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BREEDERS' DIRECTORY.

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NORWOOD SHORT-HORNS—V. R. Ellis, Gardner, Kas. Rose of Sharon, Lady Elizabeths and Young Marys. Richest breeding and individual merit. Young bulls by Godwin 115678 (head of Linwood herd). Sir Charming 4th now in service.

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KANSAS HERD OF POLAND-CHINA SWINE.—Has five choice yearling sows bred to my black U. S. boar, and one Tecumseh boar and thirty-five fall pigs by Model Sanders (20492) by Kiever's Model. They have typical ears and show fine markings. Address F. P. Maguire, Haven, Kas.

V. B. HOWEY, TOPEKA, KAS.

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

POULTRY.

BLACK LANGSHANS—PURE AND FINE. Eggs, \$1.50 for 13, or \$2 for 26.
J. C. WITHAM, Cherryvale, Kas.

CHOICE BREEDING COCKS AND COCKERELS.

Fifteen White P. Rocks, 15 Silver Wyandottes, 20 Brown Leghorns, 10 Light Brahmas, 10 S. S. Hamburgs, 10 Black Langshans, 5 Black Javas, 12 Pekin drakes. All strictly first-class. Some are scored by Hewes and others.
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Have no equal as an all-purpose fowl. I have high-scoring birds and eggs from first prize-winners for sale. Prices reasonable. Address Jeff. Payne, Hutchinson, Kas.

EGGS FOR HATCHING—From high-scoring breeding yards of E. P. Rocks, W. Wyandottes and R. C. Brown Leghorns at low prices. A few good cockerels for sale. P. C. Bowen & Son, Cherryvale, Kas.

150 BARRED PLYMOUTH ROCKS and FOR SALE SILVER-LACED WYANDOTTES
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.

GEO. W. COOPER, BREEDER OF THE LORDLY Black Langshan, 323 Lake street, Topeka, Kas. I won at our last State poultry show, January 9-14, with 107 Langshan competition, first on cock, first on cockerel, first on pen, tied first for pullet, tied second for hen, third on pullet, third on hen, and had the highest-scoring pen of chickens in show room. I have without doubt the best Langshans in the West. Eggs \$2 per sitting. Write me for prices on stock. Correspondence a pleasure. (Mention Kansas Farmer when you write.)

POULTRY.

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.
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CANFIELD'S WHITE PLYMOUTH ROCKS WON first pen, first cock, first cockerel and first hen at the Kansas State Poultry Show, 1898, besides the grand sweepstakes for best ten birds in the American class. Eggs, \$2 for 15, \$5 for 45. M. L. Canfield, Belleville, Kas.

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, Kas.

THIS SPACE WAS WON AS A PREMIUM By the Best Pen of Buff Cochins at the Kansas State Show, 1899.
Eggs, \$2.50 to \$5 per sitting. Write for circular.
Chas. Steinberger, North Topeka, Kas.

BARRED PLYMOUTH ROCKS. E. R. Lock's Barred Plymouth Rocks are still in it. Twice in succession my birds have won all of the prizes where shown. Write me for prices on stock. Eggs \$1 to \$2 per 15. Catalogue free for writing.
E. R. LOCK, Hutchinson, Kas.

H. T. FORBES, L. C. FORBES, Breeder 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, Kas.

ROSE POULTRY FARM—J. M. & C. M. Rose, Elm- dale, Kas., breeders of Light Brahmas. Yard, 92 1/2 cockerels; females 90 to 94 1/2. B. P. Rocks, yard, 91 1/2 cockerels; females 90 to 92 1/2. W. C. B. Polish, 92 1/2 cockerel; hen 93 and 94. S. C. B. Leghorn, yard No. 1, 93 1/2 cockerel, first prize at Sedgwick, Cottonwood Falls '98, and Topeka '99; females 92 1/2 to 94. Yard No. 2, headed by cock 94 1/2 as a cockerel last year; pullets 92 1/2 to 94. We have some fine Light Brahma cockerels for sale. Eggs \$1.50 per sitting of fifteen.

MAMMOTH BRONZE TURKEYS A SPECIALTY.

All of my breeding stock this year consists of high-scoring birds. One lot of hens, weighing from 18 to 23 pounds, mated with prize-winning cockerel at Topeka show, weight 27 1/2 pounds, score 96 1/2. One lot of pullets to be mated with high-scoring 40-pound tom, each lot to have run of separate farms. Eggs in season, \$3 per dozen.
C. H. CLARK, Delphos, Kas.

CENTRAL KANSAS POULTRY YARDS.

B. P. Rocks, S. C. B. Leghorns, S. S. Hamburgs and Silver Sebright Bantams.
My Barred Rocks have never been defeated. I won 17 premiums at Rice County Show. Birds all scored by three prominent judges, and none below 90%. No birds for sale. Eggs from pen No. 1, \$2 per sitting; from pen No. 2, \$1 per sitting. Shorthorn cattle and Poland-China hogs for sale.
F. W. ROSS, Alden, Rice Co., Kas.

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, Kas.

YOU ARE MISSING.....

A GOOD THING
If you fall to order some of those Langshan, Buff Cockerel or White Wyandotte Cockerels. Don't be too late. They are going fast. Also
EGGS FOR HATCHING.

Am booking orders now for future delivery. Send stamp for circular giving matings and varieties, or 10 cents for catalogue and guide.
EXCELSIOR FARM, C. B. Tuttle, Prop., Topeka, Kansas.

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 receipt for making and using Liquid Lice Killer, 25 cents. Address
T. E. LEFTWICH, Larned, Kas.

SWINE.

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

M. H. ALBERTY, CHEROKEE, KANS., DUROC-Jerseys and Pig Teeth Clippers.

DUROC-JERSEY HOGS—Registered Stock. Send stamp for 64-page catalogue, illustrated. Prices and history.
J. M. STONEBRAKER, Paola, Ill.

DIVERDALE HERD of R. 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. BUTON, 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., —Breeder 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-heads. 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 be fore.
WALT & EAST, Altoona, Wilson Co., Kas.

M. C. VANSELL, Muscotah, Atchison, County, Kansas, Breeder of Pure-bred Poland-China Swine and Short-horn 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. Symms, 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 mile south and half mile east of Vassar, Kas., on Missouri Pacific railroad.

SWINE.

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

CRESCENT HERD POLAND-CHINAS. Boars and gilts for sale.
S. W. HILL, Hutchinson, Kas.

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.

Mains' Herd of Poland-Chinas. Chief Tecumseh 2d, Kiever's Model, U. S. Model, Moorish Maid and Chief I Know strains. A selected lot of bred sows and young stock for sale at very reasonable prices. Over thirty years in the business. Stock equal to any. Satisfaction given.
JAMES MAINS, Oskaloosa, Jefferson Co., Kas.

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 Frazer's U. S. by Frazer'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.

CAP-A-PIE HERD OF Poland-Chinas
Geo. W. Falk, Richmond, Mo.,
Is still doing business at the old stand, where, for the past fifteen years, he has been breeding and selling a class of hogs that have been winners at the leading State fairs, and have been topping the markets in Chicago and Kansas City—the end of all hogdom. Has constantly on hand boars large enough for service and sows bred and unbred. Write for prices, which are always reasonable.

HORSES.

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

CATTLE.

MAPLE LAWN HERFORDS. 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., Kas.

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 rise yearling bull at Texas State Fair, 1898, and also headed the second prize herd of bull and four females, any age, and first prize young herd of bull and four females.

Agricultural Matters.

COST OF COTTON PRODUCTION.

Under the supervision of Statistician Hyde, of the Department of Agriculture, the cost of growing cotton has been investigated, and the results of the investigation have just been published as Bulletin No. 16, Miscellaneous Series, Division of Statistics.

In this report it is shown that the average cost of producing an acre of upland cotton in 1896 was \$15.42, subdivided into the following items: Rent, \$2.88; plowing, \$2.81; seed, 21 cents; planting seed, 28 cents; fertilizers, \$1.30; distributing fertilizers, 16 cents; chopping and hoeing, \$1.31; picking, \$3.37; ginning and pressing, \$1.08; bagging and ties, 57 cents; marketing, 64 cents; repairing implements, 40 cents; all other expenses, 41 cents.

It was ascertained that the pounds of lint produced per acre were 255.6, and sold for 6.7 cents per pound; the bushels of seed produced were 16, and the price per bushel 11.9 cents. The total return to the planter, on the average, was \$19.03, which gave him a net profit of \$3.61 per acre. The cost of picking cotton per 100 pounds was 44 cents, while the cost of producing the lint per pound was 5.27 cents.

Several thousand cotton planters contributed to these statistics, and, of the entire number reporting, 20 per cent reported a loss. The cause of the financial loss was generally the deficient production owing to drought or other causes that injured the plants.

To produce sea island cotton cost \$21.95 per acre, or an average of 11.59 cents per pound; and the total return for lint and seed of sea island cotton was \$28.65, which gave the planter a net profit of \$6.70 per acre.

The planters that reported a profit in the raising of upland cotton produced 275.9 pounds per acre, while those that reported a loss produced only 176 pounds.

The effect of the use of fertilizers in the raising of cotton is very distinctly disclosed, and the general result is that in proportion as the quantity of fertilizers used increased the profit of raising cotton per acre also increased.

It was discovered in this investigation that cotton is produced to a limited extent, but at a high rate of profit, by means of irrigation, in western Texas and in the southwestern corner of Utah; in Texas irrigation had the effect of producing 512.4 pounds of lint per acre, which is 290.3 pounds greater than the average for the whole State.

The work of the department in this investigation covers the cost of cotton production as far back as 1822, but the statements previous to 1876 are mostly individual estimates. For 1876 many special inquiries were made by a former statistician of the department, and these established the cost of producing lint cotton per pound, in gold, at 8.32 cents.

One of the most remarkable revelations of this investigation is the comparative cost of marketing cotton in 1840 and 1897. The comparison is itemized and shows that in 1840 it cost \$18.15 to market a bale of cotton from Alabama to Liverpool, while in 1897 the cost was \$7.89.

The report of the department on this subject covers a wide range of information with regard to the production and marketing of cotton, cost of labor and supplies, and gives many details of cotton production, by counties, in the South.

Hedge Affirmative.

Editor Kansas Farmer:—I infer from Mr. A. C. Shinn's article on hedges that he was born and raised in Arkansas. He has made himself a target at which two-thirds of the population of Kansas would shoot. Mr. Shinn, you must remember that the readers of the Kansas Farmer are a deliberate and careful thinking class of people, and believe in the greatest good to the greatest number. The law of 1868 has made this the "metropolis" State of the Union. The man that introduced the hedge bill of 1897, to which you refer, was doubtless a slick-tongued lawyer, that could not tell a dehorned Texas steer from a Durham, and thought a stump as good and beneficial as the whole beautiful hedge.

Why do real estate men boom so strongly on hedge the State over, saying: "I have a farm out here all fenced and cross-fenced with hedge, good buildings, etc.?" Why do hundreds of Eastern men, after being shown a dozen farms, come back and buy the farm fenced with hedge? First, when I want a post for fence, vineyard, or other purpose, teeth for the stalk rake, etc., I'll go to the hedge. Second, it will be wind-break to my fruit; a wind-break in winter and shade in summer to the cows, and, with the exception of about 10 feet which is used to turn on when plowing

for 20 rods out will be my best crops. Third, the snow drifts, let them be 10 feet deep, in this dry climate, we need it all. The man who plants hedge in Kansas is a benefactor to his community, and should be rewarded according to the laws of 1868. It is a godsend that it does grow and thrive here. The birds, that the law protects, that sing so sweetly in spring time, the Bob White in harvest, all find refuge in the hedge. Who would dare to tear off the beautiful borders of the green carpets of Kansas and cancel the cheerfulness of our country homes.

J. C. SHAFER.

Wichita, Kans.

Snow in Roads.

Editor Kansas Farmer:—We want a law to require owners of land to keep snowdrifts out of the road. Plant corn on north, east and west side of the roads and let the stalks stand for about ten rods to hold the snow, or let wheat stubble stand for about the same distance. Hedges, wire fences, or a fringe of weeds on each side of the road will cause the roads to fill with snow where there is a bare wheat field. We have had bad roads all winter by the reason of all the snow blowing off the wheat fields and filling up the roads.

B. R.

Elyria, Kans.

That Infamous Hedge Law.

Editor Kansas Farmer:—My hedge post crop is the most profitable and surest crop I have, and I contemplate planting more hedge. For the past fifteen years I have trimmed my hedge up high on both sides; every three years I cut out all that will do for posts, and sell what I don't need. My supply does not equal the demand. My hedge stands up straight, not over 14 feet high. Teams can drive up to it so that wagon hubs may touch the plants without the branches interfering with the team. The hedge is thin enough so that crops may be seen from the road. Therefore travelers have no cause for complaint, and no one has any right to compel me to cut down my hedge and waste my crop of posts. But where persons allow their hedges to grow 40 feet high and extend 16 feet into the highway they ought to be compelled to do something with them. The law ought to be amended.

Osage City, Kans. H. L. FERRIS.

Black-List Them.

Editor Kansas Farmer:—If you will allow me space in the columns of the Farmer I would like to say a few words in regard to the "oleo" bill that was defeated on February 3. Mr. J. B. Sweet says that "the creamery people injured their own case by appearing before the committee." I can't see why they could or should "injure" a bill to prohibit the imitation of counterfeiting of a genuine article. We have a law against counterfeiting money; why won't that law apply to any other genuine article that is counterfeited? If I should put out an imitation of some brand or other of patent medicine how quick I would get into trouble. Or, if I should go to manufacturing some kind of a machine that some man has a patent on, how long would it be until my shop would be confiscated and myself fined or imprisoned, or both? There would be no waiting for a law to be passed before I would be "pulled." Now, then, why don't they just attach a rider to that bill, making it a felony for the creamery people to buy up butter that is off color and work it over and then sell it for first-class butter? Let them buy up that kind of butter and work it over, but then make them sell it as that kind of butter, as well as to make the manufacturers sell oleo for what it is, not for butter. I don't suppose the farmers of Kansas care for oleo being manufactured and sold, if it is only sold under that name, not as genuine butter. And now, fellow farmers, I am in favor of black-listing every office-holder that voted against that bill, regardless of what party he belongs to.

Bartlett, Kans. R. B. WILLIAMS.

The Iron Age combined seed drill and wheel hoe, is one of many of the wonderful "Iron Age" labor-saving implements. This tool is a whole tool house of itself. It is a perfect seed drill, double wheel hoe and single wheel hoe. It will sow, weed, cultivate, rake and plow—in fact, it will do all the work that could be desired in a garden or truck patch. The wheels are made of steel, 16 inches high; the frame is made of pipe coupled to malleable castings. The arch is high, so that 20-inch plants can be cultivated without injury. The combination is such that it can be quickly changed to a perfect double or single wheel hoe, as may be desired; while the seed drill, which is a perfect one, can be quickly attached or removed. This tool, in common with the other well-known "Iron Age" implements, is having

a large sale throughout the country. The handsome "Iron Age" catalogue sent free to all mentioning this paper. Address Bateman Mfg. Co., Box 147, Grenloch, N. J.

Cost of Hauling Crops.

From a Circular of the United States Department of Agriculture.

The condition of roads in the United States, taken as a whole, can most clearly be shown in figures. If we can make inquiries of a hundred farmers, in as many localities, as to how long it takes each of them to haul a load of crops to town, how far he hauls it, and what his time and that of his team are worth, we can readily ascertain what it costs on an average to market a load of crops. If the number of these inquiries be sufficiently increased, and extended over the entire country, the result will pretty nearly show what it costs on an average, in the whole United States, to haul a load of crops to market. If, with each inquiry, we also ascertain the weight of the load, we can figure out how much it costs per hundred pounds, or per ton, to market all these crops; and if the inquiry also include the number of miles comprising each haul, we can easily figure the cost of hauling these crops per ton per mile. This gives a unit which can be compared with the same unit, similarly obtained, by similar inquiries made in other countries.

An inquiry of this kind was made in November, 1895, by the United States Department of Agriculture, through its Office of Road Inquiry. Ten thousand circulars were sent out to farmers in all parts of the United States, asking for information in these various particulars. Replies were received from over 1,200 counties distributed throughout the United States, and the results were carefully compiled. The weight of loads hauled varied between an average of 2,409 pounds in the Prairie States, and an average of 1,397 pounds in the Cotton States, the average weight of farm loads for the whole country being 2,002 pounds, or practically a ton. The average length of haul was found to be 12.1 miles, varying between 5.9 miles in the Eastern States, and 23.3 miles in the Pacific and Mountain States. The average cost of marketing a ton of crops in the United States was found to be \$3.02. It was as high as \$5.12 in the Pacific Coast and Mountain States, due to long hauls, and as low as \$1.87 in the Northern and Eastern States, which are more densely settled, and where railroads are numerous and hauls are shorter. The average cost of hauling a ton a distance of one mile was 25 cents, it being 22 cents in the Prairie and Pacific Coast and Mountain States, and rising as high as 32 cents in the Eastern States.

The net grand result of all these inquiries and computations showed very clearly, and as nearly as human intelligence can, that it cost the farmers of the United States, on an average, in time, labor, and energy, figuring the value of teams, wagons and men at what they can reasonably be hired for, 25 cents, every time a ton of their crops was hauled a mile nearer to market, or, briefly, that it costs 25 cents per ton per mile to move crops in the United States. This figure, obtained through inquiries made by officials of the United States, is as correct as fair and impartial inquiries can make it, for the government has no object, in making investigations of this kind, except to ascertain the truth, for the benefit of the people. The detailed results of this investigation are published in Circular No. 19 of the Office of Road Inquiry at Washington, which will be mailed upon request.

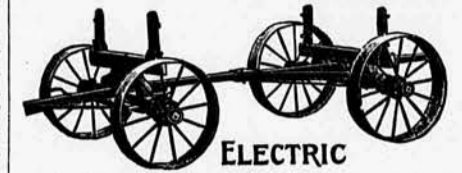
By way of comparing the roads of the United States with those of Europe, the Road Inquiry Bureau made careful inquiries abroad, in the winter of 1896-7, through the United States Consuls stationed in England, France, Germany, Belgium, Italy, and Switzerland, as to the average cost of hauling crops in their various Consular Districts. It is impossible here to give the result of these inquiries in detail, but they have been published as Circular No. 27 of the Road Inquiry Office, and can be had for the asking. The average cost of hauling farm products in England, as reported by our Consuls there, is a trifle less than 10 cents per ton per mile. In France it is the same. The Consul at Roubaix, in France, reports that hauling is usually done on wagons with wheels 55½ inches in diameter, and having tires 4-1-3 inches, which prevent cutting up the road. He explains that in his district there are a great many more paved than macadamized roads.

Quite a number of detailed reports come from various parts of Germany. The average cost of hauling there, as it appears from these reports, is 8½ cents per ton per mile, ranging all the way from 12 and 12½ cents, in the consular districts of Mannheim, Plauen and Frankfurt-on-the-Main, to 5 and 4-1-6 cents, in the consular districts of Munich and Hanover. In no reported case in Germany is the average cost higher than 12½ cents per ton per mile. The Consul at Hanover explains that in his district a good team can haul about 6 tons for an all-day trip, and that the average load is not much less than that. In the Munich district it is 5½ tons. The United States Consul at Belgium reports that farm products are there hauled at a cost of 9½ cents per ton per mile. At Milan, Italy, the cost is 7½ cents, and on the Island of Sicily grain and seeds are hauled at 7-1-3 and 6½ cents per ton per mile. In Switzerland, a mountainous country, in the district of St. Gall, farm products are hauled for 8 cents per ton per mile, and in the district of Horgen at 6 cents per ton per mile.

All these inquiries are made by sworn government officials, with the simple view of ascertaining the facts. They were so made that the results should show the true cost of hauling farm products in Europe.

Buy the Best.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear hounds arc



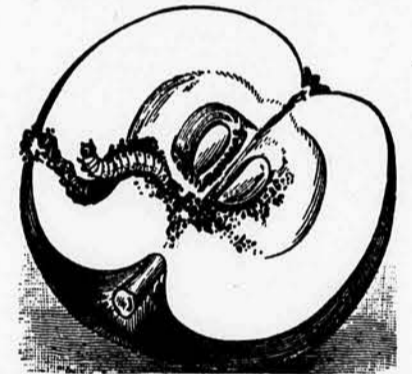
ELECTRIC

made from the best angle steel, which is neater, stronger and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4,000 pounds anywhere. Write the Electric Wheel Co., Box 46, Quincy, Illinois, for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers.

