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BREEDERS' DIRECTORY.

Cards will be inserted in the Breeders' Directory as follows: Four line card one year, $16.00; six lines, $23.00; ten lines, $30.00; each additional line $3.00. A copy of the paper will be sent to the advertiser during the continuance of the card.

CATTLE.

ENGLISH RED POLLED CATTLE—PURE-BRED. Young stock for sale. Your orders solicited. Address L. K. Haseltine, Dorchester, Green Co., Mo. Mention this paper when writing.

NEOSHO VALLEY HERD OF SHORT-HORNS.—Imported Lord Lieutenant 120019 at head of herd. Young bulls and heifers for sale. Address D. P Norton, Council Grove, Kas.

SCOTCH SHORTHORN CATTLE—Cows, heifers and young bulls for sale. Herd headed by **Imperial Knight 119669** and **Duke of Walnut Grove 127010.** Inspection invited.
JOHN McCOY, Sabetha, Kans.

H. R. LITTLE, Hope, Dickinson county, Kans., breeder of Shorthorn cattle. Herd numbers 100 head.
FOR SALE:
TWENTY-FIVE SHORTHORN BULLS OF SERVICEABLE AGE.

ROCKY HILL SHORTHORNS—Six finely bred red bulls for sale, a year old in April. To make room on the farm for Pure-breds we are now offering for sale fifty head of very high-grade Shorthorn cows and heifers, thirty-five of which have been bred to registered bulls. Are also offering one choice registered Hereford bull 7 years old, and twenty-five high-grade Hereford cows and heifers, twenty of which have been bred to above Hereford bull. J. F. True & Son, Newman, Kans., on the U. P. R. R., twelve miles east of Topeka.

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PROSPECT FARM.—CLYDESDALE STALLIONS, SHORT-HORN CATTLE, and POLAND-CHINA HOGS. Write for prices of finest animals in Kansas. H. W. McAfee, Topeka, Kas.

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J. U. HOWE, Wichita, Kas., Maple Ave., Herd Duroc-Jersey hogs Choice stock for sale. Reasonable prices. Personal inspection and correspondence invited.

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Silver Spring Herd Poland-China Hogs.
Headed by HADLEY'S MODEL T. Bred sows, gilts and boars of choicest breeding for sale. Address WALTER ROSWURM, Beman, Morris Co., Kas.

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Breeder and shipper of thoroughbred **Poland-China** and **Large English Berkshire** swine and **Silver-Laced Wyandotte** chickens.

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PURE AND FINE.
J. C. WITHAM,
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FOR SALE—Bronze turkeys, Barred Plymouth Rocks, Black Langshans and Embden geese. None but good stock shipped. Write for what you want. Mrs. James D. Dyer, Hoffman, Mo. Shipping point, Warrensburg.

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150 BARRED PLYMOUTH ROCKS and SILVER-LACED WYANDOTTES FOR SALE
Buy now and save higher prices next spring. They are from birds that have won prizes wherever shown. For prices, etc., address **J. P. Johnson,** JUNCTION CITY, KAS.

GOLDEN WYANDOTTES EXCLUSIVELY.
Fifteen choice cockerels from high-scoring hens, mated to a 93½ score bird. Write us for prices. They will be low for the birds.
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Barred Plymouth Rocks, White Plymouth Rocks, Partridge Cochins, White Cochins, Buff Cochins, Light Brahmas, Silver Wyandottes, White Wyandottes, Black Javas, Brown Leghorns, White Leghorns, Buff Leghorns, Silver Spangled Hamburgs, Pekin Ducks and Pearl Guineas. Single Birds, Pairs, Trios and Breeding-Pens. Extra Fine Breeding and Exhibition Birds. Also, Pet Deer. Prices reasonable. Write me your wants. **A. H. DUFF, Larned, Kas.**

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ORCHARD PARK POULTRY YARDS—Barred Plymouth Rocks from prize-winning birds. Cockerels and pullets $1 to $2 each. Eggs 13 for $1. Mrs. J. R. Whitney, 1411 Massachusetts street, Lawrence, Kans.

WHITE WYANDOTTE HAS NO EQUAL AS AN all-purpose fowl. I have first prize, high-scored birds, pure-bred stock, and eggs from best pens for sale. Prices reasonable. Address Jeff. Payne, Hutchinson, Kans.

D. A. WISE, BREEDER OF BLACK LANGSHANS AND PEKIN DUCKS—
TOPEKA, KANSAS.
Eggs in season, $1.50 per sitting. Residence and yards south of Highland Park.

Silver Wyandottes.
We are selling eggs from our prize-winners scored by Shellabarger & Savage, $2 for 15; $3.50 for 30. White P. Rock eggs, $1 for 13.
R. F. MEEK, Hutchinson, Kans.

CANFIELD'S WHITE PLYMOUTH ROCKS WON first pen, first cock, first cockerel and first hen at the Kansas State Poultry Show, 1899, besides the grand sweepstakes for best ten birds in the American class. Eggs, $2 for 15, $5 for 45. M. L. Canfield, Belleville, Kans.

WHITE HOLLAND TURKEYS,
ROSE-COMB WHITE LEGHORNS,
Barred Plymouth Rocks, Golden Sebright Bantams, Imperial Pekin Ducks.
Eggs in season. Breeding stock for sale.
J. C. CURRAN, Curran, Harper Co., Kans.

M. B. TURKEYS AND B. P. ROCKS.—At Topeka state show, I won first and second tom; first and second pullet; second hen; first pen; first trio, and sweepstakes for best display. On B. Rocks, third pen, third pullet, in competition with 87 Rocks and 10 pens. At Kansas City, won first and second pullet, first tom. Stock for sale. Fine cockerels, $1.50, $2 and $2.50 each. Booking egg orders now. Rocks, $2 per 15; $1 per 15 for utility. Per 100. $10 and $6. Turkey $3 per 9; $5 per 18. Mrs. F. A. Hargrave, Richmond, Franklin Co., Kans.

ROSE POULTRY FARM—J. M. & C. M. Rose, Elmdale, Kans., breeders of Light Brahmas. Yard, 92¼ cockerels; females 92 to 94¼. B. P. Rocks, yard, 91½ cockerels; females 90 to 92½. W. C. B. Polish, 92½ cockerel; hen 93 and 94. S. C. B. Leghorn, yard No. 1, 93½ cockerel, first prize at Sedgwick, Cottonwood Falls '98, and Topeka '99; females 92½ to 94. Yard No. 2, headed by cock 94½ as a cockerel last year; pullets 92¼ to 94. We have some fine Light Brahma cockerels for sale. Eggs $1.50 per sitting of fifteen.

H. T. FORBES. L. C. FORBES.
....Breeders of....
THOROUGHBRED BUFF COCHINS
Eggs and stock from prize-winners at Kansas State Poultry Show, January, 1899. Write for description and prices. Address
H. T. & L. C. FORBES, Topeka, Kans.

50 COCKERELS FOR SALE
—AT—
EXCELSIOR FARM.
Must sell to make room for breeding stock. Buff Cochins, Black Langshans, White P. Rocks, Barred P. Rocks and White Wyandottes. Prices from $1.00 up, according to quality. Order quickly and get your choice. **C. B. TUTTLE, Proprietor, Topeka, Kans.**

ROCKS WHITE and BLUE BARRED
Five Pens—Three Barred, Two White.
One pen headed by E. B. Thompson Ringlet cockerel; one by a grand Lash cockerel; one by a bird of the Conger strain. My White Rocks are from Madison Square Garden winners—large, pure white birds. Eggs, $1 for 13, $2 for 30, $3 for 50, $5 per 100. White Guinea eggs same. Write for descriptive circular and prices. Printed recipe for making and using Liquid Lice Killer, 25 cents. Address
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SWINE.

D. TROTT, ABILENE, KAS., famous Duroc-Jerseys and Poland-Chinas.

KAW VALLEY HERD POLAND-CHINAS—One of the best sons of Chief I Know at the head. Pairs and trios not akin; of all the leading strains. M. F. Tatman, Rossville, Kas.

M. H. ALBERTY, CHEROKEE, KAS. Breeder of Registered **DUROC-JERSEY SWINE.**
Baby Pig Teeth Clippers, 35 cents by mail.

DUROC-JERSEY HOGS—Registered Stock. Send stamp for 64-page catalogue, illustrated. Prices and history.
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CRESCENT HERD POLAND-CHINAS.
Boars and gilts for sale.
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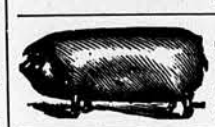
SWINE.

RIVERDALE HERD of Chester White swine and Light Brahma poultry. J. T. LAWTON, BURRTON, KAS., proprietor. All stock guaranteed. I can also ship from Topeka, my former place.



D. L. BUTTON, North Topeka, Kas., breeder of **Improved Chester Whites.** Stock for sale. Farm 2 miles northwest of Reform School

Standard Herd of Poland-Chinas
Has some fine sows, 1 year old this fall, sired by Tecumseh Chief (he by Chief Tecumseh 2d), and are bred to Look Over Me (he by Look Me Over); also, an extra lot of Spring Gilts, bred the same, and some good Spring Males of the same breeding. Come and see, or write and get prices. **Wm. McGuire,** HAVEN, KAS.

H. W. CHENEY, North Topeka, Ks.
POLAND-CHINAS
of the fashionable prize-winning Chief I Know strain. Cheney's Chief I Know at head of herd. Pigs for sale. Prices low.

T. A. HUBBARD,
Rome, Kansas,
Breeder of
POLAND-CHINAS and LARGE ENGLISH BERKSHIRES. Two hundred head. All ages. 25 boars and 45 sows ready for buyers.

Wamego Herd Imp. Chester Whites and Poland-Chinas.
Mated for best results.

Also **Barred Plymouth Rock** chickens and eggs for sale. Correspondence or inspection invited. Mention FARMER.

C. J. HUGGINS, Proprietor, Wamego, Kas.

THE SEDGWICK NURSERY CO.,
Sedgwick, Harvey Co., Kas.,
—Breeders of—
Short-horn Cattle and Poland-China Swine
Of the Best Strains.
Stock for sale. Correspondence and inspection invited.

VERDIGRIS VALLEY HERD—Large-Boned Poland-Chinas.
Three hundred head, six good spring boars, good bone, large and growthy, very cheap. Six June boars, very heavy bone and fancy, four of them will make herd-headers. Twenty yearling sows and spring gilts, bred, good ones, at from $12 to $15. One hundred and fifty of the finest fall pigs we ever produced. For sale cheaper than you ever bought as good pigs before. WAIT & EAST, Altoona, Wilson Co., Kans.

M. C. VANSELL,
Muscotah, Atchison, County, Kansas,
Breeder of Pure-bred Poland-China Swine and Shorthorn Cattle of the most desirable strains.
For Ready Sale Thirty Poland-China Bred Sows
One and two years old, bred for fall farrow; very choice; price low if ordered soon; must make room for 170 pigs now on hand. Come and see or write.

THE WILKES QUALITY HERD OF
POLAND-CHINA SWINE.
Thos. Symns, Prop., Hutchinson, Kas.
Herd boars, Darkness Quality and Reno Wilkes. For ready sale 45 very choice pigs out of Bessie Wilkes, Beauty Sedom, Chief I Know, Standard Wilkes, Ideal Black U. S. and Chief Tecumseh 2d sows. Farm one mile west of Hutchinson, near Star Salt works.

F. L. and C. R. OARD, Proprietors,
HEDGEWOOD HERD OF POLAND-CHINAS
VASSAR, KANSAS.
Popular Blood. ——— **Individual Merit.**
Brood sows of the most popular strains and individual merit. The best that money can buy and experience can breed. Farm one and one-half miles south and half mile east of Vassar, Kas., on Missouri Pacific railroad.

PLEASANT VALLEY HERD
REGISTERED POLAND-CHINA SWINE
For sale, King Perfection 4th 18744 S. and Lambing Ideal 14050 S. Also sows bred to above boars or Dandy U. S. by Frazur's U. S. by Frazur's Black U. S., dam Black Beauty by Ben Harrison, sire Charley F., brother to Look Me Over. Write for particulars. Address either
W. E. JOHNSON, Colony, Kas. **E. A. BRICKER,** Westphalia, Kas.

SWINE.

BERKSHIRE, Chester White, Jersey Red & Poland China PIGS. Jersey, Guernsey & Holstein Cattle. Thoroughbred Sheep, Fancy Poultry, Hunting and House Dogs. Catalogue.
S. W. SMITH, Cochranville, Chester Co., Pa.

HIGHLAND HERD.
Five Poland-China boars for sale at prices lower than we have ever offered. Two by Highland Chief, he by C. T. 2d, one by Knox All Wilkes, two by Silver Chief 2d. Anybody wanting a boar write at once.
DIETRICH & SPAULDING,
Richmond, Kas.

BLUE MOUND HERD
BERKSHIRE SWINE.
Herd boars, Victor Hugo 41799 (sire imp.), Barkis 30040 (weight 800 lbs.), Prince Jr. 17th, from World's Fair winner. Choice pigs from five different strains. Also breed Shropshire sheep, M. B. turkeys and B. P. Rock chickens. Write.
Allen Thomas, Blue Mound, Linn Co., Kas.

W. P. GOODE & SONS, Lenexa, Johnson Co., Kans., breeders of Pure-Bred Poland-Chinas. For sale now a grand lot of pigs by Combination F F. 18069. He combines the "first families"—Chief Tecumseh 2d and Black U. S. We have the produce of the greatest Poland-China hogs in the world always on hand. Prices moderate.


CATTLE.

CENTRAL KANSAS STOCK FARM.—F. W. ROSS, Alden, Rice Co., Kas., breeds pure-bred Shorthorns, Poland-Chinas and Barred Plymouth Rocks. Stock for sale.

NORWOOD SHORT-HORNS—V. R. Ellis, Gardner, Kas. Rose of Sharons, Lady Elizabeths and Young Marys. Richest breeding and individual merit. Young bulls by Godwin 115676 (head of Linwood herd). Sir Charming 4th now in service.

MAPLE LAWN HEREFORDS.
E. A. Eagle & Son, Props., Rosemont, Osage Co., Kas.
For sale, five yearling pure-bred bulls. Also one carload of high-grade cows and one car bull calves. Will be in Kansas City with young bulls for sale February 28, 1899.

Geo. Groenmiller & Son,
Centropolis, Franklin Co., Kas.,
Breeders of Red Polled Cattle and Cotswold Sheep, Buff and Partridge Cochins, Light Brahmas, Brown S. C. Leghorns and Golden Wyandottes.
A few seven-eighths Red Polled bulls for sale.

CLOVER CLIFF FARM.

Registered **Galloway Cattle.** Also German Coach, Saddle and Trotting-bred horses. World's Fair prize Oldenburg Coach stallion, Habbo, and the saddle stallion, Rosewood, a 16-hand, 1,100-pound son of Montrose, in service. Visitors always welcome. Address
BLACKSHERE BROS., Elmdale, Chase Co., Kas.

SILVER CREEK HERD
SHORT-HORN CATTLE.
Scotch and Scotch-topped, with the richly-bred Cruickshank bulls, Champion's Best 114671 and Gwendoline's Prince 130913, in service. Also high-class **DUROC-JERSEY SWINE.** Can ship on Santa Fe, 'Frisco and Missouri Pacific railroads.
J. F. STODDER, Burden, Cowley Co., Kans.

D. P. NORTON,
Breeder of Registered Shorthorns,
COUNCIL GROVE, KANSAS.
Imp. British Lion 133692 and Imp. Lord Lieutenant 120019 in service. Sixty breeding cows in herd. Lord Lieutenant sired the second prize yearling bull at Texas State Fair, 1898, that also headed the second prize herd of bull and four females, any age, and first prize young herd of bull and four females.

RIVERSIDE STOCK FARM.
Percheron and Roadster Horses and Shetland Ponies; also one Denmark Saddle Stallion; also Shorthorn Cattle. Stock of each class for sale.
Also a car-load of young Shorthorn bulls for sale. Pedigrees guaranteed. Address
O. L THISLER, Chapman, Kas.

Agricultural Matters.

SEED BREEDING AT THE KANSAS EXPERIMENT STATION.

A. S. HITCHCOCK

The Experiment Station of the Kansas State Agricultural College commenced, last year, a series of experiments upon seed breeding. A brief statement of the plan and the results so far accomplished may be of interest to the readers of the Kansas Farmer. Most of us are familiar with the wonderful results obtained in the breeding of domestic animals. The races or varieties of animals are plastic in the hands of the breeder. He can, from the same race of cattle, make one breed that is suitable for beef and another that is suitable for milk production. He can alter the size, shape, color, markings, or any other character, to suit his tastes or the requirements of mankind. In doing this he follows certain well-known laws which are more or less familiar. Plants are just as plastic in the hands of the grower, and characters can be altered just as easily. The florist is perfectly familiar with the laws which have enabled growers to produce the marvelous results in the cultivation of such plants as the chrysanthemum and carnation. The growers of garden vegetables are constantly producing and placing upon the market new varieties of vegetables. In the not far distant past these new varieties were to a considerable degree accidental. But the systematic production of varieties according to definite laws is growing more common. Little, however, has been done at the Government experiment stations along this line, nor have the staple crops of the Western farmer received much attention. There is a large field for investigation in such plants as corn, wheat, and other cereals, which the Kansas station hopes to invade.

In breeding corn we wish, on the one hand, to produce varieties which will be more productive or which will be better adapted to our climate than those we now have, and, on the other hand, to produce a variety which will be richer in protein. The productiveness may be increased by increasing the weight of the kernels from each stalk. The ordinary methods of seed selection practiced by corn-growers have increased the size of the ear. A more promising method for increasing the yield is to increase the fertility of the plants. If every stalk could be made to produce a moderately large ear, the yield would be increased many times. To do this, a careful study of the subject is necessary, a study which can not usually be made by the private individual, from lack of facilities. The same may be said of the production of varieties adapted to Kansas conditions.

It is well known that the proportion of protein in corn is small (100 parts contain about 11 parts of protein). Protein is the most extensive ingredient of feeding-stuffs, and even a small increase in this would be of great value. To do this it is necessary to select with reference to the chemical composition of the seed.

The production of a new variety is based upon seed selection, but judicious crossing will frequently induce variation, and by selecting from the results of these crosses the variety having the wished-for combination of characters can often be quickly obtained. When a large number of crosses is to be produced it is necessary that the work be done by hand. Hence the need of careful and conscientious workers.

During the past season a number of desirable samples of field corn were obtained from various localities in the State and planted for crossing. About thirty samples were used. With this number it would be possible to make 870 different crosses, each being crossed with every other one, using each sample as both staminate and pistillate parent. In order to insure success, several of each kind of cross were made. Owing to the lack of skilled labor not all the possible crosses were attempted, and, owing to the same cause, the per cent of successful crosses was lower than it should have been. Where so many crosses were to be made is was necessary that the work should be done by hand. Before it was receptive the silk was covered with a sack. When mature, the silk was dusted with pollen obtained from the staminate parent and the sack replaced to prevent contamination from other plants. The crosses thus obtained will be planted this season and any promising varieties retained for further experiment. It is hoped that arrangements can be made for the co-operation of corn-growers, in order that certain varieties can be tested or certain crosses can be made on a larger scale than is practicable on the grounds of the experiment station.

In the wheat-breeding experiments, 62 crosses were made. Sixteen thousand seven hundred and sixty-two flowers were crossed, producing 3,701 grains, which shows an average of 22.07 per cent successes. The grains obtained were planted individually in pots in a cold-frame, afterwards transplanted and are now doing well.

It is hoped that the work can be extended in the future to include other plants. The experiments should be carried on for a series of years in order to reach the highest degree of success. At present the work is hampered by the small amount of funds available for its prosecution.

The Economy of Cutting Corn and Feeding the Fodder.

(Continued from last week.)

Editor Kansas Farmer:—The manner of cutting corn fodder differs with different persons, but the cheapest way to put it in the shock, in the best and most substantial manner, is the best plan to follow. Corn should be cut up just as soon as the husks loosen up and allow the air in around the ear and cause the kernels to ripen up and shrink, or dent, as it is usually called. As soon as this air circulation is established around one-half of the ears the corn will do to cut up at once while the fodder is green. I have tried all the various sleds for cutting, and the three leading twine binders, but I greatly prefer hand cutting. If one owns his own binder I would say use it, but where one has to hire his corn cut he would naturally hire the cheapest. Twine binders cost 50 cents per acre to hire here, and it is worth 25 cents per acre to shock after them, and this year the twine cost 50 cents per acre, and one is expected to board two men and eight horses, which makes the cost per acre as follows:

Cost of binder	$ .50
Cost of twine	.50
Cost of shocking	.25
Cost of board	.25
Total cost per acre	$1.50

In any country where hand labor is plenty, any number of hands can be employed to shock corn at 5 cents per shock, 14 by 14 hills square, and they will board themselves, and as there are just sixteen shocks of this size per acre, it makes the cost of hand cutting 80 cents per acre, as compared with $1.50 for the machines. A good hand will cut 30 to 40 shocks per day and will average an acre per day under all conditions of weather. A good hand will cut up the corn clean, will not break off any ears, and will put it into a good shock that will stand up during the winter, and when he quits at night the cut corn is safe from the effects of a storm.

A twine binder will not take up the corn clean, will break off many ears in binding and throwing the bundle off, will also cut up and bind all the weeds in the row with the corn, which is very objectionable where the fodder is to be threshed, and it is necessary to allow the bundles to cure several days before the shockers can handle them properly, and this is an enormous risk to run, as 40 to 50 acres of bound fodder laying down on the ground under a heavy rain would be almost entirely ruined; in fact, it is such an enormous risk to run that no careful farmer cares to run the risk.

I have made a practice of cutting up my entire corn crop for several years, and what I have said is the result of experience and not guesswork.

In any country where hand labor is scarce, the corn binder is a necessity, and I also think it the ideal to put up Kaffir corn and sorghum when they are planted the same as corn. I have shown that hand cutting of corn is cheaper and far better than machine cutting wherever hand labor is abundant and one has to hire his corn put into the shock. It costs less to shock an acre than to husk an acre of standing corn, as it can be put in the shock for 80 cents per acre, while at 2 cents per bushel for husking and 40 bushels per acre, the cost of husking will be 80 cents per acre, and you must board the hand and furnish him with team, harness, wagon, scoop-board and shovel, which in all will cost $1.80 per acre, calling his board and lodging 40 cents and the board and use of the team and tools 60 cents per day, which is only about one-half the worth of the team, should it be hired out elsewhere. If one's team could be hired out for $1.25 per day, then this amount should be charged against the husking of an acre of corn, as a hand will not average more than an acre per day through all kinds of weather. If these figures are correct then corn can be put in the shock for 80 cents per acre, while the cost of husking in the field will be $1 more per acre, and this dollar per acre will hire the shocks hauled to the barn, when labor-saving tools are used to handle it, as I will describe later on.

In starting a shock, four hills should be leaned together at the top and tied with a string, then four bundles should be cut and stood up between these hills and the tops of the bundles well tied, then the other hills should be cut, and the shock can be completed without any need of a jack to keep it from falling.

For speed in cutting and shocking and for ease in handling, a shock 10 by 10 hills square and weighing, when cured, 180 to 200 pounds, is to be preferred. There are about 32 of these per acre. When a shock is completed, it should be tied loosely with a cornstalk and not drawn up tight with a pulley, noose or any crank device and tied with a string, as most writers advocate. Green fodder tied up tight, will mold in the shock unless the conditions are very favorable. Occasionally the weather will be unfavorable and a lot of fodder will fail to come out bright and first-class, and as this is always liable to happen, it is too big a risk to run. When the shocks have stood two weeks they should be baled, and the barn should be filled at once when the weather is good and the soil dry. CLARENCE J. NORTON.

Morantown, Kans.

(To be continued.)

A Start in Soy Bean Culture.

Editor Kansas Farmer:—Hearing so much about soy beans and their value as feed-stuff, I determined to give them a trial. Accordingly, last spring I obtained a peck of seed merely to compare their yield with that of other crops.

On the 15th of June, with the seed I had obtained, I planted three-quarters of an acre. The rows were three feet apart and the beans from two to four inches apart in the row. The soil was a heavy black loam of the upland. The crop was cultivated three times and the weeds were cut out with the hoe once. Three months after planting they were harvested. With the small amount of tillage they received and a season that was not very favorable for other crops, especially corn, I obtained 15 bushels from the three-fourths of an acre, which would be equal to 20 bushels to the acre. The corn crop for the same locality did not average more than 20 to 25 bushels to the acre and oats made no crop at all.

The soy bean is recommended as a great drought-resister. It does best when planted late in the spring or early in summer. In many instances it is planted on wheat ground after harvesting the crop of wheat, and still brings a fair crop. In this case, the ground is kept free from weeds and is in good condition for any kind of a crop the following spring.

In composition, soy beans are about the same as linseed meal. By raising them the farmer would save buying linseed meal or oil meal. With such qualities as they possess, it will not be long until they will become one of the universal crops.

At the present time, soy bean seed is in great demand. I have been offered $2 per bushel for what I have, but have refused to sell, because I want to save them for seed, as I expect to plant a considerably larger acreage another season.

Manhattan, Kans. H. M. BAINER.

The English Sparrow.

