahmas, says Poultry Journal.

Poultry Suggestions.

We have observed that the best fowls for farmers, as flesh- and egg-producers are Plymouth Rocks, Wyandottes, Langshans and Light Brahmas, says Poultry Journal. For eggs alone, Leghorns, Minorcas, Andalusians and Hamburgs. These are the leading farm breeds, and may be made to do well with good, intelligent farm management, but do not expect to reap all the benefits from a certain breed of fowls.

THE IMPROVED VICTOR Incubator. Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market.

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ning at large, it should be remembered that the hen will be supplied with egg-hell material, but when confined in winter, they should be provided that material, and there is no better time than right now to begin to arrange for supplying it. Cut raw bone is one of the best materials for them. Table scraps will aid largely in egg production. The buildings should be so constructed that the living and scratching room should face the south. The roosting room should be made as warm as possible and the scratching room should be dry and provided with plenty of litter. It is as natural for a hen to scratch as it is for a schoolboy with the itch, and both must have an occasion to do so. The building can be made a great deal warmer by employment of tar paper and the windows may be double. The interior should be so arranged that it can be readily cleaned out, and this should be attended to regularly, and it may also be arranged to suit the convenience of the owner. Some like to do all the work on the interior of the poultry house from the passage-way, and other equally as successful poultry breeders will not have the passageway in the house. When the fowls are in their winter quarters it will be found better to have the nests in a dark and secluded place, if such can be arranged for. Of course, the drinking fountain and the box of grit.—Farmer's Review.

Gobblers for Next Year.

Get rid of all male turkeys as soon as the market opens full for that class of stock, and get a male from some source which will insure against the possibility of his being related to the hens, says the Poultry Keeper. If a gobbler has a dash of the "wild" blood in him, say one-fourth, it will be an advantage. The use of young gobblers should be avoided. One that is two years old should be preferred to a yearling. The hens may be as young as one year, but if older it will be better. The point should be to secure vigor in the young ones, and as in breeding and the use of immature parents has done much to cause loss to the young ones hatched in the past, it is important to secure strong young turkeys in order to be able to raise a larger number than is usually done every year. The loss of a single young turkey in a brood is quite an item, considering its value for market when it matures, and the safest way to prevent loss is to begin with the breeding stock and secure vigor.—Farmer's Review.

The constitution and by-laws of the Western Pet Stock Association (G. G. Burton, Topeka, President, and J. P. Lucas, Topeka, Secretary), has just reached this office. Article 2, section 1, states the object of the association to be "The perfection of the National Standard of Perfection, and to consider and discuss all matters of a national character regarding the pet stock interest at large." From the list of membership, we judge it to be made up of the breeders of pigeons, dogs, Belgian hares and pet stock in general outside of poultry; although a few of the members breed poultry in connection with their pet stock. A show will be given at Topeka, November 21-26, 1898. Success to you, gentlemen. For further particulars, address the Secretary, J. P. Lucas, Topeka, Kas.

Coming Poultry Shows.

- Kansas State Poultry Association.—J. W. F. Hughes, Secretary. At Topeka, January 9 to 14, 1898. C. H. Rhodes, judge.
- Wichita, State Fair, Kansas.—H. O. Toler, Secretary. Wichita, Kas. September 19-24, 1898. C. H. Rhodes, judge.
- Garden City Poultry and Pet Stock Association.—A. S. Parson, Secretary. Garden City, Kas. Show December 27-30, 1898. John C. Snyder, judge.
- Abilene Poultry and Pet Stock Association.—Roy O. Shadinger, Secretary. Abilene, Kas. Second annual exhibit, at Abilene, January 25-28, 1898. Theo. Sternberg, judge.
- Butler County Fancy Poultry and Pet Stock Association.—C. H. Pattison, Secretary and Treasurer. El Dorado, Kas. Second annual exhibit at El Dorado, Kas., December 20-23, 1898. C. H. Rhodes, judge.
- Topeka Fanciers' Association.—L. V. Marks, Secretary. Topeka. Exhibit January 9-14, 1898, in connection with State show.
- Horton Poultry Show.—J. Chase, Willis, Kas., Secretary. November 21-24, 1898. C. H. Rhodes, judge.
- Northwest Missouri Poultry Association.—E. V. Glenn, Kingston, Mo., Secretary. Kingston, Mo., November 24-26, 1898. C. H. Rhodes, judge.
- Ottawa County Poultry Association.—Mrs. D. Collister, Bennington, Kas., Secretary. Bennington, Kas., November 28-30, 1898. C. H. Rhodes, judge.
- Manhattan Poultry Association.—S. J. Norton, Manhattan, Kas., Secretary. Manhattan, Kas., December 1-3, 1898. C. H. Rhodes, judge.
- Mitchell County Poultry Association.—A. Whitney, Beloit, Kas., Secretary. Beloit, Kas., December 6-10, 1898. C. H. Rhodes, judge.
- Smith County Poultry Association.—S. C. Stevens, Smith Center, Kas., Secretary. Smith Center, December 12-13, 1898. C. H. Rhodes, judge.

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Horse Blankets are made in all styles—to fit any horse—to suit any purse. Ask your dealer for SJA Bias Girth Blankets, and look for the trademark. A book on the subject sent free.