Putting together the figures reported by the various Consuls, it appears that European farm products are hauled to market at an average cost of 8.6 cents per ton per mile, which is just a trifle more than one-third of the cost of marketing farm products in the United States. The difference is due almost entirely to the different character of roads here and abroad. European roads, as a rule, are built level, where our own roads run over hills and through hollows; roads abroad are carefully and scientifically built of stone, where ours are built of dirt, sand, sod, or "any old thing"—indeed, they are frequently not "built" at all. Where we haul a ton, or three-fourths of a ton, a European farmer generally hauls 3 or 4 tons, in fact, loads of 5½ tons are common in some districts, and a load of even 6 tons is not rare.

Spraying Fruit Trees.

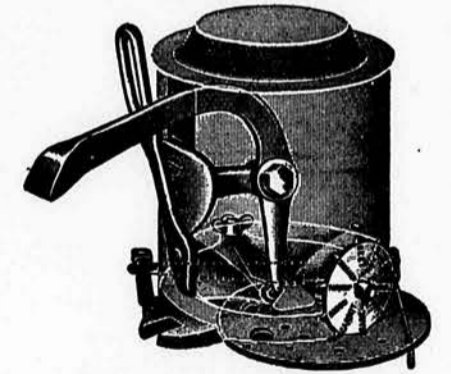
The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

Seed Drill Value.

The value of doing a thing well counts for more in the planting of seed perhaps than almost anywhere else. If seeds are not properly planted at proper depth, and in proper quantity, cultivating cannot be done to advantage and the crop does not pay. In this connection, our attention has been called to the great



value of the Matthews New Universal Model Seed Drill, manufactured by the Ames Plover Co., of Boston. In proof of its effectiveness, we present herewith a transparent view of the seed hopper, showing the various parts. An indicator, on which appears plainly names of seeds, controls the regulation of the seed dropping mechanism, bringing the proper hole in dial under the center of hopper. By a regulator adjusted by thumb-screw, the exact amount may then be gauged. Dropping is thus always done from center of seed-box. The adjustable agitator keeps seed stirred up and insures perfect and even feed. The flow of seed may be entirely cut off by a check-rod to the handles, thus saving seed at end of rows. These are points of superiority that will be appreciated by the market gardeners and others who have occasion to use a hand seed drill. Write these people for illustrated descriptive catalogue.

FROST-BITTEN FRUIT TREES.

Reports from the fruit-growing belt of the United States indicate severe damages throughout the entire country from the great storm in February. Kansas has not had her usual good fortune to escape the losses. Reports issued by Secretary Barnes, of the Horticultural Society, show that the unusually low temperature inflicted severe damages. Nursery stock is reported to have suffered most seriously. Some of the wholesale nurserymen report losses reaching to tens of thousands of dollars.

The nurseryman will know what to do with his frozen trees; so also the wholesale fruit grower will need a little instruction; but the farmer who has a small family orchard may be benefited by the following suggestions from the horticultural department of our State Agricultural College:

"When trees are merely injured, the real damage done to the orchard will depend greatly upon the treatment given them from this time. Trees that are killed should be removed at once from the orchard. If they can be used for fire-wood well and good, if not they should be piled and burned to destroy any insects or disease that may infest them. Trees that are partly top-killed are weakened and deadened throughout, and should be heavily cut back, the extent depending upon the degree of injury. In many cases it will be necessary to cut back to the main branches or even to the trunk, but where the injury is less severe the cutting may be confined to the smaller branches of the tree. Though the branches of an injured tree may not be killed, it is advantageous to cut them back, because the wood that is browned and deadened can never perform its life functions again. It becomes as heart-wood and must be enclosed by a layer of new wood. The quicker we can get this deposit of new wood the better, and the more of it the better. By cutting off the branches of the tree, it is reduced in surface and the new wood is more rapidly deposited on the parts that remain. The energy that is spent in blossoming is also saved to the tree by the severe pruning. It is necessary to prevent the vitality of the tree from dissipating itself in any way, and to husband and apply it so as to restore the tree quickly to its normal process of growth.

"Professor Bailey, Cornell University, says upon this subject: 'The proper treatment for frozen-back trees must be determined for each particular case; but it should be borne in mind that the injured portion is no longer of use to the plant, whereas it may be a positive detriment by accelerating the evaporation of moisture. The best treatment for plants seriously injured upon the extremities is to cut them back heavily.'

"Trees treated in this way will rapidly regain their vigor unless the injury is very serious. They will also quickly resume their normal habit of growth and shape. Cutting back the last year's growth in the winter is especially beneficial to the peach, whether it has been injured by cold or not, as its branches tend to grow long and slender, and in bearing fruit near the extremities they break and split and are ruined. Where blackberries and raspberries have been killed back to the ground, the canes should be cut out and burned.

"A difference in opinion exists as to the best time for cutting back injured trees; some growers prefer to have the work done before the leaves open, others choose a later time; but the safest way is to do it early. As soon as the degree of injury is known, therefore, we may wisely begin the pruning. If left till a later time, other work may crowd it out entirely, with the result that the orchard is lost. A saw and tree pruners are the tools to be used. It will be beneficial to carry along a keg of white lead and apply a coat of lead to the wounds made. This will keep out the air, prevent the wood from checking, and retard evaporation from it. All pruned-off wood should be removed from the orchard and burned.

"The process here described will not save all the trees that have been injured, but if done with care it will save many, and those that die after the treatment is given will probably die in spite of it rather than because of it."

The following detailed suggestions from L. A. Goodman, the efficient Secretary of the Missouri State Horticultural Society, will also be found valuable:

"The peach buds are very nearly all killed, and we will likely have very few, if any, peaches in the State. Worse than this, the trees are badly injured. The freeze has discolored the wood and these trees should be cut back severely. If old trees, cut back to stubs about six or eight feet high. If young trees, cut so as to leave stubs of branches about six or eight inches long. In other words, de-horn the trees. If the trees have burst slightly then cut off the burst bark and

cover with grafting wax. If the bark has loosened all around the tree, or so far around that it cannot recover, then cut the tree off at the ground and let a sprout grow and make a new tree.

"The pear buds are also badly injured and we can expect only a partial crop of pears at best. Many of the pear trees are damaged and they should be cut back not quite as severely as the peach.

"The plum buds—Japan variety—are about all killed, and the trees injured in some instances as badly as the peach. Treat them the same as the peach. Other plums, of the Wild Goose type, are all right for a crop of plums.

"The cherry buds of the Morello variety, like the early Richmond, are in good condition for a crop of fruit, and the trees are very slightly injured. Some of the Duke varieties are injured and nearly all the Heart varieties.

"The apple buds—only the tender varieties are killed, but most of the hardy varieties are still in good shape for a crop of apples. In many localities, however, the trees themselves are badly damaged, caused by the rupture of the bark, and sometimes the tree itself. If this bursting of the bark is such that the bark is loose all around the tree, then the tree had better be cut down to the ground, or to the snow line, and a sprout trained for a new tree. If it be only slightly loosened—an inch or so wide—then cut off the loose bark, cover the part with grafting wax and then cut back the top of the tree, though not quite so severely as the peach. If the wood is simply discolored, then a severe top pruning will be sufficient and they will very likely recover. It is astonishing how quickly some of these trees will recover if they are cut back enough so that the sap can reach the branches before it becomes sour, as it must do, if it has to go to the tips of the limbs when not cut off.

"The strawberry crop is not materially damaged, because they are usually well mulched.

"The raspberry crop will be short fully one-half. The canes have been badly killed in many localities, and where such is the case they had better all be cut off close to the ground and burned up.

"The blackberry crop will be short only about one-fourth among our hardy varieties. When they are killed treat the same as the raspberry.

"The grape crop will still be good, only excepting some of the tender varieties.

"If there ever was a time when the fruit grower could have a general cleaning up in nearly all parts of the orchard and garden, then this year is the time. When you cut off this wood burn it up; by thus doing you will destroy many insects, their eggs and much of the destructive fungi which do us so much damage. We may be partially free from their destructive ravages for a few years if we make this cleaning up a general and thorough one.

"In all this work this spring let us remember that although there may be life enough to start a tree if the top is all cut off, yet if it is all left on the tree will exhaust itself in the attempt to start a growth and then finally give up the attempt and the tree dies.

"In conclusion, while we cannot expect a great crop of fruit this year, yet we should get good prices for everything we have to sell. The great extent of country where the damage has been severe gives us promise of a very short crop, and it will surely pay us to take good care of all we may have. Never was there a winter when so large a portion of our country was so badly damaged by one single storm. It extended from the Atlantic to the Rockies and from the Gulf to the northern limit of fruit growing. The fruit is not killed in all this district, but it is badly injured, and no portion has entirely escaped; hence we may look for a scarcity.

"Do not neglect your trees, but give them the proper treatment and in many instances they will be in shape to give us a good crop next year, and surely so in two years."

Sugar Beet Experiments for 1899.

Press Bulletin Kansas Experiment Station.

The Chemical Department of the Experiment Station of the Kansas State Agricultural College will continue the investigation of the sugar beet question in this State next year, but under somewhat different arrangements than those existing in previous years. It is evident that valuable results cannot be obtained unless the beets are grown under proper conditions, and that results of the most value will be obtained when several farmers in a locality unite to make a test of the soil and climate of their particular region. Factories ought not to be located at any point until, by careful and repeated trials, the soil has been found adapted to the production of beets rich in sugar, and the farmers after a certain amount of preliminary experience have

been found to be willing to undertake such production.

The Department of Agriculture at Washington is planning to supply the experiment stations of the country with sugar beet seed next year, as it has for three years previously. This seed will be distributed by the stations under their own regulations, and analyses of samples of the crop will be made by them. Samples will be sent by mail free of postage when mailed under the official tags which will be supplied. The sole expense to growers will be the planting and cultivation of the crop, and for this they will be amply repaid by the feeding value of the beets, only a few being required for analysis.

The Experiment Station desires it understood, in the first place, that it is not engaged in the distribution of free seeds merely for the sake of saving farmers the expense of buying seeds for the production of beets for their own use. The large proportion of previous applicants who have not been heard from since the seed was sent them leads to the suspicion that in many instances this has not been thoroughly understood heretofore. Next season seed will be sent to but two kinds of applicants, unless the circumstances are very exceptional. (1) The station especially desires that, in localities where there is a considerable amount of similar land in a somewhat compact body, which seems likely to be adapted to beet culture, not less than six, and preferably ten or more, farmers combine to make a joint trial. Let them talk the matter up, and make application for seed at once, either jointly or individually. Seed will be mailed to them individually, and sent in no other way, as a record must be preserved by the station of the particular variety of seed furnished each individual. Do not send in the names of people without obtaining their consent. (2) The station desires to have a number of farmers grow half an acre of beets under the proper conditions, keeping an accurate record of the expense of growing them, and ascertaining with care the yield per acre. This is to learn with greater correctness than the smaller plots permit, the cost of production under our conditions.

The soil for beet culture should be rich, but not recently manured with stable manure; it should be of a loose character, not running together badly under heavy rains; should be deeply cultivated, and if available, plowed in the fall.

A copy of the directions for growing sugar beets, which it is expected that all who receive seed from the station will follow as nearly as possible, will be sent on application. Any desiring seed under the above conditions, should apply at once to J. T. Willard, Chemist of the Experiment Station, Manhattan, Kans.

American Farm Products in the German Markets.

In writing from Wurttemberg, Germany, a correspondent of the National Stockman says: "Germany is fast becoming a manufacturing country. Her steadily increasing population can no longer be exclusively fed on the products of the German soil. The importation of foreign cereals and meats has long since been recognized as an inevitable necessity by all conversant with the real facts. To regulate this importation from naturally better favored countries by appropriate duties and restrictions, so as not to crush the home agricultural industry and at the same time to avoid retaliatory measures on the part of the exporting countries, has proven itself a task hard to perform. The government has been wrestling with it for a number of years without ever bringing the matter to a definite decision. In the meantime the number of those who demand that duties and restrictions of the above kind be reduced to a minimum is growing from day to day, and we may well say that the tendency of legislation for the near future will be towards lowering the duties on imported cereals at least, while in regard to animal products the matter is slightly different, as will be seen from the following arguments:

"Of all the countries which Germany is most apt to draw upon to cover the deficiency of her home supply in human food, the United States, of course, stands foremost on account of its eminent facilities of production and the close mercantile relations existing between the two nations. Below I will give some facts and figures which might prove interesting to your readers, and from which they might infer how both countries could be benefited—certain classes of their population at least—if free access were given to American farm products in Germany. The conditions are here about the reverse of those existing in the agricultural States of the Union; that is, the supply is scant, the demand heavy.

"The natural consequence is high prices for all the necessaries of life. If wages

Food Caused Pain

Catarrh of the Stomach Cured by Hood's Sarsaparilla.

"I was taken sick about a year ago with catarrh of the stomach. At times I would have a ravenous appetite and at other times could not eat. My food caused me excruciating pain. I was running down so fast I had to stop work. My friends urged me to take Hood's Sarsaparilla. I did so and soon began to feel better. The disagreeable symptoms of disease gradually passed away and flesh and strength returned. I owe it all to Hood's Sarsaparilla." MARY L. CUMMINGS, North Brookfield, Mass. Remember

Hood's Sarsaparilla

Is the best—in fact the One True Blood Purifier. Sold by all druggists. \$1; six for \$5.

Hood's Pills cure Liver Ills; easy to take, easy to operate.

were correspondingly high there would be no cause for complaint on the part of the working classes. But such is not the case, and although the German workman is rather modest in his pretensions with regard to his daily bill of fare, in comparison with his American brother, yet he is beginning to think that the good things of this life are just as well made for the poor as for the rich, and when they can be got from abroad at a reasonable price he is unable to understand what right the government has to keep out these things by high duties to benefit the few who have to sell them.

"On the other hand, this small privileged class, with its powerful political influence, is making strenuous efforts to oppose the policy of free trade and low duties. With regard to grain they are beginning to realize that they are losing ground every day, so much so they clamor for a sufficient protection of the remaining branch of agricultural industry, the raising of stock. With the help of imported American corn, which they can buy at \$3.50 per 220 pounds (100 kilos) retail, they are enabled to make money by supplying the market with beef and pork, which retail at about 16 cents per pound each, while lard commands a price of 20 cents per pound. Fruit is correspondingly high (3 to 5 cents per pound for apples) and practically out of reach of a great number of people, when we consider that the average wages for unskilled labor are not above 50 cents per day. Wheat sells now at \$4 per 100 kilos [220 pounds], oats for \$3, but small farmers are buying instead of selling because they have changed the most of their fields into meadows, the raising of live stock being their main dependence for making a little money.

"A good cow (size the main point) is worth from \$60 to \$100, common horses up to \$200, small pigs \$7 to \$8 per pair, fat hogs 15 cents a pound on foot. Now as to the importation of American meat products into Germany, smoked pork and lard will be those coming chiefly into consideration. So far their reputation has been none of the best (whether justified or not I am not able to tell) and their consumption is confined almost entirely to the lower classes. Hog lard from Armour & Co. retails here at 10 cents per pound (half the price of the home product). From experience I know that the American hog furnishes as good lard as any."

Growing the Vineless Sweet Potato.

Editor Kansas Farmer:—For growing the vineless sweet potato slips, the tubers should be bedded the latter part of March, in a loose sandy loam, with horse manure as a base, and 4 inches of dirt under the potatoes, covering them 2 inches deep, being careful that the tender sprouts do not freeze. Transplant from the 1st to the 10th of May, in a light sandy soil. The ridges can best be formed with a listing plow, setting the plants 18 inches apart, keeping only a few rows behind so that the soil may not get too dry.

The vineless sweet potato can be kept at about the same temperature as the Irish potato, or about 40 degrees. Other varieties of sweet potatoes must be kept at a temperature of 60°. In large bulk the vineless can be kept for two years. One great advantage in growing this variety is that there are no vines in the way of cultivating or digging. With proper treatment, from 300 to 500 bushels can be grown to the acre. Digging should be completed before heavy frosts come, as a frozen vine affects the upper end of the potato. A cave or dug-out on dry ground is the best place to store in winter. I have grown this variety for eight years. Oakland, Kans. DAVID CHILES.

When writing our advertisers please mention Kansas Farmer.

The Stock Interest.

THOROUGHbred STOCK SALES.

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

APRIL 27—G. W. Glick & Son, Powell Bros., and John McCoy, combination sale of Shorthorns, stock yards sale pavilion, Kansas City.

HOG AND HAY.

I'm livin' now in Kansas,
Out in Trego County's climate,
An' I sometimes read the papers
Just to pass away the time.

I picked up a Kansas Farmer,
An' I seed what people say
'Bout raisin' alfalfa
An' feedin' hogs the hay.

By gum, I'm goin' to try it,
For sure as you are born
We've lots of room for pasture
But we're sometimes shy on corn.

I low'd I knowed about the hog
And all about his way,
But never thought that he'd consent
To rough it through on hay.

Although a low-down sort of brute,
He seems to act and feel
Like all he had to do on earth
Was eat, an' root, an' squeal.

A hog's a very hoggish thing,
But still I low 't would pay
To graze 'em in the summer time
An' in winter feed 'em hay.

I have the pigs a-comin' on,
An' the alfalfa too,
An' I think I'll sorter mix 'em up
An' see what they will do.

A. B. REDMOND.
Banner, Kans.

EXPERIENCE WITH DUROC-JERSEY SWINE.

By J. T. Treadway, La Harpe, Kans., read before the Kansas Improved Stock Breeders' Association.

I do not expect to say anything new, but to give simply, in my own way, my experience with the Duroc-Jersey swine. Of what I may say you need not digest undesirable portions, and no harm will be done. Pigs have saved many lives—by not swallowing them.

In speaking of the "red" hog, I have nothing to say in disparagement of any other breed, for, undoubtedly, all the breeds have merit and are worthy of consideration, and all are championed by practical men, but in my experience of twenty-five years' continuous feeding of the different breeds, I am persuaded that the Duroc-Jersey is the best all-round, general-purpose hog extant, and in the light of recent experiments, made at many of the State agricultural colleges, some of which are published in the last quarterly report of our State Board, that decision is confirmed.

The early history of the breed is practically unknown. Many writers have attempted to define the origin of the breed, but there are so many conflicting opinions that we are not convinced. "But what boots it?" The breed is here in evidence and "speaks for itself."

Twenty-five years ago I lived in the neighborhood of Uncle Billy McGee (as he was familiarly called), at Monroe, in Butler County, Ohio. He was the originator of the McGee hog—later named, by national convention, Poland-China. How did that strain originate? Right on that farm, from the stock he had on hand. He was truly a "hog man," and by the many evidences in recent years there is room in our domestic economy for the "red" hog.

Thirteen years ago I lost nearly all my hogs by cholera, or swine plague, as did many of my neighbors. The remnant I had left was practically worthless. In casting about for stock to replenish my yards, I concluded to try the Duroc, and purchased five head that were eligible to registry. Several years elapsed before I could secure something near my ideal hog for profit. I have bred them all these years without a fleck or hair other than red, though even black spots would not debar them from registry. They can be bred in form and size like unto the Suffolk or Berkshire—though such decidedly peculiar characteristics as the dish-face in the Berkshire would be hard to attain; but they are so plastic and tractable, so susceptible to kind treatment as a breed, that they can be molded to the desires of the breeder. They are precocious, and also breed large litters, and, while they are good mothers when young, it is not advisable to breed them till they attain the age of about a year, and at 3 years they should be discarded.

I consider the "show hog," as usually pampered for our fairs, unfit for profit other than as a show hog. I breed nothing but registered stock, or eligible to registry, as I have occasional demands from breeders, and were they not pedigreed I would sometimes miss a sale. I never feed excessively any stock intended for breeding purposes. Profit is not necessarily in the pedigree for the

hog intended for the shambles, but in the general make-up of the animal, as evidenced by the judgment of the successful feeder. Individual merits, then feed. "Blood will tell" with the feed, but feed will not "tell" without the blood.

I consider the prejudice against the "red" hog the most potent agency against its more general adoption. We know, by general information, and statistics teach us, that the growth of the breed has been almost phenomenal in the past ten years. As I was showing some stock at our county fair last year, one of our best-known and biggest stockmen, an Englishman, after looking over my stock, said: "Treadway, they'd be dom fine hogs if they wasn't red."

I have learned by experience that old adage: "Eternal vigilance is the price of liberty." Half feed will never fatten; half attention will never succeed in any business.

The Duroc swine have proven to me to be the best breeders, the best mothers, and the most tractable of any breed I have handled. I have never had one broken down or incapable of supporting its carcass. They are the best and safest to follow cattle, because of their strength and activity, and yet they are very docile. They are a large breed and will attain great weight with age, yet I feed them for the market at any time. They are noted for strong constitution and vigorous growth. A paper read before the National Swine Breeders' Association, by John M. Stonebraker, of Panola, Ill., a large breeder of swine, says, in part: "I consider the breed the best extant, all meritorious and derogatory points taken into account. He is a good rustler, a sure breeder, an easy fatterer, a good grower, and puts on as much or more weight for a given amount of feed than any other hog. The world is his field, and wherever you find the red hog he is at home and ready for his dinner."