Editor Kansas Farmer:—If you will allow me I will take issue with "Bird Lover" and W. L. Hall, in a previous number of the Farmer. I desire to state some facts and to ask a few questions. I am a bird-lover myself, that is, of good and useful domestic birds. I breed chickens, turkeys, ducks, etc., and take great pride in them, and was never troubled with mites until the English sparrow made its appearance on the farm. Now, I have no use for the stranger birds, the birds of prey, except the American eagle (and allow me to say that I am in favor of adopting the turkey as our national emblem in his stead). Now, the much-despised English sparrows, while they are very small, if unmolested soon become so numerous as to be very destructive. I have seen acres of small grain almost entirely stripped of seed by them, and whole crops of cherries, blackberries, and even strawberries, taken by these little pests. In the dry, hot season they gather about wells and cisterns and with their filth they pollute not only the water but the well bucket, the pump, and even the pump handle. Our Board of Agriculture certainly made a great blunder when they imported the English sparrow, and anything we can do to check or retard their increase will be a boon to future generations. Now, as I said on the outset, I am a bird-lover, and, when a boy, my mother had a hard task to get me to kill a chicken, and I do not like to kill one now, but if I could get my clutches on the Englisn sparrows I could make short work of them with a good grace and clear conscience. If "Bird Lover" has no grain or fruit that the sparrows are fond of they will not stay with him, but should he have a nice crop of sweet cherries or other choice fruit, and see them eat and destroy it just before it is ripe enough for his table, I think his love would turn to hatred. By a careful estimate, last season, I found that these little pests ate and destroyed 10 bushels of cane seed for me before it was ready for harvest, worth now 50 cents per bushel, or $5, which is a low estimate. Now, for another low estimate. Suppose these sparrows double in number every year for ten years only, how much cane seed would they eat? At the above ratio it would require over five thousand bushels of cane seed to feed these sparrows, and, while I am unable to estimate the amount of delicious fruit they would destroy, I greatly fear there would be but little left for the "dear people."

Mr. Hall, in reply to "Bird Lover's" question, says the farmer cannot stop the matter by killing the birds, there are too many—which seems to me a very good reason for killing them—and would add that a better way would be to fix the outhouses so that the birds cannot get in. I would like to ask Mr. Hall how to fix a poultry house so that these birds cannot get in, and at the same time use it for poultry; also barns, hog houses, hay sheds, etc.? While I was building a house last summer these little birds built a nest in the frame-work and deposited eggs in it, and if they had been allowed to do so would have reared their young.

I have only spoken of a few of the evils brought about by these very little birds, but I do think that farmers ought to destroy them in every possible way, as we all know, by their history in England and the Eastern States, that they are there, and soon will become here, a very great nuisance. Any method that will even check their increase will be a benefit to future generations as well as the present one. ALLEN THOMAS.

Blue Mound, Kans.

Pure Seeds.

Editor Kansas Farmer:—We have read with interest the articles in the agricultural papers of the Northwest in regard to Bromus inermis and its possibilities as a forage plant in that section.

We would call your attention to the fact that the seed of this grass is being adulterated with seeds of meadow fescue, as high as 25 per cent having been found in samples sent to us for test. Bromus inermis should show a purity of 90 per cent at least, and a great many of the samples we have tested in the past have shown a purity of 95 per cent.

The principal impurities in good samples should be chaff and breakage, as the seed as usually grown is practically free from the seeds of other plants. The presence of a large amount of seeds like those of meadow fescue can almost certainly be taken as an attempt at fraud, either by the European wholesaler or the American retailer; we are inclined to believe the former rather than the latter.

We would also urge upon you the desirability of advising the farmers of your section to obtain samples of their principal seeds early in the season and submit the same to their State experiment station or the Department of Agriculture for test. In this way they will frequently save themselves from planting inferior seeds and weed seeds. We shall be glad to report promptly on the purity of any samples sent to us, and in due time on the germination also.

If you will kindly insert an announcement to this effect in your paper you will be conferring a favor upon your readers.

We shall be glad to send proper blanks to any one desiring to send us seeds, or they can send the seed on at once and the blanks will be forwarded to them to be filled out upon its receipt.

A. J. PIETERS,
In Charge of Pure Seed Investigations,
United States Department of Agriculture, Washington, D. C.

Kaffir Corn Grinder Wanted.

Editor Kansas Farmer:—Do you know of any feed-grinder that will successfully grind Kaffir corn in the heads? We would like to be able to grind without the expense of threshing. The trouble with most mills is that they choke up and will not feed it in without constant care and slow work. As now handled we lose at least half of the seed on our Kaffir corn. W. V. JACKSON.

Coldwater, Kans.

TO FEED US PEANUTS.

An Englishman, Mr. E. B. Watson, food specialist, of Upper Norwood, London, has obtained a patent in America for a process of blending peanut meal with grain products to produce a mixture having the desirable qualities of pure wheat flour with the added rich protein content of the peanut meal.

It is fairly well understood that the reason why man cannot live, physically, by bread alone is that it lacks protein. If a flour can be produced having a sufficient percentage of protein, in palatable and digestible form, to meet the requirements of man's physical existence, then indeed may the vegetarians hope to preach successfully the gospel of a purely vegetable diet.

Winter wheat flour is credited in the standard tables with having 10.4 per cent protein. Wheat flour is, therefore, condietary standards, the food of man should contain about 20 per cent by weight of protine. Wheat flour is, therefore, considerably short in this important constituent.

Peanut meal is very rich in protein, being credited in standard tables with 42.94 per cent of this essential to muscle-building.

In view of these facts, the following specifications in our English friend's application for his patent on his process of preparing and blending peanut meal with other bread-stuffs is interesting:

"This invention relates to improvements in the manufacture of a flour or meal suitable for use as a food-stuff and for mixing with wheaten flour and other food-stuffs.

"The said invention has reference more particularly to the manufacture of a pure, white, and palatable flour or meal from the nuts or seeds commonly known as 'peanuts' or 'ground-nuts' and termed in botany 'Arachis hypogoea.' At the present time an oil is extracted from these nuts or seeds which serves as a substitute for olive oil, and after such extraction there is left behind a cake of compressed material of a highly nutritious character, but unsuitable as an article of human food, partly on account of the debris of the husks and skins and other impurities it contains, which give to it a dark color and other objectionable qualities, and partly on account of the presence therein of the germs of the nuts or seeds, which are liable to set up fermentation, particularly if incorporated with such articles as wheaten flour.

"Now, according to my invention, I subject the nuts or seeds after removal of the husks and prior to the oil extraction process to a treatment which removes from them their coverings or skins and also the whole or the greater part of the germs, leaving behind only the clean white portion or body of the nuts or seeds, or when I prefer to retain the germs I render the fermentive elements in them inert by scalding or by the application of steam. By this treatment, after the nuts have been pressed to effect the extraction of the oil, a clean white cake is left behind, which, when ground up, gives a palatable flour or meal of a highly nutritious character, adapted either to be eaten alone or to be mixed with or added to other articles of food for the purpose of enriching them.

"It is well known that many of the food grains most commonly used for human food are deficient in flesh-formers. This deficiency is accentuated in their flour products, notably in wheaten flour, in which a heavy percentage of the flesh-forming elements is eliminated to meet the demand of a white flour. My improved flour or meal can be mixed with ordinary white flour—say in the proportion of one to ten—without danger of impairing the color of bread or other articles made therewith, and with the advantage of materially increasing the nutritive and digestive properties thereof. The said flour or meal can also in some cases be used as a substitute for starch—for example, in the manufacture of cocoa preparations.

"According to one method of carrying out the invention I subject the nuts or seeds in a suitable oven, heater, or heating chamber, preferable after the removal of their shells, to a dry heat, such as that of air heated to a temperature which the nuts will bear without danger of coagulating the albumen compounds in them or deteriorating the quality of the oil to be extracted from the nuts or seeds or affecting the white color of the residuum to be obtained after pressing, a suitable temperature being, for example, rather less than 180 degrees Fahrenheit. The nuts or seeds are kept at this temperature for some time, which causes them to swell or expand, after which they are allowed to cool, when the skins shrivel up and become loosened from the nuts or seeds. The latter are then placed in a revolving screen or other suitable decorticating apparatus, whereby the skins are finally removed. The removal of the skins and the action of the decorticating machine have the effect of detaching and removing the greater part of the germs of the nuts or seeds, and the final separation of the said germs can be effected by sifting or by other suitable means.

"According to another method of carrying out the invention, applicable more especially in cases where I prefer to retain the germs in the residuum, I subject the said nuts or seeds, preferably after the removal of their shells, to a moist or damp heat by scalding or the application of steam for a sufficient period—say for about ten minutes—at 212 degrees Fahrenheit, or thereabouts, to render inert the fermentive elements contained in the germ. This scalding or steaming process does not injure the color of the residuum to be obtained after pressing, and it renders the skin of the nuts or seeds easily removable by ordinary mechanical means, after which the nuts or seeds are dried before pressing. The nuts are now ready to have the oil extracted from them, which is done by pressure in the ordinary way, after which they can be ground up or pulverized to form the flour or meal before referred to.

"In manufacturing this flour or meal heat may be applied to drive off moisture or to develop flavor or to modify the color. I may also, in some cases, add to the flour or meal a small quantity of the hypophosphites of lime or soda, or both, or other desirable food ingredients.

"Having thus described my invention, what I claim, and desire to secure by letters patent of the United States, is—

"The process described for producing a food-stuff from peanuts, or ground nuts, which consists in subjecting said nuts to a preliminary heating operation, decorticating the heated nuts, separating the removed skins, eliminating the germ life, extracting the oil from the nuts thus treated, and finally grinding the residue into flour, substantially as described."

Care and Feeding of Swine.

By V. B. Howey, read before the Berryton (Kans.) Farmers' Institute, 1899.

When we give our time and care to any occupation in life we expect good returns for our labor. Most of us know better than we do, but he who knows and does better is the man who succeeds. He who lays a good foundation for a herd has made the first step towards success. But the battle has just begun. Next, provide good shelter against north and west storms in winter, and shade for summer, and guard against filthy pools. The hog's body is very close to the ground and no other animal suffers more from heat of the earth than he, and he will avail himself of every opportunity to cool his body, even in the most filthy pools. Good pens, about 8 by 10 feet, should be provided for small litters, and see that every night finds them in their home, as one night out with big hogs means a lost litter. Heavy and light hogs should be separated in cold weather. I would arrange for increase of herd to commence first of April and again in September, and provide clover and alfalfa for summer, and rye, sown in August, for winter and early spring. Clover cut when in full blossom, after the dew is off in the morning, and gathered into good shelter as fast as cut, makes good swine feed in winter. The better way is to steam it and mix wheat bran or middlings with it. Corn is the best food in the world for fattening hogs and about the poorest for brood sows and pigs. I know a little corn is in order, but there is entirely too much of it used. Where is the man that would feed his horses or his cattle exclusively on corn, as he feeds his hogs? Hogs that are kept in small pens and fed on corn will degenerate. Their offspring will continue to have less bone and muscle, and wheezy pigs will predominate.

With many bright prospects before us, our hopes are often blighted for want of a little forethought in preparing and looking after our pigs at the proper time. That maxim, "A stitch in time saves nine," can be applied here as well as elsewhere. Every man who handles hogs should provide clover pasture or alfalfa for them, as he can grow cheaper pork and better hogs, with less expense. I am not in favor of large hog houses, but small ones built on runners, that can be moved at will. Plenty of bedding should be provided and changed often.

Pork culture has come to the front for profit. Kansas handles nearly as many hogs as the great State of Ohio. While Cincinnati had 600,000 the past season, Kansas City comes in with 3,250,000. According to report of McIntosh & Peters, of Kansas City Stock Yards, 320,000 more hogs were slaughtered in 1898 than 1897. These are not presumed, but actual figures that cannot be disputed.

The hog furnishes a larger part of the meat supply of the world than is contributed by any other animal. The hog product of the United States not only furnishes the larger portion of the meat consumed here, but is met with in every part of the world. The United States exports, in pork products, over $1,000,000 worth annually.

To show the large amount of money paid by Western packers to farmers alone, I will give figures for four years, 1894 to 1897:

1894	$166,030,000
1895	172,679,000
1896	142,288,000
1897	135,456,000
Total, four years	$616,453,000

The United States has over 40 per cent of all the hogs in the world. Around our cities there are hundreds of hogs kept in small, filthy pens, and often compelled to eat their own filth, and fed on city slops made from all manner of decayed vegetation and stale meats of every description, and then sold for human food, when, in my opinion, it is only fit for dogs and carrion crows. We read in the papers every few days of some families being poisoned on pork and laid to some disease of the hogs. Is it any wonder that this kind of food kills? Would it surprise anyone if such hogs were found to be sick. No other animal will have a cleaner bed, when given liberty, than the much-abused hog. No more healthful meat ever comes to our table than a platter of nice marbled pork. It is sweet, juicy, and well tasted and is good for kings and queens or anyone else in good health.

Now, young man, don't let some old grandfather of other days persuade you that "a hog is a hog," that it is in the feed and not the breed, for I have seen a score of such men go out of the swine business, declaring it didn't pay. Procure the breed of your fancy, a few choice animals, and with proper care your farm will soon be stocked with hogs that will sell at any time for a fair price.

The first three weeks of piggy's life is the most critical, hence the necessity for care. Avoid all mud wallows in hot weather and provide shade instead. In winter look well to your shelter and dry bedding, and keep the different sized hogs separate, or you will suffer loss. The man that has nerve to travel 6,000 and 7,000 miles to reach "Uncle Sam's" ice box, to melt his way down in the earth with fire to get the gold dust, might, by staying at home, with less hardship, by handling swine, come in possession of the yellow dollars and have his fingers and toes left. God never intended for man to get rich in one day, but says, in His Word, we shall eat bread in the sweat of our face all our days. To the man that has courage, I would say, go in. There is plenty of room at the top, but few get up there. Much more might be said, but if the man hasn't a natural disposition to care for swine his efforts are likely to be a failure.

Persevere and prosper. Idleness rusts the mind. It would be impossible to tell in one little talk all there is in care and feeding of swine, but, as Cheney says about cooking the rabbit, first get the swine, and then do your best, and the better care the better pay. A mixture of wood ashes, charcoal, salt and sulphur where pigs can have it at will is beneficial.

If you toot your little whistle,
And then lay aside your horn,
There is not a soul will ever know
That such a man was born.

The man who owns his acres
Is the man who plows all day,
And the man who keeps a humping
Is the man who makes it pay.

The Baldwin Cherry.

The original tree of this variety was planted in the spring of 1888 for an Early Richmond cherry which had been budded on a common Morello seedling. The budded part was accidentally broken off and a sprout came from the root which seemed so vigorous it was left to grow. It proved to be such a rank grower that it soon attracted attention, and when it fruited, which was the fourth year, it showed so much finer, larger and better fruit than any other, that the small boys always sought it out from among several hundred cherry trees of other sorts.

It fruited four years and each year seemed to be so uniform in size, productiveness and earliness, that I decided to give it a name and propagate from it. Since then I have fruited it two more years, and all who have seen the tree or tasted of its fruit, appreciate more and more its good qualities.

The tree is an upright grower, more inclined to be round than otherwise, a very rank, vigorous grower; leaves rather broad; bloom pure white, which turns to pink, similar to the hydrangea; fruit very large, almost perfectly round, very dark, yet almost transparent; flavor slightly sub-acid, yet the sweetest and richest of the Morello type; stems rather large, of medium length, more inclined to grow in pairs than clusters. It is remarkable for earliness, vigor, hardiness, quality and productiveness, and out of 800 cherry trees I have in bearing it is the most thrifty and beautiful tree in the lot, and yet has had only the same care and attention as the others. It is a tree to command attention, and is so distinct as to attract comment from many upon seeing it, without knowing its superior merit. The original tree was planted eight years ago, and has fruited now five years, and the tree is now at least one-third larger than any Early Richmond tree of the same age.

Seneca, Kans. S. J. BALDWIN.

What Kind of Cowpeas?

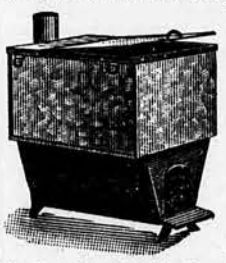
Editor Kansas Farmer:—I would like to inquire which of the numerous different kinds of so-called cowpeas are the best to plant for feed and fertilizer. Those who have raised black-eyed peas of late years, claim that the weevil destroys them. I wish to grow some to use as a balanced ration for pigs and other young stock, and also to use to plow under as fertilizer. Any information will be gladly received. My land is good Butler County bottom; has been in corn nearly every year for the past twenty; it still raises fine crops of corn when there is abundance of rain, but is inclined to "bake" or run together. From now on I intend planting one-fifth of the tillable land in potatoes each year.

I know that beans or peas are good, but I would like to know which is the better. Red clover is not a success here. Alfalfa does well when we can get a good stand, but that is so hard to do that when we do succeed, we do not wish to plow it up. J. W. MARTIN.

Leon, Butler County, Kansas.

Farmer's Handy Feed Cooker.

Reader's attention is called to this device, which is sold at $12.50 for 50-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 our 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.



BLOCKS OF THREE.—Two new subscriptions for one year for $2, and, in addition, a renewal for one year free to any old subscriber who sends two new subscriptions and $2 in one order. Kansas Farmer Co., Topeka, Kas.

The Stock Interest.

THOROUGHBRED STOCK SALES.

Dates claimed only for sales which are advertised or are to be advertised in this paper.

MARCH 3—Grant Hornady Live Stock Co., Fort Scott Kas., Herefords, at Kansas City, Mo.

FEEDING AND CARE OF PIGS AFTER WEANING.

By W. L. Reid, North Topeka, Kans., read before the annual meeting of the Kansas Improved Stock Breeders' Association, January 10, 1899.

It is with considerable hesitancy that I address this association, composed, as it is, of men the majority of whom have had a great deal more experience and, I dare say, far better success than I with this, one of the most, if not the most, important subject of pork making. For, as we all know, if the pig does not start to grow, or, rather, keep right on growing after being weaned, we lose our opportunity of making a nice hog, and consequently of making the profit which should be ours. For, who can make a nice hog out of a runty, stunted pig, no matter how fashionable the breeding may be? And, on the other hand, a pig poorly bred but well fed and cared for will grow into a fair-looking hog and be composed of good meat. My experience might have been larger had I not, as a boy, had rather a dislike for the pig and a decided preference for caring for the colts and horses, and not until I took charge of the farm myself and had all the expenses to meet did I take any great interest in the pig, for then it was I discovered where the money came from to meet those expenses, and my interest in his welfare has been, since then, growing continually.

What little personal knowledge of pig feeding I have to apply to a paper comes from an experience on a farm with little or no accommodations for the hog, as is the case with so many Kansas farms especially the rented farms. The hog needs better housing than he gets, and, in fact, to keep him comfortatble needs more than any other of our domestic animals.

In thinking of my experience in feeding pigs, I thought it might have been more appropriate to have had "My mistakes and misfortunes in raising pigs" as a subject rather than the one assigned, for it seems to me sometimes that I have numberless troubles with my pigs, especially during the fall and winter.

But, how to feed is the question. The majority of us can get our pigs to do well enough in the summer (unless we attempt to feed in a small, foul pen), which will almost invariably make a sad, wish-I-hadn't-been-born looking set of pigs. Pigs, to thrive and do well, need plenty of fresh air, sunshine pure drink and nourishing food. The feeding of the pig should begin before weaning time. If the sow is penned up, make a way for the pigs to get out and allow them the run of the farm yard; yes, and I might say of the whole farm, for pigs must have exercise if they develop into strong, healthy hogs. Place a trough near the pen of the dam, in which, at regular feeding time, put sweet milk, or some other tempting slops, that they may learn to eat and also to know when to expect something to eat. Do not wean the pig until it has learned to eat well, and when it has that well learned the sooner it is weaned the better it will do. And, to wean the pig, do not pen him up, but rather shut up the sow and let the pig run at large, and, as before stated, feed at regular times and he will always be there for rations.

We read a great deal in the farm papers these times about the balanced ration for the dairy cow; not so much said about the pig in that connection, but piggy needs a variety of food and of the proper kind just as much as the cow. True it is, King Corn grows large and numerous in Kansas, but we can no more raise pigs successfully on corn and water than we can get a large flow of milk all winter from the cow by feeding only corn, prairie hay and corn fodder. For the purpose of demonstrating the necessity of a mixed diet for mankind, physiologists tried experiments with dogs and cats by feeding them one class of food only, and the animal, after a short time, showed all signs of starvation, and, if continued long enough, they died of starvation, although having an abundance of food. So we, to be successful hog raisers, must study the various kinds of grains and vegetables and the effect they have upon the pig when fed.

It is claimed by some that we have swine plague throughout the corn belt, while it is but little known outside of that, and they attribute the cause to feeding too much corn. While, they claim, in other climates where the food consists of root crops and more bulky vegetables, their hogs are never known to die of the disease. An extensive hog grower in Iowa told me he had fed pumpkins quite extensively to his growing hogs and had not been bothered by swine plague while feeding them, and considered he had good results from feeding them. The Ohio breeder claims he can grow larger pigs, for their age, by feeding cooked potatoes and ground rye made into a slop than by using any other kind of feed.

For pigs nothing will make them grow much better than a liberal allowance of milk. Feed plenty of soft feed, or slop made of ground wheat or rye, shorts, buckwheat and oil meal and all the milk you have added thereto, and in winter, if you have any vegetables, such as potatoes, turnips, beets or pumpkins, let the pigs have some, and give soaked corn liberally, unless it is winter and you are feeding cattle, when, I think, pigs will do better to hunt their corn where it is scattered, thereby getting needed exercise.

One trouble in winter is to have suitable house to keep the pigs warm and comfortable, and yet not so very warm that they will not get out of their warm beds to eat or take exercise. And what to use for bedding is another important question. With us, prairie hay is generally used because it is plenty and straw is hard to find. Hay is very unsatisfactory, too, because it packs so close and retains the heat and moisture too much.

To sum it all up, give the pigs a good shelter and bed, plenty of room for exercise, and an abundance of all kinds of feed at our command, and then if disease gets among the pigs and they die anyway, we can feel that we have done our best for them.

Outlook for the Draft Horse.

By O. L. Thisler, Chapman, Kans., read before the Kansas Improved Stock Breeders' Association.

In coming before this meeting, I do so with unfeigned pleasure, not simply because I am selected to represent the draft horse interests, but for the honor of addressing this association on a subject in which I am so deeply interested, and which I believe has been somewhat neglected before this association in the past.

For nineteen years I have been connected with the business of rearing, breeding and sale of draft horses, and from actual experience I find the greatest mistake made by the average farmer is careless laxity in selecting sires for breeding purposes. For instance, if a farmer has a rangy mare he is apt to select a high, rangy horse with which to pair her. This is a great mistake, for the aim should be to select a sire which will tone down the defects of the dam in the colt and supply those qualities in which the dam is lacking.

While the draft horse question is not an issue here to-day, nor is the thoroughness of draft horse breeding held in the highest esteem, I am assured that there are no more lucrative nor encouraging results obtained than those which attend the careful, attentive rearing of closely high-bred draft horses, and the crossings of the best imported blood with the native mares of America.

Handling only Percheron horses myself, I am unqualified to say very much in favor of or against other breeds for general draft purposes. The superior merits of the Percheron as a draft horse are so well known and appreciated that comments upon their advantages here would be superfluous. It is well understood that the Percheron gives entire satisfaction, and is a ready seller in Eastern markets.

Even in the present generally existent depression in prices of nearly all farm products, and the very low figures at which all classes of horses are selling, I see from our market reports that in Eastern cities a good draft horse is a ready seller, and will bring more money in proportion to the expense of breeding than any other stock in the markets.

I cannot see, nor in reason conceive, of any brighter prospect for the average farmer or stock grower of to-day than to breed the draft horse: always provided, however, he shall breed for draft purposes alone and not mingle other breeds with the draft horse.

My past experience teaches me that a good draft horse can be reared to the age of 4 years and put upon the market for less money than a steer of the same age and of equal condition. At present prices for the draft horse, if properly handled, he will sell very readily in the Eastern markets for $100 to $150, while a good, average price for the steer would be but $50 to $60.

The conclusions, from a financial standpoint, are simply these: That it is much more profitable to breed draft horses than any other class of live stock, taking into consideration the value of our land in eastern Kansas for raising grain and pasturing purposes.

Discussion on G. W. Watson's Paper.

["Alfalfa as Food for Swine," by Geo. W. Watson, a paper read before the Kansas Swine Breeders' Association, was published in Kansas Farmer, January 19.]

DISCUSSION.

Mr. Updegraff: I might say that Colonel Watson is the western manager for a very large corporation, and has handled tens of thousands of acres of land. They have over 600 acres of alfalfa, which they use as hay land, some of which they use as hay land only, and some of which they use for hog pasture. They have a great many herds of hogs, as he says, and they pasture their hogs on this alfalfa.

Professor Cottrell: The paper speaks of alfalfa more as a hay for stock hogs, and I will say that we have tried an experiment out at Manhattan college in feeding alfalfa hay to pigs. We also tried Kaffir corn, and we found that Kaffir corn is worth about 80 to 90 per cent, and it has about the same effect as corn. This year we bought a lot of stock hogs from farmers. They would average about 125 pounds each, and we divided them into lots of 12, and we experimented with them by feeding some of them all corn, and slops, of course, and some of the others we fed alfalfa hay to, and those which we fed alfalfa hay were ready for the market from three to four weeks before the others, and they made a great deal better gain, and according to our gain and the way we fed our alalfa we got $17 a ton for it. It is surprising how those hogs will eat alfalfa hay. You can take a forkful of it and throw it in the pen and they will clean it up in no time. I would be very much pleased if any of you gentlemen that pass by Manhattan would stop off and see what we are doing with alfalfa at the Manhattan Agricultural College.

Mr. Kirkpatrick: How do you feed alfalfa hay?

Professor Cottrell: We make a trough 3 by 4 feet, that is, make a floor and put up a sideboard about 6 inches high; then, after you have this trough made, put into it twice a day just about what they will eat, just enough so they won't waste it. We grind it, and it is similar to flour after it is ground.

Mr. Warner: I feed my hogs alfalfa hay and milk from my cows. We hay our hogs. For hogs on full feed of corn I do not make any preparation, such as Professor Cottrell would at the college. I simply throw it on a dry place, and it won't be over fifteen or twenty minutes until it is all gone. Another good way is, where you are feeding alfalfa hay to cattle or horses, to allow hogs to run after them, because the leaves scatter off and the hog comes along and picks them up.

Professor Cottrell: We found by our experiment that a ton of alfalfa leaves were equal to 2,400 pounds of bran.