W. M. AYRES & SONS, Philadelphia.

- Arkansas Valley Poultry Association.—Mrs. H. P. Swerdfefer, Wichita, Kas., Secretary. Wichita, Kas., December 13-18, 1898. C. H. Rhodes, judge.
- Garfield County Poultry Association.—A. F. Rusmiser, Enid, Okla., Secretary. Enid, Okla., December 24-25, 1898. C. H. Rhodes, judge.
- Chase County Poultry Association.—C. M. Rose, Cottonwood Falls, Kas., Secretary. Cottonwood Falls, December 27, 1898, to January 1, 1899. C. H. Rhodes, judge.
- Rooks County Poultry Association.—N. N. Neher, Stockton, Kas., Secretary. Stockton, Kas., January 2-5, 1899. C. H. Rhodes, judge.
- Glasco Poultry Association.—M. E. Potts, Glasco, Kas., Secretary. Glasco, Kas., January 5-7, 1899. C. H. Rhodes, judge.
- Central Oklahoma Poultry Association.—H. F. Stephenson, Kingfisher, Okla., Secretary. Kingfisher, Okla., January 16-21, 1899. C. H. Rhodes, judge.

POULTRY SUPPLIES.

The Peerless brand of Crushed Oyster Shells, Bone Mills, Tarred Roofing, poultry foods and remedies. Poultry Netting, etc., etc. Write for price list to T. Lee Adams, 417 Walnut street, Kansas City, Mo.

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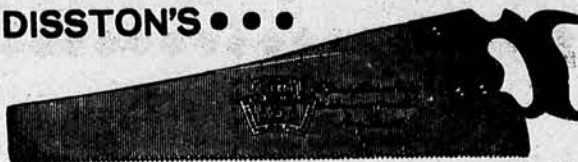


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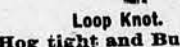
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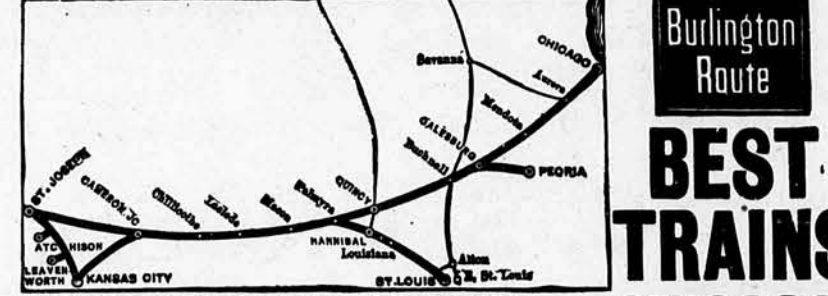
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SUNNY SLOPE SALE

— OF —

REGISTERED HEREFORD CATTLE

TO BE HELD AT KANSAS CITY STOCK YARDS, KANSAS CITY, MO.,
ON WEDNESDAY, DECEMBER 7, 1898,

at which time I will offer

100 HEAD OF BULLS AND HEIFERS

of the Highest Quality and Most Fashionable Breeding.

The sale will include all of my Omaha Show Herd excepting my imported breeding bull, Keep On.

In 1899 I expect to show only a calf herd, as I will have about sixty calves sired by Wild Tom and the bulls that I imported last year, out of which I shall make a selection to show as a young herd.

There will be sold a son of Beau Real, 3 years old (a half brother of Wild Tom), and at least four young Beau Real cows, including Beau Real's Maid, the well-known show cow. Beau Real died on my farm, and I am the only breeder that can offer any of his younger get. Included in the sale will be Diana, the yearling heifer, winner of first at five State fairs in 1897, and first in class and first over all beef breeds at Omaha this year; Climax 4th, winner of many prizes as a bull calf and yearling; Miss Grove 2d, second in class and second over all beef breeds at Omaha, the only time shown. I will also sell Climax 60942, himself a show winner and the sire of many good ones, including Climax 4th and Miss Grove 2d. I am offering the very best of the young males and females that I own, believing that as I have the same sires and dams, I can produce just as good ones another year.

A fact that has not been fully emphasized is that there is a multitude of cattle of cheap quality and but few really good ones. Those farmers and range men who have in the past bought pure-bred animals to keep in their herds are the ones who are reaping the benefit of the present good prices for good cattle. As an illustration, Mr. R. Walsh, who for many years kept up his supply of pure-bred bulls, sold at public sale in Kansas City in October 400 spring heifer range calves at \$37 per head.

At my spring sale I received the highest average of recent years for one, five, ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety and one hundred head. I do not say this as giving any idea as to what the present cattle will average, but only to emphasize the two facts that my cattle are of the very highest quality, and more especially that this present offering will consist of animals equally as good in quality and breeding.

I do not expect any fancy prices, but do feel that breeders will pay fair value for superior quality. I have put into the sale animals to fill the desires of all. There are aged bulls, young bulls and bull calves, cows that have calves at foot, heifers bred and unbred, and heifer calves.

I will be very glad indeed to see present all those who have been corresponding with me this fall, and expect all those who attended my sale last spring to come again and bring their friends.

If you have not received a catalogue, send for one to

C. S. CROSS, Emporia, Kas.