HOW I FEED THEM.

Unquestionably corn is the foundation feed for profit. I have never found a substitute for that cereal that would pay expenses and leave a balance on the right side of the ledger, yet without an auxiliary (except in the fattening pen) it would prove disastrous. Wheat, rye or Kaffir corn have not proven to be its equal. I had a theory that if corn could be boiled—made quite soft—the hogs could assimilate such food, and profitable fattening be thus assured. My opportunity came. I lived in the largest gas field in the world, in Allen County. The agents of the several leasing companies besieged me for an "oil and gas" lease on my farm. They promised to sink a well on my land, or in close proximity to it, within six months, and I should have free use of the gas for all domestic purposes. I leased, and in less than four months I was boiling the feed for my swine, heating and lighting my house and outbuildings, lighting my yards, besides raising the water from my 225-foot well and distributing it by gas pressure to the various feeding yards on the farm, and, with very little additional expense, I built a cooker. I used heavy sheet-iron, 30 inches wide, for bottom, using 2-inch lumber for sides. I built a kiln of stone, of sufficient length, inserted my gas-pipe beneath, and everything was ready, and, while I expected good results from my gas fire, it in every way exceeded by expectations—the absence of smoke and dirt, the worry and trouble of building and keeping the fire—it must be seen and experienced to be appreciated. I hastened to fill my cooker two-thirds full of corn, then I carried water till the vessel was nearly full. I let down the lid I had prepared to keep the chickens out and the steam in, and two hours later I found the corn had raised the lid about three inches and the chickens and small pigs were having a feast from the overflow. I removed a quantity, put in more water and completed the boiling. I turned off the gas in the evening and let it remain overnight to cool. It was still hot the next morning. I cooled it sufficiently to feed, and sat down on the pigpen fence to note results, though I did not expect them to become fat or finished on this one feed. They ate this, their first meal of boiled corn, somewhat gingerly (although it was really cool). I continued to boil the corn and feed them till I concluded that boiled corn, for a limited time at least, would sustain life. I changed the feed for the fattening stock, but continued the same to the breeding stock throughout the winter. I became fully convinced from my four months' feeding of boiled corn that it was a delusion, and I abandoned it. The next July, I threshed 200 bushels of wheat that I concluded to feed. I boiled it and fed it, from simply a softened condition to a condition of mush or gelatine, with the same results as that of corn. I boiled potatoes, cabbage, pumpkins, all to no advantage. But, for growing stock, I am constrained to be-

lieve that all these feeds, boiled or raw, are excellent appetizers and desirable to promote vigor and constitutional growth, as part rations.

Many of my neighbors are enthusiastic over Kaffir corn and Kaffir corn meal. I have fed them with poor success, comparatively. I took a load of Kaffir corn and had it ground. I boiled and fed it, made warm and cold slop of it, and fed it with no satisfaction to myself or pigs. I was fairly well pleased with feeding the meal dry, but the truly successful auxiliary to corn, in the absence of milk, is that nasty, sticky, disagreeable-to-handle commodity, shorts, as we buy the commercial article and make slop of it. When not too expensive, I use it the consistency of gruel, but when more costly, as at the present time, I reduce it still more, and pigs and hogs alike will drink their fill of it, they relish it, and however much they consume it does not seem to hurt them. I have discarded all medicines and nostrums the past two years, except ashes, salt, lime and crude petroleum, if they may be called such. I rely on shorts, swill and the refuse of the farm, with sufficient corn, to attain the desired results. Occasional feeds of Kaffir corn, wheat, rye, potatoes, etc., and Kaffir corn meal fed dry, are advisable for all growing stock. I am not disappointed in my boiling vat. In the winter season all my slops are turned into it and fed warm. I never have frozen swill to thaw out or throw away. I consider the value of the swill enhanced 100 per cent by warming in cold weather.

Thus all these advantages conduce to the interest of pork-making and may give the "red" hog the advantage in my "Experience with Duroc-Jersey Swine."

DISCUSSION.

Mr. Hemingway: Why do you discard those sows in three years?

Mr. Treadway: I think they are the best sows, and they are the stock that I am proud of, but they invariably become so fat and extremely heavy. They attain so great a size—they will weigh from 600 to 700 pounds, if they are fed as they ought to be, at this age—consequently they are too fat and they overlay their pigs. I had one quite large sow that ate her pigs, but I do not know what to attribute that to, other than at that age they reach this great weight, and naturally they would be a little clumsy at that weight, but they are very much more active than the Berkshires. They are more like a Berkshire than any other breed. They are said to be a Tamworth hog, but I breed them without fleck or hair other than red. My boys, who were 15 or 16 years old, spoke about the red hog, and said that they would have black spots on them, and I said: "Boys, you may have all the pigs that have black spots on them." We had three or four litters, but no black spots appeared. My oldest boy, who has been teaching school down there near me, when he was home at Christmas, said: "We have not been able to get one of pa's pigs yet." I have not had any pigs with black hair on them, although black spots would not debar them from registry. I do not desire to boom anybody. I have no pigs to sell myself. I am not here for the purpose of advertising anybody. However, I have some cards in my pocket, and will give them to whoever may want them.

Mr. Allen: How would the Duroc-Jersey do by crossing them with the Poland-China?

Mr. Treadway: If you will bear with me I will just give a little talk in that regard. At our fairs I have met many men from other States, especially Nebraska and Colorado. One of my neighbors, distant about five miles from me, a very large breeder and one who has had excellent success with Poland-Chinas, came to my place last spring a year ago—perhaps it was in June, I do not remember just the date—and I sold him a hog to cross with his Poland-Chinas. After he had given them a trial, he came to my house and said: "I just dropped in to tell you that if it will help you any in your business, you may tell anybody you wish to that since I have got that hog from you I have the best hogs in the country." The edict has gone forth that the cross is better than the pure hog.

Mr. Hubbard: There is no question but what it would be better.

Mr. Treadway: Except for crossing with the Berkshire. They are not a desirable cross with the Berkshire.

Mr. Harrington: I have heard of the Durocs being advertised as a cholera-proof hog. Is there anything in that?

Mr. Treadway: I have heard the same, but I did not tell you anything about that in my paper. I believe that their strong constitution and activity is a help in that direction. I have never known of one to die of cholera, yet I would not want it to come into my neighborhood. If that disease ever does come into my neighbor-



Feeding the Fire.

The most powerful engine must stop if the fires are not fed. Man is the most wonderful piece of machinery in the world, yet no matter how strong and well-made his bodily frame may be, if the fire of life within him is not constantly fed his limbs and muscles become powerless and useless.

The reason men become helpless and diseased is because the food they eat, which is the fuel of life, is not properly digested and appropriated by the stomach and nutritive organs. It is not completely transformed into the strength and working power which is to man what steam is to the engine.

That wonderful power-making "Golden Medical Discovery," invented by Dr. R. V. Pierce, chief consulting physician of the Invalids' Hotel and Surgical Institute, of Buffalo, N. Y., imbues the human digestive juices and blood-making glands with capacity to extract abundant nourishment from the food. It builds up organic tissue, nerve fiber, hard muscular flesh and working force. It gives a man steam.

What it did for Mr. F. S. Hughes, of Junction, Hunterdon Co., N. J., is given in his own words. He writes: "I received your kind letter, and in reply would say that mine was a bad case of kidney and liver trouble, and that six bottles of Dr. Pierce's Golden Medical Discovery and four bottles of little 'Pellets' effected a complete cure. It is well known that almost every engineer is troubled more or less with kidney trouble, especially on our fast express trains. I run one hundred and forty-four miles on these trains every day in the week, and have had no return of the trouble since taking the remedies, nearly three years ago."

hood I am going to run from it, just the same as if I had the black hog.

Question: They bring just as good prices in the market, don't they?

Mr. Treadway: Yes, sir. One of my neighbors sold some of them. They were not full-blood, but he got the very best price for them. There is no discrimination whatever against them.

Mr. Thrall: I have been listening to this paper and this discussion on the Duroc hog, by the gentleman from La Harpe. That is the gentleman that is fortunately located. He is located where he can tap nature's reservoirs, but the majority of the Kansas farmers are not so fortunately located. Now, I make the hog business simply a side issue; my specialty is cattle, but I am especially interested in every economical feature that affects the hog business. A year ago, as I was coming back from Kansas City, I heard something new in the line of economy in the hog business. There was a German on the train who was a great hog man, at that time handling 1,500 hogs and feeding them for the market. He is not in this coal oil country, this natural coal oil country; but he also wanted warm slop for his hogs, and he got it by the cheapest possible method, and that, too, a method that is at the command of every farmer. Every one of you who has handled hogs knows what a time you have every winter with your slop barrel freezing up, unless you have some way of keeping the barrel warm. This old German kept his slop barrel from freezing and kept his slop at a good temperature by simply sinking these barrels of slop in the manure pile, and the natural heat of the manure kept that slop at the desired temperature all the time. If that is worth you swine breeders' attention, take it for what it is worth and welcome.

Mr. Treadway: I spoke of crude petroleum. I will say that crude petroleum is sold about ten miles from where I live for \$1 per barrel. They will fill them up for you—50-gallon barrels—at that price. I might say there is a gentleman in Humboldt who uses this to oil his machinery. He simply strains it, but he uses it on the finest as well as the poorest machinery, and he says that when he gets it on his hands, if he wipes it off while it is green he can get his hands almost clean without water. Now, hogs are more or less affected with vermin, and some of us believe that the exterior is the forerunner of the interior disease. I believe that if we can eradicate or exterminate or prevent entirely the vermin from the exterior of the hog, he will never have the vermin on the interior. Many of our people are using the crude petroleum on that theory. Some of them take old gunny bags and saturate them

with this petroleum and wrap the sacks around posts in the pen, and it is said by those who use it that way, that it makes them sleek and shiny. Of course, the hog goes and rubs against that sack and gets the petroleum all over him, and people who have used this tell me that the hog enjoys it.

Mr. Kirkpatrick: I think it is a good thing. I have had some experience with it.

Mr. Robison: Speaking of the external insects and mange; that at times is quite injurious to hogs. I will say that I have of late years taken nitrate of lead, putting it in my vats, and then driving the hogs right through it. We find this just as effective as anything else, and there is no danger of blistering or burning. I have been told that in the use of oil, in driving the hogs through the vat, when he plunges into that greasy, slimy oil, he will draw himself together, and the oil will not touch the protected points like under the legs and around back of the ear. But a hog likes water, and by putting that nitrate of lead into the water—but about three pounds of it to the barrel—and as soon as the hog touches the water he lengthens right out, and I want to tell you that when that nitrate of lead strikes any vermin it kills them, and there is almost no expense at all. It only costs you about 35 or 40 cents a barrel. As long as I have used this preparation, I have never found any vermin left on the hog, not even a scurvy spot. But the strength at which I use it, two or three pounds of nitrate of lead to a barrel of water, does not always kill the first time. We sometimes have to drive them through the second or third time, and in order to make this a thorough job, I clean out the bed or litter where the hogs lie, and when I get through with driving my hogs through this vat, I take the residue of that material and spread it on the bare ground where the litter has been and put in fresh straw or hay, of course burning the old bedding. The general theory about hogs having to have the exterior parasite in order for them to get the interior parasite, I do not think will hold good. One of the worst cases of cholera I ever saw was at Galesburg, Ill. The hogs there were very carefully guarded from the exterior parasite, but they took the interior parasite and died. The nitrate of lead will dissolve in water very readily. It does not cost very much. I think I paid about 16 cents a pound, and three pounds is an abundance for a 50-gallon barrel of water. I have a tank in which I put this solution and I make it just about deep enough for the hog to walk through, and in his walking through that tank he splashes the water and the whole "person" of the hog is exposed to the poison, and also in their walking through this water they very seldom take any of it in their mouth. It is a rank poison, and if they swallow any of it it is pretty apt to kill them. Inside of three or four days after you have driven them through this solution it will make them look like another bunch of hogs.

Delegate: What kind of a tank do you use?

Mr. Robison: Metal tank, or anything that will hold water. I use a metal tank, and then, after I am through with it, I thoroughly clean it out and use it for a water tank the rest of the year. The tank I use is 22 inches deep, but of course if you have larger hogs you would have to have a deeper tank. Speaking about constitution and cholera, and that the finer-bred hogs are more disposed to disease than the coarse hog, I want to say that that is not according to my experience. The worst cases of hog cholera I have ever known of were in southern Illinois, southern Indiana, and in some portions of southern Missouri, where they have the regular rail-splitters. Those hogs looked to me like they could outrun any case of hog cholera, but they took it and died. And I believe the pure-bred hogs are more immune than the rail-splitters. Two or three years ago I shipped up two or three thousand head of Texas hogs, but in some way they got the cholera, and I don't know how they got it. I put three pounds of crude carbolic acid in water, and 10 pounds of sulphur, and made the car very clean, cleaning the floors thoroughly before putting the hogs in, and they took the cholera in about thirty days. It was long enough to generate the disease several times, as nine days is considered about the time in which this disease generates. And I think a larger per cent of shipped hogs die from cholera than of the full-blood Berkshires or Poland-Chinas. So I believe that the pure-bred hog will resist cholera to a greater extent than the rail-splitter. One of my neighbors shipped in 700 head of Texas and Oklahoma cattle a short time ago, and he dipped them, but he lost eight head of those cattle, and he thinks that they swallowed some of the dip. If I thought there was any danger of that I would slip a little muzzle

on them; but I have never used that, because I have never found it necessary, and did not with the coal oil. I used coal oil on top of water, but it did not seem to destroy all the vermin, and it did take some of the hair off from the hogs. I think an immersion in pure coal oil, especially in the crude state, would not leave very much hair on a hog.

Mr. Ransom: I want to say that I have used nitrate of lead about six times on my hogs in the last two years, and if they were dirty and scurvy to-day, that is just what I would use on them. I do not go to the trouble and expense that some of the gentlemen have said they do. I take 2 pounds of nitrate of lead, dissolve it in a gallon of hot water, then I pour that in a barrel of soft water and I sprinkle that on my hogs with a watering-can.

Question: Why don't you use a sprinkler?

Answer: I just sprinkle them—use a sprinkler.

Delegate: I should think that the expense of sprinkling would be a great deal more than the immersion.

Answer: Well, if you had a big lot of hogs it probably would, but I only have a few, and I put them in a close pen and sprinkle them thoroughly.

Mr. Ransom: I dip my hogs. I put them into the dip through a chute, and they go through this solution and come out on a chute at the other side. Two dollars worth of poison will dip from 1,200 to 1,500 hogs and have some left, and in using the method that I do, you can dip a thousand hogs in half a day. But it would be quite useless to dip the hogs and pay no attention to the bedding. It would do quite serious damage to the hogs in two or three days. When I am through sprinkling or dipping my hogs, I clean out the bed and burn the old bedding and thoroughly disinfect the pen and put in fresh bedding. I got this idea from the Kansas Farmer, about two years ago.

Delegate: Do you ever muzzle them? I believe that some one has said that he muzzled them.

Mr. Robison: I did not muzzle them. I said that if I was afraid of injury, and there was any danger, that it would pay to do it with the cattle. That stuff is poisonous to the cattle, and I am satisfied that a muzzle could be slipped on their nose very easily. They are apt to take a mouthful or two of that water, especially if they are thirsty at the time they are dipped, and when you lose seventy-five or eighty out of seven hundred head of cattle, you will find it is very expensive. I think it would be but little work to put muzzles on cattle, but with the hogs there is no necessity whatever of doing that.

Delegate: I have been using nitrate of lead for some years, and have managed it with very good results. I have used it to kill the vermin on my hogs and for the cleaning of their skin; but I have never used over a pound to a barrel of water, and I think that two pounds is just simply one pound thrown away.

Grazing Grasses of Western Kansas.

Press Bulletin Kansas Experiment Station.

Kansas is pre-eminently a prairie State. The western half lies in the semi-arid region known as the Great Plains, and the eastern portion is chiefly prairie. In all such regions the grass vegetation largely predominates and determines the general appearance of the flora.

There are 154 kinds of grasses known to grow in Kansas. Some of these are rare and others are of no agricultural importance, while still others are weeds. There are several species that are of importance from the standpoint of grazing, but at this time only a few will be mentioned. In a short time a more complete enumeration and description will be issued as a bulletin from the experiment station.

Buffalo Grass.—This common and well-known grass forms the bulk of the native vegetation on all the uplands of the western half of Kansas. In the eastern part of the State it is less common and is being gradually driven out in many places by other grasses. Buffalo grass forms a short, compact sod, the plants usually being only a few inches high. The color is gray-green. The male and female flowers occur on different plants, which fact has given rise to the impression that there are two kinds of buffalo grass. The male plants produce a flower stalk a few inches high, but the flowers contain only pollen, and no seed is formed. The female flowers are in little clusters close among the leaves, and it is here that the seed is produced. The grass propagates extensively from creeping stems and also from the seed. It is too short to be cut for hay, but it is the staple grazing grass of the plains, for both summer and winter.

Gramma Grass.—This is very common over the same range as the buffalo grass,

and is found mixed with it, but is not so abundant. Like the preceding, it is a "short grass," not usually growing tall enough for hay. It can be easily distinguished by the flower stalks, which are about a foot high, with two (sometimes one or three) little spikes of flowers. These spikes are about an inch long, one being at the end and the other a short distance below. These spikes turn easily with the wind and form miniature weather vanes. This grass is found throughout the western three-fourths of the State, but increases in abundance westward until in extreme western Kansas, especially south of the Arkansas River, it forms at least half of the sod on the uplands. It is a staple grass for grazing purposes, and, like buffalo grass, it cures for winter use.

A second species of grama grass occurs on stony or sterile hills and forms the chief forage in such regions. It is similar to the preceding, but with shorter flower stalks, and occurs usually in bunches. It is sometimes called black grama.

A third species is sometimes called tall grama or prairie oats. It has a longer flower stalk with numerous short spikes. It occurs throughout the State on prairie in the east, but confined to ravines in the west. It does not appear to be so much relished by stock as the other two species.

Bunch Grass (Sporobolus airoides).—There are several kinds of grass that go by the name of bunch grass in different localities. The kind referred to here is the common forage grass of the Cimarron Valley and the western part of the Arkansas Valley. It does not occur on the uplands, and does not extend north of the Arkansas River Valley.

Tall Grasses.—There are several species commonly lumped together under this name. The most important in the grazing regions of western Kansas are the little blue-stem, often called bunch grass in the region north of the Arkansas River, and big blue-stem, or simply blue-stem. These two are common in the prairie region west of the Mississippi River and are gradually working their way westward.

The conditions best adapted to the buffalo and grama grass are the clay-loam uplands where the sod is closely grazed and well tramped. If the soil is stony or sandy, or too moist, these grasses do not thrive. If not grazed or tramped they can not usually compete with the tall grasses and are driven out.

Shee-Do-You believe that men and women will ever have equal rights in this country? He—No; I don't believe the time will ever come when one man will be permitted to occupy room enough for two in a street car without a row.—Cleveland Leader.

The foundations of an ancient English church have been unearthed at Waverley Abbey, near Farnham, Surrey, as well as the remains of the monks' dormitories, the kitchens and the disciplinary cells. Several old oaken coffins were discovered in a perfect state of preservation, among them that of William Manduit, third Baron of Hanslope, and king's chamberlain, who was buried in 1194.

Roofs on small dwellings in Paris are now made on a new principle. They have only a very gentle slope and are covered with battens and tarred cardboard, over which is a layer of clean-sifted gravel nearly two inches thick. Rain and hail and sun have very little effect upon such a roof, and houses thus covered suffer less from the extremes of heat and cold than those with zinc or slate roofs.

Leslie Keith, the Scotch literateur, who was visiting Ireland in the fifties, saw the most squalid-looking beggar he had ever encountered sitting with his back to the wall. Unlike the compatriots, this man was strangely silent, so Keith asked if he were begging. "Of course it's begging I am," the man replied. "But you do not utter a word," said Keith. "Arrah, is it jokin' yer honor is wid me?" said the beggar. "Look here," and he held up the tattered remnant of what had once been a coat; "don't yez see how the skin is spakin' through the holes in me clothes, and the bones cryin' out through me skin? Look at me sunken cheeks and the famine that's starin' in me eyes! Man alive, isn't it beggin' I am with a hundred tongues?"

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Pace of Camels.

Seven miles an hour is the camel's best pace. Nor can it maintain this rate over two hours. Its usual speed is about five miles an hour—a slow, lounging pace, beyond which it is dangerous, with nine camels out of ten, to urge them, or else, as the Asiatics say, they "break their hearts," and literally die on the spot.