Mr. Updegraff: I raise a good deal of alfalfa on my place, and it grows very nicely over there on the river bottom, and, as soon as it commences to show up real good, I turn about 60 head of hogs onto a 7-acre patch of alfalfa. They live, grow and thrive on it, and during the time they are out there they do not have a bite of corn until that alfalfa is all gone. Of course, my hogs have all the water they want all the time, plenty of shade, and the mixture suggested by Brother Hoagland, which mixture is placed in a box where they can get at it. I did not believe that hogs would live on the dry hay in the winter time. I had never tried it, and could hardly believe it. I had read about it, but would not believe it until after a talk with the author of this paper. He told me about the innumerable number of hogs that they kept on alfalfa, and raised without any corn at all. But for the last month or six weeks I have fed quite a large number of brood sows on alfalfa hay. They have a little corn with this hay, but they will eat up the hay before they will go to the corn. It is marvelous how nice they look; they are sleek, fat, and it does them a world of good.

Mr. Ransom: I would like to inquire if anybody knows of any plan by which they can keep the foliage on the alfalfa. One of the most important troubles with me has been that the foliage drops off too much in handling the hay.

Mr. Westbrook: I have had some experience in this matter, but know a little more about it now. When you cut your alfalfa you should rake it right up after the mower and let it dry in the windrows. I sometimes bunch it and let it dry in the bunches. I always cut my alfalfa in the morning, right after the dew is gone off, of course. I do not believe it will hurt the quality of the hay much if it is cut when there is a little dew on it. Hogs will eat it any way, or anything else, if it is good. It does not hurt if it is a little black. I have had a little experience with alfalfa for hogs, and horses, too, for that matter, but I learned before I came to this State that hogs could live on clover hay, and I know that our red clover that grows in the East is not so rich as alfalfa and they do not like it so well. The most successful neighbor that I had in general farming was a man who lived to be over 50 years old before he knew enough to put up a stack of hay for his hogs; and then when he got so that he understood it better, he would stack a load or two right up by the hog barn and feed his hogs regularly clover hay. And I have practiced that ever since I have been in Kansas. I keep this hay ready for my hogs, and feed them from the time they are little pigs up until ready for the market, and I give them plenty to eat of it. It is not so particular as to the variety; let them have their own way a good deal and they will take care of themselves, especially with good clover pasture. And I was very successful with my hogs this year. At a little over 6 months old my hogs average over 250 pounds, probably the oldest of which was about 7 months old—they came in March and April. I fed them all the corn they would eat once a day. They get all the good, clean, pure water they want to drink out of a tank, and they don't have to go to a mud-hole to get their water. I give these hogs their liberty, and I want to say, right here, that there is no danger of a hog rooting unless it wants something. I let my hogs root if they want to, and I know they do me more good than harm. I have seen those hogs rooting over the clover fields, but they were looking for grubs or something of that kind which they took out of the ground, and it does you more good than if they did not do it. But I believe that a hog that lays in the mud knows what he is about. I say, let him drink anything he wants to. I think that the hog is as good a doctor for himself, as a rule, as any veterinarian. Now, as I said before, I believe in giving the hog as much liberty as he wants, and if you have a mud-hole and plenty of good shade, and if the hog prefers the mud-hole, let him go there and lie down; let him have his choice. I believe if you do this you will succeed in the hog business. Alfalfa will grow on anybody's farm in Kansas, and I think that it is the best feed for hogs that I have ever seen.

Mr. Jordon: I would like to add my testimony. I have raised alfalfa for something like eight or ten years, and in our country it will not grow on the upland, and it is not a success in the bottom land. In our best bottom land it won't furnish as much hog feed as Mr. Watson says. We have not any bottom farms that will furnish enough feed on the acre to feed 15 hogs. I think I have as good alfalfa fields as anybody, for we have soil there 4 feet deep and plenty of water; but 15 hogs would eat out an acre of alfalfa in a very short time. The matter with alfalfa is that it is a little overdone. I believe it is an excellent pasture and a good feed, and our people in feeding it do so from the stack, but as a pasture I prefer the red clover and timothy to anything we can get; and I find that from the last of July to the middle of September we are very apt to overpasture our alfalfa.

Mr. Updegraff: I might say to Mr. Jordon, in answer, that the number of hogs kept on the acre at my place was a little over 8, as I had 60 hogs on 7 acres. They were there all summer, and, notwithstanding that fact, I had to mow my pasture twice this year, with all those hogs on it.

Mr. Warner: My experience has been something like Mr. Watson's. I am in the Kaw River Valley, and have two or three acres that we have used for hog pasture for seven or eight years. I usually keep on that amount of land 35 to 45 head of hogs, and there is a very good stand of alfalfa there now. I did not have but very few hogs there last year, but my alfalfa grew up and I cut four good crops off from it.

Mr. Maguire: Did you feed any grain?

Mr. Warner: Yes, sir, I fed some grain, but I aim to feed about one ear of corn per head per day, and in that way I have my hogs ready for market whenever the market is good. I would like to hear from my friend from Wabaunsee County. Did I understand you to say that alfalfa did not do well with you on the upland?

Answer: Yes, sir.

Mr. Warner: I am very well acquainted with some parts of your county and I know the soil is quite gravelly, and while it will not grow alfalfa equal to the bottom land, still it grows alfalfa

more in proportion than it will anything else. But on this thin land I would advise putting on manure the second or third year.

Mr. Raymond: I am not a member of this association, but I am anxious to learn, and am very much interested in this subject of alfalfa raising in Kansas. I have been going over the State some, and my first experience with alfalfa was the hearing of these wonderful stories about raising it. It beat anything I had ever heard outside of politics, and I really think it beat that. * * * They had just commenced out in our part of the country (in Morris county) to experiment with alfalfa, and these gentlemen's experiences seem to bear out the result we had there. It has been an absolute and total failure. We sometimes could get it raised, but when we undertook to cure it and put it up, we found that most of the foliage either blew off or dropped off. We know that outside of these association meetings, outside of the halls wherein they are held, that the wind blows, and if our hay gets a little bit too dry and you undertake to pick it up, away goes the leaves, and you have got no alfalfa hay. But if you gentlemen have made a success of this alfalfa hay business, we would like to know how you did it. Out there we have substituted in the place of alfalfa sorghum and Kaffir corn, and the hogs will eat that as well as anything.

Mr. Clark: I think I can see what is the matter with the gentleman. It is with his plan of planting the alfalfa—the soil is not right. I do not think that anyone can raise alfalfa with success on clay soil, or even gumbo soil, but I will just relate my own experience and they can judge for themselves. I have a good creek bottom, but there is one corner of my field which runs up onto strictly upland. It is a different kind of soil, it is red soil, and I think it is poor enough for any purpose, but I do not know of anything it will produce better than it will alfalfa. It is right in the same field where my hogs run, and I am satisfied that my field yields enough for at least 10 hogs to the acre, and I think a year ago it would have done for 15 head to the acre, and then I had to mow it twice. I cannot sit still and hear an old friend abused that way.

Mr. Cook: The gentleman here from Morris County seems to be ready to abuse alfalfa. There is a cause for everything. He speaks about his hay not being good for anything. I think he left his alfalfa remain out in the field too long. It wants to be raked up soon after the machine runs over it; shock it up and cure it in the shock. In this way you will be able to retain the leaves and have the finest feed you can raise. I am on an upland farm, and I have a pasture of alfalfa that I have been using for nine consecutive years for my hogs, and they have never been off from it, not even for a day, and I have an excellent stand there now, and have had 10 head of hogs to the acre. Even then I had to mow it, for the forage was too great for the stock. My hogs will eat it any time of the year. My pasture is really better now than it was the first two years. It has had no top dressing at all.

Question: What kind of soil?

Answer: It is a clay subsoil, but before I plant I use a subsoiler and subsoil down to 12 or 14 inches.

Mr. Cook: I intend to put my alfalfa hay away green.

Question: Do you have any trouble in raking it green?

Answer: No, sir.

Question: It must be different from red clover.

Mr. Cook: I cure it before putting it in the barn or stacking it, and my hogs look forward to the time of feeding, and they come right to it every time I feed them alfalfa hay. They like it. When a man throws alfalfa hay in the pen it always brings the hog to the feeding trough.

Mr. Heath: Now, in regard to this hog business. I have been in correspondence with breeders of this State for almost twenty years, and I have never heard as much about sales being made in the central and western portion of Kansas as during the last twelve months. It got to be so monotonous in that line that I started a little inquiry of my own, and the solution of the whole question, in a word, was "alfalfa."

Mr. Treadway: The general impression prevails that alfalfa is only a Western grass, but two years ago, without really knowing what I was doing, except by theory, I seeded three acres of very high red soil to alfalfa. Those of you who are acquainted with our portion of the State know that we have much red land on all the high places, and where that land is red it is very stony. In the years preceding I plowed that land, and was very much bothered with the stone. Many years I could plow it and many I could not. It was so dry that in an ordinarily dry season in July and August my corn on that land would all curl up and dry out, and I would have to cut it up for fodder; and I am now convinced that that soil is very rocky down deeper. I went to work and sowed oats lightly upon it and then I sowed twelve pounds of alfalfa seed to the acre. It did so exceedingly well with me that I was very much pleased, and even to this day, and then, and all along, people would say: "What is that over there growing on your farm?" and I would tell them "alfalfa." I have found that it comes up earlier in the spring than anything else. I do not get two heavy crops off of my piece of ground, but I cut the second crop for seed. I can always get one good crop and one light one, and that is all we can do with red clover. Farmers know here, full well, that after red clover is seeded a couple of years it commences to die out and has to be plowed up and reseeded again. With alfalfa this is not true. True, my alfalfa is not so good a stand as it was, but I am inclined to think that I get just as heavy crops off it now as I did twelve years ago. The trouble with us is to get a stand. Two years ago last spring I seeded 12 acres more on a little wetter land. It has a heavier subsoil and I got a good stand and I now have 15 acres of first-class alfalfa. But never until this year did I try to pasture it. I bought a wire fence machine and fenced off 4 or 5 acres, turned my hogs in, took the grain from them—did not allow them to have a great deal of grain. They would always manage to keep the blue grass down, and after they got in the alfalfa they did all they could to keep the alfalfa down. I have learned to-day the value of alfalfa hay, but as I have been curing it, it is woody and stocky, and looks more like rag-weed than anything else I can think of. The horses will leave their grain for it. I will let that statement go for what it is worth, but all stock will eat it. I have never heard of a horse, cow, calf, or, in fact, anything in our stock line that would not eat it. I want to say, that it does just as well with me as clover does. I read in my books and magazines that the first crop must be taken for seed, but I found that we had better cut off an early crop and take the second crop for seed. I will not get a heavy yield of seed from the first crop, but I am sure I have a stand there and will hold that stand. I feel sure that the roots will not grow deep in my pasture unless it is a wet season. This fall I had a very good second crop—indeed, the second was better than the first was.

Professor Cottrell: About the middle of December I attended a farmers' institute at Admire. There were 150 people there. They reported alfalfa a great success on any kind of land, and they simply laughed and said that others do not know anything about it when they say it cannot be raised. We have received lots of letters from Morris County and the majority of the farmers there report just the same as this gentleman has here to-day. I have spent a great deal of time this last summer in investigating this matter, and have found it raised successfully where it is a great depth to water.

Mr. Jordan: I believe the man from Morris County is all right. I think probably his soil is a good deal like our soil. There are parts of the country where you can raise alfalfa. Out where I live the top of the ground is not very far from the stone and clay. We raise good sorghum, and sometimes good corn, but I know of a good many trials of alfalfa, and I do not know of a single instance in that part of Morris County where alfalfa is a good crop. On our bottom lands we have made quite a success of alfalfa, the grass sometimes growing 4 or 5 feet high—that is, not all of it that high, but you could cut stalks out that would be 4 to 5 feet in length. We get four crops in a season, yet on that very ground if alfalfa is cut in August or September and it is very dry it will kill the alfalfa out. If it is pastured too much it will kill it out, also. It seems to stop the growth of the plant in dry weather, but wherever you have red clover you do not have this trouble.

Mr. Thompson: I live in the western part of Sedgwick County, and we have good corn land. I seeded 12 acres of my land to alfalfa. We got a good stand, but we did not know how to take care of it. The result of it was that we only saved about a third of the crop. We made more from it in 1896 than we have since that time, and we plowed that ground up and put it in corn last year, but I want to say that 20 acres more of alfalfa goes in in the spring, and I want to say that it is the best plant I have for hogs on that farm.

Mr. Cheney: I think that we can put it down as a fact that where the rock are within 4 inches of the top of the soil, or where the subsoil is of a hard clay gumbo, so hard that the roots of the alfalfa cannot penetrate it, alfalfa is not a success.

Mr. Daughters: I have had some twelve years experience in Lincoln County in seeding and sowing alfalfa, and think that you will find in that part of the country all sorts of experiences with reference to bottom land as well as upland in regard to alfalfa. Sometimes it will do exceedingly well, and, finally, when you think it will be doing the best, you will cut it just at the wrong time and your alfalfa is dead. Now, then, if you meet a man who has had such an experience, he will tell you that alfalfa is not a success upon upland, but after a few years experience you will be able to tell when you can get your alfalfa to grow on your upland. If you pasture or cut your alfalfa down so close on this upland at the wrong time of the year, or if the season is bad, your alfalfa may die out. It is not your fault, it is merely the fault of the soil. And I can't believe that with the present conditions there alfalfa will be a success on the uplands. With the bottom lands it is different. Some people think that with subsoiling on our uplands we would be able to grow our alfalfa more successfully, but I have grave doubts even then.

Sheep Raising in North-Central Kansas.

Address delivered before the Kansas State Board of Agriculture, by J. N. Grau, of Mitchell County, Kansas.

Mr. President, Ladies and Gentlemen: I have been requested by your honorable secretary to give my way of raising sheep, so I may be pardoned if I confine my remarks mainly to matters of my personal experience and observation. I was raised on a dairy farm near Baltimore city, Maryland, came to our State twenty years ago; had never fed any sheep, had never seen one sheared.

I started to raising sheep as a business. My capital was very limited; therefore it must pay interest on the investment and a profit for labor, which I find it always will do. If a man in Kansas will start with a flock of sheep and give them reasonable care and plenty of feed, that man will never be in want and his children begging bread.

Our honorable secretary in one of his reports state that the hog is the mortgage-lifter. I think he should include the sheep, as he is a better mortgage-lifter in central and western Kansas than the hog. They will consume more products of the farm, turning into use that which the hog will let go to waste. It is a mistake to suppose that now fertile Kansas soil cannot become exhausted. It is naturally rich, but it is comparatively new, and continuous cropping without adequate manuring must eventually diminish its fertility. It was impressed upon my mind this last summer while visiting the East. Farms where the crops are consumed and the manure returned to the soil are retaining their fertility and the farmers are prosperous. Where the crops are sold off they are the opposite.

A state or nation to be prosperous, must not only produce that which they consume, but also that which they wear. We find a people prosperous and employed when there are plenty of manufactories around them; so we, in Kansas, must have manufactories to consume the products of our farms. In the sheep we find a manufacturer that will consume our grain, rough feed, and most all of the weeds, returning to us as a product the healthiest of meet and the best of clothing to wear; also returning to the soil enough to retain its fertility.

Our experimental stations are a great help in stock feeding, but the average farmer must know how to compound his own rations with the food materials at hand. There is no such thing, and can be no such thing, as a universal recipe of certain foods applicable to all cases. A prescription for a ration of so much clover hay, bran, corn and oil meal, for example, has an imposing air of wisdom about it, but nevertheless it may be deceptive. Are these the feedingstuffs at yaur disposal? Not always, in Kansas. They must be bought. Look first to the cost. Profit must be tbe basis of all feeding operations.

Looking over the market reports of the country, we find at the present ratio of increasing demand for mutton that in ten years' time we will consume 20,000,000 head in one year—over one-half of the present number of sheep in the United States. Who will supply this demand? Kansas, with her abundance of feed and grain, should supply a share. There will also be a demand for wool as the population increases, as the limit to wool production has been reached in Australia.

The question arises, have we a climate adapted to the raising of sheep? In studying the habits of sheep we find they always hunt the highest point to range, and the dryest knoll to lie down upon; showing that they want a dry climate and pure air, which we have in north-central Kansas.

What class or breed is best adapted to our climate and surroundings, as we have dry feeed the greater part of the year, the prairie grass drying up early in the season? There is no class better adapted to dry feed than the Delaine Merino; the English breeds requiring roots and green feed to do their best.

My exhibit of Delaine Merino sheep and wool at the Omaha Exposition has attracted considerable attention throughout the Western States, as is shown by the letters received.

I will give my method of raising, breding and feeding. I started with 96 head of high-grade wrinkly Merinos as could get shipped from Wisconsin, paying $4 per head, starting to breed record rams from wrinkly Merino flocks, as all sheep raisers at that time said the more wrinkles and grease the better the ram; but I soon found out that was not the class I wanted, as too much grease in cold weather is a cold, frozen covering, and the sheep will not weather the storms, but draw up, placing their four feet on a space 4 by 6 inches. I turned my attention to plain body Delaine Merinos (which grow to perfection in our State), with enough oil to keep the staple in good condition. Too much oil weakens the constitution and takes too much grain and care to produce it profitably.

The last nine years I have been breeding to recorded Dickinson Delaine rams, as they have always been bred smooth body and mutton form; I also bred a few recorded ewes, giving them the same treatment as grade flocks and they are giving as good satisfaction.

The last fourteen years my flock has numbered from 800 to 1,000 head. I fatten my surplus stock for market. In the selection of breeding ewes I never pay much attention to the fineness of fiber, but more to the constitution, good form, no wrinkles on body, good fleece and long, dense staple of wool, and good milking qualities—as this can be had in sheep as well as in cows—and to produce a good lamb they must have an abundant supply of milk. I sort out about one-third to one-half of my ewe lambs for breeders at 1 year old, sending the rest to market for mutton. Always feeding the lambs well, so as to get the size of the sheep the first year. If neglected they will grow smaller every year. By this way of selecting and feeding I have increased the average size of my flock 20 pounds. In selecting the rams I look for a good constitution, which will be a good feeder, and always the best in the flock, good form for mutton, well sprung ribs,

broad across the shoulders, deep breast, with front legs well set apart; short neck, with erect carriage; short head, with broad nostrils, giving plenty of room to breathe pure air on the range, with three to four inch staple of dense wool, with only a reasonable amount of oil, weighing from 175 to 200 pounds at maturity.

I pasture my sheep over summer on prairie grass without any grain, having my range divided into three separate pastures with four barbed wire fence. Changing from one to another gives the grass a better start, will produce more feed, and sheep will keep in better condition than when run in one.

I wean my lambs in September. The last two years I have turned them in a piece of standing cane, with some cracked corn, which has given the best of results. As soon as the grass gets dry and poor, which is about the first of October, I commence to feed the old sheep one bushel of corn to the hundred head per day. Sometimes feed corn fodder with corn on until I get my corn husked out, then turn them in the stalk field, giving one bushel of corn to the hundred head per day. My breeding ewes run out every day in the stalk fields, staying from morning until night, except in severe snow storms, when I think it not best to leave them out all day. I think this exercise is necessary for good health and constitution to raise strong lambs. About the first of March feed corn fodder and alfalfa hay until grass starts to grow. This is the way I fed and cared for the sheep that the samples of wool placed on exhibition at Omaha were taken from and your honorable secretary has some samples here if anyone wants to examine them.

I have my lambs to drop in March and April. I pen my sheep in a shed over night; never stay up over night with them—a lamb that will not get up and rustle I don't want. In the morning turn out ewes, always keeping separate those that have lambs, examining all to see that the lamb has had its fill of milk; if not, keep separate until it has; keeping the young lambs separate for three or four days, then turn in to the large herd of ewes. If turned in before three days and they get parted for twenty-four hours the mother will not own them.

Years ago I would sow rye for early spring pasture, but of late I have been raising alfalfa for hay, which is better than red clover. It is one of the best sheep feeds that can be grown, and which every farmer in Kansas should grow for cattle, sheep and hogs.

I shear in April, before turning out to grass. Having plenty of shed room there is no danger of losing any. Some seasons we have dust storms that will fill the fleece with dirt and trash along the back, injuring the sale of the wool, which is the only disadvantage we have in raising sheep in Kansas. I keep plenty of Kansas fine salt where they can have free access to it at all times, yording them every night. When accustomed to the yard they will come up every night of their own accord.

I shipped my 1897 clip of wool to the commission firm of P. C. Porter, of Chicago. The editor of the American Sheep Breeder examined it with Mr. Porter, and declared it to be equal to any Ohio or Michigan Delaine clip ever consigned to Chicago.

The Nebraska Farmer states that I had the best Delaine ram at the Omaha Exposition. The editor of American Sheep Breeder stated that for perfection of form and covering he was the best of his breed yet seen in the Western show ring. This ram was as large in size as any, was bred and raised in Kansas, fed on Kansas feed and Kansas salt, run with dam on the prairies of Kansas without any extra care or grain, ranged with a herd of 400 ewes in stalk fields all winter as a yearling, receiving the same treatment as the rest of the flock. If this treatment will produce one of the best Delaine rams in the United States, then we must have a soil and climate in north central Kansas adapted to raising Delaine Merino to perfection.

I always fatten my surplus stock and ship to Kansas City, never telling that they are Merinos, as some have a prejudice against the Merinos and will make that an excuse to cut on price. Sell them for what they are worth; the Delaine Merino is an American product, not a Spanish.

Several years ago while in the East I asked a butcher in Baltimore (there a butcher kills only one class of stock) what class of sheep sold best for mutton. His reply was, "Southdown first, plain Merino next." I said that was not the opinion of some that raised the English breeds. He replied, "I know what my customers want. The English breeds are too large, too coarse grain, meat too much like beef. The finer the fiber of wool the finer the grain of the meat."

Take a little New Mexico lamb showing by form and fleece that he has more or less Merino blood in him, yet he is topping the mutton market to-day.

I have sold mature wethers that averaged 111 pounds, and topped the market for that day in Kansas City. Fattening lambs fed on corn alone will have some losses by getting out of condition, but that can be overcome by feeding bran or alfalfa. Corn is the best grain to fatten with, but I have fed wheat with good results.

There is no great secret in raising or feeding sheep. Regularity in feeding and attention is about the only secret necessary to success. They require no more attention than cattle, and not so much as hogs. Twelve head of Merino sheep can be kept on the same amount of feed required by one good dairy cow.

Kansas farmers should raise more sheep and wool. They have the best market at their door for the products of their farms. Sheep produce that which we consume and wear, eat the crops on the farm, thus retaining the fertility of our rich prairie soil. Then Kansas farmers will always be prosperous, the merchant happy, money will be plenty, the politician with his theories on free trade and free coinage of silver to make us prosperous will pass away—his occupation will be gone.

Management of Sheep on the Farm.

By E. S. Kirkpatrick, of Wellsville, Kans., read before the Kansas Improved Stoc Breeders' Association.

To some this subject may have but little significance, as it is the opinion of many people that the sheep is an animal that needs but little or no attention. A man said to me, he intended going into the sheep business, as he had gotten tired running after cattle and hogs, and that sheep need no attention except a pasture to run in and some feed thrown to them in stormy wintry weather. He then told me how his father kept sheep in North Carolina, when he was a boy, by letting them run in the mountains and but seldom seeing them. I never kept sheep in the mountains nor on the range, hence my subject will only treat of sheep on the farm. But I venture the assertion that the man who goes into the sheep business with the above idea will soon find himself out of the business, whether he be on the farm or on the mountains.

The time was, it is true, when the sheepman did not have as many drawbacks to contend with as at present. The same may be said of the hog, horse or cattle raisers. How little did we hear of hog cholera forty years ago, and who ever then heard of the corn-stalk disease? Why, our physicians of that day had not learned to call bad colds in the human family la grippe. Some of these newer and more troublesome drawbacks of the sheepman will be spoken of further along.

As to the management of sheep, the first thing to do is to manage to get a flock of good ewes and a pure-bred registered ram of the best breed you can get. Now, some one asks: "What is the best breed?" I would say the best breed is the breed that suits the man, after he has made a study of the matter, observing the different breeds and their characteristics, as well as his environments, taking into consideration his objects in view, whether he wishes to raise Easter lambs, to raise mutton for the general market, or whether he wishes to make wool a specialty, or to combine two or more of these objects. The best breed, I say, then, is the breed he likes the best and thinks will make him the most money. And, after selecting a breed, stay with it and don't be changing from one breed to another every year or two.

In selecting a flock, I would not say to purchase pure-bred ewes. While purity of breeding is an absolute necessity on the part of the sire, it is not at all essential on the part of the dam. Purity of breeding on the part of the sire tends to render him prepotent, and, because of this prepotency, it gives him the ability to effect improvement. The lack of purity of breeding on the part of the dam takes away her power to resist change in the direction desired when mated with a pure-bred sire, consequently dams of very mixed breeding are excellent material upon which to commence the work of up-grading, so far as blood elements are concerned. Allow me to emphasize, here, that, under no consideration, use anything but a pure-bred registered ram, and in making a selection be sure and get a good individual as well as a good pedigree.

The time of coupling will depend on whether the lambs are to be sold off the ewes for the early lamb market or to be kept through the summer and the wether lambs fed for market the following winter. For the latter purpose, I would advise having the lambs dropped in March. This will necessitate the coupling to commence the first of October. For two weeks previous to this time, the ewes should have good, fresh pasture, with a light grain ration. By this treatment the ewes will come in near together, and the lambs, being nearer the same age, will be easier taken care of and will do much better. The ram should never be allowed to run with the flock, but should be kept in the barn during the daytime, fed on good, sound oats and bran with clover hay or cut grass. A good plan is to let him with the flock an hour morning and evening. If not over 30 ewes, he may run with them during the night. After the breeding season is over, the ram should be kept entirely away from the ewes.

The ewes should not be allowed to run down in flesh during the winter. Better have them too fat than too thin at lambing time. Then feed should be of a flesh- and muscle-forming nature, such as oats or bran. Corn fodder is a good feed for all kinds of sheep, but I would not advise a heavy corn ration for any kind of sheep, excepting when being fed for the market. Keep the best clover hay for the ewes after weaning time. They should be given plenty of exercise in good weather and well shedded during storms.