A Gigantic Ice Company.

A bill has been introduced in the Maine legislature by Mr. Manley, of Augusta, authorizing the incorporation of the American Ice Company, with a capital stock of \$60,000,000, half of which is preferred, and the other half common stock. The general law does not permit the formation of stock companies with a capital above \$10,000,000, so a special charter is necessary. The company is to deal in all kinds of ice-refrigerating plants, processes and products.

A Child of France.

A touching incident was witnessed at the review of the troops of Remiremont garrison on a Thursday. Toward the end of the display, which, despite a heavy downpour of rain, was carried out with beautiful precision, a boy advanced from the crowd of sightseers, and, addressing the officer who bore the colors, asked permission to kiss the sacred emblem. This was accorded, and amid deep and general emotion the little fellow respectfully pressed his lips to the flag and then rejoined his companions, who accorded him an ovation.—Paris Petit Journal.

NEXT TO A DAILY.

The Semi-Weekly Capital

FOR THE FARMERS OF KANSAS.

The war with Spain has emphasized the fact that a weekly newspaper, for general news, is too slow for the up-to-date, progressive farmer. Thousands who could not take a daily have secured in

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a complete summary of the news of the war, besides all the other news of the world, especially everything happening within the borders of Kansas. The settlement of the controversy with Spain and the introduction of American government in the newly acquired territory will afford a great fund of interesting news and information. Subscribers to the Semi-Weekly Capital will receive it all at the same cost as an ordinary weekly paper. Sample copy free upon request.

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CONDITION OF LIVE STOCK.

Bulletin of the National Live Stock Association, issued from the headquarters, Denver, Col., March 3, 1899.

For the past month the headquarters of the National Live Stock Association has been engaged in gathering reports of the condition of live stock on the Western ranges. These reports include almost the entire West, and cover loss from winter weather and storms, together with general conditions for the spring. Owing to the incomplete condition of this work, it was not intended to make public results until later, but as there have been many conflicting reports published and these headquarters are besieged with inquiry for facts, it is thought best to publish information thus far received. It is well to state, however, that while reports up to this time are much more favorable than generally expected, the danger period is not over. While most of the cattle have wintered well, the winter has been of unusual severity, and while losses are light thus far, the cattle are as a rule very weak and in poor condition to withstand severe storms of the spring. One of the worst features of the outlook is the scarcity of forage reported from many districts. Very early grass is an absolute necessity to keep many of the cattle alive.

The "cattle of commerce," or, more intelligently speaking, cattle in the feed lots, do not enter into this question in any manner, as the agricultural districts have sufficient feed to carry these animals through the winter with only nominal losses.

With the exception of Montana, reports have been received from leading stockmen, and are considered accurate as far as they go. In Idaho, Wyoming, Colorado, northern and western Texas, New Mexico, Oklahoma and Indian Territory, the winter has been very severe, the worst known in ten years or more. Fortunately, the great cold made the storms dry, and there was enough wind and sun to keep a fair proportion of the ranges uncovered. Oregon, Washington and Arizona suffered very little and will have only nominal losses. California is still suffering from drought and the outlook there is bad. The losses in Wyoming, Colorado and the Dakotas as yet have not averaged 4 per cent. In northern and western Texas and northeastern New Mexico, and through southern Oklahoma and Indian Territory, the heaviest losses have been with so-called "through cattle," that is cattle being moved north from the south. Where the cattle went into the winter in bad condition, the mortality has been heavy, reaching in some sections as high as 20 per cent. Taking the range section as a whole, to the present time, the losses will average 4 per cent. With the most favorable conditions that can be expected an additional loss of 2 per cent may be looked for before spring, and should the weather continue bad through March a heavy loss will certainly result.

The Department of Agriculture reports that there were in the neighborhood of 13,000,000 head of cattle in the range country on January 1, 1899. Assuming that this is correct, 6 per cent of this number would indicate the destruction of 780,000 head of cattle during the present winter.

In Utah, Wyoming and some parts of Oregon heavy sheep losses are reported. It is feared that there will also be heavy sheep losses in Montana. Wyoming reports some instances of losses reaching as high as 30 per cent, and some claim that if March furnishes much bad weather the sheep loss in that State may reach 25 per cent. In western Utah the conditions appear to be almost as bad. In several instances the reports give the average for this section as being 20 per cent. These two States are the greatest sufferers of any reported.

In New Mexico, Colorado, Kansas and Nebraska the reports are not so discouraging, but in sections of these States, where the range is depended upon exclusively, the losses have been heavier than usual. In the feeding districts, losses are but nominal, although the stock have not prospered because of the extreme cold.

One feature of the reports received is the scarcity of steers above the age of 2 years which seems to prevail generally over the West. Some sections, notably Texas, report a scarcity of all classes of cattle, but outside of old steers the shortage is not pronounced, and many sections report plenty of young stock.

Final conditions on opening of spring depend entirely upon the weather for the next six weeks. It is too early to give anything more than a bare estimate of conditions as they now exist. The following is the substance of the detailed information received by States, with a

few quotations from some of the individual reports:

TEXAS.

Eighteen districts reporting, mostly in northern and western Texas, show an estimated winter loss to date of 4 per cent, principally in what are known as "through cattle," cattle being moved from the south to the north on grazing, and on old cows.

A. B. Robertson, Colorado, Tex., reports: "Winter loss to the present time about 2 per cent. Feed is short in some places. Losses in the Panhandle may reach 20 per cent. Generally speaking, cattle are short, especially steers above 1 year old. Prices for coming twos, \$25; coming yearlings, \$18."

A. P. Bush, Jr., Colorado, Tex.: "Cattle that started in the winter in good shape are still doing moderately well, except where moved late and grass was short. Range very well stocked. Very few aged steers and not a great many twos."

W. B. Tullis, Quanah, Tex.: "Losses nominal up to date (February 10), but cattle are poor. Feed will be short unless spring comes very early. In the territory including about seventy-five miles around Quanah, there are 75 per cent less steers and 25 per cent less stock cattle than last year."

Al. Chastain, Panhandle, Tex.: "Losses about 3 per cent. Plenty of feed. Only about half the usual number of cattle here."

A. F. Crowley, Fort Worth: "Winter losses very small yet. Two-year-old steers and up 75 per cent short of last ten years. No shortage in other classes. This information is for Midland County."

A. G. Boyce, Channing, Tex.: "Loss light to date, but cattle getting very weak. Nothing above twos for sale and very few of them."

Cox & Kayser, El Paso: "Stock wintering well. Loss not worth mentioning. Plenty of grass starting. About 50,000 head will be shipped from this point."

Louis L. Farr, San Angelo: "Loss 4 per cent. Well stocked in this locality. Many 1- and 2-year-old steers on the market."

Henry Stevens, Corpus Christi: "Hardest winter witnessed in forty years. Losses about 5 per cent. Plenty of cattle for sale if prices suit. Large steers scarce."

R. D. Green, Estelline: "Losses 7 per cent. There will be a good many steers for sale here next spring. Grass is very short, but the weather is fine. Flies are beginning to bother the cattle severely, which is hard on the old and weak ones."

NEW MEXICO.

Reports indicate a general winter loss of about 2 1/2 per cent, very little above the average. Northeastern portion of Territory seemed to get the worst storms. Grass is starting early and no further losses anticipated. Reports indicate a shortage of 15 per cent of 3-year-old steers and over 8 per cent less twos than a year ago.

J. P. Stuyvesant, Folsom: "No loss as yet. Cattle all on pasture and look very well, considering the very cold weather we have had. None for sale in spring. A few less than last year on range."

R. P. Robertson, Eddy: "Loss 1 per cent. There are about as many cattle in Gains County, Texas, and Eddy County, New Mexico, as heretofore, but not nearly so many 2-year-old steers as formerly."

ARIZONA.

It has been a good winter and the losses are about a minimum. What losses are reported come from a few small districts, where feed was short. Prospects for early feed are good. There is a scarcity of 16 per cent of old steers reported, with average mortality of 2 per cent.

H. E. Dunlap, Wilcox, reports: "Probably 50 per cent more steers for sale than sold last year, including larger percentage of twos. A goodly number of stock cattle will be offered if prices equal last year's figures."

W. H. Bayless, Oracle: "Losses only from natural causes. A good number of yearling steers for sale; not many old steers. All stock in good condition."

IDAHO.

As a rule, stock have wintered fairly well. Losses about 2 1/2 per cent. Sheep have also wintered well, and there is plenty of hay to last through to grass. Everything but horses were on feed. All report a scarcity of old steers.

UTAH.

The winter was not unusually severe on cattle, and where the cattle and sheep were in good condition there has been the minimum loss. Sheep loss heavy in some sections. Majority of reports show fewer cattle and sheep on feed than a year ago. Cattle are reported 40 to 50 cents higher than a year ago, and mut-tons 25 cents higher on better grades. Reports indicate a scarcity of 3-year-old steers, but more twos and yearlings. Very few for sale in the spring. On the whole, winter has been remarkably good for stock.

WYOMING.

Reports very conflicting, but all agree

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that up to date losses have been above the average, probably as high as 10 per cent. Some sections report cattle very weak and feed scarce, while others report all cattle being cared for, but fears of losses in March. Sheep losses much heavier than cattle losses, probably 15 per cent to date. All grades of cattle are scarce.

A. A. Spaugh, Manville: "Stock have wintered first-rate so far. Losses so far less than a quarter of 1 per cent. No cattle for sale here. Everyone wants to buy native cattle. But few cattle here for this reason, and less feeders."

Tim Kinney, Rock Springs: "I feel safe in saying there will be no loss between Rawlins and Green River. Through the Bitter Creek Valley snow is light and exposed."

B. B. Brooks & Co., Casper, Wyo.: "Cold weather has shrunk stock, but with an average spring, losses will be light."

COLORADO.

With the exception of the open range along the eastern side of the State, most of the cattle have been in pastures and have been fed all winter. The result is that losses have been much lighter than could have been expected. The heaviest losses reported come from the open range, where the cattle were brought in late and have been allowed to rustle for themselves all winter. From these sections losses reported average from 5 to 10 per cent. In a few cases they have been even heavier, some cases being reported where cattle froze to death on full feed and under cover. Where the cattle are not on feed, they are in very weak condition and heavier losses are feared before grass comes. No shortage is reported in any class and there will be a good offering of cattle in the spring.

A. N. Parish, Lamar, reports: "Range losses are heavy; 8 to 10 per cent of the cattle are dead. Those that are feeding have plenty of feed, but the range is in bad shape. No shortage of cattle."

J. P. Dickenson, Hugo: "Stock wintering well. No losses so far. We have splendid grass, and if the weather ever gets warm will get through all right. Everybody feeding."

Gordon M. Fothergill, Fort Collins: "Losses as yet not heavy, but if bad

weather continues there will be many. Feed is getting scarce."

E. M. Gale, Greeley: "All range feed is under snow, and the loss on stock which is not being fed will be heavy. Hay is high and scarce."

M. A. Mahany, Fairplay: "Stock wintering badly. Too early to tell what loss will be. We expect big losses in April and May. Cattle on the range are poorer now than they usually are in April."

E. W. Roberts, Livermore: "No loss to speak of yet. The reported losses have been exaggerated. Owing to short hay crop, cattle on feed are being shipped to market. There is no shortage."

OKLAHOMA.

Losses have been principally confined to "through cattle" in transit through the Territory. Many of these came in late in bad condition from travel and short feed, and were plunged into the severe winter with little preparation. In some instances losses have been very heavy, but in the Territory as a whole the loss will not exceed 3 per cent. There has been some loss among old cows. Native cattle have wintered fairly well in the brakes and rough country. Snows have been light and there has been grazing most of the winter. More cattle than usual wintering in this Territory, but a less per cent of old steers.

NORTH DAKOTA.

Reports indicate an average winter in most of the State, though extreme cold

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weather and snow in western portion has caused some loss. In the State as a whole losses will be slightly above the average. Plenty of feed and most of the cattle are cared for. Shortage in all classes, but principally short on old steers above 2 years of age.

SOUTH DAKOTA.

Winter was very mild up to the first of February, and cattle were in good condition to withstand the few weeks of snow and cold. Losses are light and no heavy spring loss is expected. All report a shortage of cattle.

Wm. Lefores and I. T. Craig, Belle Fourche: "Winter very good thus far, but there will be a loss on the range of about 5 per cent. No loss on sheep reported. Cattle were the fattest on the range, February 1, I have seen for years. February was the coldest month I ever experienced, but there was only about six inches of snow, and as there was no blizzard, very few cattle succumbed. Shortage of 15 per cent. About 35,000 or 40,000 for market in the spring."

James Phillips, Fort Pierre: "Range stock wintered better than for years. Loss nominal. There will be 50 per cent less beef to go to market next fall than last year."

G. E. Lemmon, Rapid City: "Loss will not exceed 3 per cent. We will have for market two-thirds of last year's output. Advise southern men to turn their cattle over to us to handle for them, as we cannot buy them at the prices asked."

KANSAS.

There have been some losses in the western part of the State, where cattle are on the open range. In the rest of the State everything is on feed and the losses are nominal. The losses to range cattle are estimated at from 3 to 4 per cent. All reports speak of shortage of aged steers.

G. W. Melville, Topeka: "Loss will not exceed 2 per cent. Plenty of young cattle to go on grass, but less fat cattle in feed lots than has been for years and none going in to fill up again."

A. T. Wilson, Kiowa, Kans.: "More cattle in this section than usual on account of feed. The loss on range cattle and the cattle that have been roughed through will not be more than 1 per cent to date."

W. R. West & Son, Minneapolis: "Loss about 2 per cent. No fat cattle left for shipment this spring. The shortage of stock cattle is about 60 per cent of last year."

C. P. Fullington, Belvidere: "Loss on through cattle about 2 per cent. Steers, threes and up, very scarce. Condition is good except on through cattle that came in late. They are thin and have suffered considerable. Loss possibly 20 per cent."

NEBRASKA.

Conditions about the same as in Kansas. There were few through cattle on the western range, and losses are consequently lighter. There has been some suffering, but range has been uncovered the greater part of the winter and cattle have been able to get feed. More cattle reported in the State, but fewer old steers and less cattle on feed.

C. E. Adams, Superior: "Stock have wintered well. No losses yet. We are 50 per cent short on fat cattle and have 15 per cent more stock cattle than last year."

Peter Jansen, Jansen, Neb.: "Losses in sheep 1 to 1 1/2 per cent. Plenty of rough feed, but corn will probably all be used up and some shipped in."

A. D. Graham, Shelton: "Losses about 3 per cent, both cattle and sheep. There are more stock cattle on hand than a year ago."

Christ. Anderson, Stulburg: "Losses very small. Not over half the cattle or sheep on feed that is usual at this season, but all stock have fed and wintered well."

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The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the Kansas Farmer. Give age, color and sex of animal, stating symptoms accurately, of how long standing, and what treatment, if any, has been resorted to. All replies through this column are free. In order to receive a prompt reply, all letters for this department should give the inquirer's postoffice, should be signed with his full name, and should be addressed to the Veterinary Department, K. S. A. C., Manhattan, Kans. All such inquiries will receive prompt attention from Paul Fischer, B. Agr., M. V. D., Professor, and A. J. Burkholder, D. V. S., M. D., Assistant, Kansas State Agricultural College.

ACTINOMYCOSIS.—I have a 3-year-old heifer and I guess she has the big-jaw. She had a knot on her jaw. It broke and ran. She had a calf last spring. She is in fair condition. F. H. H. Fall River, Kans.

Answer.—We refer you to answer to C. B., this issue. As you do not give name in full, which should always be done (not, however, for publication, but as an evidence of good faith), we are unable to send you bulletin, which we will do if you favor us with your name.

ACTINOMYCOSIS.—I have a cow which has what I suppose to be lump-jaw. She had a small lump on under side of jaw last fall. In early winter it became a running sore and had a very offensive smell. Lately I gave her 10 grains of iodide of potash in water each day for ten days. It seemed to dry up some, but it is not doing as well as it should. She has a young calf. C. B. Mound City, Kans.

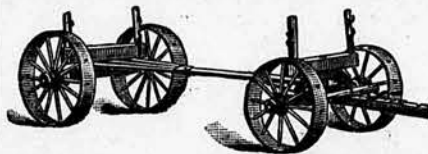
Answer.—Your cow is affected with lump-jaw. Your treatment has been along the right line; but the size of dose administered would be a small dose for a human being. Will advise you to give as a drench, once a day, 10 grains of iodide of potash dissolved in one pint of water. This quantity is equal to 150 grains, just fifteen times more than you have been giving. Continue these daily doses for ten days to two weeks, depending upon the improvement observed. By this mail we send you Bulletin No. 16, which fully explains the nature of this disease.

TUBERCULOSIS OF THE UDDER.—I have a cow of Shorthorn breed, 4 years old. Her udder has hard lumps under the skin. Came there about one month ago. When I first noticed them they were about the size of a walnut, but now it seems as if about one-fourth of the bag is involved, being hard and not tender to the touch. It seems that the whole bag is or is going to be affected. What is the trouble, and what remedy must I use? (2) Have another cow that, when fresh, the milk failed to come down into teat. What is the cause of that? Give remedy. Rose Hill, Kans. A. C. B.

Answer.—(1) We fear your cow has tuberculosis (consumption). A personal examination would be required to determine definitely. Will advise you to have the tuberculin test applied by a competent veterinarian. Before you have the test made, will advise that the milk from this cow be boiled before using, especially if used for children. Boiling will lessen the danger of transmitting the disease if such exists, and will very slightly affect the nutritive value. (2) The teat of this cow will require an operation. A stricture, no doubt, gives rise to the trouble you describe.

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The Home Circle.

LOVE'S FULFILLING

O Love is weak
Which counts the answers and the gains,
Welchs all the losses and the pains,
And eagerly each fond word drains,
A joy to seek.

When Love is strong
It never tarries to take heed,
Or know if its return exceed
Its gift; in its sweet haste no greed,
No strife belong.

It hardly asks
If it be loved at all, to take
So barren seems, when it can make
Such bliss, for the beloved sake,
Of bitter tasks.

Its ecstasy
Could find hard death so beauteous,
It sees through tears how Christ loved us,
And speaks, in saying, "I love thus,"
No blasphemy.

So much we miss
If Love is weak, so much we gain
If Love is strong, God thinks no pain
Too sharp or lasting to ordain
To teach us this.

—Helen Hunt Jackson.

HOLMES AND LOWELL.

BY J. P. McCASKEY.

In his youth, a favorite book of Oliver Wendell Holmes was Pope's *Iliad*, and he was fond of quoting from it. His memory was at all times retentive and ready, and abundantly stored with good and pleasant things. When he began his twelve lectures on the English poets he recited at the end of the first lecture one of his own poems. This was so kindly received that at every lecture afterwards he closed with a recitation of his own verses. "Poets," he says, with more affection and sympathy than satire, "read (and recite) their own compositions in a sing-song sort of way; but they do seem to love them so, that I always enjoy it. It makes me laugh a little inwardly to see how they dandle their poetical babies, but I don't let them know it." He very often read and recited his own poems in public, and in most charming fashion, for he was able to present upon the platform all the variety of feeling which he could conceive at his desk. He always carried his audience with him surely, easily, entirely, and retained this power to old age. He often referred to his poems as "babies," and held them in memory, and loved them passionately. When he found them in magazines and newspapers they seemed always to strike him as new; and he would read and recite them with childish glee. He was especially fond of reading and reciting certain of Whittier's poems, and seemed to be unusually affected by them. When questioned as to whether he had more satisfaction from having written his "Essay on Puerperal Fever," or "The Chambered Nautilus," he said, "I think I will not answer the question you put me. I think oftenest of the Chambered Nautilus, which is a favored poem of mine though I wrote it myself. But in writing it I was filled with a better feeling, the highest state of mental exaltation and the most crystalline clairvoyance, as it seemed to me, that had ever been granted to me—I mean that lucid vision of one's thoughts, and of all forms of expression which will be at once precise and musical, which is the poet's special gift however large or small in amount or value." Hear the last verse of this immortal poem, which some of you can repeat, and with which many of you are very familiar:

Build thee more stately mansions, O my soul,
As the swift seasons roll!
Leave thy low-vaulted past!
Let each new temple, nobler than the last,
Shut thee from Heaven with a dome more vast,
Till thou at length art free,
Leaving thine out-grown shell by life's unresting sea.

Whittier thought this Dr. Holmes' best poem, and most people will agree with him, though "The Last Leaf" is more widely known and perhaps more a favorite with general readers. Lincoln knew it by heart, and repeated it at times, saying that for pure pathos he knew nothing to surpass this stanza:

The mossy marbles rest
On the lips that he has pressed
In their bloom;
And the names he loved to hear
Have been carved for many a year
On the tomb.

I have not been able to get much directly from books as to Lowell's memory, or his disposition to repeat or to quote what he enjoyed in prose and poetry, and so I wrote to Rev. Edward Everett Hale, an intimate personal friend of the poet, who is now publishing in the *Outlook* an interesting series of papers on "Lowell and his Friends," asking some questions to which he makes reply as follows:

"Lowell's memory was very accurate, and he was really an omnivorous reader. But I do not think that he was specially fond of quotation in public address, and

I doubt very much whether, after his boyhood, he consciously committed to memory many passages in literature. I do not recollect any long quotation which could not have been readily looked up, as, for instance, the quotations from Chaucer in his Boston lectures. His charming wife, Miss Maria White, was a person of many interesting accomplishments. I should rate as the very first her power of repeating poetry from English literature of all ages. The very first letter of Lowell's, speaking of her, refers to her exquisite repetition of some of the old English ballads. I know perfectly well that all the young people who knew her were interested in her on this account. I never knew exactly how or why; but she was a well-educated girl, who very early in life must have taken an interest in the best English literature. When I knew her, which was perhaps when she was 18 years old, she knew more old English ballads by heart than I know now by name."

In the opening paper of the series above named, Mr. Hale says of the child Lowell: "His mother, who was an invalid, but a person of remarkable nature and accomplishments, had the sense, courage, and exquisite foresight which placed the little boy, almost from his birth, under the personal charge of a sister eight years older. Certain general instructions were given by father and mother, and under these the young Mentor was largely left to her own genius and inspiration. A daily element in the business was the little boy's nap. He was to lie in his cradle for three hours every morning. His little nurse, 11 or 12 years old, might sing to him if she chose, but she generally preferred to read to him from the poets who interested her. The cadences of verse were soothing, and so the little boy fell asleep every day quitted by the rhythm of Shakespeare or Spenser. By the time a boy is 3 years old he does not feel much like sleeping three hours in the forenoon. Also by that time this little James began to be interested in the stories in Spenser, and Mrs. Putnam, the sister, once gave me a most amusing account of the struggle of this little blue-eyed fellow to resist the coming of sleep and to preserve his consciousness so that he might not lose any of the poem."

The Search for Ancestors.

If one pursues a search for ancestry in the spirit of a recent visitor to a genealogical library, it is hardly an elevating occupation. "O, I don't want to know about all these people," she exclaimed. "What is the coat of arms? (That is all I care to look for.) Perhaps she would have experienced some flagging of zeal if she had heard the remark of an official in the same library, that most of the insignia claimed by American families had an element of spuriousness or at least a doubt hanging over them. The real peers of the realm did not, as a rule, come to seek their fortunes in the New World wilderness—as, indeed, why should they?

But whether or not the number of families entitled by the laws of heraldry to display armorial bearings be as few as this genealogical expert would have us believe, it is of slight importance to the true explorer in genealogical fields. If we find a blazoned shield which commemorates the prowess of some far-back ancestor, it is certainly an interesting and innocent object to contemplate. But for practical value it is as empty as a last year's bird's nest and far more meaningless to a people who have been for generations in the position of "younger sons," so far as the profits of Old World nobility are concerned. The man whose forefathers boasted no such heraldic devices may be equally rich in all that contributes to success in American life—possibly even richer, if we may trust the philosophy of the author of "Night Thoughts":

"They that on glorious ancestors enlarge,
Produce their debt instead of their discharge."

Genealogical inquiry has been unjustly regarded as inducing a feeling of aristocracy or "blue-blood" exclusiveness. Yet the natural tendencies of the study seem all the other way. The true genealogist ought to be the most pronounced of democrats. As one follows toward the various sources all the converging rills that have contributed to the stream of his own personality, he can scarcely help acquiring new views of the essential brotherhood of man, and of the links that bind all social factors into one interdependent whole.—From paper on "The Modern Search for Ancestors," in *Self Culture* for March.

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From Various Sources.

"Why do you hold that Miss Perkenham is not your social equal? Her father is one of the wealthiest men in this part of the country isn't he?" "Yes, but my parents were married by a minister. Hers were joined by a justice of the peace."

What is described as a "typical mountain wedding," took place near Batesville, Ga., a few days ago, when Miss Estelle Clemmons became Mrs. Ben Luthers. About 100 guests were present. A rejected suitor of Miss Clemmons was among the guests, conspicuous by a broad band of crepe worn on his arm. During the ceremony the jilted man and his sympathizers expressed their sense of bereavement by low, sorrowful moaning.

The mocking-bird is common in almost all parts of America, from the south of New England to Brazil. North of the Delaware it is only a summer visitant, but in more southern regions it is found at all seasons. By day the mocking-bird is generally imitative, excelling all birds in its power of imitation, now taking up the song of one bird and then of another, and often deceiving the most practiced ear by its perfect performance.

The Shakers do not marry at all, and never have married. For increase they depend solely upon converts from among the world's people. These little Shaker communities, which have continued for more than 100 years and which might seem to be the ideal life of the new woman, gradually are fading away. There are no known evidences that strong men and women are uniting with them to take the places of their dying leaders.

One of the most interesting and novel effects in the new drama at the Princess, says the *London Evening News*, is the demonstration of mechanically produced hypnotism by means of the revolving crystal globe that gives its name to the piece. This globe, which is the latest invention of the French mesmerist, has such power that the actors and actresses on the stage have to exercise great care to keep their eyes away from it. (There is no risk to the audience, as the globe is focused "up stage.")

The Earl of Ancaster, in his sixty-eight years of life, has borne more names than fall to the lot of most peers. He began life as Mr. Heathcote, the son of Lord Aveland; at the age of 37 he succeeded his father as Baron Aveland; ten years ago he became twenty-second Lord Willoughby de Eresby in succession to his mother, and six years ago he was made Earl of Ancaster. It was through his mother that he came into possession of most of his 132,000 acres, and of his three castles in England, Scotland and Wales.

Sir Richard Tangye is an Englishman who has a "craze" about Cromwell and who has been collecting for twenty years a mass of portraits, books and other relics connected with the Commonwealth period. He has 400 framed engravings of that period, 200 of them being portraits of Cromwell. He has, moreover, 600 volumes relating to the Commonwealth, 4 Cromwell letters, several manuscripts of the time, and various letters written by Cromwell's sons. He also owns one of the three death masks of the great Protector.

In Paris and the French provinces there are ten women who are authorized by the prefect of police to wear full masculine costume. Among them are a lady artist, a bearded woman, a female house painter and decorator, a mannish-looking directress of a printing office, and several others who have obtained certificates to show that they ought to discard the attire of their own sex for that of the stronger and sterner one. On the other hand, a humble potato merchant in the suburbs has been allowed to wear female garments for reasons which satisfied the prefecture of police.

A singular theft was tried by Mr. Beale, first-class magistrate, recently. Superstitious burmans pull out the hairs of an elephant's tail for talismans, making rings out of them and other charms. One Nga Tun Lin went into an elephant's shed at Ahlone and pulled six hairs out of the bull elephant's tail, secreting them in his umbrella. The mahout challenged him and he promptly shook the hairs out of the umbrella. They fell on some straw, were picked up and put forward in evidence of theft. The man was convicted and sentenced to receive twenty lashes.—*Times* of Burma.

How many important personages did Shakespeare kill? In his works the great dramatist dispatched about ninety altogether, each one of whom rejoiced in a name. Of course hundreds of minor individuals were slaughtered wholesale on the field of battle and elsewhere. Of the ninety at least two-thirds died by cold steel, twelve from old age or natural decay, seven by decapitation, five by poison,

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two suffocation (or three if you include Desdemona), two by strangling, three by snake bite, one from a fall, one by drowning, and one, Horner, the armourer, by being banged to death by a sandbag. There are living authors quite as deadly, not, perhaps to the characters in their books, but to the people who read them.

The very latest novelties are brooches in oxidized gold, representing a flower and leaves in the form of a spray, such as an orchid, iris or poppy. They are beautifully modeled, and the leaves are here and there flushed with a dull metallic green, the iris and orchid with faint purple, and the poppy with red, but all are done with the greatest delicacy and moderation.

The Bishop of Wakefield was traveling late one night third class. His journey was peaceful until half a dozen porters invaded the carriage. Their conversation was argumentative and their language was more than forcible. The bishop, greatly impressed by the avalanche of adjectives, quietly remarked, "Gentlemen, pray let your conversation be a trifle more anaemic."

It is not generally known that the vanilla bean is the costliest bean on earth. It grows wild and is gathered by natives in Pipantla and Misantla, Mexico. When brought from the forest these beans are sold at the rate of £2 5s. per 1,000, but when dried and cured they cost about £2 5s. per pound. They are mainly used by druggists, and last year 90,000,000 beans were imported into this country.

A device to prevent sleep-walking is to lay upon the floor, by the side of the somnambulist's bed, a sheet of iron, zinc or other metal, wide enough to insure that he will step upon it. When the sleep-walking fit comes upon him his foot touches the cold surface of the metal, and he instinctively draws that leg into the bed again. After two or three attempts the somnambulist gives it up and settles down in bed.

Rheumatism causes more aches and pains than any other disease. It is due to acid in the blood, and is cured by Hood's Sarsaparilla, which neutralizes this acid.

Hood's Pills cure biliousness. Mailed for 25 cents by C. I. Hood & Co., Lowell, Mass.

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The Young Folks.

THE ARAB TO THE PALM.

Our tribe is many, our poets vie With any under the Arab sky; Yet none can sing of the palm but I.

The marble minarets that begem Cairo's citadel diadem, Are not so light as his slender stem.

He lifts his leaves in the sunbeam's glance As the Almehs lift their arms in dance—

A slumberous motion, a passionate sign That works in the cells of the blood like wine.

Full of passion and sorrow is he, Dreaming where the beloved may be.

And when the warm south winds arise He breathes his longing in fervid sighs,

Quickening odors, kisses of balm That drop in the lap of his chosen palm.

If I were a king, O stately tree, A likeness, glorious as might be, In the court of my palace I'd build for thee!

With a shaft of silver, burnished bright, And leaves of beryl and malachite;

With spikes of golden bloom ablaze, And fruits of topaz and chrysochryse;

And there the poets, in thy praise, Should night and morning frame new lays—

New measures sung to tunes divine; But none, O palm, should equal mine!

—Bayard Taylor.

LEGENDS ABOUT BIRDS.

A superstition is defined as "that which survives when its companions are dead," and those quaint fancies which our forefathers cherished about birds which have come down to us in the form of legends, proverbs and omens are but representative of innumerable ideas which were formerly held as truths.

In all lands birds have at some time, been regarded as God's messengers—creatures conveying warnings by their appearances and departures, and gifted with prophetic instincts.

No doubt simple hearts were first touched by the thought that the bird mounts nearer to heaven than man can do bodily. It was then easy for minds to conceive the idea that heaven's secrets must be known to birds.

According to Scandinavian tradition, the swallow hovered over the cross of our Lord, crying "Svala, svala!" (console, console). Hence comes its name, "svalow," the bird of consolation. We still tell our neighbors that it is "lucky" for swallows to build about their houses.

The Romans believed that the swallow was sacred to the penates or household gods, and, therefore, to injure one would be to bring down a judgment upon the home. To-day, there are many persons, sailors especially, who are firmly of opinion that "it is unlucky to kill a swallow."

In Scotland it is still common to hear the expression, "faithful as a swallow," and when a person is lazily sparing of exertion the proverb, "The snail is as sure at its rest as a swallow." This signifies "the crawler reaches the rest of death as soon as the swift flyer."

To dream of these harbingers of summer was considered a very favorable omen, denoting success in trade to the dreamer, or to a lover a speedy marriage with the object of his affections.

The swan was long used as an illustration of kingly or royal grace. It was also the emblem of chivalry, adorning the shields of knights, when the taunt of being "false to the swan" amounted to a deadly injury. Anne of Cleves, who possessed a lily-like skin (and was descended from the Knight of the Swan), was known to courts as "The White Swan;" the memory of which compliment is recorded upon many public house signs.

"The swan's a proud bird, yet he keeps his head bent;" "Through looking backwards the swan dies sweetly," are two little-known proverbs. One of the poets writes of a maiden who was

Pensive as a swan in sudden shade, Nor knew his skill in wooing suns to shine; an allusion to the belief that "swans and angels have the ear of God."

There are, perhaps, more superstitions dealing with crows than with any other birds. They are known as "the devil's own" in many counties; their caw has been declared to be a cry of "Cain," yet their presence nesting near a village is

sometimes regarded as advantageous, on the principle that "the ill's all been done when the crows gather."

The contradictory nature of beliefs respecting them arises from the wrong use of the term crow, rook and corbie.

"Corbies dinna pike out corbie's een," signifies plainly, "thieves are kind to thieves." "Every crow thinks his ain brood whitest," implies a regard for heredity; while "Gin ye hadna' been am' the crows ye wadna hae been shot," contains a moral warning.

Some unpleasant subject for discussion is always threatened by the words "I have a crow to pluck with him;" but "They're a bonny pair, as the crow said o' his feet," seems merely intended to make fun of the hated bird. "He's but the tail o' the crow," is equivalent to describing the accomplice of some evil-doer. Many a superstition-ridden country person has grieved for fear of coming adversity, for no other reason than because of a dream of crows flying and croaking.

To dream of hearing a lark is, on the contrary, a prophecy of future wealth, health and riches won by industry. It is doubtful if any search among records of the past would result in the discovery of a single omen, legend or proverb disrespectful to this honored bird. "The raven doth not hatch a lark," wrote Shakespeare, while two old sayings are: "The lark sings but to heaven and to his home," and "Larks mount singing."

Farmyard birds have been made the subjects of many common proverbs, such as "Children and chicken must always be pickin'," "Curses, like chickens, come home to roost," "A laying hen is better than a standing mill," "Sauce for the goose is sauce for the gander." But four unfamiliar sayings are these: "It's an ill housewife who roasts the old rooster," "The fool puts his last hen in the pot," "The crowing cock loves his own music," and "Geese follow their leader, if he's a big enough goose."

It will be remembered that many superstitious ideas surround the magpie, and we are told that "Angels flit when pies chatter."

A German peasant woman will assure a stranger to her country, "Luck is coming to me, because the storks flew over my chimney this morning. Ah, no man's as wise as God's storks!"

No person will be found nowadays sufficiently credulous to expect immense sudden wealth on account of having dreamed of carrying a canary in a cage, or to fear misfortune for having, during slumber, imagined himself turned into a hen; yet these are fables which actually deluded the ignorant in by-gone days.—Household Words.

Curiosities of Colds.

It is a remarkable fact that people catch cold only when they are warm. A correspondent of the London Spectator says that there are places where it is impossible to catch a cold, simply because there are no colds to catch, and that these places, singularly enough, are in the Arctic regions. The explorer, Nansen, and his men during the three years spent in the Arctic never caught cold, though they were constantly exposed to fatigue and wet, and slept in wet garments and went about all day with wet feet. The moment they returned to civilization they all caught cold.

The members of the Jackson-Harmsworth Arctic expedition stayed three years in Franz Josef Land and never had a cold, though wet feet was their "chronic experience," and on one occasion six of them were exposed to a gale in a boat for three days and nights, all drenched to the skin, and, when they arrived on land, had to remain in their wet clothes and let them dry on their bodies. With but two exceptions they caught severe colds as soon as they returned to civilization. Sir Martin Conway, while exploring Spitzbergen, with his four companions, was often wet through and frequently slept in wet clothes, but they never caught cold until they returned to the Andree settlement on the coast.

Wherever European settlements exist, there colds seem to develop, and the writer says that the only time the people living on the lonely isle of St. Kilda catch cold is when excursion steamers land, bringing European visitors. Then every inhabitant of the island, babies included, is seized with a cold; all of which, the writer says, shows that cold is an infectious disease prevalent only where civilized man exists. This theory indicates that the more the people coddle themselves the more likely they are to catch cold, and that fresh, cool air with good ventilation is the best preventive of coughs and colds.—Leslie's Weekly.

Use Dr. Bull's Cough Syrup for stubborn colds. This wonderful remedy positively cures all lung affections in a remarkably short time. Try it and be convinced. Price 25 cents.

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Interesting Notes.

In China, which has long been known as "the land of opposites," the dials of clocks are made to turn around, while the hands stand still.

"Tommy," said the teacher, "how many is the half of eight?" "On top or sideways?" asked Tommy. "What do you mean by on top or sideways?" "Why, half from the top of 8 is 0, and half of it sideways is 3!"

A dog's tailor flourishes in Paris. This tailor is a woman, and in her reception rooms Prince Bowwow has rugs, water bowls, and biscuit jars to refresh him during the trying-on process. Here are the daintiest water-color pattern books to choose from, and anything from seal-skin to chamolis is provided.

Mrs. Beeswick—I can't see why those people next door don't take a hint. They're always sending over to borrow something. If we did the same they might have an excuse, but we've never got anything from them yet. Mr. Beeswick—My dear, you are mistaken. Didn't we get the measles from them?

A cat has just died in San Francisco, that had traveled very nearly a million miles. It belonged to the chief engineer of the royal mail steamer Alameda, and for thirteen years was his companion on board ship in all his voyages between Sydney and San Francisco. With the passengers this remarkable cat was a great favorite, and on completing 700,000 miles it was presented with a silver collar.

The most costly book in the Royal Library at Stockholm is a Bible. It is no wonder that it is considered precious, for there is not another just like it in the world. In weight and size alone it is unique. It is said that 160 asses' skins were used for its parchment leaves. There are 309 pages of writing, and each page falls but one inch short of being a yard in length. The width of the leaves is 20 inches. The covers are solid planks 4 inches thick.

A correspondent has sent us an extract from a letter received from his brother, a medical missionary in Szechuan, one of the inland provinces of China. "I had," he writes, "a very distinguished patient this afternoon. She is the wife of Sao-tai of Tiensin, in Chih-li province, a man who governs an area probably equal to half a dozen English counties. She brought her fee with her—a fowl, a duck, sixty eggs, two pounds of cakes and a leg of mutton! Last time she came she brought not quite so much, but since then she has

sent over eight stalks of beautiful chrysanthemums."—British Medical Journal.

A West African on a visit to England in connection with a missionary society was shown a collection of photographs. "What is this?" he asked, gazing wonderingly at one of them. "That is a snap shot taken during a scrimmage at a Rugby football game." But has your church no missionaries to send among these people?" he demanded.

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Nasal catarrh quickly yields to treatment by Ely's Cream Balm, which is agreeably aromatic. It is received through the nostrils, cleanses and heals the whole surface over which it diffuses itself. Our plan is to give every one a chance to try the merit of the Cream Balm for the cure of Catarrh, Hay Fever and Cold in the Head, by mailing for 10 cents a trial size to test its curative powers. We mail the 50-cent size also, and the druggist keeps it. Test it and you are sure to continue the treatment. Relief is immediate and a cure follows. Ely Brothers, 56 Warren Street, New York.

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RACE CONTACT IN THE PHILIPPINES.

The questions of the future, the United States and the Philippines, present aspects which are at least interesting. The conviction is growing, however, that some force—duty, destiny, desire, greed, or ambition, is propelling the most aggressive branch of the human family to occupy the islands which fall to this country as an incident of the history made in 1898. What this occupancy shall mean is a question that is arousing some apprehension in the Filipino mind. The native is objecting by force of arms to our assumption of supremacy in the islands. He has become accustomed to the uncertain and half-hearted military ways of the decaying Spanish nation. He has seen, when he has looked across seas and the continent of Asia, that European nations war with uncertainty as to results. If he has cast his eye a little farther to the island country across the English Channel, he has seen that the great composite nation whose dominions encircle the globe, has not always been the victor even in conflict with a weaker foe. The Filipino knows little of the United States, and perhaps he has not heard and does not know that in every war ever undertaken by this nation the purpose of this country has been accomplished. He does not realize that the erstwhile war-like Anglo-Saxon who in America manifests such a love of peace that he ordinarily keeps almost no army—that the Anglo-Saxon, stoutly reinforced from the old German stock, with a sifting of Irish and other pugnacious blood for spice, becomes a soldier on a moment's notice. He cannot understand how from a nation of plowmen and artisans can spring generals and admirals capable of leading to unparalleled victories in war. The Filipino may have been told or have read that, to the aborigines of this country, the present population—a composite of composites—has brought rapid extermination. He may have heard that by other means as well as by swords, sabers, guns and cannon we have broken the spirit of the Indians, that they have become a decaying race, and will soon be recounted among the peoples that were. He may have a foreboding that contact with the ever restless, ever moving, ever aggressive North American of European descent means the destruction of his own race.

The experience of the American Indian in his intercourse with the white man may well appall the Filipino. The census returns as to the Indian cover less than half a century. They show the following numbers of Indians:

1850.....	400,764
1860.....	339,421
1870.....	313,712
1880.....	306,543
1890.....	248,253

At the rate of decrease of the eighth decade the end of the century will find less than half as many Indians as were enumerated in 1850.