When the lambs commence coming is when the shepherd must be up and stirring. He should visit the flock every few hours, both day and night, especially if the weather is cold and stormy. As soon as the lamb is dropped, it and its mother should be removed to a small stall to themselves. See that each teat is open, by drawing some milk with thumb and finger, and see that the lamb takes nourishment before leaving it. Often it is necessary, with a weak lamb, to milk some milk in a spoon and pour it down the lamb. After the lamb is a few days old and strong enough to follow its mother, they may be turned in the lot with the other ewes and lambs. The feed now should be increased and of such a nature as to produce a large flow of milk. One should have a variety of feed, so as to make a change every day or two. Oats, bran, corn chop, with a little oil meal, make a good grain ration. For rough feed we have found nothing better than clover hay and corn fodder. We have had no experience with alfalfa, but have no doubt but it is one of the best of hays for sheep.

The little lamb should be taught to eat as soon as possible, by keeping feed in a trough in a pen near by, so arranged that the lambs can go in and out at will. This should be kept up until the ewe can go through the same hole that the lamb does, even feeding the lambs after the sheep go on grass. If ever a sheep is to have short rations, don't let it be during the first three months of its life. The same might be said of any other kind of stock. Dock the lambs and castrate the ram lambs when about two weeks old.

We would shear as soon as the weather is warm enough, as both ewe and lamb do better after the ewe is sheared. Both ewes and lambs should be dipped in some good sheep dip about two weeks after shearing. This is much cheaper than to feed the ticks on tender lamb mutton. The ewes and lambs, freed from ticks and turned on grass, everything goes nicely, the shepherd salts his sheep, watches the lambs grow, and figures the amount of money he will be able to apply on his mortgage from the sale of his surplus stock during the next fall and winter, until, in July or August, he discovers, first one or two, later more, of his fine lambs lagging behind the flock, lying down a great deal of the time, usually selecting a damp place to lie in. They soon become weak and emaciated, sometimes securing. This, to the inexperienced person, is the first observation of what has become the worst drawback to sheep husbandry of the present day—the internal parasite in one of its many forms.

On this subject alone might a whole volume be written. Of these parasites, we have the twisted stomach worm, the lung worm, the different kinds of tapeworm, also the different forms of intestinal round worm. Of the first two mentioned, we will speak more particularly. The twisted stomach worm (Strongalus contortas) lives in the fourth stomach. The lung worm is found, as its name indicates, in the lungs and throat. It is a small white worm, almost invisible in the mass of frothy mucus in which they are gathered in clusters. This disease is first recognized by severe fits of coughing. Each of these species of parasites, and I might say most all other internal parasites, if reached at all, must be reached by some strongly diffusive medicine, such as turpentine, benzine, etc. For a description and symptoms of of the many parasites above mentioned, as well as the treatment for the same, I will refer those interested to "The Domestic Sheep," written by Henry Stewart, which is the best treatise on the subject I have ever seen, and a book that no owner of sheep can afford to be without.

I will give a little of our own experience with some of these pests during the past year, which, I think, was a reasonable success. During the fore part of the summer we turned a half dozen of our finest Shropshire lambs with their dams in an old pasture, near the barn, that they might have a little extra care and fit them for the fairs in the fall. All went well, and we could imagine blue ribbons hanging all over these lambs, until, about the middle of July, we discovered that the pests were at their work. There were unmistakable signs of the stomach worm. We also soon discovered the same in the large flock. We at once went to work, using turpentine as our principal medicine, and for nearly two months our hospital was at no time entirely empty. Our treatment was, one tablespoonful of turpentine in three ounces of sweet milk, shaken till emulsified, and given on an empty stomach, for three or four days. Sometimes it was necessary to repeat the treatment in a week or two. We also fed worm powders to the whole flock. We weaned the lambs and turned them on fresh pasture that sheep had not been running on. After the first of September they had access to a patch of rape. As to our success, we lost three lambs at the start by not getting after them soon enough. Thirty-eight of the grade lambs weighed 90 pounds each on December 7, and sold for $5.60 in Kansas City, topping the market 20 cents above anything sold that day and for two months previous. Our ewe lambs and pure-bred ram lambs left at home are in fine shape and we never had lambs to winter better than they are doing. One thing we observed, that lambs running on oldest sheep pastures were affected the worst. These parasites are always worse during a wet summer, as the eggs or the parasite filled with eggs are ejected by the old sheep, which are able to resist their effects better than the weaker lambs, and these eggs are taken up again by the grass and through the water drank from the small pools in the pasture. Hence, great care should be exercised in furnishing sheep with pure water to drink and plenty of it. We have never tried the benzine treatment recommended by Mr. Wing, of Ohio, but should we be bothered with these parasites another year as in the past, will give it a trial, as we see no reason why it should not be as effective as the turpentine, besides having fewer objectionable features. We believe, by giving all the sheep, old and young, treatment and changing the pastures frequently, that the majority of these pests may be, if not entirely eradicated, so reduced that they will give but little trouble. To this end we are plowing up our old pastures, will sow more rape and fall rye and will keep our lambs on fresh pastures all we can.

Here I would insist on sowing rape. We have tried it two years, and it affords more good feed to its cost for sheep than anything we have ever tried. If you have no ground you wish to use wholly for it, sow it in your corn at last cultivation, at the rate of about two pounds to the acre, and in about six weeks it will make a fine place to turn the lambs for a few hours each day after they are weaned. But don't turn on it when it is wet, as it is liable to produce bloat or scours. A pound of turnip seed will add to its value, and the sheep will eat them out of the ground. By this method, green fed with great fattening qualities can be procured until hard freezing.

In closing, I would say to the sheepman, make a study of your business, keep your eye on your flock as they go out and as they come in, as they lie down and as they get up, exercise good judgment in general, stay by the sheep, and you will be happy.

DISCUSSION.

Mr. Harrington: I suppose it is well understood and will be from this time on, that when the sheepmen are called upon the bald-headed men will always respond. Mr. Westbrook will have to respond now, I suppose, because his hair is the thinnest of any man's I know of in the audience.

Mr. Westbrook: I would rather be excused until later.

Mr. Clark: I am very sorry that those interested in the sheep business are ashamed of it. They brag about their bald heads, but I do not know how they get them, whether it is from their wives or from their sheep. Why they hold back on the business I don't know. I am not ashamed of the business. I am not ashamed of anything good that has been my friend. I never handled anything or any kind of business that was so innocent and that responded more profitably to the acre than sheep.

Mr. Harrington: It is not supposed

that I know very much about sheep, but if I make a few remarks it will stir up Westbrook and Kirkpatrick or some of the rest of them, and they will probably give you some good information. I was raised with sheep, up near the north pole, in Wisconsin; and, by the way, I used to think that Wisconsin was the best State in the Union. It was the best State except Kansas, and if I am driven out of here I am going back to Wisconsin. My father used to keep sheep when I was a small boy, and I have a right to like and dislike them. He used to put me out to follow the sheep, and I had to follow them up, and generally go somewhere where I did not like to go, in order to round them up and bring them in; and when winter time came I had to help feed those sheep. My father used to feed them on oats. I left Wisconsin and came to Kansas, and I believe that if I had bought a flock of 500 sheep and stayed with them, that I would have made more money out of them than anything else. I bought some sheep at Kansas City and they made me little or no money. I got rid of most all of them, but had a few of them left that I could not turn off, and I turned them in the pasture along with the other stock, and those sheep raised me lambs, and the next Fourth of July all the butchers around that country were running after my lambs, and that July I got three times for those lambs what my sheep cost me in Kansas City. But I went out of the sheep business. My boys would not herd them, and I had an antipathy against herding them myself, and as the boys would not do it for me I had to quit the business.

Mr. Westbrook: I am not ashamed of the sheep industry, nor to talk about sheep. The objection that I had was, that I had been listening to that noble paper that so thoroughly represented the saddle horse, which said so much with so little talk, that I did not feel competent to talk, and I did not. It was because of that fine paper. It made me feel as though I was very incompetent, and that was just the reason that I did not get up and talk right away. There is no animal that I have ever had which gave me better satisfaction or responded more quickly to good treatment than sheep, but I just want to say that the men who keep sheep, as a rule, are not all bald-headed, but most of them have a little money, and they generally have a good home and most of the people in the community respect them. There is no animal, in my experience, that anybody can raise (and there are more of them) and get less profit out of than a hog. Now, if Mr. Harrington had taken 500 sheep, and the State of Kansas had treated him fairly in the matter of legislation, and he had stayed with his sheep, by this time he would have been the richest man in this State; now I believe that. The main trouble that I find with the sheep business in this country is the wolves, and I think that the State of Kansas ought to pay a bounty on all wolf scalps. I think the State ought to pay $10 bounty for each wolf scalp. I think that everyone ought to have a little bunch of sheep, say 12 ewes. I think a man with 160 acres ought to have 25 sheep. With them he can raise more stuff to sell off from his farm, and keep those 25 sheep, than if he did not have any sheep at all. There will always be 5 or 6 of them in that bunch that he does not want, and he can say to his neighbor: "I have some sheep I am going to kill, don't you want some?" And he will sell half a mutton here and a mutton there, and the first thing he knows he will have them all sold. I don't believe that in the town of Peabody it will average one day of seven when we can buy mutton at the meat shop. A great many of the people ask me for mutton, and there are only a few herds around there, and the most of those fellows who have them have got a carload or so, but they don't want to bother with killing a little bit now and then. So far as the profit is concerned, I don't want to say anything about it. There is no question about it, that it is about the only thing in farming that pays. It is the inconvenience of herding my sheep and keeping them in a corral that bothers me.

Delegate: Doesn't that prevent the success of every small flock in this State, the inconvenience of herding the sheep and keeping them in a corral every night?

Mr. Westbrook: Yes, sir, or any other animal. Suppose you had to shut your hogs in a pen every night. If the hogmen had to do that I would like to know how many of these men would be talking hog breeding here. If they had to contend with this every night they would not be in the business. I want to say to you fellows, that the sheep is the cleanest and nicest animal there is. They don't like dirt and won't be dirty if they can help it. They don't eat much. You can drive a flock of sheep right through a field of corn; they sometimes stop to pick a little corn, but it is very seldom that they do. They will eat the weeds before they will the corn. Of course, it is well to give them some variety of food, such as tame grasses, clover and so on, but they do like a variety of weeds. Then, at night, they will go up on the highest piece of ground that you have. It is perfectly natural for them to do this, and they will leave their droppings there on the highest and poorest piece of ground. In the hot weather a sheep wants to go out and eat its breakfast before 9 o'clock, and it ought to be driven to the pasture by that time, so that through the heat of the day it can be in the shade.

Mr. Harrington: What breed of sheep have you?

Mr. Westbrook: Merino, and I expect my flock to produce me next spring 14 pounds of wool to the head.

Mr. Harrington: How large a flock have you?

Mr. Westbrook: It is getting smaller as I get older. My boys will herd my sheep when I tell them to look after them, but I don't like to make them do what they don't want to do, and I am getting too old to do it myself. But that kind of sheep don't want much herding; a little bit of a low fence about two feet high will do for them.

Mr. Harrington: Do you still have the Merino?

Mr. Westbrook: That is my liking. I bred last year to some full-blooded

Shropshire bucks. I also have some goats on my place, but they are a nuisance. I don't believe I ever had a place I could keep them out of.

Mr. Harrington: What is the most profitable sheep to raise in Kansas?

Mr. Westbrook: That depends upon how you are situated. The writing of how are you situated. The writings of people in Kansas City advocate a coarser and larger sheep and condemn the Merino, as they dress away more than any other sheep and a great many of them have too much hide. The smooth or Delaine Merino, in my judgment, is the best sheep, and I will say that no man in this house can tell a Merino or the color of the wool by the mutton. It depends entirely on the the way you dress the sheep. The Merino is harder to dress. When you dress a sheep and let the warm flesh come in contact with the wool, that makes a very bad taste in the mutton. The Merino sheep will live on less food than any other sheep I have ever seen.

Mr. Clark: Some people look at the sheep business as a great mystery, but I want to say that there is not any mystery about it. There is no animal that we have anything to do with that has more regular habits than the sheep. I have a couple of hundred of sheep and I would rather keep them than a dozen hogs. One reason is, that they keep themselves virtually on nothing to eat; another is that while they are eating it they are destroying nothing.

Question: You say that you have 200 sheep. What breed are they?

Mr. Clark: The majority of them are crossed between Merino and the Shropshire.

Question: Do you think that that is any improvement on the Merino?

Answer: Yes, sir, I do. I used to think the Merino was the sheep. There is no coarse-wool sheep in my experience that will flock together like the Merino.

Question: After you take them and improve upon them by crossing with the Shropshire, do you get any more wool than you got from the Merino?

Answer: I do not know that you get any more, but it is a better class and will bring more in the market. We get the very best wool, called medium wool.

Question: Are they any better mutton sheep?

Answer: Yes, sir, and that is what we want, the combined sheep.

Question: In what respect are they a better mutton sheep?

Answer: Well, I guess it is because people like it best. I have eaten both and I don't know that I can tell the difference, but I do know there is a prejudice against the Merino.

Question: Mutton sells by the pound, and when you get a large carcass you get more out of it don't you?

Answer: Yes, sir. Now I started out to say that it will pay you to keep a few sheep, to allow them to run in your corn fields and patches. Some people think that sheep destroy the corn, but that is not a fact.

Question: Cattle do not like to run after sheep, do they? Mr. Westbrook, I believe, seems to differ with you.

Answer: If you run too many sheep with the cattle, of course they don't like it.

Question: Have you got your pasture fenced so they cannot get out?

Answer: Yes, sir. I have a stone wall there which runs for 150 rods right along the road. We have no trouble with it. Our sheep have never got out of it.

Question: Do you use barb wire?

Answer: Yes, sir. I started out to encourage those who wanted to go into the sheep business, and I would like to have any man in this room tell me of any kind of animal that will pay for itself the first year and have the animal left, excepting, of course, the sheep.

Mr. Kirkpatrick: I think Mr. Westbrook's speech is rather discouraging. I think that we really ought to have some legislation for our protection, but I do think we can get along without it and then make some profit. Now, I will tell you the way I do. I bell all my sheep. You can get a three-inch bell for 90 cents a dozen, and you can get hame-straps for 40 cents a dozen. I have been doing this, and it scares the wolves and dogs away. I have never had a wolf destroy or tackle a full-grown sheep. I have never known a wolf or dog to take a sheep with a bell on it.

Mr. Harrington: I want to know which is your ideal sheep now.

Mr. Kirkpatrick: There is only one kind of sheep, and, of course, that is the Shropshire.

Question: Do the dogs bother you in the daytime?

Answer: They have, but not since I have adopted the bell.

Question: Do you corral them at night—bring them up?

Answer: No, sir; I have quit that. A very little teaching will get your sheep so they will come up to the corral at about 6 o'clock.

Question: Tell me how to teach them to come up.

Answer: Go after them and bring them up a certain hour at night. Give them a little feed when you bring them in, and turn them out regularly in the morning. I had 25 acres of buck brush four years ago in a walnut grove. It was so thick that you could hardly walk through it, but now, after pasturing my sheep in there I think I could put a crop in.

Question: Did you ever hear it said by the commission men of Kansas City that the best selling mutton is a cross between a Shropshire buck and a Merino ewe?

Answer: I have heard that very highly recommended.

The Home Circle.

LOOKING FORWARD.

Sleep, let me sleep, for I am sick of care;
Sleep, let me sleep, for my pain wearies me.
Shut out the light; thicken the heavy air
With drowsy incense; let a distant stream
Of music lull me, languid as a dream,
Soft as the whisper of a summer sea.

Pluck me no rose that groweth on a thorn,
Nor myrtle white and cold as snow in June,
Fit for a virgin on her marriage morn;
But bring me poppies brimmed with sleepy death,
And ivy choking what it garlandeth,
And primroses that open to the moon.

Listen, the music swells into a song,
A simple song I loved in days of yore;
The echoes take it up and up along
The hills, and the wind blows it back again—
Peace, peace, there is a memory in that strain
Of happy days that shall return no more.

Oh, peace! your music wakeneth old thought,
But no old hope that made my life so sweet,
Only the longing that must end in naught.
Have patience with me, friends, a little while:
For soon where you shall dance and sing and smile,
My quickened dust may blossom at your feet.

Sweet thought that I may yet live and grow green,
That leaves may yet spring from the withered root,
And birds and flowers and berries naif unseen;
Then, if you haply muse upon the past,
Say this: Poor child, she has her wish at last;
Barren through life, but in death bearing fruit.

—Christina Rossetti.

THE PALE GREEN BOX.

"I wouldn't never open it for anything in all this world, not even if you should give me a thousand dollars right down, the handsomest house in all Clinton, and a dozen servants to manage it.

"I wouldn't, no, I wouldn't even lift the cover if the minister told me I'd got to, to save my soul."

In her earnestness Abigail Simpson stopped rocking, and looked askance at the subject under discussion.

It was an ordinary, old-fashioned, round cheese box, painted a pale green, with a very shiny surface. On the cover, rudely carved, evidently with a dull knife, were the letters S. S.

"That belonged to my great-grandfather," Abigail went on, hitching her chair a little farther away, "and it ain't never brought good luck to nobody, and don't nobody have the least idea what's in it, and they ain't never likely to, while I'm a-living."

Her niece viewed the box with fresh interest. "What do you suppose is in it?" she queried, with just a thrill of awe in her voice. "Maybe it's empty."

"No—Uncle Gershom shook it once and there was things inside that rattled. He thought it might be money, and he 'most opened it, but he didn't quite, you see. Nobody ever has."

"But why not?" persisted the young girl. "There can't be anything dreadful in it. There might be some rare old coins or deeds or something valuable. It's only a box. I should think you'd have Uncle Jason pry the cover open with a knife. The paint has stuck it fast." She gave the box a shake and tugged at the cover.

"Don't you ever try!" her aunt screamed, jumping from her chair with a vehemence that sent it over backward.

Then, as if ashamed of her emotion, she added, more calmly, "Put it away, Abby, do. It can't do you no good, and I'll tell you why we don't never open it, any of us."

The girl arose obediently and, taking the box, returned it to the dark corner in the attic where she had found it. Her aunt listened in a tremor as the young feet echoed over the thin boards of the attic floor and came down the stairs.

She breathed a sigh of relief as the girl entered the room. "It gave me the shivers to hear you up there and know you was a-thinking of the box," she confessed. "You sounded so much like Tryphena when she got took with the notion to see the inside of that box."

"Poor Tryphena," she sighed dismally.

"She was the aunt whose lover was drowned, wasn't she?" the girl asked gently.

Her aunt nodded assent. "I might as well begin at the beginning," she said, "and then you'll see why."

"Great-grandfather had that box for something, but what he and the grave only knew. When he died 'twas left up in the attic, way under the eaves, with a hair trunk and lots of old rubbish, and nobody didn't think of disturbing it till one day grandmother had a clearing-up fit. She was awful energetic, and she was bound to get that attic cleared out for once. It had a terrible lot of old stuff in it, so she began real systematic and was going through everything.

"She'd just got round to the hair trunk and had been reading some of the letters in it, and just took up the box to open it when she heard an awful scream, and went rushing down stairs and found that grandfather had got hurt bad and they was bringing him home.

"He was dreadful sick and didn't never rally, and grandmother never finished cleaning. But after he died she tried it once, and when she came to the green box it all came back to her so plain she just couldn't do any more.

"Then, one day, Aunt Tamar was rummaging around and she came across the box and thought she'd like it to keep a hat in, and there came a dreadful big clap of thunder, and a bolt of lightning came right down the chimney and numbed her so she didn't get over it for hours. And if you'll believe me, that lightning went across the attic, and when it got to where the box was it turned right off straight and never touched it. We could tell, 'cause it left a burnt track, with a sharp angle in it where the box was."

"How do you account for that?"

"It just means folks nor powers nor nothing was to touch that box. That's what it meant.

"Well, your Uncle Gershom tried it once, and he was taking it over to the light, and he run into an old lantern that was hanging up, and it cut his forehead dreadful, and he dropped it and ran off for the doctor, and the next time we went up in the attic the box was back in its place again."

She paused to give emphasis to the phenomenon.

"And then Tryphena took a notion to open it. N' just then Silas came running over to tell us how Tryphena's beau had got drowned. Mother went up and told her, and she just put her head down on the box and didn't say anything for a long time. And when finally she did come down we was all here, and we could hear her feet come 'cross the floor, just as quiet and steady, and when she came in she smiled at us. And—and the next morning—the next morning Tryphena's hair was snow white."

Abigail rocked in silence for a moment.

"No one has tried to open it since then," she said, "and I don't think nobody will, while I can help it."

She arose suddenly and went out into the kitchen. Abby looked after her and there were tears in her young eyes.

"Say, was Great-grandfather Simpson an awfully methodical man?" queried Walter at supper, pausing between muffins.

"Very," replied his aunt. "Why?"

"And his name wasn't Solomon or Samuel, or anything that begins with S?"

"No. It was Zattu. You don't often hear that now."

"Well, then, it must be!" he said conclusively.

"What?" queried Abby.

"Why, the box," he replied.

His aunt pushed back her chair.

"I found one up in the attic," he explained, "and it had S. S. on top of it, and I thought it might mean a sign for dollars, so I opened it."

There was a sharp exclamation from Abigail. She was very pale.

"The cover stuck like fury," Walter continued, "and I broke three blades of my jackknife to get it open, but I was bound to do it, and I did."

"What?"—his aunt attempted to say, while she looked beseechingly at Abby.

"Oh, just an old almanac and some dried squash seeds," Walter replied carelessly. "That's why he marked it S. S., you see—squash seeds. I took the box and dumped the seeds on the floor."

There was a sudden crash outside, and an Irish howl, as Bridget tripped and sent the boiling teapot flying.

"I never knew it to fail," Abigail said, folding her thin hands resignedly.—Chicago Inter Ocean.

Capron of First Artillery.

The army officer whose personality most impressed me during the Santiago campaign was the late Captain Allyn Capron, Sr., of E battery, First artillery. From July 8 until early in August my company was camped on "Misery hill," as we called it, right alongside Capron's battery. I saw a great deal of him and his men. Captain Capron was a short, broad-shouldered, stockily built man, with iron-gray hair. Evidently between 50 and 60, he was straight as a ramrod. He had a neck like a bull, the back of a wrestler, and a head that was a cube. His men danced when he gave a command, but never tired of bragging about him. One of his privates said to me:

"When a thing goes wrong the old man may cuss the entire battery into a hemorrhage, but he never sticks a decent man in the guard house or gets him fined."

A few days after the San Juan engagement met an artilleryman whose enlistment had just expired. I remarked that I supposed he would get back to the States as soon as possible and bid good-bye to soldiering.

"You bet!" he replied, and then added: "Unless I can get in Capron's battery. I'm on my way to see the old man now."

One of the yarns that traveled the rounds of the encampment before Santiago went this way. It was on one of the three days of the San Juan fight. Capron was leading his battery up a road toward the front when he came upon a battalion of men lying down along the roadside. While the rest of the regiment went on a faint-hearted major had kept this battalion back. As Capron rode stiffly by, paying no heed to the drop shots that fell around him, the quaking major got on his feet and, saluting, asked:

"Lieutenant, what shall I do with my men?"

"Damn your impudence!" thundered Capron, "are you so badly frightened, sir, that you can not see that I'm a captain? Tell your men to go to the front, and then, by God, sir, go home, sir, and get under the bed, sir!"

One morning on Misery hill I witnessed a sample of Captain Capron's methods with his men. It is a time-honored custom in the regular army to give a rookie, or new recruit, much more than his fair share of fatigue duty. The regulations protect each man, but it takes the recruit some time to learn his rights. On the morning in question Capron's men had received orders to build their intrenchments higher. A corporal had put a lone private at work carrying gunnysacks of sand and piling them along the battery trenches. The poor fellow staggered back and forth with the heavy bags, fairly dripping wih perspiration. The other men of the battery were scattered about in the shade of the trees, taking their ease. Captain Capron emerged from his tent, and, with a grim smile, surveyed the scene. Then he shouted:

"You, sir! Come here, sir!"

The rookie marched up, sack on back. As he said himself, "he was scared stiff." Capron looked him over sternly.

"Drop that sack, sir!"

The recruit dropped it as if it had been red hot.

"Stand at attention, sir!"

The order was obeyed, with evident apprehension as to what was coming next.

"Don't you know your rights, sir? Because you are a willing horse they are working you to death. One man, sir, doesn't do all the work of a battery. The first sergeant will instruct you. That will do, sir!"

By the time Capron had completed his reprimand and reentered his tent a dozen privates had carried a sack each to the trenches, and the rookie's morning task had been completed in about three minutes.

At the engagement at Las Guasimas Capt. Allyn K. Capron, of the rough riders, son of Captain Capron, Sr., was killed. His body was left for a time where it fell. His hat was placed to cover his face, and a black rubber poncho thrown over the body. Only the rough, mud-clotted shoes protruded from beneath the poncho. Word was sent to Captain Capron, Sr., and he soon reached the scene of the engagement. Whiteface, but upright, he stood for a moment looking down at that black, forbidding outline in the by-path of a thicket—all that remained of the last of three promising sons. Stooping, he lifted the hat from the dead boy's face and gazing at him with moist eyes, said:

"Well done, boy!"

Then replacing the hat he turned on his heel and marched stiffly away.

In my memory of the men and events of the Santiago campaign there will always stand out clean-cut the image of Capt. Allyn Capron—man and soldier. His Creator forgot to put a hinge in his back. And he deserves from his countrymen a monument inscribed:

"Well done, Captain Capron."—New York Sun.

Written for the Kansas Farmer.

The Black Dress.

Women who live in the country find the black dress absolutely indispensable. There are so many occasions where it seems a necessity, and so few where it may not be worn, that the woman who can aford but one new gown should select black.

Women with sallow complexions, or gaunt, sickly faces seldom look well in black; but they can overcome the difficulty by wearing white or some becoming color near the face.

Short women should not select shaggy materials, or those showing large figures; leave those for the thin sisters, who need them, and choose a smooth goods with a dull, rather than with a shiny surface.

The economical woman will purchase enough material for two bodices to be worn with one skirt, and she will wear them as nearly in alternation as possible. In that way she will look well dressed for a much longer time. The bodices should be made after very different patterns. For instance, let one show a jacket effect, and make the other into a fancy waist suitable for more dressy occasions. The skirt trimming should look well with either style.