Efforts at civilizing the Indians have yielded variable results. The census since 1860 has made enumerations of civilized Indians. These were included in the totals above given. The numbers of civilized Indians have varied as follows:

1860.....	44,021
1870.....	25,731
1880.....	66,407
1890.....	58,806

Evidently the Indian race takes more readily to the grave than to civilization. During the period from 1880 to 1890 the

decrease in total numbers was 58,290; the decrease in civilized Indians was 7,601, and the number of civilized Indians remaining but slightly exceeded the decrease in the total enrollment. It has been said that while the Indians were savages and were chased over the plains by soldiers they were healthy and prolific; but when confined to reservations and fed in idleness their broken spirit failed to sustain them against the ravages of disease. The shrewd white man was not long in concluding that the easy solution of the Indian problem—the solution which would be applauded by the humanitarian world—was to be found in herding them upon reservations, supplying them with missionaries and feeding them into decent graves.

Other peoples have managed to live with the aborigines of acquired lands—some by amalgamation, some as separate castes. But the resistless rush of the Anglo-Saxon American stops at nothing short of full possession.

There are Filipinos who know our history. They may feel that it is better to die fighting than to die slowly by the liquor and vices, the ease and luxury, offered by the bearer of civilization.

But the time is coming rapidly when the bread-eaters of the world will require more food-producing areas than they have heretofore possessed. The limits of productive capacity of the lands of the United States are within sight. The half civilized countries are not half tilled. The demand for outlets for manufactured products is one that we are just beginning to experience. The restless energy which has pioneered at almost every generation for hundreds of years; which has planted itself successively at various new stations from western Asia to the west coasts of Europe; made a phenomenal development at the British Isles; crossed to the eastern shores of America and founded a wonderful nation; pushed back to the Allegheny Mountains; crossed over to the valley of the Ohio and the great lake region westward to the Mississippi; over the Father of Waters and to the borders of the arid regions; scaled the Rocky Mountains and peopled the shores of the Pacific—this tremendous energy which has swept a warlike people almost from the face of the earth, and has not in more than a hundred years been defeated in its purpose, is not to be stayed by all the power that can be opposed to it in the islands of the East. Reason upon the proposition as we may; moralize upon the enormity of the conquest; pierce the veil of sophistry by which it is sought to justify extermination of a weaker people—still the finger of destiny, as constantly as the needle to the pole, points to Filipino subjugation by unrelenting force and unmatched diplomacy and the control of the islands by the stronger people. If the Filipino shall take to industry, enlightenment, peace, and development; if he shall find strength of character and energy to compete in the struggle for existence under civilized ways; if he shall give more heed to the missionary than to the rum-seller, perhaps his days may be long in the land which we come to share with him. His history need not be the history of the American Indian. But if he so much distrusts his capacity for civilization that he will not adopt the ways of progressive nations he may well anticipate the one fate that has been the lot of every people that ever attempted to stay the car of progress.

Hedge Versus Wire.

Editor Kansas Farmer:—I see Mr. Shinn keeps whacking away at the hedge. Sounds a good deal like wire fence agent. Well, now, I haven't been arguing this question on any cash basis, but if I and my stock see more comfort sheltering behind a good grove rather than a wire fence, I believe there is some profit in it. We have plenty of hedge fence around here that will turn hogs, that costs nothing to keep up, only those few rows of corn of a dry season that wouldn't make much anyhow, and we don't have to go along every dry spell and pound in a lot of staples. Mr. Shinn shows where conditions have changed in the law since 1868, but he hasn't shown where it was any more comfort to be protected by plenty of timber from the elements in 1868 than it is now. Take it back that this is not a desert land, but when it comes to pass that Mr. Shinn pulls up all the timber around I expect it will look like one. There will be timber and hedge fences in this part of God's moral vineyard after Mr. Shinn and I are dead and gone long enough.
DAN KERSHNER.
Scandia, Kans.

The editor vouches for Mr. Shinn as a first-class farmer who has lived nearly a lifetime on a Kansas farm and still wears the work-knots in his palms. Men differ in their views as to methods to make farming profitable. In Mr. Shinn's part of the State very many farmers

agree with his views. In other parts, as good farmers as Mr. Shinn want hedges and trees for protection. It depends a good deal upon where you are.

PORT ARTHUR ROUTE.

There is an old saying that "all roads lead to Rome;" so, in the West, we say: "All roads lead to Kansas City;" also the reverse is true, that all roads lead out of Kansas City; but all these roads do not lead to the sea coast. In fact, only one can be called a short and direct route to the sea, and that one is the Kansas City, Pittsburg and Gulf Railroad, popularly called the Port Arthur Route. Other roads may lead through accomplished facts, such as fruitful farms and elegant cities, which have become great by the toil and worry of the past fifty years and which may now be exceedingly desirable locations in which to live. But those favorite localities, being accomplished facts, are also high-priced and do not present the best conditions for one who has not a fortune to expend in a farm or city residence.

A Kansas Farmer representative was recently favored with the company of four others who were determined to see the new country advertised by the P. & G. R. R. folks.

On February 4 the party were comfortably seated in the car at Kansas City, waiting for the train to start southward. "Now," said the man from North Dakota, "I am about to realize what I have often wanted to see, and that is, a warm climate in winter time. I am tired of Dakota blizzards, and even Kansas City weather seems to be of the zero kind; so don't, please, hold the train on my account, for I am anxious to get in the land of eternal sunshine."

A ride of 380 miles brought the party to the young city of Mena, Ark. It being Sabbath, it was concluded to remain at the hotel and proceed on the journey next morning. It was not in the "back-woods" where they chose to rest, though they had traveled through wooded land for over one hundred miles. A beautiful city, having good hotels and other public buildings, with churches and school houses which would compare favorably with an Illinois or Ohio city, has been built in the past two years and is named Mena, which might indicate that its sponsors went to Babylon to find a name; however, this Mena can be weighed and never found wanting, except that it wants the hundred thousand other good northern people who are now sure to come there during the next few years.

Too late for morning service, our party rested quietly at the hotel until evening and then in procession solemnly marched to the nearest church, which was the "M. E. Church South." A well-lighted room, filled with young people holding an early evening service, was what our party saw on entering the building. The happy voices of the young people made cheerful music, and afterward the deep tones of the organ and the chanting of the choir led our thoughts to holy mental communion with the Creator. The eloquent and interesting sermon which followed would have fitted equally well in the largest church of New York or Boston.

Mena has a population of over three thousand; it is the end of a division of the railway, and is rapidly growing in merchandising and manufactories of various kinds. The country surrounding the city is not level but inclined to be hilly in most parts. The hills are all covered with fine growing timber, mostly oak and pine. One of the great business enterprises of the city is the manufacture of lumber.

From Mena southward the country presents one continued view of wooded land. Sawmills and lumber piles are in evidence at nearly every station. The cleared tracts of land are being turned into farms and fruit orchards.

To enliven the journey, it was proposed that each one express his ideas concerning the country traveled through. The North Dakota man was the first to deliver himself. He said: "I have been deeply impressed with the fact that in the past one hundred miles we have seen more 'down timber' along the railway than would be sufficient to warm every home in the Dakotas during the coldest winter. Here it is decaying for lack of settlers to use it."

The commercial tourist from Chicago had been awaiting impatiently his opportunity, and thus he said: "I have never visited a new country where the possibilities for delightful home-making were so apparent as we have seen to-day. I believe this portion of the United States is positively unsurpassed by any other in the opportunities presented by soil, surface, and climate. Here are all the elements needed by the poor man for his comfort—timber in plenty for his buildings, wood for his fires, good soil for

cultivation, and a diversity of scenery—woods and rivers, hills and dales—to make life a pleasing reality. Here a poor man can in a few years gradually place himself in as fortunate a position as enjoyed by the wealthy farmers of Illinois, who acquired their present comforts by labors much harder than would be required here to produce equally felicitous results. I am convinced that southwestern Missouri, western Arkansas and western Louisiana offer great inducements to the laborer, the farmer, the timberman, or the investor." Our loquacious friend was inclined to proceed indefinitely in his discourse on the advantages of the good points he saw, but he was gradually induced to enjoy a cigar and the country in silence.

PORT ARTHUR.

Comfortably seated on the broad piazza of Hotel Sabine, our Northern party enjoyed a delightful evening after the long day's ride required to reach this future great seaport for Kansas and the "Middle West." The smooth waters of the lake, with the delightful green park along its shores, formed an enchanting picture as of a realm presided over by the goddess of beauty, to whom the smoke of our cigars arose as an incense offered in her honor. The city of Port Arthur, but little more than two years old, presents a scene of activity and enterprise which many cities of a century's growth cannot show. Situated near the head of Lake Sabine, it is almost ten miles from the deep water of the Gulf of Mexico. A ship canal, nearly completed, connects the railway terminals with ocean vessels which will carry the produce of Missouri Valley to all parts of the world. Already many shiploads of grain and cotton have left the docks at Port Arthur for European ports.

At the export pier and warehouse we saw piled roof-high bags and barrels of flour from the mills of Kansas and Dakota, with packing-house products of Kansas City and Chicago. A pleasant ride on the little steamer was enjoyed down the lake, through Sabine Pass to the Gulf; and then, after a day's visit in the city on the lake, our party started northward to the land of snow and ice and zero weather.

After riding in silence for an hour, it became evident that each one was anxious to talk about the pleasant things that had been observed on the trip. "Talk about your gold discoveries in the Klondike," said the old farmer from Ohio, "talk about your pineapples and bananas from Cuba, or the sugar cane and hemp of the Philippines—why they cannot offer the pleasing inducements to be obtained for the asking right here in southeastern Texas. I am told that the Port Arthur Company have 42,000 acres of level land all in one body, which we have seen, in fact, and know that it is excellent. Not a hill, nor ravine mars the surface of the whole tract. It is nearly surrounded by navigable rivers and the lake. Actual experiments made by the company have demonstrated that all kinds of crops and fruits can be grown. Although a comparatively new place, Port Arthur is bound to become a great metropolis. The grain—oceans of grain—live stock, products of the packing-houses in the Missouri Valley will surely find an outlet to foreign countries over the Port Arthur Route and steamship lines. I have six sons, and I am going back to Ohio and try and induce them all to settle with me at Port Arthur. We can there enjoy pleasant climate during the whole year, no extremes of heat and cold to first melt and then freeze us." There was no dissenting voices to anything the old man said, in fact, all were inclined to express approval of his remarks.

The next day our whole party were enjoying weather measured by 25° below zero at Kansas City, and each one wished to again be at Port Arthur, where we had enjoyed seeing flowers in bloom out of doors, and vegetables flourishing in the gardens.

The appropriations for the Agricultural College are liberal. None of the State's money is invested to better advantage than that which provides for educating the youths and maidens to usefulness. The liberal appropriation made for the establishment of a dairy school at Manhattan is a just recognition of the fact that the Agricultural College has in its faculty two of the best equipped men in the country to make a success of such school. Professor Cottrell as head of the Agricultural department and Professor Otis as specialist in dairying commanded the confidence of both branches of the legislature.

Some observers claim to see a distinct advance in the application of the doctrine of State socialism in the provision by the Kansas legislature for a penitentiary binding twine plant.

Gossip About Stock.

Mr. C. A. Stannard's sale date has been changed from April 26 to April 18. Notice of the change reaches this office too late to change the figures in the advertisement this week, but persons interested will bear in mind the change.

The entries for Volume V of the National Duroc-Jersey Record close April 15, and the secretary, Mr. Evans, asks us to call the attention of breeders to the date and urge that all entries intended for that volume be sent in as early as possible.

The Illinois State Board of Agriculture gives the number of colts foaled in Illinois in 1897 as the smallest in twenty years. The actual number given is 67,740. The banner year was 1888, when 140,191 colts were foaled in the Prairie State.

The Naperville Shire Horse Co., Naperville, Ill., has purchased the estate of M. W. Dunham, Wayne, Ill., the Shire stallions, Roderick 5225 and Moat William 5227, both imported last summer. These are elegantly colored horses, with abundance of size, style and action, and if they are shown this fall will make their mark at the fairs.

Two very fine geldings of the French Coach trotter cross have recently been sold on the open market at Chicago. Both of these geldings weighed upwards of 1,250 pounds and both had remarkably high finish with all their grand size. One of them, a dark brown, was shipped by Hudgens & McDonald, Sandwich, Ill., the price for which he sold being \$217.50. The other was sent forward by Sam. Harrison, Bradford, Iowa, and realized about the same money. They were purchased by Tichenor & Co. For horses of this class there is always the keenest competition, but they must have quality and style along with their substance to bring satisfactory figures.

Webster & Dickinson, of Christiana, Pa., have invented and are now offering for sale an instrument for dehorning calves. They claim for their invention that it does the work thoroughly and with less pain to the animal than any other appliance ever used. It is an instrument which can be sent by mail to any postoffice in the United States. They also manufacture and sell their "Improved Convex Dehorner," which has been highly recommended by those who have used it. Their recommendations come from nearly every State from Pennsylvania to California. Write for their pamphlet descriptive of their dehorning implements. Address them at Christiana, Pa.

Among the Percheron horses sold from Oaklawn Farm, Wayne, Ill., may be mentioned the following: February 21, Vanderveer, an upstanding, big horse that is sure to do well wherever placed. He went to J. Hussey, Manitowoc county, Wisconsin. February 24, J. Baumgartner, Miami county, Ohio, took the imported horse, Pacha 22003 (43134), an elegant individual and one of the best in the 1898 importation. March 1, H. B. Koolman, Grundy county, Iowa, purchased the home-bred colt, Inca 17903, a very good colt indeed. March 2, the estate sold to J. H. Laws, Woodford county, Illinois, the extra good gray Percheron horse, Neuilly 21996 (42540), another of the horses imported to Oaklawn in the summer of 1898. This horse has both substance and quality, coupled with excellent action.

The estate of M. W. Dunham is selling a good many pure-bred mares this spring. We note that February 23, J. B. Foley, Valparaiso county, Indiana, bought the Percheron mares, Eglante 20060 and Mirgratte 20085. These are drafty mares of superior type and style and will surely produce foals that will sell to advantage. February 27, E. J. Wigle, Kingsville, Ontario, bought the Percheron mares, Vina 2276, Brettienne 16886, Valma 17724 and Briette 20515, together with the imported stallion, Coquet 21985 (43176), one of the best of the lot that was imported to Oaklawn last summer for this spring's trade. Mr. Wigle intends to begin the breeding of pure-bred Percherons on a large scale and this is his beginning. The stock is certainly suited for a foundation, both as to individuality and breeding.

The scarcity of prime heavy drafters is making itself felt in every horse market in the United States, and is vividly reflected in the substantial prices that are being paid for all desirable offerings of this sort. Week before last a pair of Percheron geldings, consigned by Biers & Peterson, Tonica, Ill., were sold at auction for \$600, to R. Badenheimer, New York City. Last week "Hustling Ed" Meyerhoffer, Maquoketa, Iowa, broke all records for the drafter class, so far as we can learn, with a load of Percheron and Shire geldings, that weighed on the average 2,075 pounds, and brought an average price of \$239.80. There were 14 head in this lot, and we do not recall any better aver-

age price being received for so large a load. On the same market, W. S. David, Lanark, Ill., sold a gray Percheron gelding for \$300.

The attendance, enthusiasm displayed, and the prices realized at the great three days' sale held at Kansas City last week demonstrates that the merits of the Hereford is becoming more widely known, consequently more sought after than at any time in recent years. The next sale to take place in the West will be that announced elsewhere in this issue by Messrs. Mosher, Taylor & Summers, to take place March 16. They announce 60 head but have catalogued 76, consisting of 21 bulls and 55 cows and heifers. The offerings are strong in The Grove 3d 2490 and commingled with Lord Wilton 4056 and Anxiety 2238 blood. The visitor at the three several farms finds the cattle in very good breeding condition, and among them some very choice individuals that if in the hands of breeders more widely known would attract more attention. As it is, however, the prospective buyer will find that this offering and sale will afford an excellent opportunity to recruit something worthy the popular feeling for registered Herefords. Salisbury is on the main line of the Wabash railway and is easily accessible from any direction. You are cordially invited to write for a free copy of the sale catalogue and attend the sale.

Publishers' Paragraphs.

Hans Rasmus, of Corning, Kans., has made a specialty for many years of raising seedling peach trees and has met with a great deal of success. He reports that, although the cold reached 30 degrees below zero in his locality, more than half of his budded peaches and seedlings are green and promise to do well the coming season.

An account of a marvelous new substance, liquid air, based on conversations with the discoverer, Charles E. Tripler, will appear in McClure's Magazine for March, with numerous pictures illustrating interesting experiments and the whole process of manufacture. If liquid air proves to be all that it now gives promise of being, Mr. Tripler has found a universal motive power that is inexhaustible and practically costless.

The Society of the Sons of the Revolution, organized for the purpose of keeping alive the memory of the early patriots, is rendering our country important service by the erection of public memorials to many heroes of the Revolutionary period. Mr. Walter Gilman Page, in New England Magazine for March, tells of the admirable work in this direction which is being done by the Massachusetts branch of the organization, and in the pages of his article are reproduced many of the tablets which the Massachusetts Sons have placed on historic spots in and about Boston.

ECONOMICAL BUYING.—Farmers are going to do more building than usual this year, and it will be well for them to look carefully after the cost price of the lumber they purchase. Arrangements have been made by one of the big lumber firms of the country whereby a large saving can be gained to the farmer. He buys his groceries, his clothing, his machinery, by mail, and he can just as well buy his lumber. He can do even better with the lumber than he can with groceries and clothing, for under a new arrangement just made by the South Chicago and Calumet Lumber Co., of Chicago, Ill., the dealer pays the freight in lumber to the farmer's station. It is one of the most important and economical arrangements ever made for reducing the expenses of the farm. It will pay any of our readers contemplating building operations to hunt up the advertisement in another column and communicate with these parties.

The March McClure is an unusually good number of a magazine that never fails to supply something out of the ordinary. An account of Tripler's invention and process for reducing ordinary air to a liquid of such wondrous potency that it may displace steam and electricity and supply, at next to no cost, all the force required in all the mechanical operations of life, brings us to the "edge of the future" with a sweep that takes one's breath. Somewhat the same palpitant expectancy is raised by Lieutenant Peary's account of his plans and hopes for the new exploration for the North Pole, in the prosecution of which he is now established somewhere in the vicinity of Lincoln Sea, 82 or 83 degrees north latitude. No less interesting in their several ways, and scarcely less striking, are a series of "Sketches in Egypt," drawn by Charles Dana Gibson, with some genial comment and description written by the artist himself, and some entirely new reminiscences of Lincoln, showing his relations with Fremont, Mo-

Clellan, Cameron, and Stanton, and illustrating his rare tact and consideration in dealing with men in general.

New innovations do not as a rule meet with prompt public approval. While the American people are famous all around the world for their business acumen and general aptitude to think out and bring into action new inventions and new methods, we often show a disposition of positive lethargy when it comes to changing so-called fixed principles and methods. Certain manufacturing institutions have in recent years inaugurated a new system of disposing of their products which is unqualifiedly to the advantage of the consumer. It took courage to make the change but they did it. Among the pioneers in this new method of doing business was the Elkhart Carriage & Harness Mfg. Co., of Elkhart, Indiana, whose "ad." appears on page 15 of this issue. These people began this plan of doing business twenty-six years ago and have adhered to it strictly ever since. The result has been so entirely successful that they are to-day the largest manufacturers of carriages and harness in the world selling to the consumer exclusively. The advantages to the consumer are almost beyond estimate. He gets better goods; better and larger selection; better styles and finish, and finally, he buys at a much more equitable and advantageous price. In dealing with the Elkhart people there is no risk to assume, as they ship either vehicles or harness anywhere for examination and guarantee every article they manufacture and sell. Then, too, one may deal satisfactorily from any distance. The Elkhart Carriage & Harness Mfg. Co. publish an extended illustrated catalogue, which they will take pleasure in mailing to all our readers who request it.

Pasteur Blackleg Vaccine.

Information as to the results of the use of vaccination for the prevention of blackleg is furnished by the Pasteur Vaccine Co., as follows:

"The Pasteur system of preventive vaccination for blackleg has been largely and successfully practiced in Europe ever since the discovery of the 'vaccine' in 1884. Live stock vaccination was introduced into the United States in 1895 by Harold Sorby, agent of the Pasteur Vaccine Co., and the remarkable success of the Pasteur blackleg vaccine is evidenced by the following figures:

Number of cattle treated in United States with Pasteur blackleg vaccine.	Usual loss from blackleg in same localities prior to treatment with Pasteur vaccine.		Loss from blackleg after treatment with Pasteur vaccine.	
	No.	Percent.	No.	Perct.
1895.....5,000	500	10	50	1.00
1896.....28,000	2,800	10	140	0.50
1897.....160,000	16,000	10	533	0.33
1898.....450,000	45,000	10	450	0.01
Total.....643,000	64,300	10	1,173	0.46 (Ave.)