The longer the new gown is to be worn, the better should be the material. Only they who have many gowns can afford cheap goods. In selecting trimmings avoid anything except that which will wear a long time without looking shabby. Good velvet, good ribbon or silk, good braid, machine stitching and trimmings of material of which the gown is made, are all to be recommended.

MARIE SIAS.

The Young Folks.

AFTER SCHOOL.

Always at 4 o'clock on days when the sun
shines warm,
He sits in his sheltered corner of the porch
at the poorhouse farm—
The schoolmaster, aged and feeble, un-
friended and long forgot,
In his afternoon dream revisits the places
that know him not.

Once more he stands in the schoolroom,
close by the open door,
To say good-bye to the children when
school is dismissed at four;
When they merrily troop before him—the
little ones fair and sweet—
(How weary has been life's journey for
some of these baby feet!)

Here's the youth, pale-browed and ardent,
fame's hero beloved to-day,
And the rollicking lad so early 'neath dai-
sies hidden away;
Here the idle, mischievous urchins—lovable,
though so bad—
And the master is glad of the floggings
they missed, which they ought to have
had.

Then the girls—oh, the girls—their dear
faces tenderly shine for him still.
As he sits on his bench in the corner of
the poorhouse under the hill.
Will the pauper no more remember these
bitter and cruel years
Of cold neglect and sorrow, their loneliness
and their fears?

So, he smiles in his peaceful dreaming, this
day when the sun shines warm,
As they usher to him the stranger who
visits the poorhouse farm—
Who comes with a hurried footstep and
eagerly glancing eye,
Who kneels by the bench in the corner, and
calls in a sobbing cry:

"Wake up, dear old prof., professor, it's
one of your own boys—Hall!
You haven't forgotten me—Donald—the la-
ziest lout of them all?
I've hunted you up, professor, from now
I'm your own son Don;
My wife and the kids are crazy to see you,
so just come on!"

But the schoolmaster gives no answer, the
silver head, downcast,
Gives never a sign or motion, though a
strong man's tears fall fast
O'er those shrunken hands, meek folded
on his old staff, truly friend,
Alone of all he had cherished, to stay with
him to the end.

Yes, all is over, boy Donald, the love that
has come too late
Can only carry him sadly out through the
pauper's gate.
So passed the soul of the master to the
land long gone before,
To the "home and a hearty welcome," in
life forevermore.

—Janet L. Ohr, in Baltimore American.

Written for Kansas Farmer.

YOUNG FOLKS IN THE OLD COUNTRY.

BY ANNA MARIE NELLIS.

NUMBER 55.

Returning in August from the tour of northern Germany and Denmark, it occurred to me that while I had attempted to describe many cities of "The Fatherland" I had not written much about Berlin, its capital—the Mecca of all good Germans, to which they hope to go some time during their earthly pilgrimage.

I determined to make several long letters descriptive of the city and some of its many beautiful palaces and public buildings, but matters of a personal nature prevented for the time being. I had to devote the months of August and September to close study in order to hope to pass the required examinations for admission to the University, for which I had been working steadily during the past year.

The hoped-for result having been realized, I will commence my "write-up" of Berlin by telling about its University, which is named, in German, "Der Friedrich-Wilhelms-Universitat zu Berlin."

The German nation considers itself a quite intellectual combination, and it is the happy possessor of twenty universities within its borders, which are attended by 30,000 students. The University in Berlin has 6,000 of these students, or one-fifth of the total number in the empire.

Somewhere near the beginning of the present century, the greatest and most important university in Germany was in the city of Halle. Napoleon, the Emperor of the French, about that time was doing with Germany very nearly as he pleased. Among other things accomplished by the conqueror, he created the Kingdom of Westphalia for one of his brothers, and the University of Halle was included in the new realm.

The German folks were very sorrowful over the loss of Halle, and they mourned as truly as did the darky songster for "Hallie," who was "sleeping in the valley," while "the mocking-bird was singing where she lies."

However, they did not mourn long, but concluded to create a university at Berlin which should become more powerful than all the others in the "Fatherland." Prince Henry, the brother of Frederick II. (the Great), had built a beautiful palace on the now famous street, Unter den Linden, in 1750; but, after the death of that Prince, it had remained unoccupied. In 1809 the "University of Berlin" was founded and endowed by the Government. It was at first intended to be located in Potsdam, but the chief of the department of education, William von Humboldt, prevailed on the King to establish it in the capital city. The King then set apart the empty palace of Prince Henry for the new University, which is now named in his honor, and was opened on October 15, 1810, for its first half year.

The University building proper is at the eastern end of Unter den Linden; across the street is the Royal Opera House and the Royal Libraries; to the left is the Arsenal and the Schloss Platz (palace place). This section of the city is by far the most interesting and beautiful. Here are the galleries, palaces, monument of Frederick the Great, arsenal, opera house and library above mentioned, besides many other buildings of great interest.

Besides the main building there are scattered about, in different parts of the city, 14 other buildings belonging to the University—laboratories, museums and institutes of all the different branches of study. The palace building is of gray stone, three stories in height, and in form, the three sides of a rectangle, the fourth being open to the street, but separated from it by a high iron fence of a very ornamental pattern, in the center of which is the entrance proper to the University.

On the right and left of the gate are fine statues of William and Alexander von Humboldt, brothers, who were among Germany's most famous men in the domain of letters and intellectual discoveries. Inside the gate is a beautiful park or flower garden, with pretty walks, where the students promenade during the fifteen minutes intermission between the lectures.

Of the 6,000 University students in Berlin, this year, there are less than one hundred women, nearly all of whom are fully 20 years old—and some have been for a long while. I discovered that the trials and vexations a woman has to endure in order to gain admission to the University are not such as to remind her much of a summer picnic in Kansas. While women are indeed admitted, yet there seems to be an unexpressed opinion among the professors that the importance of the institution would be far greater if all the students were men.

In my own case, the experience was as follows: I took my credentials—passport and certificates of examinations I had passed—to the secretary of the University, who is a very cross old gentleman and decidedly opposed to higher education for women; in fact, he told me so. I had been told that he was extremely severe, and if he could find an objection to a candidate he would refuse enrollment. When I entered his office he scowled at me as though much annoyed at being bothered by a woman. I simply handed him my papers and he did me the honor to look them over carefully. As he read them his face assumed a pleasant expression, and he evidently concluded they were in proper shape. He looked up and asked me why the lady didn't come herself. I informed him that I was the one named in the papers he held. He remarked that he considered me very young to attend the University, and then added: "A letter will come to-morrow telling you whether you are admitted or not." I knew that meant I was accepted, otherwise he would have handed back my papers.

My letter came, all right, a very officious-appearing piece of paper, announcing that Anna Marie Nellis was permitted to study at the "Friedrich-Wilhelms-Universitat zu Berlin." I was, of course, delighted, for I had been informed that very many women applicants are refused admission every year, and a larger number this year than ever before.

The next requirement for me was to go to the recorder's office at the University and sign the rolls and answer numerous questions concerning my ancestors, where I was born, where I had lived and where and what I studied. Finally, when I had registered in a dozen or more books, I was directed to the "cassi" or treasurer's office, to pay the usual fee. That office was crowded with students awaiting their turns, and it was over an hour from the time I entered before my name was registered in a big book—so big that it must require three strong men to carry it.

At last I was through with the troubles of matriculation, as much as a woman can matriculate, for no woman is allowed, as yet, to take a degree at the German universities.

The ambitious German youth, who may not have been "born in the purple" (and very few have been), fully understands and truly estimates the value to him of an education completed at the University. To become a college professor or a member of one of the other learned professions is the very height of earthly ambitions which seem possible to him; for these carry with themselves social distinctions which even wealthy ones in trade cannot enjoy.

Before a young man in Germany can enter any of the universities he must study for nine years in the "gymnasium," where Latin and Greek roots must be thoroughly extracted from print and permanently transplanted into the brain of the ambitious one.

The time he may spend at the University is determined by the special department of study he wishes to pursue and the diligence with which he occupies his time. The shortest time in which he may take the least degree is three years, and from that length of time to any number of years he may maintain his student connection with the University. I know of one student who began his University course in Berlin nine years ago, and he is quite confident he will take his degree in three more years; of course he has not attended regularly, but has studied at intervals after earning enough money to support himself for a half year or a whole year at a time.

I might give a short description of the sports enjoyed by university students in Germany, such as the "mensur" or duel, but of course it would only be from hearsay and from printed narrations I have read. What baseball and football are to American college men, the duel is to their German brothers. But their duels are seldom very serious, and a few slight scratches are the usual result. I have noticed on several occasions, students in the lecture room with face bandaged or arm in sling. Such fortunate ones are always sure of congratulations from their fellow students, and it needs no weather prophet to decide that they have been "honorably" fighting with swords.

The men students are divided into various corps, which are distinguished by the uniform or caps and badges. On "gala" occasions the corps students wear very picturesque suits—velvet coat, white trousers, high patent-leather boots, long white gloves, a very large sword, and, perched above the left ear, a very small round cap the color of which designates the corps, and it is held in place by a rubber band around and under the chin.

All the professors are elderly, and even old, men; one whose lectures I attend twice a week is quite popular but somewhat eccentric and nervous. He comes rushing into the lecture room promptly on the minute, "out of breath," as though he had run all the way from Brandenburgerthor to the University at the eastern end of the Linden. He hangs up his hat and coat swiftly and begins talking before they are quite in place. While rushing down the hall to his rostrum, he has been cheered by the stamping of hundreds of feet and clapping of hands, for he is a favorite among the students. He talks rapidly for forty-five minutes and leaves the platform while speaking the last sentence, grasps his coat and hat and rushes out as though he wishes to overtake the cyclone train for Kansas City; but the boys love him and cheer always as he leaves the room.

Curiosities of Peerage.

Even to the casual student the British peerage bristles with points of interest and curiosity, while to the more profound investigator it would yield material sufficient to fill a library of books of absorbing interest.

It is more than a little astonishing to notice the disparity in the number of titles which different peers enjoy. The Duke of Athol is so richly endowed that he could give a title to each of 21 different men, while still retaining his dukedom.

The Duke of Argyll ranks second in the list of men of many titles. In addition to his title as duke he holds 17 titles as baron, viscount, earl and marquis, together with a knighthood over 600 years old.

The Duke of Hamilton has 16 titles to spare, and the Duke of Buccleugh and the Marquis of Bute could each spare 15, while retaining the rank by which they are known.

On the other hand, the venerable the Rev. the Earl of Devon has no second title of peerage, and the Duke of Somerset, even, has only 1 barony to add to his strawberry leaves.

In spite of the unlimited range for choice of a title, many of our peers have titles which they share with several others. No fewer than 5 noblemen are Lords Howard, and the same number are entitled to pose as Lords Hamilton. There are 4 Lords Grey, and the same number of Lords Stuart or Stewart; while of Lords Bruce, Boyle, Hay and others there are at least 3.

This confusion of titles is the more difficult to understand, as there are so many counties still unappropriated. Embryo peers may have a choice of the counties of Dorset, Gloucester, Hampshire, Middlesex, Monmouth, Oxford and Shropshire.

Scotland has 9 unattached counties, Ireland has 6 and Wales 2; no fewer than two dozen counties thus being available for new creations in the peerage.

Of towns patiently waiting selection by ennobled brewers and others there is an embarrassing number, including London and Liverpool.

In many cases a man's accession to a title brings no new dignity to his family. Although the young Earl of Rothes succeeded his grandmother in the title five years ago, his mother still remains Mrs. Leslie and his sisters the Misses Leslie. For some time after his succession the Duke of Portland's mother remained plain Mrs. Bentinck.

The brother of the last and the uncle of the present Earl of Caithness can not prefix "the honorable" to his name; and although the Earl of Loudoun succeeded to 6 baronies in addition to his earldom, his father remained Mr. Charles Abney-Hastings until he in turn was ennobled.

There are several curious cases in which a younger son has become a peer before an elder one, and a son even before his father.

When the Duchess of Sutherland died, ten years ago, her second son became a peer as Earl of Cromartie four years before his elder brother, the present duke, was entitled to sit in the House of Lords.

When Susan Baroness North died, in 1884, her son succeeded her in the barony and took a seat in the House of Lords, while his father, Colonel North, was sitting in the lower chamber.

The Marquis of Granby, as Lord Manners of Haddon, sits with his father in the House of Lords; Lord Curzon is a peer as well as his father, Lord Scarsdale, and Lord Campbell sat in the gilded chamber with his son, Lord Stratheden, who inherited the title from his mother.

While some of our peers were born "when George III. was king," and while Earl Nelson has worn his coronet two years longer than our Queen has had a crown, the Duke of Leinster has not yet reached his teens, and Lord Carbery is a little boy of 6, the age at which Sir Arthur Kennard succeeded to his baronetcy.

Some of the privileges conferred on peers are quaint and interesting. The right of Lords Kingsale and Forester to retain their hats in the royal presence is well known. It is less known that Lord Inchiquin, who traces his descent beyond the Conquest, is entitled to deck his servants in royal livery, a privilege dating from the days of Henry VIII.

A much prouder privilege is that which has been for five centuries the prerogative of the Dymokes of Scrivelsby, who furnish the royal champion at every coronation. The champion, clad in mail, with visor closed and lowered lance, rides into Westminster hall and challenges the world to dispute the title to the crown. This quaint relic of the days of chivalry is one of the most picturesque links with the past, and has survived the changes of 800 years.—Tit-Bits.

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FOR A KANSAS STATE EXPOSITION.

Kansas exhibitors, who have been showing up the State's resources at other expositions and State fairs, have often been humiliated by odious comparisons, owing to the fact that our fairs and expositions, being only local, have been unable to show up Kansas as a whole, although our fragmentary displays have always been creditable and indicate that if we only had a State exposition in which our people had confidence, we could easily out-class any other State.

For several years the various State associations, like the Kansas Improved Stock Breeders, the State Board of Agriculture, the Swine and Sheep Breeders, the State Dairy Association, and the State Horticultural Society, have been planning and working for such an accomplishment. At the latest annual meetings of these associations they finally agreed on a measure that was satisfactory to all concerned. This measure has been introduced in both branches of the legislature and both agricultural committees have reported the bill favorably. It is now pending for final passage. This measure ought to pass. Friends of a State fair and State exposition should confer with their representatives in the legislature, urging their support of this particular measure, which is demanded by those who pay the bulk of the State's taxes.

The bill, in brief, asks for a contingent appropriation of $20,000 annually for a State fair or exposition, to be held under the auspices of the State Board of Agriculture.

No doubt is expressed of the financial success of such an enterprise. Once it is fairly started, it will be self-sustaining and do more to bring to view the resources of the great State of Kansas than anything else that can be devised.

Mr. Updegraff, chairman of the Stock Breeders' committee, sums the matter up as follows:

"Some of the other States make annual appropriations for a State fair. If, however, we get what we ask for the State Board, we think the fair will be more than self-supporting, so that in after years the impairment of the fund (from permanent improvements) will be made whole from the profits of the meetings. California appropriates annually to her State fair $20,000 and to each district fair $2,500. Indiana gave $50,000 to establish her State fair and $10,000 each year in agricultural premiums. Iowa gave $100,000 to establish her plant, and $100,000 of gate receipts have been used for improvements. Massachusetts gives $20,000 every year for her fairs. Minnesota gave $100,000 to establish her fair. New York gave $200,000 for her plant and $22,000 each year for premiums. Nebraska has a great plant and gives $35,000 each year for premiums. Ohio gave $300,000 for her plant and $33,000 yearly for premiums. Wisconsin gave $50,000 for a plant and $6,000 yearly for its support. Illinois gave $300,000 to establish its fair and $20,000 each year to keep it going. Compare these figures with the very modest request that the farmers of Kansas are asking, and one cannot help but commend their cause to our present assembly. As the chairman of the Stock Breeders' committee on legislation, I want to ask the assistance of every farmer and stock raiser to secure the passage of this bill, by calling upon their representative and senator in the present legislature to support the 'State Exposition' bill. Our present assembly is largely made up of farmers and stockmen, who will give the measure their support. The members who follow other avocations are fair and honorable, and if shown the advantages of our bill will likely aid in its passage. If they do, and we have a State exposition under the management of the State Board of Agriculture, not only their children, but their children's children, will rise up and call them blessed."

A PENITENTIARY TWINE FACTORY.

Whether the State of Kansas shall enter the field of the manufacturer will be determined for the next two years by the present legislature. The question of employment for the convicts in the penitentiary, and that without bringing them into competition with good citizens of the State in their efforts to earn an honest living, is one of the serious problems presented to the legislature.

When convicts are sent down into coal mines, there to dig up the fuel needed to keep honest people warm, to cook their victuals, and to drive their machinery, the coal miner who has committed no crime, enters his complaint that convict labor is competing in his market. If convicts are set at work making wagons, or shoes, or any other useful article, the same cry goes up, that the State is providing work for its culprits and driving its honest workers to want and crime.

The State of Minnesota has solved the problem, with apparent satisfaction to its people, by employing at least a portion of its convicts in producing binding twine for the harvest fields. Binding twine has been produced very largely by a trust. This trust has no manufactory in Minnesota, so that no laborers in that State had a personal interest in the market for binding twine.

Kansas is likewise possessed of no binding twine manufactory. It has been proposed, therefore, that the State establish, at the penitentiary, works for the production of this useful commodity. A joint committee, consisting of Senators Jno. E. Hessin and M. A. Householder and Representatives John Seaton, Josiah Crosby and T. L. Hogue, from the Kansas legislature, recently visited the Minnesota penal binding twine factory, at Stillwater. This committee concluded its report in the following language:

"Your committee therefore recommends:

"First, that a plant for the manufacture of binding twine be established at the Kansas penitentiary with a capacity of 10,000 pounds daily, working ten hours, or sufficient to employ 75 men.

"Second, that an appropriation of $40,000 be made, to purchase and put in place machinery, for repair of buildings, and for new engine and boilers, sufficient to manufacture 10,000 pounds of twine per diem.

"Third, that an appropriation of $150,000 be made for a revolving fund, to be used in the purchase of raw material and for carrying the manufactured product.

"Fourth, that suitable legislation be enacted for the purpose of carrying out the recommendations of the committee herein expressed, and for protecting the said revolving fund, and for the purpose of regulating the sale of the manufactured product."

The committee finds that the State of Minnesota is reaping considerable profit from this manufacturing enterprise, the profits for 1897 being $43,000, while the profits for 1898 were $87,000, besides paying into the State treasury 50 cents a day for each convict employed. It is also found that the item of cost of fuel will be less in Kansas than in Minnesota.

The product is disposed of through dealers, and, while it has not been sufficient to fully supply the farmers of Minnesota, it has, to a large extent, relieved them of dependence upon the trust.

It is stated that since the beginning of the present year European investors have returned to this country $70,000,000 in corporation securities.

Harry L. Leibfried, of Emporia, died last Sunday night, February 10, after a lingering illness. He was for a long time manager of Sunny Slope and has been a very active promoter of Hereford cattle and of swine interests in Kansas.

J. J. Yoder, of Yoder postoffice, Kansas, wishes that some one of the readers of the Kansas Farmer would give him information on the subject of growing red cedar trees from the seeds. He would like to know the manner of gathering the seeds, when to plant and how, and how to take care of them.

WHAT'S THE GAME?

In noticing a book on the "American Sugar Industry," this paper took occasion to present some figures from the book, which, when brought together, showed that the production at home of the sugar which it is stated we now import, must entail losses of many millions of dollars upon those engaged in American sugar industry. This paper had occasion once before to advert to similar misleading figures as to the sugar industry. There has never yet appeared an intelligent estimate of the cost of producing sugar in this country compared with its cost in the tropics, which has not upon analysis shown so great odds in favor of the tropics as to appall the candid investigator. The showing in Mr. Myrick's book that $75 per ton is too low an estimate of the cost of producing sugar in the United States "after the industry is well established," while $20 per ton is too high an estimate of its cost in the tropics, is in itself an admission that the odds are against beets and Louisiana cane in the ratio of 3¾ to 1.

And now comes a candid friend of the Kansas Farmer with the statement that beet sugar factories are in operation and new ones are projected, and inquires: "If beet sugar production is not profitable, why do shrewd capitalists invest their money in the industry?" Our friend is entirely correct in his statement of fact, and his inquiry is a pertinent and proper one.

Another important fact is that the beet sugar factories of the United States are owned directly or indirectly by the people who have controlled the stock of the American Sugar Refining Company—popularly known as the Sugar Trust. These are understood to belong to the class of business men known as financiers. They are far-seeing people, who are always willing to invest for the future. They expect their investments to pay, and whether their money is paid for materials, for legislation, or for services, they have thus far been able, on the average, to secure liberal profits.

On sundry occasions the American Sugar Refining Company has been interested in tariff legislation. It was not hard for the shrewd lobbyists of the company to determine that their clients were lacking in needed influence with Congress. Certain of their number had experimented with the promotion of beet sugar factories and had found that prospects of having an important new industry established in a community had a potent influence on people's opinions on economic questions. Entire State delegations in Congress were thus interested and made friendly to such legislation as would foster the sugar industry.

It may be asked whether any capitalists could afford to build quarter-million dollar sugar factories and operate them at a loss on account of possible gains from legislation. It should be remembered that not very many such factories have been built and that these are scattered widely as to territory. Schemes for building others have been proposed and steps towards securing franchises and sites have been taken. The hope of securing a great industry is found to be capable of changing people's minds on national questions.

Seven figures with a dollar mark before them represent a large sum of money. One million dollars was scarcely sunk by the Sugar Trust in 1897 on unprofitable sugar factories. But for the argument, place the loss at $1,000,000. Let us now see what the owners of Sugar Trust stock gained from this "investment." Sugar Trust stock consists of two kinds: (1) Common stock, of which there were in 1897 $36,968,000 worth at face value, and (2) preferred stock, of which there were another $36,968,000. Before the sugar tariff of that year was enacted the common stock was selling on the market at $1.09⅛. After the tariff legislation of that year, this common stock sold at $1.59½, a gain of a little over $50 on each $100 share, or, disregarding the fraction, the gain was, in round numbers, $18,484,000. The preferred stock rose from $1.00¼ to $1.21½, or a little over 21 per cent, making a gain on preferred stock of over $6,763,280. Bringing these together we have:

Common stock, $36,968,000, at 50 per cent. gain	$18,484,000
Preferred stock, $36,968,000, at 21 per cent. gain	6,763,280
Total gain	$25,247,280

This gain of about $25,125,000, it will be observed was entirely separate from the profits made on the business of sugar refining. Perhaps these shrewd financiers would be willing to sink a million every year in the manufacture of sugar if such returns as these could be realized.

The figures as to capital stock of the American Sugar Refining Company and prices at which it sold in 1897, are from a little book, "Investment Guide," compiled by Henry Clews & Co., bankers, New York, 1898.

Business Chances in the Philippines.

Manila is always interesting, the Manila of the old days especially so, one of the most romantic, richest, and fairest cities of the sleepy East. Warmed by the tropical sun, cooled by the breezes of the Pacific, it was blessed with features of climate and commerce which permitted men to grow rich while at the same time they lived lazy and contented. It was the ideal home for the Spanish official or adventurer who wished to seek his fortune in distant colonies, and yet enjoy a life which forever reminded him of sunny Spain.

The Spaniards did indeed become rich, but only through their cruel oppression of the natives, and during their rule, lasting almost four hundred years, the islands remained practically undeveloped. Apart from beautiful Manila, with its Spanish buildings, its delicate Spanish architecture, a bit of which is shown in our illustration, taken from the current issue of Harper's Weekly, the towns are and have been mere collections of straw huts, and the natives of the archipelago for the most part are as barbarous as when Magellan met his fate on the island of Cebu.

A Bit of old Manila.—After a drawing in Harper's Weekly. Copyright, 1899, by Harper & Brothers.

The question which many an American has been considering of late is, what are the business opportunities—the industrial opportunities in the Philippines? One of the features of Harper's Weekly for the past month has been its special correspondence, in which is given the fullest and most satisfactory information on these subjects. Every one who is interested in this question will find in these letters just what he needs to know.

What are the openings in the Philippines? In the first place, a richer land or group of islands, as regards area and population, variety of agriculture, mineral, and forest resources undeveloped, cannot be pointed out on the map of the world. Every authority on the Far East affirms this opinion. There are not only gold and silver, but iron and coal; not only vast forests of ship and house-building woods, but rarest qualities for furnishing, finishing, and ornamenting; not only great areas given up to the cultivation of sugar, hemp, tobacco, and coffee, but wider reaches of virgin soil untouched and waiting the pioneer who is supported by an honest government. There are one or two railways; there should be a score. There are a few steamer lines, but there should be a system of launches and steamers by which every one of these garden spots could be reached and developed. The natives will make no trouble, provided they once know that they are not to be oppressed and tax-ridden. For the year 1894 the combined value of imports and exports was $30,000,000. If the United States eventually governs the Philippines that amount will go up until it passes the $200,000,000 mark. In the order of importance the chief exports were sugar, hemp, tobacco, and coffee. The Weekly also gives full information in regard to cost of living and other essential matters.

Lovers of good horses will be pained to learn of the death, on last Saturday, of Mr. M. W. Dunham, of Wayne, Ill. He was reputed to be the greatest of all breeders of Percheron and French Coach horses. At the time of his death he is said to have possessed 5,000 pure-breds of these fine animals. The organization of Mr. Dunham's affairs was such that the farm, with its stock breeding, will be carried on and business will be done as usual as soon as the necessary legal formalities can be complied with.

TO IMPROVED STOCK BREEDERS.

The membership of the Kansas Improved Stock Breeders' Association is now three times larger than ever before. Yet there are hundreds of other breeders of pure-bred stock and stockmen who should be identified with the association. The bound report of the association is now almost ready for press. Only the names of members will appear in the association's Kansas Breeders' Directory, which will be an appendix to the report. Send the secretary your name and address and the class of stock you breed, also $1 for membership fee for 1899, and your name will be included.

The association is undertaking big things this year in the publication of an annual report and in promoting a Kansas State Exposition, consequently it is necessary for a strong pull together.

In order to issue several thousand reports it will be well for as many members as possible to take some of the space devoted to advertising. The size of the page is equivalent to seven inches double column and the cost per page is only $10, one-half page $6. At this price it will be money well invested, as every report will be carefully preserved and not less than 5,000 will be issued. Copy must be in by February 25, so that reports may be ready for distribution about March 1, 1899. How many of our enterprising and public-spirited members will respond to this call? Every breeder and member of the association should send one copy of this report to each of his customers for 1898. It will bear fruit again.

A single copy of the report will be delivered by mail to any address for 25 cents; 10 copies, delivered, $1.50; 100 copies, delivered, $10. A limited amount of advertising space will be sold for the benefit of the association. For further information, address

H. A. HEATH, Secretary.

Topeka, Kans.

Gossip About Stock.

Col. J. N. Harshberger, the live stock auctioneer, of Lawrence, Kans., made a public sale of Poland-Chinas for M. F. Tatman, of Rossville, Kans., on the 9th inst., and, with the thermometer below zero, he kept everybody warm enough until he disposed of 48 head at satisfactory prices.

The reports of the secretary and treasurer of the American Guernsey Cattle Club, submitted at the recent annual meeting, showed a marked increase in the number of animals placed in the Register for the breed, and also in the sales recorded. As compared with previous years the work has nearly doubled in the last five. The first year's home test of Guernseys under the auspices of the club are now well under way and some very intresting results will be obtained. Twenty-one cows are competing for the herd prizes, and five cows in the single cow test. The January issue of the Register, which is published in quarterly parts, has four illustrations of Canadian and Island Guernseys that have become noted for their excellent record in the show ring and in breeding.

The attention of those interested in richly-bred registered Herefords is again called to the public sale of Messrs. Colt and Gray, who will offer 50 head at the Kansas City stock yards sale barn on Thursday, February 23. The offering consists of the surplus of the two herds, in which there are no culls, but is the entire crop of the two herds according to age and sex, of the fall of 1897 and the spring of 1898. The promoters of the sale state: "We think that you will find something in this sale that it will pay you to buy, hence we ask you to carefully study the breeding of the animals catalogued. You will be buying good breeding and individuality, paying nothing for name." All persons interested in Herefords are cordially invited to write for a free copy of the sale catalogue.

The most richly-bred lot of registered Hereford cattle announced at public sale so far this year will be the 150 head offered at Kansas City, Mo., on Wednesday, Thursday and Friday, March 1, 2 and 3, by the Messrs. Sotham, Nave and Hornaday. This aggregation, both for individuality and show yard record, has no superior in this country, and if it be generally accepted that the American type is an improvement over the English, then no superiority need be looked for across the water. Several columns could be written on the individual and collective merits of these white-faces, and yet not as well and thoroughly told as has been set forth in three several catalogues. Anyone interested in first-class beef cattle, especially Herefords, can rest assured that after he will have perused these catalogues carefully, need have no hesitency in making selections and buying by proxy or bids by wire or mail. Such a collection at public sale ought to attract every member of the Hereford fraternity in this country for a general sales-day meet at Kansas City. For further particulars consult the announcement elsewhere in this issue and govern yourselves accordingly.

Publishers' Paragraphs.

Do you love your wife? If so, you will make her tasks lighter and easier, especially in the work of making her ironing easy by sending 25 cents to one of Topeka's leading merchants, Mr. J. W. Hardt, whose advertisement appears on the "Home Circle" page of the Kansas Farmer. This advertiser owns one of the largest and best laundries in the State and his proposition to the ladies of Kansas is a really meritorious thing.

Saves Wagons and Horseflesh.—A lubricant that is both slippery and durable is mica, and the axle grease made from mica, and named Mica Axle Grease, has been found to work better and wear longer than any other axle grease on the market. It does not run in hot weather nor gum in cold weather, and, being a mineral substance of peculiar toughness, it is extremely durable. The use of axle grease should never be neglected, partly to save wear and tear on the wagon, but principally to save horseflesh, and in buying it it pays to buy the best.

If you want to be interested, amused, pleased, and to read things you never knew about fruits and shrubs, about the nursery business and trees, write to Stark Bros., Louisiana, Mo., and get a copy of "Stark Fruit Book," edition of 1899. It is profusely illustrated with high-grade pictures, both in colors and in black; its reading is crisp and fresh, and if you think there is anything you don't know about their line of business, you will not have read this book half through before you will have concluded that Stark Bros. are willing to tell you all about it.

Corrugated iron roofing is "Going up" in more senses than one—it is going up on the roofs of every class of buildings, because of its cheapness and durability, and is soon going up in price because of the advance in cost of the raw material. While it will remain cheaper than shingles even after the anticipated advance, it is desirable that the additional cost be saved by ordering promptly. Prices and all particulars free from the makers on request. Address The Kansas City Roofing and Corrugating Co., 416 Delaware St., Kansas City, Mo. Mention this paper.

The 1899 catalogue of Harrison's Nurseries, Berlin, Md., is an attractive, business-like book that is full of hard common sense about the growing of strawberries, peaches, pears, asparagus, plums, raspberries, and the other specialties of these nurseries. The facilities of the nurseries have been much increased, new buildings have been added for fumigating, packing, shipping, etc., and with a better stock than ever before, the Harrison's Nurseries are prepared for the greatest year's business in their history. The catalogue will be sent free to anyone who writes for it, and it will pay anyone who cultivates the soil to write and ask for a copy.

Eight hundred and sixteen bushels and 21 pounds oats from 7 bushels seed, or an average of 116 bushels from one bushel of seed sown, has been reported from the Lincoln oats, and even in unfavorable seasons these grand oats yield from 20 to 45 bushels more per acre than other kinds of oats sown side by side. The Farmer Seed Company, Faribault, Minn., makes a specialty of growing the best varieties of seed grain, grown on their farms on clean land and free from any foul seeds, and any of our readers looking for improved varieties of seed grain or those interested in more grass and better and permanent pastures and meadows should write for their new catalogue or "Book on Permanent Pastures and Meadows," which is sent free to all farmers.

Smoking meats in a smoke-house with all its delays and annoyances and the constant danger of thieves getting the meats is being rapidly done away with as farmers and stock raisers become better acquainted with the cleanliness, safety and saving of time that come from using the Liquid Extract of Smoke prepared by E. Krauser & Bro., of Milton, Pa. The liquid is applied with a brush or a sponge and the meats can be hung in a garret or other safe place, away from thieves, either four-legged or two-legged. Krauser's Liquid Extract of Smoke is prepared from selected hickory wood. It contains the same ingredients that preserve meat when the wood is burned under it in a smoke-house. It improves the flavor of the meat, is perfectly healthful and is a better safeguard against insects than the old way of smoking. The manufacturers will send circulars to any one interested.

THE CONVERSION.

Lyford Merritt was certainly a most exasperating man. In this, for a wonder, the whole village concurred, with the exception of his wife. She maintained silence on the subject, which was best, perhaps, inasmuch as she was the cause of it all.

"He, —— he's the most down-trodden and meek sort o' man you ever set eyes on, and it ain't right that it should be so," Mrs. Blake declared, as Lyford Merritt, then under discussion, shuffled along the dusty road. "It's dreadful to see a man so suppressed," she sighed. "It ain't nature one bit.

"Some men are born meek and would rather a woman'd go ahead and boss the house and them too, and then you don't blame 'em, but Lyford ain't that kind. 'Fore his wife got hold of him he used to be as up and coming as any one."

A slight flush spread over her thin cheeks as she felt a critical glance upon her.

"That was the time he came a-courting you, I suppose," her guest remarked blandly. "I always heard you had some sort of words, and then he took up with the new school teacher and married her right away 'fore your face and eyes."

Mrs. Blake beat her cake vigorously.

"He ain't done nothing but be set on ever since," she declared at length, "so that he ain't himself at all. And that's what's so exasperating. No man with any natural stand-up to him ought to give in the way he does. That's what's the trouble. He seems to think it's all right."

She poured the cake into a tin and shoved it into the oven and shut the door with a bang.

"We've all had spells of talking to him," she went on, "but there, it ain't no earthly good. He always sits so good-natured and kind o' nods his head as if agreeing, and when you come to stop he looks up with his blue eyes and says: 'Well, well, you don't understand. It may seem kind o' hard sometimes to outsiders, Mis' Blake, but then, you see, she's got the nerves.'

"Nerves," scornfully. "As if any of us couldn't get up that kind o' nerves if we wanted to. It's a mighty nice way to rule a house. When her husband wants to do anything or not do anything, it's always nerves. She can't stand this and she can't stand that, and she won't even let him sit down at the table in his shirt sleeves, 'cause that makes her nervous, too. I was there once when he most forgot, and the look she gave him was something awful. Ben said he'd get divorced right away if he had such a wife.

"But Lyford, he just stands it always, and it's terrible exasperating."

She gave another glance out of the window. Lyford Merritt was not in sight. Unconscious of his neighbor's scrutiny and comment, he slowly crossed the stubby field and made his way to the barn. There he deposited the packages from the store, and then went to the wood pile. He seemed in a sort of brown study, and his movements were uncertain.

"It ain't right for a man not to be master in his own house." He ruminated as if the sentiment had just been impressed upon his mind. "It really ain't and I am going to assert myself."

The thought caused a stick to drop from his arms. He hastily picked it up, with a backward glance over his shoulder.

"I wouldn't do anything to hurt Caroline for anything in this world. Of course, I wouldn't. She's a good wife, a very good wife, to me, and I'm thankful I've got such a good wife, and I hope I make her a good husband."

He paused and slowly laid two more sticks onto his burden and walked toward the woodhouse.

"And I've been thinking that perhaps it ain't good for her to have me always giving in to her," he continued, as he returned for a second load. "I read somewhere the other day that women was like horses. They like to have their own way long's they can, but when you make 'em mind they go all the better. Not that I should ever try and make Caroline mind——" He paused aghast—— "but perhaps if I kinder took things for granted that she wouldn't mind my doing more things, I could do 'em and she'd like it.

"I'm a-going to try, anyway."

It was undeniable that Lyford Merritt's heart beat somewhat faster than usual as it neared 3 o'clock on the following afternoon. The town committee had ordained to have an extra meeting. It was usually held at the Perkins', but Mrs. Perkins was sick and so Lyford had generously asked them to come there.

A few had already gathered and were sitting in the shade of the big elm. Others could be seen coming down the road.

"I suppose we might as well go in, seeing there are so many of us already," Lyford remarked.

It was an unwritten law that the meetings of the committee should always be held in some parlor or the church vestry. It was not compatible with the dignity of the committee to meet in barns or shops, as did other organizations.

The men sprang up, and Lyford led the way to the front of the house, where they greeted the others. They stood a moment and chatted, while a few straggled up, then Lyford put his hand on the door.

It refused to open. He made several attempts, but it would not stir. He grew red in the face with the exertion.

"It's unlocked all right," he declared, "because I saw to that this morning. You see we don't use it very often and that's the reason why. I'll go inside and see if I can start it."

He left the men and skirted the house, avoiding the kitchen windows and stealing in the back way, where he removed his shoes and quietly passed through the upper rooms and down the front stairs, when he put on his shoes again.

He managed to open the door. It stuck, but he had forgotten that it opened in. In fact he never remembered having opened it at all before.

The men filed into the stuffy parlor. Some one suggested that the windows be opened. Lyford stared for a moment. There were no screens in the windows.

"Oh, yes!" he replied, with a deal of energy. "Of course. I meant to have them open and forgot. Mrs. Merritt has been very busy or she would have attended to it for me."

His blue eyes twitched and he drew a deep breath as he pushed up the windows and flung back the blinds. He saw a dozen flies dart in, and he gave a quiet chuckle. His emancipation had begun.

The meeting opened with its usual solemnity, but soon it grew exciting and there was a busy hum of voices. The men had removed their coats and they swung like draperies from chair backs, the family Bible on the marble center table made an excellent desk for the presiding officer, and ballots and papers were liberally distributed over the floor; some of the men were smoking.

Lyford was making a speech. It was a very excellent speech, on the freedom of the individual. His audience was interested. Suddenly there was a hush. He turned and Mrs. Merritt stood in the doorway. Lyford gave a little gasp. The eyes of the men were upon him, and he straightened visibly.

"The meeting of the committee, you know, my dear," he explained, with the faintest tremor in his voice. "I trust we have not disturbed you." His eyes were a bit beseeching.

Several of the men were on their feet. One was struggling into a coat. Mrs. Merritt did not reply. Her keen brown eyes swept the room and a peculiar smile settled on her face.

"I was going to suggest"—Lyford made the great effort of his life—"I was going to suggest, seeing it is so very warm, that we prepare some sort of refreshment for the gentlemen, Caroline."

There was a note of inquiry in his voice. His wife turned, and, with a hurried excuse, he followed. A nervous laugh from one of the men broke the tension of the moment.

"We shall have to give him an office," some one suggested.

He was gone some time, and then his wife returned with him. He carried a big pitcher of iced tea, while she bore a platter of spice cake and jumbles, which she afterward supplemented with loaf cake and pickles.

It was a very social intermission that followed. Mrs. Merritt made herself very charming, and Lyford was in the highest spirits. Then she retired, and the meeting went on. Lyford was nominated for school committee. He accepted, of course. His wife had never allowed him to run before. It would make her nervous to think of the responsibility.

At 6 the meeting broke up. Lyford escorted them to the gate, and watched them as they passed from sight. Then he slowly returned to the house, gave a long look at the disordered room, closed the door, and shuffled off to the shed. There he sat for several moments, and drew hard on his old pipe.

The supper bell rang. At the sound he hastily started for the door. His hand was on the latch, then he hesitated, his hand dropped, and he returned to the bench, sat down, and ran his fingers through his hair.

The bell rang a second time. He laid his pipe down carefully, arose, gave his vest a pull, settled his hat firmly on his head, and steadfastly walked into the kitchen.

His wife was sitting by the table, pouring the tea.

He hesitated a moment. She looked very pretty as she sat there—prettier than usual, somehow. Perhaps she had on a better dress.

"Was your meeting successful?" she queried, her eyes on the amber liquid.

"Very," he replied as he crossed the room to where his coat hung on the wooden peg. "They nominated me for school committee."

She nodded her head reflectively. "You will make a good one," she said. "They ought to put good men in office."

He stared at her back. "I'm sorry the parlor——" he began.

"You needn't be," she broke in sharply "I guess——" She set the teapot down, and arising carefully walked around the table and set it down at her husband's place. "I guess that a man has a right to do as he wants to in his own house."

She glanced at him proudly. One arm was in his coat sleeve.

"It's pretty warm," she remarked, seating herself again, "and, Lyford, perhaps you'd be more comfortable if you didn't put your coat on."

He sent a keen glance in her direction, and his blue eyes twinkled. Mechanically he replaced the coat and took his seat at the table opposite her.

"I think that I should," he replied.—Chicago Inter Ocean.

Horticulture.

INSECTICIDES AND FUNGICIDES.

Report by Prof. E. E. Faville, to Kansas State Horticultural Society. (Stenographic report.)

Mr. President: The report that I have to make on this subject will be brief, and I hope that all those present here will take part in the discussion.

Why do we spray? And what progress has spraying made during the past year in Kansas? What are the remedies and what methods of spraying? There is one point to be observed in spraying fruit trees, and that is, that it must be carried on differently in different sections. There are some people who spray one year and the next year they will not spray, and they have just as good a crop when they don't spray as when they do; then they say that spraying did no good. That may be because in the one year they were not bothered with insects like they were in the other. Wherever spraying has been done in Kansas year after year it has proven a success. But you want to understand what you are spraying for and how to spray. So many of our fruit growers who take up this subject of spraying, have the idea that the only remedy for insects is also good for plant diseases. In traveling through the State during the past year, I found a great many people who thought that the spraying for the insects also benefited the plants. We have a climate in Kansas that is dry as a rule and unfavorable to the growth of disease. This year, we had a wet spring and have had the apple scab. We have found in our experiments at Manhattan that we have saved a large percentage by spraying with the Bordeaux mixture. This year the spraying has been a success. The compound, as originally given, was to take 4 pounds of copperas, 4 pounds of lime and 50 gallons of water. We introduced paris green and thereby got an insecticide and fungicide mixture. For the canker worm, we have carried on a number of experiments with different strengths of paris green. We had a rainy season and had to spray between rain-falls. We were unable to find out the comparative value of these sprayings. We used one pound of paris green to 150 gallons of water. A great many said it was not strong enough, so we put in two pounds to 150 gallons of water, and lime to prevent its burning, and it was no better. You want to get pure paris green. There is an inferior quality placed on the market. We get ours pure from a chemical company, and by buying it in quantities, we get it for about 20 cents a pound. We got some from the local drug stores and tried it, and we could not see that it had any effect whatever. Get your poison as pure as possible. The canker worm, you can reach by spraying with poison, but some insects you cannot reach that way. You should spray with a kerosene emulsion. We used this for the cabbage worm, and for the lice on cucumbers. It will stick on cabbage itself.

Know what you are spraying for. A gentleman down in Bourbon County was talking to me about the canker worm. He told me that he took some of the canker worms and put them into a barrel of the mixture and they lived three or four days. In order to kill the canker worm, the mixture must be sprayed upon the foliage and they will eat it. Distribute it thoroughly over the trees, making the spray as fine as possible, thoroughly covering the foliage.

There is one thing about the scale insects which I want to speak about. The experiment station at Manhattan has been trying to locate the San Jose scale in Kansas. We have not been successful. We had a case reported to us in Allen County, and my assistant and I went down there and found that it was not the San Jose scale, but a close relative of his. I have not found any report of the true San Jose scale. I have had numerous reports, but on subsequent examination found that it was not the San Jose scale. They are close relatives in many instances. It is our duty as citizens and members of this society, if the San Jose scale is reported in any locality, to look into the matter, so that it can be put in the papers, and let it be examined at once.

I want to emphasize this point: Know what you are spraying for and what you are spraying with. Study these common insects and you can soon learn a year before whether you are going to be bothered with the worm or not. A year or two ago the orchards were devasted with the canker worm. Last year we could not find any of them. We immediately made up our minds that we would not be troubled with them. So it proved. Keep your eyes open; observe along all lines.

Query: Is not arsenic mixture better than paris green?

Answer: It costs a little more and you must be more careful with it.

Query: Can you not mix it more thoroughly and simply than you can paris green?

Answer: No, I think not. If you are going to use arsenic solution avoid getting it too strong, but I think you will get better results from paris green.

Mr. Munger: I want to know if we are to understand that we are to look for the pupae in the ground, to know whether they are going to be present or not?

Answer: Yes, sir; there are two species of canker worm, the fall canker worm and the spring canker worm. It is the spring canker worm from which we have the trouble. It is the spring worm that does the damage. After it has finished eating on the tree it leaves it and goes to the ground, and transforms into the pupal form. And in the spring time it climbs the tree and eats the leaves. There is another form, but we don't have it in Kansas.

Query: Are its eggs laid in the spring time and hatched in the spring time?

Answer: Yes, sir.

Query: Are they laid before the leaves start?

Answer: Yes, sir; long before. We found them about the first of March. If you see a little miller about the light in the early spring time, that is probably it.

Query: Can the eggs be detected?

Answer: Yes, sir.

Query: Are not some species of the eggs laid in the fall?

Answer: Yes, sir.

Query: Can the tree not be wrapped in the spring?

Answer: Yes, sir. We have a small wire screen, or a netting about five inches long. We have tried that. It costs about 2 cents per tree. It is put around the tree so that when the female moth climbs the tree and gets to the netting she has to stop there. I have also seen castor oil and resin used on the trees, and also pine tar.

Query: Can we do anything about the curculio?

Answer: I think to jar the tree is the best way. Another point in regard to spraying. Be sure and get a good machine. Get one that throws a fine spray, and one that throws the right amount of spray on the tree.

Query: How do you poison the curculio by arsenic poison?

Answer: When the female gets on the trees and deposits her eggs it gets on the leaves; by spraying you sometimes get some of them.

Query: Did you ever spread a sheet under the tree to catch them in?

Answer: Yes, sir; I have done that. We have an appliance that we place on the wheelbarrow and we go out to the tree in the morning and jar the tree. One other point; in regard to the cabbage worm. We have had a great deal of trouble with it. This year we figured a good deal to get a remedy for it. We took tansy and made a solution of it and sprayed the cabbages with it and we got a very good result from that.

Query: Does it stick readily?

Answer: Yes. Its use is only as a repellant.

Query: Have you ever tried hot water on cabbages?

Answer: Yes. It is very good.

Mr. Holsinger: I have had some experience in this line of work, and found that the easiest method is hot water. Simply heat the water and sprinkle the cabbage, and you can destroy the larvae with very little trouble. Where they had almost destroyed the cabbages I tried this method and killed them and got good cabbages. It can be done just as fast as you can walk along the row. I have been on the other side of the fence and I am not convinced about some things yet. It has been said by some parties that the codling moth laid its eggs in the calix of the apple, but this has been discovered to be a mistake. Any insect that will eat arsenic will be destroyed by it, but the facts are that four years ago we were told by a professor in this society that the codling moth eat the foliage, that he had seen him do it. I heard him say two years afterwards that he was mistaken. I think that when they have made a statement of that kind from personal observation they should stick to the text. I don't believe that any person has yet determined this matter. I have given it considerable attention. I have no interest in any spraying machine and I have no interest in the spraying matter. I believe we get a whole lot of instructions and theories in lines that are not in accord with the facts. You can take a sheet and go under the trees and jar the trees and you can get the worms off and it is both quicker and easier than spraying. I don't believe any man can tell whether the codling moth has ever been killed with arsenic poison.

Prof. Faville: I am not interested in a machine of any kind. At the college we have a catalogue of all machines, and if you will send us your names we will send each one of you a copy of it.

Query: How do you shake the trees by this jarring?

Answer: You use the hammer-shaped device. Fix your sheet on the wheelbarrow. This is placed in an umbrella shape and then give the tree a quick jar in almost any manner.

Mr. Holsinger: I have an instrument for jarring the tree that I have always found to be very good, and that is my foot.

Mr. Harris: If you have a large orchard, the birds can get over it pretty well and I believe in spraying only when it is absolutely necessary and you can't get along without it. Of course if it is a very large orchard, the birds can't keep it free from insects. But when the orchard is small, I think that the birds will keep it clean from canker worms. I believe that spraying does drive the birds away. I like to have them around. They will keep the insects down pretty well.

Mr. Robinson: A few years ago I had some experience with the canker worm that was both profitable and pleasant. I had about 80 acres in orchard. They came out of the ground there in about the month of January. The females would go up to the top of the tree and get under the scales of the bark, or in the crotches of the tree, and they would lay their eggs in little clusters under a limb where the water would run over them. They were very particular to find a dry place to lay them. They laid from seven to eight hundred eggs in a bunch. I found about five or six females to one male. The females having no wings, they had to crawl. In February there came quite a warm spell. I had spaded my orchard around the trees believing that by turning up the soil and exposing it to the winter weather, the chrysalis would die. I had men take spades around the trees and dig up the earth, where the chrysalis was, and spread it out. I had it spaded up all around the trees and after I had done this there came a big rain and filled up all the ditches around the trees with water. I took pine tar and made a ring all around each tree, and when the moths would go up a tree as far as this ring they would get tangled up and drop back. There were gallons of them there at that time, then came a cold spell. The ground froze up and the water froze up. It stayed cold for several days. I thought that had surely killed them. But it had no sooner thawed out than they started right back up the tree; they were extremely numerous then. There were more of them that year than I had seen for years, and I found that when it would be raining hard the water was running over the tar. Enough of them crawled over the tar while it was wet to very nearly destroy the trees. We had comparatively no fruit at all in the orchard. On some trees nearly all the foliage was destroyed, and on some there would only be a limb or two that had any foliage left. I tried several methods to get rid of them and finally abandoned them. The second year after that there was a little caterpillar that attacked the larvae. I examined the orchard every day and kept track of when the first females were seen and the first eggs were found, and when the first larvae was found. In twenty-eight days from the first larvae, the first worms were going into the ground. They didn't hatch at once. I guess they were not all laid at once. Their duration on the tree would probably be about forty days. As soon as the larvae was attacked by that little parasite, instead of having a healthy growth, would begin to get brown in color and die. I guess that the hatching periods overlapped each other at least fifteen days. And I will say that the next year not one specimen could be found in the orchard. That little parasite was so light that it seemed just to float in the air, and it seemed to catch the worms everywhere. Where I lived in Illinois, years ago, the orchard was affected by these worms and they were attacked by the bacteria and cleaned out entirely; and orchards that were sprayed were cleaned out. Many of the trees in this orchard that I have spoken of were so eaten up that they died, but since that time, there has never been a canker worm found in that orchard.

Query: Was it not a fly that attacked them?

Answer: No, sir. With an ordinary glass you could not distinguish them, but the worm which they got hold of seemed to get rotten and decompose very quick. That bacteria worked on a good many other larvae. We had a worm of quite a large size that worked along the streams and it also attacked these worms.

Prof. Faville: There is one obstacle to this destruction of the insects by the bacteria. The bacteria require a certain condition under which to work, and, as a rule, the conditions existing at the time the insect is doing the most damage, are not favorable for the growth of the bacteria. There are two kinds of these worms, the fall and spring worm. On the spring worm the female moth will have a white mark extending down its back; on the fall worm, it is a black mark. One comes in the fall and the other in the spring.

Mr. Robinson: I believe that if the poison touches the canker worms it will kill them.

Prof. Faville: If you will look at the worm you will find the body is covered with hair that will keep away anything like poison. You can take the worm and throw it into the kerosene emulsion and it will not kill it. You have to give it poison in some shape that it will take it inside.

Mr. Brooks: How about the leaf-roller?