"All the cattle treated with Pasteur vaccine were located in blackleg districts, and therefore exposed to infection. The reduction of losses from the usual figure of 10 per cent to less than an average of one-half of 1 per cent is highly gratifying to those who have been wise enough to profit by the remedy placed at their disposal by the Pasteur Vaccine Co. A notable feature is the gradual reduction of mortality as the cattle owners gained greater confidence in Pasteur blackleg vaccine, and understood that it was of practical and economical value, and not an 'experiment.' These results have been well established for some years past in Europe, but they are of particular interest to a number of American cattle owners who have unwittingly allowed the germs of blackleg to take root in their pastures. The headquarters of the Pasteur Vaccine Co. are at 52 Fifth avenue, Chicago.

"The 'single' vaccine (one application) is used for large bunches, but the 'double' vaccine (two applications) being the best, is employed on small bunches and choice herds. The Pasteur vaccine must not be confused with any other blackleg remedy or 'experimental' vaccine."

Men, take notice, our catalogue explains how to learn barber trade in eight weeks, mailed free. Address, Moler Barber College, St. Louis.

Honey

Gathered by bees from alfalfa bloom is "the finest in the world," so say best judges. Send direct to the Arkansas Valley Apiaries for prices of honey delivered at your station in any quantity, at from 6 cents per pound up. OLIVER FOSTER, Proprietor, Las Animas, Bent Co., Col.

Big Baby Carriage Sale.

If any of our readers will cut this notice out and send to Sears, Roebuck & Co., Chicago, Ill., they will send you, free, by mail, a handsome catalogue of baby carriages in colors, with lowest Chicago wholesale prices, free examination offer, tell you how to order, etc.—[Editor.]

Horse Owners! Use

GOMBAULT'S

Caustic Balsam

A Safe Speedy and Positive Cure

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

VISIT WASHINGTON.

Good Chance to See the Sights at the National Capital.

Every patriotic American at some time or other is anxious to visit Washington and enjoy the sights to be seen at the National Capital. Some persons may consider it a duty to make the trip and be able to say they have stood beneath the dome of the Nation's Capital and visited the various departments of a government which is to-day foremost in progress and enlightenment.

The public edifices at Washington command the admiration of the world, The Capitol, Executive Mansion, Department of State, Navy and War Departments, United States Treasury and Patent Office, and Department of Agriculture, team with instructive interest. The Botanical Garden, Smithsonian Institute and Museum, United States Navy Yard, Marine Barracks, United States Arsenal and numerous attractive squares afford ample scope for sight-seeing. Men prominent in the affairs of the nation are daily met on the beautiful streets of Washington, or in the various departments of the Federal Government. Nowhere in the world is there opportunity for seeing so many men of mark whose names are familiar to newspaper readers as at the National Capital.

The privilege of passing ten days at Washington is offered all travelers to Philadelphia and New York over the Pennsylvania Lines at the same fares at which tickets are sold over the direct line of the Pennsylvania System from Harrisburg through Lancaster to Philadelphia and New York. The detour via Washington forms a delightful diversion on a trip to the East, and as it does not cost any more, an excellent opportunity is afforded for taking in the sights at the National Capital. Ticket agents of the Pennsylvania Lines will furnish full information on the subject in response to inquiries, or they may be addressed to F. Van Dusen, Chief Assistant General Passenger Agent, Pittsburg, Pa., from whom a prompt reply will be received.

We can save you money, if you want most any paper or magazine, in connection with Kansas Farmer. Write for special club list.

B. & B.

SPRING

SHOPPING

By mail, is something we want to make a pleasure for you, with such advantages—large assortments of choice goods, and less to pay—sincerely considered, will bring your orders as a matter of plain, convincing duty to your self-interest.

All here you'll find anywhere—many, many choice new goods here you'll find nowhere else. New Dress Goods and Suitings 25c, 50c, 75c to \$3 a yard.

New Reversible Skirtings—checks and plain mixtures—plaid and check back—\$1 to \$2.50. Smart fabrics for skirts and capes.

Beautiful Fancy Silks 65c, 75c, \$1.

Wash Goods—almost no end to pretty ones, 8c to \$1.25.

Splendid line of Nobby Madras, 20c. Other New Madras 10c, to finest at 35c.

Choice New Dress Cottons, 20c to 50c—make lovely gowns.

Send for samples, let the merits of the case—goods and prices—show whether we deserve your preference. If it's Silks you want samples of, say whether Plain, Fancy or Wedding Silks. If Dress Goods, whether 25c to \$1 a yard, or 50c to \$2. Or if Wash Goods, styles for what purpose—what kinds—and so on—so we'll be sure to include samples of exactly what's wanted. Send for the new picture book of Lace Curtains.

BOGGS & BUHL,

Department G. G. Allegheny, Pa.

HALL'S STEEL WIRE FARM FENCE



The strongest, most durable and best fence on the market, being constructed of the best heavy galvanized steel wire, with a heavy cable at top and a barbed wire at the bottom. The only fence on the market that a hog cannot root under. Manufactured by J. W. D. HALL, St. Joseph, Mo.

Horticulture.

THE POTATO-STALK WEEVIL.

(*Trichobaris trinotata*, Say.)

From Kansas Experiment Station Bulletin No. 82.

One of the important and growing industries in Kansas is the raising of pota-



FIG. 1.

quite numerous in various localities, doing noticeable damage. The Stalk-Borer, *Gortyna nitela*, has been very destructive at various times. It was observed in the State some thirty years ago by Professor Snow, and was first recorded by him in his "Lepidoptera of Eastern Kansas," as being quite common, being found in the stalks of potato, tomato, dahlia, aster and cocklebur. Another insect that has been very numerous during the past year, and is at present one of the most common, if not the most destructive pest that the potato grower has to combat, is the Potato-Stalk Weevil, *Trichobaris trinotata*. It was collected in Douglas County in 1873 by Professor Snow, and was first recorded by Professor Popenoe in his list of "Kansas Coleoptera." He reported it as being common in eastern Kansas.

In the year 1897 there seems to have been a special onslaught by the weevil. In June of that year, there were many complaints of serious damage to the potato crops by the last two insects mentioned. About the 29th of the same month there appeared in the Kansas City Star an article by Chancellor Snow, calling attention to the work of the *Gortyna nitela*, and soon afterwards there appeared another by the same writer, in both the Topeka Capital and the Lawrence Journal, referring to the damage being done by the Potato-Stalk Weevil.

The investigations carried on by the Department during the past eighteen months plainly reveal the fact that the insect is pretty well distributed over the

or less subject to attack by this insect. In several of the weeds, particularly in the ground cherry, the insect is more numerous than in the potato. As many as eight adults have been taken from the stalk of one ground cherry, while in the potato vines we have never found them so numerous; one specimen in the root, and from one to five in the upper parts of the plant. Wherever the above mentioned weeds are allowed to grow wild in any large numbers they are a constant menace to potato growing; in that they support the insect in large numbers to infest adjoining potato fields in the spring.

If it were not known that the weevil was common to these weeds, one would never suspect from the exterior appearances of the plants that they were infested, so little apparently does the insect affect their vitality. This is most clearly seen in the ground cherry, stink-weed and cocklebur. On the other hand, the presence of the weevil in the potato is clearly shown by the wilting and dying of the plant, especially in dry seasons. To combat the insect with the greatest success it will not do to confine our operations to the potato alone. This matter will be treated more fully under remedies.

THE STAGES OF THE INSECT.

The adult is a small snout-beetle, as will be seen in Fig. 6. It belongs to the same family of insects as the plum curculio, and has the peculiar beak or proboscis that characterizes this family of insects. It is of an ashy gray color,

parts. The body bears a few light-colored hairs.

The egg of the weevil is of a white color and of an oval form, as will be seen in Fig. 9. It measures about 0.6 of a millimeter in length and 0.4 of a millimeter in width.

HABITS OF THE ADULT.

The weevil passes the winter in the adult stage, remaining till spring in the same plant in which it has passed through its transformations. In some of the weeds, especially the ground cherry, larvae and pupae were found as late as December, and undoubtedly passed the winter in their respective stages.

In the fall of 1897 a large number of infested ground cherries were transferred to a bed of potatoes in the insectary, in order that the time of the emerging of the adults and their habits as well as those of the larvae might be observed more closely. We here append some of the more important notes to compare with the observations carried on in the experimental plots out of doors.

On March 20 the weevils first commenced to emerge, and passed from the old ground cherry vines to the young growing potato vines, which they soon commenced to injure by gnawing irregular holes in the stalks and stems, as shown in Fig. 10.

On April 19 the majority of the weevils had emerged from the ground cherries.

By May 20 all adults in the insectary had disappeared.

On April 16 a single adult was captured



FIG. 2.—GROUND CHERRY.

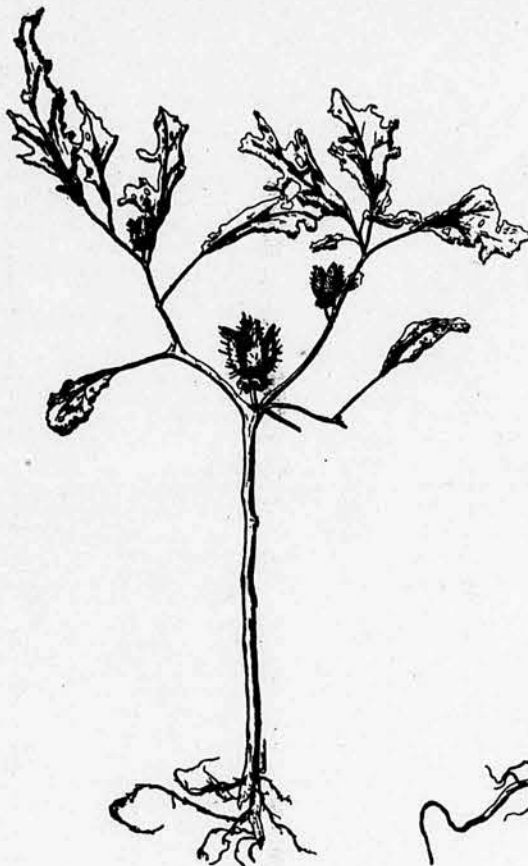


FIG. 3.—STINK-WEED.



FIG. 4.—COCKLEBUR.

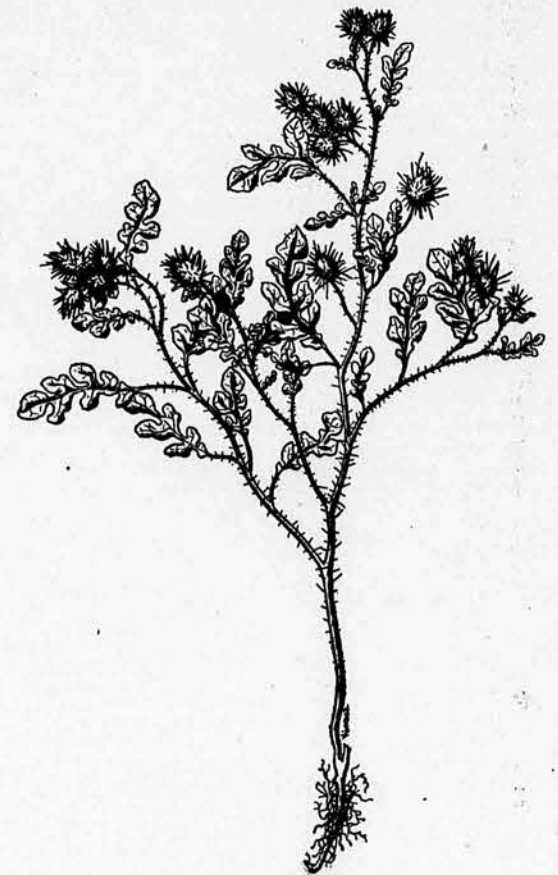


FIG. 5.—BULL-NETTLE.

toes, especially in that part of the State bordering on the Kaw River, and extending from Topeka to Kansas City. A goodly portion of that area is devoted to the cultivation of this one crop. About Edwardsville and within shipping distance of that point, Edwin Taylor, one of the largest and most successful potato growers of this State, reports that the number of acres devoted to potato culture exceeds that of corn and wheat combined. C. A. Mann, of the firm of Mann Bros. & Frisbie, large potato growers at Wilder, Kansas, estimated the yield of potatoes for 1897 between Lawrence and Kansas City at about 1,500,000 bushels. From statistics obtained from F. D. Coburn, Secretary of the Board of Agriculture for the State of Kansas, we find that for the year ending December 31, 1896, there were 108,383 acres of potatoes, yielding 7,778,097 bushels of potatoes, valued at \$2,138,297.55. Notwithstanding the magnitude with which this industry is at present carried on, there is no doubt but that the potato acreage will continue to increase; for where potato culture has been pursued understandingly it has yielded profitable returns.

Since potato culture has been so extensively pursued, there have been more or less losses sustained from insect depredations. The Colorado Potato-Beetle, *Doryphora decemlineata*, has in the past occasioned extensive losses, and is still present here and there in various parts of the State, committing more or less damage. As a rule, the potato growers are well acquainted with this pest, and seem to understand the best measures for its control. During the past summer the Flea-Beetle, *Epitrix cucumeris*, has been

eastern and east central parts of the State. In Riley County it is found in large numbers. It has been a difficult matter to obtain a correct distribution of the weevil, as many of our correspondents were not acquainted with the insect or its work; and many of those incurring losses seemed not to have attributed to the work of an insect the injury to the vines, for when the stalks were opened, exposing the depredator, it was almost a revelation to them. From the potatoes planted in the college plots the returns were very disappointing, even from those plots that were mulched and irrigated. It was estimated that in some of the plots 90 per cent of the vines were infested. The percentage infested would have been greater had not the vines been swept with insect nets to obtain specimens for the insectary. It was a difficult matter to compute the exact damage done by the pest to the potato vines, as other factors besides the weevil had assisted in causing a shortage in the yield.

ITS FOOD PLANTS.

The attacks of the Stalk-Weevil are not confined to the potatoes alone, as the insect is to be found in as great, if not greater, numbers in certain weeds which seem to be the original host plants of the insect. The horse-nettle, *Solanum Carolinense*; cocklebur, *Xanthium Canadense*; stink-weed, *Datura Stramonium*; bull-nettle, *Solanum rostratum*; ground cherry, *Physalis longifolia*, are all more

about one-fifth of an inch in length, and marked with three black spots at the base of its wing covers.

The pupa is shown in Fig. 7. It is about one-fourth of an inch long and of a creamy color. The earliest date of pupation was July 17. On the 22d of the same month pupae were to be found in large numbers. The Pupal stage lasts from about eight to eleven days.

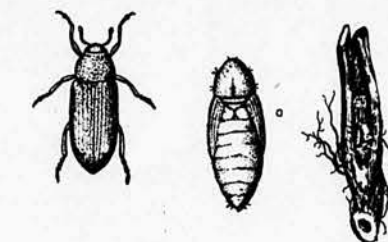


FIG. 7.

a. Pupa. b. Pupa in channel.



FIG. 6. Top and side view of weevil.

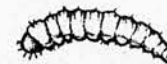


FIG. 8. Larva.



FIG. 9. Longitudinal section of stalk, showing egg in position.

The larva when first hatched is a small, whitish and footless grub. (Fig. 8.) At maturity it averages from six- to eight-sixtenths of an inch in length, with a brown head with dark-colored mouth

out of doors upon an old ground cherry vine.

On May 24 the potato vines in the college plots were swept with insect nets, by which a large number of weevils were captured. An examination of the vines revealed the same kind of punctures in the stalks as were made in the vines in the insectary, but in much less numbers. None of the punctures or slits at this time contained eggs.

On May 31 the first larvae, a grub about one-eleventh of an inch in length, was found.

On June 1 eggs of the weevil were to be found in large numbers in the potato vines in the college plots.

LIFE HISTORY.

The period of oviposition commences about the first of June. This, however, will vary with the different years. The female adult first makes in the stalk a small slit about one-twelfth of an inch long, in which she deposits one egg. In the same way, eggs are deposited in the main and secondary branches. In from seven to eleven days the small larva or grub hatches out and commences to work its way downwards towards the root of the stalk. As the larva is very minute at this stage, its channel is correspondingly small, and would scarcely be detected but for the dark-colored worm dust within it. The larva is a voracious eater, and as it develops in size its tortuous channel becomes larger and more conspicuous. After channeling down a distance, the larva turns around and commences to enlarge its old channel, for at least a part of the way. It is this mining of the pith and wood by several larvae

*Vol. IV, Transactions of Kansas Academy of Science.
†Transactions of Kansas Academy of Science of 1877.

in the stalks and branches that impairs the vitality of the plant.

The latter part of the larval life history is best seen in that specimen which has reached the root. This larva, having bored for a distance into the root, generally as far as the diameter of the pith will allow, turns around and begins to enlarge the lower portion of its channel. At the same time the greater part of the pith extending to or a little above the level of the ground is completely mined, scarcely anything being left but the wall of the woody ring filled with worm dust and fibrous shavings. Just before pupating the larva ascends towards the top of this enlarged portion of its channel and bores a hole outward through the woody ring, but does not perforate the bark. Having done this, the larva now retreats back into its channel and places one or two plugs of fibrous shavings between itself and the opening just made. It then constructs a cocoon of fibers in which it pupates. The pupal stage lasts from eight to eleven days. By July 22 a large number of the larvae had pupated and by August many were complete beetles, in which stage they passed the winter, remaining within their host plants till spring, when they made their way out from the plants through the holes previously made for their escape by the larvae.

The distances to which the larvae channel vary. One specimen in a potato vine had worked down the stalk seven and one-half inches, and had pupated at one and one-half inches below the point where the egg was deposited. The latter part of its larval life was spent in the first three inches of the channel. This portion was entirely cleared of its pith. The entire channel was filled with worm dust and small fibers. One larva, from an egg deposited in one of the main branches, had channeled downwards twelve inches and pupated in the main stalk about five inches above the level of the ground. In another case, a specimen in a ground cherry commenced to channel at about the level of the ground and burrowed downwards one inch, and then worked upwards two inches above the point where the egg was deposited. One larva from an egg deposited four inches above the surface of the ground burrowed into the root three and one-quarter inches below the level of the ground, and pupated one inch below the level of the ground. In the potato vines quite a number of the larvae did not attain maturity, particularly those from eggs deposited in the upper part of the vines. Often larvae injure a branch to such an extent as to cause the destruction of the less mature larvae farther up the same branch.

In the ground cherry, the larvae seemed to be more numerous, and had a tendency to collect in larger numbers in the main stalk. It was no uncommon thing to find as many as eight larvae in one stalk.

REMEDIES.

From what has been given concerning the life history of the stalk weevil, it will be remembered that the adult passes the winter in the same plant in which it has gone through its transformation.

Possessed of this knowledge a most simple and effective remedy naturally suggests itself, i. e., to collect and destroy all potato vines after the crop has been removed. The sooner the crop is gathered the better; for if the vines are left too long there is danger that many of the vines will have rotted, leaving the root, together with one or more weevils, in the ground.

There are certain weeds very common to this State, which are of themselves a great nuisance, aside from being a most prolific source of infestation to adjoining potato fields. These the potato grower should learn to recognize. Figs. 2, 3, 4 and 5 will greatly aid in their identification. In the fall, these weeds should be pulled up with a good portion of the roots, and destroyed. If pulling them should be too expensive an operation, the weeds should be cut down while young and allowed to dry up. By this means many of the immature larvae will be destroyed for want of proper food.

Care should be taken to promote a vigorous growth by clean cultivation and fertilizers. A healthy vine does not suffer so severely from the attacks of the pest. The greatest injury is seen in those vines of low vitality which have suffered from the attacks of other insects, heat and drought. This was most evident from the experiments carried on this past summer. The plots that were either mulched or irrigated yielded by far the greatest returns, notwithstanding the fact that the percentage of infested vines in these plots was about the same as that of the other plots.

SPRAYING.

From the observations made in the insectary it was noticed that the weevils did considerable damage by eating into the stalks and branches, as will be seen in Fig. 10, in some instances so weakening

the branches that they were not able to support the weight of the foliage. The vines in the insectary were sprayed with successful results. Spraying was tried in the college plots for both the weevil and the flea-beetle, but owing to the continuous rains it was impossible to determine the value of the experiment. This will be tried more fully this coming spring. When the weevils appear in large numbers upon the potato vines, we should advise spraying the vines with either London purple or paris green, taking care that the stalks and branches are reached by the poison.