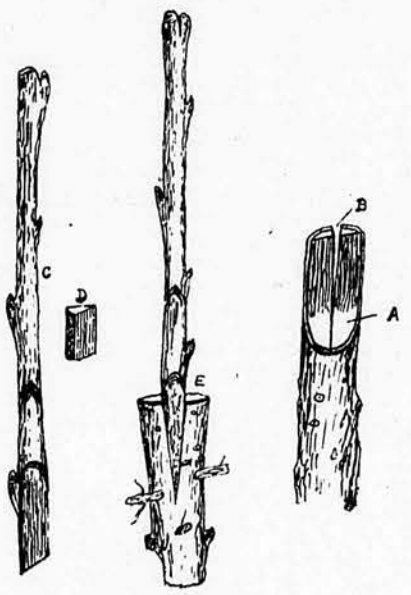
Prof. Faville: They are very hard to reach. If you can get them at the right time, and spray with kerosene oil, it is all right. There is a period when they are just beginning that you can destroy them, otherwise you can't get at them.

Grafting the Peach.

Editor Kansas Farmer:—Can you, or any of your readers, tell me about grafting the peach on peach root, also apricot on peach root, and how to do it?

D. H. WELCH.

The peach, when grown upon peach roots, is more often propagated by budding than by grafting. Budding is carried on in July and August upon stock grown from seed during the season. It can be done rapidly and, under proper conditions, gives better results than any other method of propagation. Grafting, however, frequently gives satisfactory results. The most satisfactory way is to graft in the spring, at the time when the sap is beginning to flow. The stock upon which the graft is made should be of the previous season's growth. Remove the soil to the first roots and cut off the tree an inch above them. This method is known as the cleft graft. Make a sloping cut from the roots at such an angle that it will remove about half the surface of the horizontal cut. With a chisel or sharp blade split the stock at right angles to the cut that has just been made. This cleft should extend about an inch, or down to the roots.



GRAFTING ON ROOTS.

A. Sloping cut on stock.
B. Cleft in the stock.
C. Scion ready for insertion.
D. Section of wedge of scion.
E. The graft made.

The scions should be cut the previous fall or winter and stored in moist leave in a cool, dark cellar. This will keep them in a dormant condition till the time for using them. To prepare the scion for grafting, take about 8 inches of the terminal growth, make a wedge at the lower end an inch in length. This wedge-shaped part should be thicker on one side than on the other, and it is better to make the cut so as to include a bud near the upper portion of the thicker side of the wedge. Insert the wedge of the scion into the cleft of the stock, with the

thick part of the wedge toward the side of the stock in which the bark has not been cut away. See that the cambium, or grawing part, of the scion fits exactly to the cambium of the stock. Push the scion down until the top of the wedge-shaped cut is even with the top of the stock. The shape of the wedge is such that the cambiums of the two parts will be held firmly together. Cover the portion with wax and draw the earth over it. The scion soon opens its buds and begins rapid growth. A good grafting wax for outdoor use is made as follows: 4 pounds of resin, 1 of beeswax, half a pint of raw linseed oil. Melt all together gradually and turn into a pail of cool water. Pull until the color becomes light, make into rolls and wrap with strong oiled paper. Then rolls can be laid away and used at any time.

The apricot is grafted upon the peach root in precisely the same way as has been described for the peach.

W. L. HALL.

Kansas State Agricultural College.

In the Dairy.

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

MILK, BEEF OR GRAIN—WHICH IS THE MOST PROFITABLE.

Paper read at Farmers' Institute, Valley Falls, Kans., December 2, 1898, by M. M. Maxwell.

We are told "all flesh is grass and the goodliness thereof is as the flowers of the field."

Nature and man co-operating have made Kansas a marvelous blending of pasture and corn fields. In luxuriance, nutritious qualities and economy of production Kansas is nowhere surpassed. From these her meats and milk and wealth are made. Out of these and by these her future wealth and all it brings of good must largely come. As finished product and raw material they are symbolized in the dairy products, beef, pork and grains.

But my province in this paper is, if possible, to produce evidence sufficient to show which is the most profitable to produce by the average farmer, milk, beef or grain. Now it seems to me that with those observing farmers, who have tarried in this locality for ten or more consecutive years, it will be no hard task nor take no large amount of figuring to convince them that grain-growing alone is not the most profitable.

Observation discloses the fact that all of those farmers, or at least a large majority of them, who depend on grain for an income are kept, as the saying is, with their noses to the grindstone, hard pressed for money and the necessities of life. They do not add to their wealth as they should or as their labor and industry would warrant.

Now, with the other two industries it is somewhat more difficult to determine which is the most profitable, but with my limited experience with the dairy business I am inclined to the beef production as being the most profitable. However, it appears to me, they should go together hand in hand, but for the sake of argument I will separate them and handle the dairy question from a creamery or skimming station standpoint.

In the first place, it is no easy or short road to wealth. Most of the work in connection with dairying is hard and disagreeable, dirty, dangerous and unpleasant. Then it must be performed every day, rain or shine, cold or hot, Sundays as well as week days. It can never be put off until to-morrow. It requires the strength of men, with the patience of women, along with skill, cleanliness and brains. Vicious cows must be broken to stand while being milked, an unpleasant and somewhat dangerous business.

The calves are taken and chucked into some small enclosure while they are quite young and taught to drink their skimped ration of milk from some old bucket, with a continued bawl from both cow and calf for a week or more, and no man can teach a calf to drink without thinking more than he says and sometimes saying more than he should. Then, at weaning time, which is usually when the calf is rather young, you have a calf that is some more than half the size it should be and with a stomach about twice the size of the calf and a calf that can run like an ostrich and eat almost anything you don't want it to.

Then there is the milk-hauler with the patience of Job and the grit of a Kansas cyclone, plodding along through the mud and slush, rain or shine, lightning or no lightning, cold or hot, every day except Sunday, being kicked and cuffed, as it were, nearly every day for something, such as upsetting and spilling a can of milk, short weight or low test, cut in price of butter fat, forgetting to bring somebody's mail, flour, groceries, hardware or something that some one has sent for. If these patient people don't get to heaven, they ought to.

I look at the creamery business very much like the Irishman did his job. He left his native land for the United States, telling his brother that if he found the country all right he would write him. He landed in New York and soon struck a job at 50 cents a day carrying brick with a hod to the top of a four-story building. He wrote his brother like this: "Come on, Jimmy; plenty of jobs with but little work. All I have to do is to carry brick to the top of a four-story building and there is a man up there that does the work." So it is with the creamery business; all you have to do is to fuss around in the mud and dirt among the bawling calves and kicking cows, get the milk, send it to the creamery, and there is a man there that does the work.

Now, let us see how it is with the beef business. The last statistical report of Kansas figures it up like this:

Value of poultry products	$ 3,850,997
Value of dairy products	5,259,758
Value of beef products	37,781,678

We see by the above figures that the dairy products of Kansas are but little above those of poultry in value, while that of beef is more than seven times that of the dairy. Any person who has had experience in dairying and beef production will tell you that the work in connection with beef production is pleasant in comparison with that of dairying. True, there is also work in connection with beef production, but it is principally in the winter time when labor is cheap and plentiful, when men can take their time for it.

When spring time comes, turn the cows in the pasture, where they will graze themselves on the nutritious grasses all summer, where they will raise their own calves, great, large, fine, sleek fellows, with smooth coats, sparkling eyes, playful nature, trim and straight as nature intended they should be, calves that will sell at weaning time for nearly twice what the creamery calf that has lived on soured consternation during the summer, a calf that, when grown and fatted for beef, will weigh several hundred pounds more than the creamery steer and sell for more per pound on the market than the creamery steer. The work and drudgery is so much less and the pleasure of living and looking at such cattle is worth a great deal in the way of happiness and contentment. I have both the creamery and cow-raised calf in our lot. Some days ago I took a neighbor in to look at them. "There is a fine big fellow, and there is another one," said he, looking at those that had been cow-raised, "but what's the matter with that thing there?" getting his eyes turned on a little doleful-looking sour-milk calf.

I explained to him that it was hand-raised. "Well," said he, "you had better put it in the barn or blanket it." So it goes, all along the line, from start to finish.

I want to be a farmer,
And with the farmers stand,
A home of peace and plenty
And good stock on my land.
To be honest, true and kind,
With good will to mankind.

Oleomargarine Bill Defeated.

On Friday morning, February 3, the committee on agriculture reported the oleo bill back to the house with the recommendation that it be not passed. Mr. J. B. Sweet, as chairman of the committee, said:

"The creamery people injured their own case by appearing before the committee. We put their representatives through a very close cross-examination and the result was not at all in favor of the dairy people. The examination showed it was a common practice at dairies to buy up farm butter that was off color, put it through a process that makes it yellow, and sell it for fresh creamery butter. The question then arose, if the creamery people have a right to color their product by an artificial process, why have not the packing-houses the same right?

"The cross-examination showed that the exclusion of oleomargarine from the Kansas market would advance the price of butter from 5 to 8 cents per pound. Whom would this affect the most? Doubtless it would be a very desirable thing for the creameries, but how about the people who buy butter? Oleo is used chiefly by poor people. By depriving them of oleo and forcing them to buy butter at an advance of 5 to 8 cents we would be working not only a hardship but an injustice.

"It is the judgment of the committee that oleo has a large sale strictly on its merits. Many people, especially among the poorer classes, use it in preference to butter, because it is cheaper. They know it is oleo. The dealers tell them so cheerfully. There is no deception about it. The committee's verdict is that the manufacture of oleomargarine in Wyandotte and elsewhere is a legitimate industry."

Crops to Supplement Pasture in Drought.

Paper read before Farmers' Institute, McLouth, Kans., November 30, 1898, by G. J. Groshong.

Ladies and Gentlemen: A great many of you know what prairie grass has done for the State of Kansas. But, you must understand, we do not all have prairie grass, so we have to substitute something for it. In my opinion, there is nothing so good as alfalfa, both for hay and for pasture. For instance, in the spring we have earlier feed and earlier hay than with any other grass in existence. You will also find alfalfa in the droughty part of the season to furnish the best of pasture and it will be found green when all other crops are burnt up by the drought. You will find out by sowing that you will have in time of need plenty of pasture and plenty of green feed, no matter whether the drought comes early or late, and, should there be no drought, you will have an abundance of hay of the best quality, and the only thing that farmers in this country can raise that will make a balanced ration when fed with their other crops.

A great many people think that alfalfa will not grow on our upland in this country, but that is a mistake, for most any land in this country will yield three crops of one ton per acre each in an ordinary year on the highest land we have in the country. Every man who sows it has his own opinion as to when it should be sown. Of course, I have mine. So far I have been very lucky. The land that I want to sow in alfalfa, I will sow to oats in the spring and take my oats off early for hay, and plow my ground very deep and sow my alfalfa seed about June 20. Now, the reason I have for this, which you will all agree with me, is, in plowing my stubble under I get clear of all the weeds. My crop comes on and I do not have to go out and mow it three or four times before fall.

About October 1, I will mow from this ground one ton of alfalfa to the acre, while these gentlemen that sow in the spring will mow weeds until fall and will have no stand. Then, when you sow late in the fall, and there should be a wet winter with some freezing weather, you will go out in the spring and find a great deal of your alfalfa already pulled. You may think that I am exaggerating this thing, but there is no better way for you to find out than to try it. You may also think that it is only good when growing, but try a few acres, cut the hay, and in the dead of winter try your hogs and see what they say about it. They will tell you to sow more alfalfa. When you have a good crop you need no grain scarcely for your stock. A great many men, to my knowledge, when they have a good stand of alfalfa, must turn all the stock they have on the grass to try it, and the consequence is they spoil their grass by pasturing it too early.

There are other crops that will supplement pasture in drought, such as green corn and a few other different feeds, until you can get a crop of alfalfa, but I recommend alfalfa above all other feeds for time of need.

Now, ladies and gentlemen, I will leave this for you to think over, and to try also.

The House of Representatives Discusses Oleo.

The next day after the oleo bill met defeat in the house, a heroic but fruitless effort was made to resurrect it. The effort precipitated a three hours' debate, during which time many of the members took occasion to express their views. When the motion to have the bill printed and placed on the calendar came to a vote, it was lost by 58 to 36 on a roll-call. The members are now on record as to how they stand on this important question. Mr. Grosser, of Dickinson County, deserves much credit for the tireless efforts put forward in behalf of the bill.

The legislative committee of the Kansas State Dairy Association, and the creamery and dairymen all over the State, have put forward earnest efforts in behalf of this bill, and although their efforts seem to be fruitless, yet they are not lost. People are thinking, and the day will come that the people will rise in their might and demand pure food products of all kinds.

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 to the Veterinary Department, K. S. A. C., Manhattan, Kans. All such inquiries will receive prompt attention from Dr. Paul Fischer, Professor, and A. J. Burkholder, Assistant, Kansas State Agricultural College.

UNDETERMINED.—I have a steer, age 3 years, suffering from something. Symptoms are: One ear droops; neck seems stiff and twisted; has little appetite for either food or water; grinds his teeth; never chews his cud; of course is falling away rapidly. Has he lost his cud and what can I do to relieve him? I enclose stamp for reply and would be glad to hear as soon as convenient.

W. G. McDUFF.

Good Intent, Kans.

Answer.—A personal examination would be necessary to determine exact nature of your case. A fractured bone of the neck is probably responsible for such symptoms as you describe.

INTERFERENCE.—I have a horse that interferes behind with both feet. He stands straight, but when he is traveling, his foot, when going forward, tips in, and sometimes interferes. What I want to know is, how to shoe him so his foot will pass his ankle without hitting.

Kinsley, Kans. B. F. TATUM.

Answer.—Take your horse to a good smith and have him make a pair of shoes as follows: Very wide web on outside of foot, narrow on inside, both of same thickness, but outside web should extend back one inch behind heel of hoof. Shod in this manner your horse should soon experience a change of gait and no longer suffer from trouble described. The object is to weight the foot on outside without changing the normal angle of the limb, such as occurs with evil consequences from many of the methods in use.

KIDENY WORMS.—By writing to you I thought I might get some information about a disease we have here among our hogs. They get it quite young—at 3 or 4 weeks old, and as old as 6 months, but not after. When they take it they gaunt up and fall in at the rump. They all have worms—kidney worms. They lose their appetite from the start of disease. If you can give me remedy or any suggestion that will be of any benefit it will be gratefully received.

HARRY NEISWENDER.

Truckee, Cal.

Answer.—Owing to the delicate structure of the kidney, such parasites are difficult to remove. Will advise you to administer once a day to all pigs over 3 months old one teaspoonful of spirits of turpentine in one quart of sweet milk, half the above dose to pigs younger; 15 drops to those under 1 month old. Repeat until four doses have been given. Strict observance of all sanitary means, with plenty of yard space for exercise, will help you to avoid trouble in the future.

BLACKLEG — BARRENNESS.— (1) For several years past I have been losing calves occasionally with blackleg, and have seen in the papers that experiments have been made by vaccination as a preventive. Will you kindly give, through the Kansas Farmer, a description of the process of vaccinating, viz: What medicine to use and where to procure it? On what part of the body, and where to apply it? At what age should it be? What instruments are necessary, and can any ordinary farmer perform the operation? (2) I have a 6-year-old mare that I have bred two or three times every spring for four years, but so far have not been able to get her with foal. She is a cross between a Percheron mare and an English Shire horse and weighs about 1,400 pounds. She is all right in every respect and used only as a farm horse; has free run of pasture in the daytime and good stable at night. She has been bred to both light and heavy horses and jacks. The mother suckled her when she (the mother) was 4 years old, and raised another colt two years later, since which time she has refused to breed. The man who owned the horse to which I bred her last spring undertook to "open" her, but found upon examination that she was what he termed "too open already." Can you give any reason why the mares will not breed, or give me a remedy that will cause them to do so?

ALBERT CUTHBERTSON.

Girard, Kans.

Answer.—The Veterinary Department, Experiment Station Kansas State Agricultural College, is prepared to furnish blackleg vaccine for vaccinating calves against that disease, free of charge to residents of Kansas. Apply to that department for material, which will be furnished, with full instructions how to use, etc. Any ordinary farmer can vaccinate if he follows directions. A vaccinating outfit, consisting of hypodermic syringe, small mortar with pestle, funnel, etc., will cost from $3 to $4, depending upon the quality preferred by the purchaser. (2) To your second inquiry, we are of opinion that you have on your hands one of those animals classed as barren, for which nothing can be done without expensive treatment. Will advise no treatment unless your animal is one of value.

RING-WORM.—My dark brown mare has some skin or blood trouble, which causes itching. I did not notice it until she began to rub her thighs; the itching began at the root of the tail, but seems to be spreading over the hind quarters. Pimples and scabs can be felt on the skin. The hair does not seem to come off except where it is rubbed. I first noticed the trouble five weeks ago. Her colt was weaned four weeks before. I did not feed her heavy the first week, but afterwards, ten to twelve ears of corn twice a day. I have been feeding condition powders for the last six weeks. Seven weeks ago she had a tooth pulled. She has been doing light work and is rather thin.

J. E. VELEN.

Jerome, Kans.

Answer.—Your animal seems to have ring-worm. Thoroughly wash the affected parts with warm water and soft soap, being careful not to scour the sores too hard, but persevere until all scabs are removed. Get of your druggist, four ounces of sulphur iodide ointment, and rub in well sufficient ointment to effectually saturate the affected part. Repeat this process every four days. Scald your combs, brushes, cloths and other stable paraphernalia which has come in contact with diseased parts, whitewash walls and other woodwork, and you can reasonably hope to escape further trouble.

AZOTURIA.—Would you please give information in the following case, and oblige a Kansas Farmer reader? On last Friday evening, while driving a 7-year-old draft horse to wagon, he became stiff in hind legs, and began to draw up at flank, also to sweat freely. I had driven him slowly about 3 miles, and when within half a mile of home he went down in his hind parts. I have not been able to get him on his feet since. He seems to have lost use of his hind parts. He is in fine condition otherwise; eats heartily and tries to get up. I have bathed his back up along his spine with turpentine.

F. D. MARSHALL.

Modoc, Kans.

Answer.—Your animal is evidently suffering from azoturia. The pathology of this disease is still unexplained. The urine, although its specific gravity is unaffected, is albuminous and high colored from suspended granular pigment, possibly derived from the voluntary muscles, which are suddenly affected by spasm. The disease occurs only in horses that have been rested a day or two. If you have not given a physic, administer at once one pint of raw linseed oil. Repeat dose of oil in twenty-four hours. Get of your druggist one-half pound of potassium nitrate; divide into six doses; give one dose in drinking water once a day. Your letter having reached us some time after this disease showed itself, it is possible that your horse is either dead or much improved before this reaches you. However, we will cheerfully advise you further if you desire it, by letter.

THE STRAY LIST.

HOW TO POST A STRAY.

THE FEES, FINES AND PENALTIES FOR NOT POSTING.

BY AN ACT of the Legislature, approved February 27, 1866, section 1, when the appraised value of a stray or strays exceeds ten dollars, the County Clerk is required, within ten days after receiving a certified description and appraisement, to forward by mail, notice containing complete description of said strays, the day on which they were taken up, their appraised value, and the name and residence of the taker-up, to the KANSAS FARMER, together with the sum of 50 cents for each animal contained in said notice. And such notice shall be published in the FARMER in three successive issues of the paper. It is made the duty of the proprietors of the KANSAS FARMER to send the paper, *free of cost*, to every County Clerk in the State, to be kept on file in his office for the inspection of all persons interested in strays. A penalty of from $5 to $50 is affixed to any failure of a Justice of the Peace, County Clerk, or proprietors of FARMER for a violation of this law.

Broken animals can be taken up at any time in the year.

Unbroken animals can only be taken up between the first day of November and the first day of April, except when found in the lawful enclosure of the taker-up.

No persons, except citizens and householders, can take up a stray.

If an animal liable to be taken up, shall come upon the premises of any person, and he fails for ten days, after being notified in writing of the fact, any other citizen and householder may take up the same.

Any person taking up an estray, must immediately advertise the same by posting three written notices in as many places in the township, giving a correct description of each stray, and he must at the same time deliver a copy of said notice to the County Clerk of his county, who shall post the same on a bill-board in his office thirty days.

If such stray is not proven up at the expiration of ten days, the taker-up shall go before any Justice of the Peace of the township, and file an affidavit stating that such stray was taken up on his premises, that he did not drive nor cause it to be driven there, that he has advertised it for ten days, that the marks and brands have not been altered; also he shall give a full description of the same and its cash value. He shall also give a bond to the State of double the value of such stray.

The Justice of the Peace shall within twenty days from the time such stray was taken up (ten days after posting) make out and return to the County Clerk, a certified copy of the description and value of such stray.

If such stray shall be valued at more than $10, it shall be advertised in the KANSAS FARMER in three successive numbers.

The owner of any stray may, within twelve months from the time of taking up, prove the same by evidence before any Justice of the Peace of the county, having first notified the taker-up of the time when, and the Justice before whom proof will be offered. The stray shall be delivered to the owner, on the order of the Justice, and upon the payment of all charges and costs.

If the owner of a stray fails to prove ownership within twelve months after the time of taking, a complete title shall vest in the taker-up.

At the end of a year after a stray is taken up, the Justice of the Peace shall issue a summons to three householders to appear and appraise such stray, summons to be served by the taker-up; said appraisers, or two of them, shall in all respects describe and truly value said stray, and make a sworn return of the same to the Justice.

They shall also determine the cost of keeping, and the benefits the taker-up may have had, and report the same on their appraisement.

In all cases where the title vests in the taker-up, he shall pay into the County Treasury, deducting all costs of taking up, posting and taking care of the stray, one-half of the remainder of the value of such stray.

Any person who shall sell or dispose of a stray, or take the same out of the State before the title shall have vested in him, shall be guilty of a misdemeanor and shall forfeit double the value of such stray and be subject to a fine of $20.

FOR WEEK ENDING FEBRUARY 2, 1899.

Greenwood County—Perry Clemans, Clerk.

STEER—Taken up by M. R. Bolinger in Fall River tp. (P. O. Eureka), December 26, 1898, one steer, branded W. H. on right side, crop out of both ears, dehorned; valued at $20.

FOR WEEK ENDING FEBRUARY 9, 1899.

Barber County—J. E. Holmes, Clerk.

MULE—Taken up F. J. Saunders, in Sun City tp., January 17, 1899, one blue horse mule, four feet six inches high, branded C on left shoulder; valued at $15.

Nemaha County—A. G. Sanborn, Clerk.

STEER—Taken up by Emery Conwell, in Gilman tp., (P. O. Oneida), January 10, 1899, one red yearling steer, crop off right ear, swallow fork in left ear; valued at $18.

Harvey County—S. M. Spangler, Clerk.

MULE—Taken up by Thomas H. Russell, on sec. 28, Darlington tp., January 16, 1899, one bay mare mule, about 12 years old, slit in each ear, about 15 hands high; valued at $20.

Lyon County—H. E. Peach, Clerk.

MARE—Taken up by Fred Sedwith, in Emporia tp., January 10, 1899, one 2-year-old dark brown mare.

The Poultry Yard

Conducted by C. B. TUTTLE, Excelsior Farm, Topeka, Kans., to whom all inquires should be addressed. We cordially invite our readers to consult us on any point pertaining to the poultry industry on which they may desire fuller information, especially as to the diseases and their symptoms which poultry is heir to, and thus assist in making this one of the most interesting and beneficial departments of the KANSAS FARMER. All replies through this column are free. In writing be as explicit as possible, and if in regard to diseases, give symptoms in full, treatment, if any, to date, manner of caring for the flock, etc. Full name and postoffice address must be given in each instance to secure recognition.

Raising Turkeys.

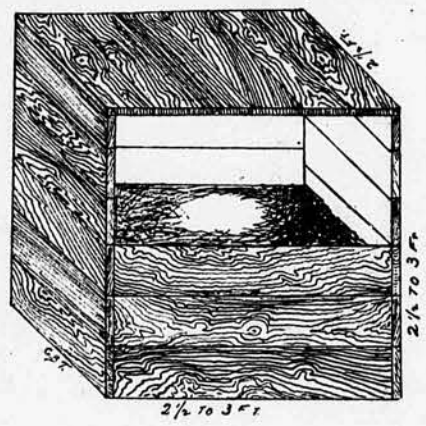
Editor Kansas Farmer:—I would like to answer a few questions asked me in regard to raising turkeys, through the columns of the Kansas Farmer.

In my opinion, the best arrangement for nest is a dry goods box, medium size, placed bottom upward, with about one-half of one side removed near the top, when box is inverted (see cut herewith). Another good nest is an ordinary barrel, such as a salt or an apple barrel. But the nest that suits the hens best is a brush-pile, so arranged that they can get inside or under it. Litter for nests should be of such material that it will conform in color to surroundings.

On the average Kansas farm, a flock of ten or twelve turkeys will pick up enough feed to answer all requirements during laying season, but I would advise a light feed of corn at night to keep the hens in the habit of coming home at night. Turkeys should always be supplied with grit. Coarse sand will answer.

The eggs, after gathering, should be kept in a cool place but not where they would be in danger of chilling. If turned regularly once a day they will keep fertile for four or five weeks if necessary.

Ordinarily, a hen will lay from fifteen to twenty eggs for her first laying. If



A NEST FOR TURKEY.

you wish to set the hen, do not scare her off the nest when you first suspect that she wants to sit, as the average Bronze turkey hen is easily broken up when she first begins to sit. Let her get acquainted with you by going near the nest and looking at her once or twice a day the first day or two. Then you will be safe in giving her the eggs—usually about fifteen or seventeen, according to temperature of weather and location of nest. Never make the mistake of setting two hens in one nest, or one hen where another hen is laying.

It is a very easy matter to overfeed young turkeys. If the mother hen is allowed her liberty after hatching, on a good range twice or three times a day is often enough to feed; and this is to tame the turkeys and know where they are and teach them to come in at night. The best feed for young turkeys is curd, with occasionally an onion chopped fine and added to the curd; also bread crumbs and hard-boiled eggs. Where an egg-tester is used, the infertile eggs are as good to feed as any. All feed should be well seasoned with pepper. Never use sour feed or feed more than will be eaten up clean. After the first four or five weeks, Kaffir corn, wheat or cracked corn makes a good feed. If the turkeys are to be confined the first two or three weeks, I would advise picketing the mother hen with a strong cord. Occasionally I find a hen that will not stand this treatment, but most of them will; and this plan gives the young poults a chance to exercise.

If there is anything that will kill young turkeys quicker or surer than confinement, it is lice. Where turkeys are raised with their natural mothers there is not much danger from lice; but, where they are raised with common hens, "eternal vigilance is the price of success."

Never use a dull, lazy turkey hen as a breeder, as they are liable to be lousy, and their young are liable to inherit the same disposition, and you can not raise turkeys and lice at the same time.

Delphos, Kans. C. H. CLARK.

Plymouth Rocks.

The Plymouth Rock is the most popular of all varieties of poultry as a general-purpose fowl. Its medium size, hardy growth, and good laying qualities make it a practical fowl for the farm. The barred variety is the most generally known of the Plymouth Rock classes, and their history dates back a little over a quarter of a century. Various bloods were used in its making, the belief being general that they originally came from a cross between the American Dominique and Black Java. It has also been shown that the Light Brahma, Dark Brahma, and Pit Game have been used in their making.

The Barred Plymouth Rock is of a grayish-white color, regularly crossed with parallel bars of blue-black running in straight, distinct lines throughout the entire length of the feather, and showing on the down or under color of the feathers. The barring is somewhat smaller on the hackle and saddle feathers than on other portions of the body. The bird is of medium size, with broad neck, flat at the shoulders, the breast is full, and the body broad and compact; medium-sized wings, that fold gracefully, the points being well covered with breast and saddle feathers. A medium-sized head, ornamented with upright, bright-red comb and wattles; a large, bright eye; and yellow beak, legs, and toes, places the picture before us in its entirety. The difference between the barred and the pea-comb barred is that the latter has a small, firm, and even pea-comb, instead of single comb.

For the farmer or market poultryman they are favorites, being of medium size, well proportioned, with a deep, full breast, making a most admirable bird for market purposes. They are hardy, mature early, and make excellent broilers from 8 to 12 weeks old. They are good layers the year round, and in winter they lay exceptionally well. Their eggs are brown in color and average eight to a pound. They are good sitters and excellent mothers.

The Barred Plymouth Rock, besides being a practical fowl, is also one of the most sought after by fanciers. No class is better filled at the average poultry show of the country than is theirs. Their graceful figure, upright carriage, and active natures endear them to all as a farmer's fowl. There is a fascination in breeding them for plumage; the more even and regular the barring the better. It requires much skill to breed them for color, and two matings are generally used for breeding. An established rule for mating cockerels is to use a standard color male with medium dark females, and for pullets, use light male and dark females. The double mating is resorted to by many, yet the writer has seen rare specimens produced from single matings.

The characteristics of the Barred Plymouth Rock are noticeable in the other Plymouth Rock classes, excepting that of color. The size, shape, general outlines and qualities are the same in other varieties as in the barred. The White Plymouth Rock is pure white in plumage throughout, and in the buff variety is a clear buff, uniform in shade except the tail, which is deep buff or copperish yellow brown. The buff color should extend to the under color as much as possible; the deeper the better.

The standard weight of cocks is 9½ pounds; hens, 7½ pounds; cockerels, 8 pounds; pullets, 6½ pounds.—From Farmers' Bulletin No. 51, United States Department of Agriculture.

An Omission.

In the report of awards at the State Show, in issue of January 26, by mistake, the awards on turkeys were overlooked. They were as follows: Mrs. F. A. Hargrave, Richmond, Kans., first and second cockerels, 96 and 94½; second hen, 95½; first and second pullets, 96 and 95½; first trio, 181.75. C. H. Clark, Delphos, Kans., first cock, 96; first and third hen, 96 and 95½; second trio, 181.75. An apology is due these exhibitors, which is hereby tendered, and it is hoped will be accepted, as the oversight was unintentional.

With last week's issue, the Farmer began a series of articles on the different breeds of standard poultry. It is intended to give a short, concise description and history of one or more breeds or varieties each week, until the principal ones, at least, have appeared. It is hoped that this series will be of interest and benefit to Kansas Farmer readers, and supply information not readily obtainable elsewhere.

The Apiary.

Conducted by A. H. DUFF, Larned, Kas., to whom inquiries relating to this department should be addressed.

Bees in the House.

Bee Department Kansas Farmer:—Last fall we had a swarm of bees to come and go into our house under the weather-boarding, and as they are still there and seem to be plenty of them, I would be glad to know if I could get them out and hive them without cutting the weather-boarding. JAMES U. HOWE.

Wichita, Kans.

There is no way you can get the combs all completely out and successfully transferred into a hive without taking off some boards. You may drive the bees out to the outside with smoke and hive them without the combs, and may give them a new set of combs or foundation to build up on. As you say the bees came there last fall, I would suppose they were not very well supplied with stores, and indeed I would be afraid they would starve before spring. You can feed them to prevent this. I would feed them some and let them stay there until some time in April, and then take off a few boards and transfer them to a hive, and I think they will well pay you for your trouble.

Bees Coming Out on Snow.

If bees come out while there is yet snow on the ground, it is either the fault of the hives or it is an indication that they are not healthy. The condition of the air while there is snow on the ground is such that bees in a healthy state and in good condition generally will not fly out of the hives to any extent. Bees affected with dysentery, caused by bad wintering, are almost thus forced out in bad weather, and at times even when they are unable to return to the hive, especially when the ground is covered with snow.

A very strong sun, even when the ground is covered with snow, will so warm up thin hives that the bees may be induced to come out when they should not, and the results are that heavy losses occur from the bees getting chilled and unable to return to the hives. This will occur with healthy colonies, and the remedy is double walls for wintering. Bees may be prevented from coming out of the hives on such occasions by shading the hives, and thus keeping the sun from striking them direct.

The present severe winter will doubtless cause some loss in bees, and those not well protected will suffer the most. Many colonies will be weakened down from freezing the outside portion of the clusters that are divided by the combs. Dysentery will also show itself to some extent. It is a pretty hard matter to apply remedies thus late for this trouble, and the only cure for it is warm weather, that the bees may get out and get a good purifying flight. This may be largely prevented by good housing in autumn, and, if chaff hives are used, but little of it will show itself after the coldest of winters.

Candy is a good change of diet for bees in late winter, and it will be worth the trouble to make some sugar cakes and give them by laying them on the frames directly over the bees. Do this only on a warm day, and cover them up closely afterwards. Candy made from pure granulated sugar is found to be a very choice and healthy diet for bees and is much better than many varieties of pure honey as food at this season of year. It has a good effect on bees affected with dysentery.

Early Spring Management.

It is not uncommon to find one or more colonies that have perished from some cause during the winter. It may be that they have starved, or become so weak that they could not survive the extreme cold, and have thus died and the hive is left tenantless, with perhaps more or less honey in the combs. In all such cases as this, found in making early examination, we should remove such hive or close it up carefully so that other bees may not find the honey, for they will surely find it when the weather becomes warm enough for them to get out. If they once get a taste it may produce the worst kind of robbing, and at no time of year is there so much danger of loss as in early spring when the colonies are all weak and not able to offer the necessary resistance to prevent persistent robbers.

Any colony of bees will be capable of turning robbers if the proper inducements be offered. Leaving honey about at any time where they get access to it will immediately put whole colonies on the aggressive, and thus heavy losses frequently occur by a little neglect on our part. The proper time to prevent all this kind of trouble is to begin early and put every colony in proper condition to defend itself by having each one supplied with queens and plenty of food. When thus in good condition they will build up into good, healthy colonies and become strong enough to defend their hives and contents from the worst type of robbers. If any colonies are found without queens, it is useless to allow them to remain so. Robbing in this case is sure to follow, as the bees will not defend their hives without a queen, when few in numbers as at this season of year. Queenless colonies should be united with others that have queens, or queens should be supplied to them if we can secure them at the proper time.

All work necessary to be done in early spring should be done only on very fine days, and at no time when it is not pleasant enough for the bees to be out flying. The hives must be well closed up after opening them and no cracks or openings left to allow of cold draughts to pass through the combs and bees.

MARKET REPORTS.

Kansas City Live Stock.

Kansas City, Feb. 13.—Cattle—Receipts since Saturday, 2,071; calves, 53; shipped Saturday, 486 cattle; no calves. The market was strong to 10c higher. The following are representative sales:

DRESSED BEEF AND SHIPPING STEERS.

No.	Ave.	Price.	No.	Ave.	Price.
40	1,384	$5.37½	44	1,413	$5.35
59	1,413	5.25	16	1,225	5.15
12	1,195	5.00	19	1,359	4.90
17	1,023	4.75	1	920	4.50

WESTERN STEERS.

49	1,363	$5.00	24	1,208	$4.90
28	1,220	4.90	79	1,246	4.75
35	1,160	4.55	99	1,054	4.50
30	924	4.05	2	1,100	4.00

NATIVE HEIFERS.

2	800	$4.25	1	1,180	$3.90
1	610	3.90	9	586	3.60

NATIVE COWS.

9	1,058	$4.10	3	1,166	$3.75
1	1,240	3.50	7	924	3.35
1	640	2.00	1	1,050	2.85
1	860	2.75	3	936	2.65

NATIVE FEEDERS.

43	999	$4.50	47	913	$4.45
18	1,051	4.30	1	820	4.15
1	1,170	4.00	2	805	4.00
2	950	3.50			

NATIVE STOCKERS.

1 Jer	830	$3.50	2 Jer	590	$3.50

Hogs—Receipts since Saturday, 3,305; shipped Saturday, 188. The market was 5 to 10c higher. The following are representative sales:

62...285	$3.85	55...281	$3.82½	66...286	$3.80
65...278	3.77½	48...256	3.77½	43...247	3.77½
39...230	3.75	69...262	3.75	65...251	3.75
55...286	3.72½	78...229	3.70	74...201	3.70
82...20	3.70	80...229	3.70	71...271	3.70
82...213	3.70	78...211	3.67½	84...222	3.67½
81...185	3.67½	80...193	3.65	124...217	3.65
90...180	3.62½	63...192	3.60	79...207	3.60
42...197	3.57½	86...182	3.57½	70...185	3.57½
82...173	3.55	50...209	3.55	40...175	3.55
87...177	3.55	91...171	3.52½	78...169	3.52½
80...154	3.52½	79...154	3.50	90...169	3.
24...158	3.40	12...130	3.35	6...135	3.35
8...107	3.35	20...119	3.30	6...110	3.30
22...124	3.30	26... 99	3.30	76...120	3.30
133...101	3.30	5...118	3.30	16...114	3.25
1...300	3.25	193... 92	3.25	17...124	3.20
117...123	3.15	1...320	2.75	4...210	2.50

Sheep—Receipts since Saturday, 7,023; shipped Saturday, 140. The market was steady to weak. The following are representative sales:

260 Col. lbs...	69	$4.80	155 Col. lbs...	76	$4.75
255 N. M. lbs.	66	4.65	231 W. lbs....	82	4.50
144 nat. yrl..	87	4.25	231 Col. sh....	100	4.10
18 W. sh....	97	4.10	559 N. M. lbs..	67	4.00

St. Louis Live Stock.

St. Louis, Feb. 13.—Cattle—Receipts, 1,300; market strong to higher; shipping steers, including fancy, $4.50@5.00; light steers to dressed beef grades, $3.25@5.25; stockers and feeders, $3.00@4.55; cows and heifers, $2.00@4.40. Texas and Indian steers, $2.75@4.85; cows and heifers, $2.25@4.00.

Hogs—Receipts, 4,500; market higher and active; pigs and lights, $3.80@3.90; packers, $3.85@4.00; butchers, $3.95@4.07½.

Sheep—Receipts, 1,000; market steady to strong; natives, $3.00@4.25; lambs, $4.50@5.25; Texas muttons, $3.50@4.00.

Chicago Live Stock.

Chicago, Feb. 13.—Cattle—Receipts, 13,000; market strong to 10c higher; beeves, $4.10@6.00; cows and heifers, $2.25@4.80; Texans, $3.50@4.75; stockers and feeders, $3.50@4.65.

Hogs—Receipts, 27,000; market active, 5 to 10c higher; light, $3.70@3.95; mixed, $3.70@4.00; heavy, $3.70@4.05; rough, $3.70@3.75.

Sheep—Receipts, 14,000; market strong to higher.

Kansas City Grain.

Kansas City, Feb. 13.—The grain exchanges were not in session to-day, all following Chicago's observance of Lincoln's birthday, and very little attempt was made to do business here. Some 59-lb. wheat was sold at 66½c, which was Saturday's best price, and there was a firmer feeling on cash wheat. Liverpool cables were ⅝d higher than Saturday's close on wheat and ¼d lower on corn. Wheat on the "curb" at Chicago was quoted at 73@73⅜c and closed at 73⅜c.

To-day's wheat receipts here were 60 cars against 174 cars a year ago; corn, 40 cars against 116 cars; oats, 13 cars against 6 cars; rye, 2 cars; flax, 1 car; hay, 63 cars.

Kansas City Produce.

Kansas City, Feb. 13.—Eggs—Strictly fresh, 21c per doz.

Butter—Extra fancy separator, 20c; firsts, 17½c; seconds, 16c; dairy fancy, 15c; country roll, 11½@14c; store packed, 10c; packing stock, 9c.

Poultry—Hens, 7c; springs, 8½c; old roosters, 15c each; young roosters, 20c; ducks, 7½c; geese, 5@6c; turkeys, hens, 8½c; young toms, 8c; old toms, 7c; pigeons, 50c per doz.

Vegetables—Navy beans, $1.35 per bu. Lima beans, 4½c per lb. Onions, red globe, 65@75c per bu.; white globe, $1.00 per bu. Beets, home grown, 30c per bu. Turnips, home grown, 15@25c per bu.

Potatoes—Mixed varieties, 40@50c.

TOO LATE TO CLASSIFY.

FOR SALE OR TRADE—A high-grade Clydesdale stallion, color, black also a well-bred jack. For particulars address Ben. Mayfield, Randolph, Kans.

FOR SALE—A few high-grade yearling Hereford bulls. Will quit breeding horses, therefore offer stallion Blackwood Chief, mares and geldings well bred, for farm or land. Chas. Platner, Ellsworth, Kans.

FOR SALE OR EXCHANGE—Imported Shire stallion, good breeder and all right, bay, 16½ hands high, has very heavy bone. Robt. Sanders, Lone Elm, Kans.

WANTED—Energetic man to take State agency and appoint sub-agents. Reference and security required. Address Eclipse Horse Powder Co., 153 West Eighteenth street, New York.

A $5 CAMERA FOR 20 CENTS. SEND STAMP for particulars to Photo Supply Co., Lock Box 104, Waseca, Minn.

IOWA FARMS FOR SALE—$2 per acre cash, balance ⅓ crop until paid. J. Mulhall, Sioux City, Ia.

STRAWBERRY, BLACKBERRY, RASPBERRY plants. Get prices of J. C. Banta, Lawrence, Kans.

NOTICE—Chickens all sold. Mrs. John Hill.

FOR SALE—Two registered Percheron stallions, weight 2,000 to 2,100 pounds. For particulars, address C. Spohr, Rome, Kans.

FOR SALE—Hereford cattle. High-grades and pure-bred; males and females. W. E. Spears, Richmond, Franklin Co., Kans.

STRAWBERRY, RASPBERRY AND BLACKberry plants. Best varieties at low prices. Sam Morrison, Lawrence, Kans.

FOR SALE—Good hedge posts, in car lots. E. W. Melville, Eudora, Kans.

PARTRIDGE COCHINS AND WHITE LEGHORNS at Hutchinson show took sweepstakes in Asiatic and Mediterranean classes (silver cup and silver teapot); Shellabarger judge. Eggs, $2 and $1 per 15. Write for descriptive circular. Address, J. W. Cook or Carrie A. Cook, Hutchinson, Kans.

WHITE WYANDOTTES

Have no equal as an all-purpose fowl. I have high-scored birds and eggs from first prize-winners for sale. Prices reasonable. Address Jeff. Payne, Hutchinson, Kans.

THE BEST VARIETIES OF CHOICE EARLY SEED potatoes. Extra Early Six Weeks potatoes, 90 cents per bushel; Early Ohio potatoes, 60 cents per bushel; Early Rose potatoes, 60 cents per bushel; Early Harvest potatoes, 65 cents per bushel; Northern Early Ohio and Early Rose potatoes, 80 cents per bushel. Packed in barrels or sacks and delivered to railroad depot here. Address Calvin Hayes, 307 Kansas avenue, Topeka, Kans.

PRIZE-WINNING LIGHT BRAHMA CHICKENS
...EXCLUSIVELY...

Our record for 1898-99: Won 5 out of 6 first premiums at State show in Topeka, including sweepstakes, in January, 1899. Won 6 out of 7 first premiums, including sweepstakes in Asiatic class, at Sedgwick (Kansas) show in December, 1898. Won 6 out of 6 first premiums, including sweepstakes, at Butler County show, held in ElDorado, December, 1898. Eggs $1 to $3 per sitting. Also breeders of Red Polled cattle. Address
CHAS. FOSTER & SON, ElDorado, Kans.

WHEN WRITING ANY OF OUR ADVERTISERS PLEASE MENTION KANSAS FARMER.

Washington as a Farmer.

The manner in which farming was carried on in Virginia was very unsatisfactory to Washington, and he did what he could to improve it. In one of his letters, written in 1787, he says: "I must observe that there is, perhaps, scarcely any part of America where farming has been less attended to than in this State (Virginia). The cultivation of tobacco has been almost the sole object with men of landed property, and consequently a regular course of crops have never been in view." He goes on to say that there are several farmers, himself among the number, who are adopting the English system of rotation of crops. In 1785, he was writing Lord Fairfax to make inquiry in England "whether a thorough-bred, practical English farmer, from a part of England where husbandry seems to be best understood, and is most advantageously practiced, could not be obtained, and upon what terms?" He adds that he has no doubt that such a man might be had for very high wages, "as money we know will fetch anything and command the service of any man," and he is very careful to say "but with the former I do not abound." That was a time when he was feeling land poor, as he did not infrequently, being sometimes compelled to borrow, and at others to sell some of his land holdings. He also appears to have experienced difficulty at times in getting proper returns, and many a farmer today will sympathize with Washington when he wrote to one of his farm managers, in 1799, as follows: "It is hoped and will be expected that more effectual measures will be pursued to make butter another year; for it is almost beyond belief, that, from one hundred and one cows actually reported on a late enumeration of the cattle, I am obliged to buy butter for the use of my family." This reads very much like some of the results achieved by Henry Ward Beecher and Horace Greeley in their attempts at farming. Washington cultivated his farms, however, with much foresight, and the instructions which he issued to his managers would constitute even now a valuable farm manual. These instructions show his great familiarity with all the processes of farming and stock raising.—From paper on "Washington," by Pres. Henry Wade Rogers, in Self Culture for February.

In the Fruit Garden.

Do not expect much if any fruit from grass-bound fruit trees. Grass and weeds under fruit trees provide shelter for worms, and soon the trees are infested with borers. To cure: Reverse the conditions, and wash the trunks of the trees with strong soapsuds.

In pruning fruit trees do not cut off a limb that is more than one inch in diameter. To avoid splitting the limb saw about half way through on the under side of the limb; then saw down from the upper side to meet it.

Do not allow any fruit to form on young fruit trees. Strength and growth are more desirable than fruit until the trees are four years old.

If you are intending to make any grape vine trellises this spring, coat the end of the posts that are set in the ground with water-proof glue. The glue will prevent rotting and the posts will last much longer.

A raspberry patch is prolific until it is six years old. It reaches its best bearing condition when it is two years old. By setting out new plants every three years, one will be coming in full bearing condition as the other is going out. Raspberries will thrive very well on every character of soil, if water is not allowed to collect and stand about the roots.

The currant has been a neglected fruit the past few years because the owners do not seem able to kill the worms. Early in the season before the blossoms are set make a strong soapsuds of whale oil soap and soft water and sprinkle the ground under the currant and gooseberry bushes. This preparation is excellent for rose bushes and plum trees. Another preventive is to sprinkle the bushes with hard-wood ashes. About the time the fruit is forming sprinkle the bushes with 1 ounce of white hellebore, dissolved in 2 gallons of water. Repeat the application every ten days until all danger of worms is past.

To prolong the currant season spread a sheet over a bush or two, to exclude the sun and delay ripening. The Victoria is the best variety to use for this purpose, as it may be kept on the bush two weeks after it is ripe without injury.

Picking gooseberries is a disagreeable task, but the work may be done with ease by putting on leather or heavy cloth gloves and scraping the berries off, leaves and all; then run them through a fanning mill to separate the leaves and berries.

Currant and gooseberry bushes should be pruned annually. Cut off tips of new growth and cut out all old wood in center of bushes.—Dola Fay, Winneshiek Co., Iowa.

Special Want Column.

"Wanted," "For Sale," "For Exchange," and small or special advertisements for short time, will be inserted in this column, without display, for **10 cents per line,** *of seven words or less,* **per week.** *Initials or a number counted as one word. Cash with the order. It will pay. Try it!*

SPECIAL.—*Until further notice, orders from our subscribers will be received at* **1 cent** *a word or 7 cents a line, cash with order. Stamps taken.*

2,000 BUSHELS SEED SWEET POTATOES FOR sale. Nine best kinds. Write N. H. Pixley, Wamego, Kans.

50,000 Apple, Peach, Plum, Cherry, Pear and other fruit trees, vines, etc. First-class for less money than elsewhere. Catalogue and special wholesale prices for a short time only. S. J. Baldwin, Seneca, Kans.

FOR SALE—Imported English Coach stallion and Galloway bulls. W. Guy McCandless, Cottonwood Falls, Chase Co., Kans.

WANTED—To buy or contract 1,000 to 1,500 cattle to pasture at $2.30 per head for season. Convenient to shipping points in Riley and Geary counties. Located near Manhattan, Kans. Also pastures and farm lands to lease and sell. Address "Pasture," care Kansas Farmer, Topeka, Kans.

FOR SALE OR RENT—A farm of 150 acres, well improved, 18 miles from Topeka. For particulars call on or address W. C. Thomas, Fountain, Osage Co., Kans.

GOOD WHITE ROCK COCKERELS $1.00 EACH. A. S. Parson, Garden City, Kans.

VINELESS AND COMMON SWEET POTATOES—Furnished to sprout on shares. No experience required. Directions for sprouting with order. T. J. Skinner, Columbus, Kans.

FOR SALE—Eight red registered Shorthorn bulls, 8 to 15 months old. Shepherd pups, half price. F. H. Foster, Mitchell, Rice Co., Kans.

FOR SALE OR TRADE—Farm of 80 acres, 10 acres orchard; well improved; 3 miles to station. M. E. Charvoz, Allen, Kans.

WANTED—To lease or buy a cattle ranch, from 1,000 to 1,500 acres; southern Kansas preferred. Must have living water. Address, J. H. Wallace, 2408 E. Eleventh Street, Kansas City, Mo.

FOR SALE—Four large black jacks. Address, J. P. Wilson, Wellsville, Mo.

FOR SALE—$8.00 per acre for improved 160-acre farm 1¼ miles north of Bushong Station, Lyon Co., Kans. Address, J. B. McAfee, Topeka, Kans.

TOULOUSE GEESE, PEKIN DUCKS, CORNISH Indian Games, Brown Leghorns, Great Danes, Scotch collies and fox terriers. Burton & Burton, Topeka, Kans

FOR SALE CHEAP—Light Brahma cockerels, $1.00 each, if taken soon. Wm. Plummer, Osage City, Kans.

FOR SALE—Barred and White Plymouth Rocks. Cockerels, $1 each; pullets, 75 cents each; white guineas, 50 cents each; M. B. turkeys, $2 each; peafowls, $5 per pair. S. F. Glass, Marion, Kans.

FOR SALE—Five registered Percheron stallions. F. H. Schrepel, Ellinwood, Kans.

FOR SALE—Imported and full-blood Percheron, Clydesdale and Coach stallions. Good individuals, colors and ages. For further information address W. H. McMillen, Manager, Box 204, Topeka, Kans.

WANTED—One hundred yearling calves of either sex. State price. A. Auchly, care Kansas Farmer.

TO EXCHANGE—A daughter of Hadley Jr., dam by Klever's Model, for ten bushels of alfalfa seed on track. F. W. Baker, Council Grove, Kans.

SHEEP FOR SALE—Sixty full-blood Oxfords, 170 one-half and three-quarter Oxfords, 50 Merinos. Will sell entire flock on account of my age and health. J. F. Bayless, Yates Center, Kans.

VITA-NOVA protects trees from insects and fungus diseases and insures perfect fruit and foliage. For $1.00 we will send sufficient for twenty-five trees. WILLIAMS BROS., Danville, Pa.

JACKS FOR SALE—Three choice black jacks for sale, 3 to 5 years old. Prices right. Theo. Welchselbaum, Ogden, Riley Co., Kans.

BLACK LANGSHAN AND WHITE P. ROCK COCKerels $1.00 each. A. S. Parson, Garden City, Kas.

FOR RENT—Eighty-acre fruit, truck and poultry farm, five miles from Topeka. Two-story poultry building, fifty feet long, equipped with hot water apparatus. For particulars apply to Clayton Hummer, Grantville, Kas.

FOR SALE OR TRADE—Imported English Shire horse, 10 years old, sure foal-getter. Weight, 1,800 pounds, jet black, gentle, good disposition. Address W. Shackelton, Walnut, Kans.

JACK WANTED—Must be 15.2 or over, 4 to 7 years old; dark color and sure foal-getter, and get big, smooth mules. Address, Box 433, Russell, Kans.

FOR SALE—200 feeders; coming threes; good quality and flesh; all dehorned. S. S. Spangler, Ness City, Kans.

WRITE TO ALEX RICHTER—Hollyrood, Kas how to sub-irrigate a garden, etc., and cost of same. Send him the size or dimensions of your garden, and he will give full information.

FOR SALE—100 cars cottonseed meal. Also corn and feed. Address Western Grain and Storage Co., Wichita, Kas.

FOR SALE—100,000 blackberry plants by Whitaker Bros., 811 Kansas avenue, Topeka, Kas.

JACK FOR SALE—Large; black, with white points. Address J. C. Hume, Council Grove, Kas.

WANTED—Millet, cane and alfalfa seed. E. Annabil & Co., McPherson, Kas.

WANTED—Alfalfa, cane and millet seed; also a limited quantity of Jerusalem corn seed. Correspond with F. Barteldes & Co., Lawrence, Kas.

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