USE OF NETS.

In a small plot of potatoes, good results

firmly together. Take a Maynard rifle cartridge tube or other brass tube of similar dimensions; if the former, file off the closed end or perforate it for the admission of the wire, and having tinned it in the same manner on the inside, push a tight-fitting cork half way through and pour into it melted tin or soft solder, and insert the wires; if carefully done, you will have a firmly constructed and very durable foundation for a collecting net. The cork being extracted, will leave a convenient socket for inserting a stick or walking cane to serve as a handle. A bag should be attached to the hoop. It should be twice the diameter of the hoop in length, so that by giving the net a



FIG. 10.—Stem of potato vine injured by adult weevils.

can be obtained by sweeping the vines with an insect net. It is not necessary to strike the vines hard, as the weevil has the peculiar habit of folding up its legs as if feigning death and dropping from the vines when slightly jarred. Watch for the time when the weevils emerge;

twist the mouth may be closed and contents secured.

PARASITE.

The larvae of the weevil are subject to



FIG. 11.—Potato stem injured by a larva of the stalk weevil.

this can be ascertained by keeping through the winter a few infested vines in a closed receptacle. When the beetles emerge from these vines it is quite likely that they are to be found on the potato patch. Then is the time to commence



FIG. 12.—Work of the larvae in potato stalks. a, b, c—Holes made by the larvae for the escape of the adults.

the attacks of a small, black four-winged fly, known as *Sigalphus curculionis*, Fitch. (Fig. 14.) By means of her ovi-

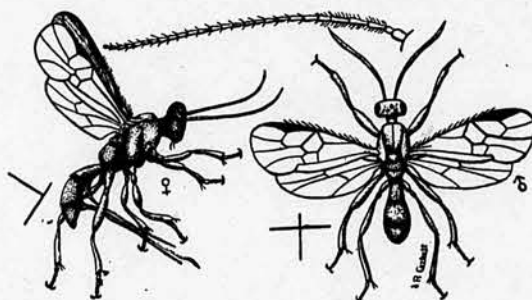


FIG. 14.—*Sigalphus curculionis* (adult).

to collect the weevils. The specimens that are collected can be killed by dropping them into a can containing kerosene.

The method of making a net we quote from Riley: "Make a loop of strong iron or brass wire, of about three-sixteenths of an inch in thickness, so that the diameter of the loop or circle will not exceed twelve inches, leaving an inch to an inch and a half of wire at each end bent at nearly right angles. Bind the two extremities of the wire together with smaller wire and tin them by applying a drop of muriate of zinc, then holding it in the fire or over a gas flame until nearly red-hot, when a few grains of block tin or soft solder placed upon them will flow evenly over the whole surface and join them

positor the female fly deposits in the weevil larva a small egg, which in time



FIG. 13.

Sigalphus curculionis (adult) in channel of stalk weevil.

hatches out into a small grub which feeds upon and ultimately destroys the weevil larva.

Dr. Bull's Cough Syrup has cured whooping-cough when no other treatment would give relief. For croup this remarkable remedy has no equal. It conquers croup at once.

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The Kansas Peach Orchard.

Editor Kansas Farmer.—Peaches can be raised for profit upon Kansas soil and under Kansas conditions. As a crop, they require no better soil than that upon which corn or oats can be successfully grown. It is necessary that the soil be thoroughly prepared and loosened from two and a half to three feet in depth, giving the sponge condition promoting capillarity from below and holding all the water that falls upon it.

The orchard should be located on an eastern slope. There are many reasons for this, but the most important of them are, that it will hold the trees back in the spring, thus helping them past the danger of the late spring frost, also a wind-break on the south is much more effective if the ground be higher.

In new orchards it is well to put rows of peaches between the rows of apple trees, and the peach will have lived its life and can be cut out by the time the apple comes to maturity. After the young tree is set, careful and judicious pruning is of the greatest importance. The thumb nail is the best pruning knife; in other words, work from the bud. The tree should be trained to a central stock with the laterals branching from it. Further, each winter the branches should be "trimmed in," cutting off half of the previous season's growth. This serves to thin the fruit, strengthen the tree, gives better support for the rest of the crop, does away with the danger of splitting down, and leaves the trees small, shapely and manageable.

When the orchard is first set, it should be planted with some low hoed crop, but ever after it pays to keep the ground mellow with frequent plowing and harrowing, and if the soil is very poor, wood ashes is an excellent fertilizer, because of its high per cent of potash. The peach tree borer is the surest destroyer of an orchard if left undisturbed. It is easily detected by the exudation of gum; then use the knife and wire, for it is a case of life or death to the tree. The best way to combat the insect is by protecting the trunk near the roots with earth mounded up, or by a fine wire net extending two or three inches below the surface.

ROBT. B. MITCHELL, '99.

State Agricultural College, Manhattan, Kans.

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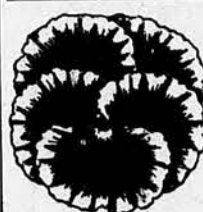
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FOR 12c And the name of this paper will send you one packet each Kramer's Giant Pansy Mixture 15c, Asters—mixed 5c, New Early Flowering Cosmos 10c, Kramer's Special Poppy Mixture 10c, Dianthus Pink 5c, Calliopsis—mixed 5c, Total 50c. Special price 12c. Catalogue free. I. N. KRAMER & SON, Cedar Rapids, Ia.

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.

MILKING SCRUB COWS.

Press Bulletin Kansas Experiment Station.

From January 1 to April 15, 1898, the college bought thirty head of common scrub cows with the object of testing the value for the dairy of this class of cows when properly handled. These cows were purchased in Lincoln County, cost delivered at Manhattan an average of \$34 each, were selected by a farmer, who was not a dairyman, and in quality were below the average cows of the State. The cows were shipped from Lincoln to Manhattan—100 miles—in mid-winter, the excitement and weather causing a serious drop in the milk yield of those that had calved. The first week the average daily milk yield per cow was 15½ pounds, the second week 21 pounds.

At the start the cows were fed alfalfa hay and a mixture of two-thirds bran and one-third old process linseed meal, a ration rich in protein designed to stimulate the milk flow and to partially overcome the effects from shipping. As soon as the cows were brought to a fair milk flow they were put on a ration of alfalfa hay and Kaffir corn grain. This ration produced the greatest flow of milk with butter fat at least cost, but had to be dropped at the end of seven weeks that

\$29.20, best cow \$32.80, poorest cow \$26.75. Average value of butter fat per cow \$37.75, best cow \$60.88, poorest cow \$21.39. Average value per cow of skim-milk at 15 cents per 100 pounds \$7.69, best cow \$12.29, poorest cow \$4.83. Average income per cow from butter fat and skim-milk \$45.44, best cow \$73.17, poorest cow \$26.22. Average receipts per cow less cost of feed \$16.25, best cow \$40.37, poorest cow receipts 43 cents less than cost of feed. Average cost of butter fat per pound 12.2 cents, from best cow 8.5 cents, from poorest cow 19.7 cents. The average price received for butter fat for the year was 15.8 cents. To the receipts given above should be added the value of the calf at birth.

This test shows the difference in value between different cows with feed and care alike. The year's record of our best scrub cow—9,116 pounds of milk, 383.7 pounds butter fat, equal to 451 pounds butter; value of products \$73.17, returns less feed \$40.37—is one that many a pedigree dairy cow would be proud of. This cow is of mongrel breeding but has a pronounced dairy form. The poorest cow's form is a good beef type and her yield of 3,583 pounds of milk and 135.7 pounds of butter fat was worth 43 cents less than the feed she ate. Is stronger argument needed to induce Kansas dairymen to cull their herds and keep only the best?

This test shows that Kansas cows can be made to give greatly increased yields with proper feed and care. We collected the records of eighty-two herds owned by creamery patrons in one of the leading

Condensed Notes From a Crowded Dairy.

Forty-four industrial students (twenty-five specials, nineteen second years) present a scene of great activity at the college dairy. The crowded condition made it imperative to convert a grain bin into a butter-room, and a dressing-room into a testing-room. The boys are now obliged to use the corner of the basement as a dressing-room, where their privileges are on a par with the cows.

Separating-room—14 by 16 feet; used as an office, contains one desk, four separators, three tables, two milk and cream coolers, one aerator, one stove, one pair of scales, four Manns' acid tests, two cases of glassware, and two rolls of wrapping paper, besides serving as a store-house for dairy records and supplies. From four to eight students work in this room every day except Sunday.

Butter-room—14 by 16 feet. Here the students become acquainted with seven hand churns, seven butter bowls, four butter-workers, two butter prints, and also have to make room for two tables, one pair of scales, one stove, and a sink. From three to eight students work in the room every afternoon and all day on Mondays.

Testing-room—11 2-3 by 16 feet, with one window to the north. This room is furnished with five Babcock testers, four tables, two sinks, testing supplies, one heating stove and one gasoline stove. The latter is used for the reason that the hot water heater has not sufficient capacity to give all the hot water needed. Besides testing, this room is used by all the boys who work on the farm as a wash-room and place to record their time.

General room—12½ by 16 feet. This room contains four cream vats, and is used to store milk, cream, butter, salt, milk cans, pails and dairy utensils of all kinds. It also contains one large hot water tank, and one large sink, where most of the dairy dishes are washed.

When the dairy students are working on herd records they pleadingly seek shelter in the office devoted to the field and feeding work of the farm.

D. H. O.

How to Handle Skim-milk and How to Feed it to Calves, Pigs and Poultry.

Paper read by W. G. McHenry, at Farmers' Institute, McLouth, Kans., November 30, 1898.

This has been a very perplexing subject to me for the past two years, and, I dare say, has possibly added a few gray hairs to my head, but nevertheless, since October 15 they have been changing back to their former color and all goes well, for I have solved the skim-milk question.

My greatest difficulty has been in trying to feed sour milk to calves, pigs and poultry. Living two and one-half miles from the skimming station, the skim-milk through the spring, summer and fall, is more often sour than sweet by the time it reaches me, and I have had very poor success feeding sour skim-milk to any young stock, and especially to calves. I have no trouble whatever when I feed it sweet and the proper amount. Therefore, in answering the first question of my subject, I would say skim-milk should be handled in such a way that it is pure and sweet when fed, and my way is to run whole milk through a separator at home, and feed it warm, sweet, and fresh, but if not separated at once every precaution should be used to keep it sweet until fed.

If milk is sent to the creamery, patron, hauler and receiver should be interested in keeping the skim-milk, as well as the whole milk, sweet until it reaches its destination.

When milk is drawn from the cow it should be thoroughly aerated and, if the weather be warm, cooled down to 60° and kept cool by placing can in cold water, or using ice until delivered to hauler. The hauler should provide a shade over the milk or cover cans with a heavy blanket. He should make his trip to and from the creamery without any unnecessary delay. Before the skim-milk is returned to the hauler it should be heated to 170° F.

My way of feeding skim-milk to very young calves is, to mix with one-half

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whole milk for a few days. I gradually withdraw the whole milk and add skim-milk and a teaspoonful of scalded oil meal. I feed six quarts in three feeds daily. The second week I discontinue the whole milk, increase the skim-milk to eight quarts, and the oil meal to one tablespoonful and feed twice a day. I also place in the manger, hay, ground corn and oats.

For feeding pigs, I would soak shelled corn in skim-milk six to twelve hours, or mix shorts with skim-milk and feed sweet. I would feed poultry all the sweet skim-milk they will drink. In winter I would mix with shorts and bran and feed warm.

Dairying in Denmark.

Paper read by W. F. Jensen, at Farmers' Institute at Denmark school house, Lincoln County, Kans., November 28, 1898.

The dairy interest in Denmark is advancing rapidly. They are at the front over there, but not at the top yet; there is room there, and probably always will be; but the Danes spare no effort to climb higher, and to-day we find them in the front rank of advanced farming, the climax of which, in all countries, is dairying. Dairy products represent the most valuable article in a concentrated form that the farmer can dispose of. He returns to the soil fertility, instead of robbing the farm of its productiveness, which it has taken centuries to store up. It brings new activity, and develops business for small and large farmers alike. In short, dairying is modern civilization in farming. To be profitable it must be understood. In this respect no country has done so much as Denmark. The Government has encouraged experiments and spread information. The dairy professors of Denmark hold conventions. Just think of a convention of dairy instructors only, in a small country only about one-fifth the size of Kansas. Well, they get together a meeting as large as this. In Copenhagen the farmers of Denmark have built a great monument to the late Professor Fjord, a man who has done more for the dairy farmer than any other, living or dead.

Thirty years ago there was little dairying in Denmark, but mainly grain raising, and the farmers were not making any money. They might say that up to that time they were robbing the land of all fertility, and since then they have been engaged in restoring it. If a farm be measured by the extent of its productiveness, we say that the Danish farmers have doubled and quadrupled the value of their farms. They have restored to the ground everything fed their stock. They have fed nearly everything raised on the farm, and besides that a whole lot of American corn and bran, that we have sent them, because we either did not know how to milk, or we had cows that did not pay for the feed. But the time is coming when we must learn these things, or emigrate to some new country with a virgin soil of great productiveness.

Record of Scrub Herd, 1898.

Number of cow.	PRODUCTS.			Cost of feed.	VALUE.			RECEIPTS, LESS COST OF FEED.		Cost of butter fat, per lb.
	Milk, lbs.	Ave'ge test, per ct.	Butter fat, lbs.		Butter fat.	Skim milk, 15c per 100 lbs.	Total.	Gain.	Loss.	
20	9,116	4.21	383.7	\$32.80	\$60.88	\$12.29	\$73.17	\$40.37	.....	.085
7	7,015	4.43	310.8	30.61	49.28	9.46	58.72	28.11	.....	.098
15	6,509	4.27	277.9	29.20	43.89	8.70	52.59	23.39	.....	.105
1	5,904	4.62	272.7	31.06	43.65	7.97	51.62	20.56	.....	.114
6	6,269	4.09	256.4	29.95	40.58	8.44	49.00	19.15	.....	.113
3	5,864	3.99	233.9	28.93	37.04	7.91	44.95	16.02	.....	.123
10	6,580	3.51	230.9	30.79	37.16	8.87	46.03	15.24	.....	.133
17	5,236	3.97	207.8	28.83	32.92	7.07	39.99	11.16	.....	.138
18	5,023	4.12	206.9	28.97	32.69	6.78	39.47	10.50	.....	.139
11	3,475	5.14	178.6	25.24	28.16	4.68	32.84	7.60	.....	.134
19	3,913	4.14	161.9	27.27	25.41	5.27	30.68	3.41	.....	.168
5	3,583	3.79	135.7	26.75	21.39	4.83	26.22	.....	\$0.43	.197
Ave'ge	5,707	4.17	238.1	\$29.20	\$37.75	\$ 7.69	\$45.44	\$16.25	.....	.122

Price of butter fat per pound: January, 17½ cents; February, 17 cents; March, 16½ cents; April, 15 cents; May, 14½ cents; June, 15 cents; July, 13½ cents; August, 15½ cents; September, 16 cents; October, 18 cents; November, 18 cents; December, 17 cents.
Cost of feed, per 100 pounds: Corn meal, 55 cents; Kaffir corn meal, 55 cents; linseed meal, \$1.25; soy bean meal, \$1; cottonseed meal, \$1; bran, 55 cents; alfalfa, \$4 per ton; ensilage, \$1 per ton; pasture, 75 cents per month.

various feed-stuffs could be fed in order to show our dairy classes the effect of various feeds on the texture of butter. The daily grain ration averaged about eight pounds per cow while on dry feed. While on pasture the daily grain ration through the summer averaged three pounds of a mixture of four parts corn meal, one part bran. Alfalfa hay was also kept in a rack where the cows could eat it at will, when they were brought in at milking time. The yield held up well through the fall drought. For a short time green Kaffir corn was fed with the pasture and the cows pastured on wheat in the fall until the ground became frozen.

Twelve cows were fresh when received January 5, the rest calving in from one to five months. The records here given are for the twelve for 1898. The butter fat yielded has been credited at the prices paid by the Manhattan Creamery, which were as follows: January, 17½ cents, February 17, March 16½, April 15, May 14½, June 13, July 13½, August 15½, September 16, October 18, November 18, and December 17. The feed has been charged at the average retail price in Manhattan for the year: Cost per 100 pounds, corn meal 55 cents, Kaffir corn meal 55 cents, linseed meal \$1.25, soy bean meal \$1, bran 55 cents, cottonseed meal \$1; cost per ton, alfalfa hay \$4, corn ensilage \$1; pasture 75 cents per month. It would pay many Kansas farmers who live distant from market to milk cows, if through the milk they could obtain the above prices with no additional profits.

Results.—Average yield of milk per cow 5,707 pounds, best cow 9,116 pounds, poorest cow 3,583 pounds. Average yield of butter fat per cow 238 pounds, best cow 383.7 pounds, poorest cow 135.7 pounds. Average cost of feed per cow

dairy sections of the State, finding an annual average yield per cow of milk 3,441 pounds, butter fat 104.5 pounds, value of butter fat \$19.79. Contrast this with the average for the college scrub herd, milk 5,707 pounds, butter fat 238 pounds, value of butter fat \$37.75, and remember that the college herd is much inferior to the average herd of the State.

We attribute the greater yield secured from the college scrub herd to three causes. First, at all times their ration was either a balanced one or contained an excess of protein—the material which builds blood and milk, while when on dry feed the Kansas cow usually has only half enough protein. Second, kindness and shelter. Our scrub cows were petted, comfortably sheltered, never driven faster than a slow walk, and never spoken to in an unkind tone. Third, a full milk yield was secured through the summer drought by giving extra feed.

Ventilation and Sunlight for the Barn.

In the arrangement and construction of the barn special attention should be given to ventilation and sunlight. Failure on these points is likely to result sooner or later in decreased healthfulness of the herd. The practice of keeping the cows in the basement of the barn, where the dust accumulates and the sunlight seldom if ever enters, should not be tolerated. The dreaded disease, tuberculosis (commonly known in the human family as consumption), could ask for no better breeding ground than such conditions supply. On the other hand, sunlight is a deadly enemy to the germs of this disease.

In addition to this the barn should be arranged with a view of securing the greatest convenience and for maintaining the utmost cleanliness. D. H. O.

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—for instance, the Philippine islands, where one tree, called the "bread tree," feeds a whole family, and where very little work or energy is called for. All the inhabitants want is just enough to eat.

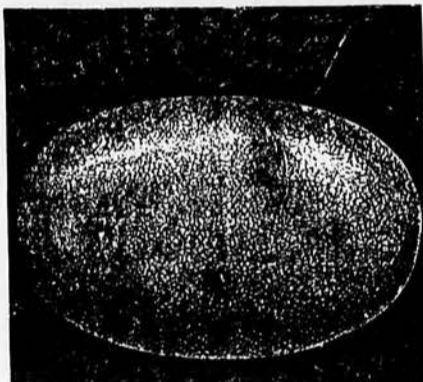
When my memory carries me back to Denmark, my first thought is clear running water. I think of green fields and forests, of hills and valleys, of sweet flowers and jubilant birds, and those remarkable fresh, sunny days that nowhere on earth may be equaled. And then I banish these thoughts for fear I might get homesick. My second thought reverts to an old acquaintance of mine, for whom I have considerable respect—my old-time Danish cow; and really it is no wonder she is doing so well among such pleasant surroundings. Denmark is the cow's paradise, and she knows it, and is paying for her stay in good shining silver dollars every day in the year. With the Danish farmer, the cow is the pride of his farm. He combs and pets her, and blankets her when it is cold. If you want contentment for man and beast alike, just step into a Danish cow stable right after the noon-day meal.

I have been away from Denmark quite a while, and I have not followed the later improvements as well as I ought to have done. There is, however, some things they have worthy of imitation, and that is breeding and testing associations. A number of farmers form an association, and employ some young man or girl to attend to the work. This young man or girl at certain intervals visits each farm at milking time, weighs and tests the milk from each cow separately, and keeps a complete record. The farmer in these sections can find out the cows that pay him, and also those that don't. He keeps continually improving his herd, and also establishes a record and pedigree for all of his cows, that is very valuable to him.

A Danish cow, like the Danish hog and the Danish horse, is more and more sought for every year, in foreign countries, and this is brought about by strict methods and records, whereby the farmer is able to select his increase from the most valuable animals.

The "Wonderful" Potato.

We present herewith a cut of the "Wonderful" potato, which was originated by Harry N. Hammond, the seed potato specialist of Fifeield, Mich., and by him successfully introduced last season. From every section of the country and in all varieties of soil, the originator informs us he has the most gratifying



reports of the success of this new potato, both as to yield and quality. As stated above, Mr. Hammond's speciality is the growing of seed potatoes. He is located in the very heart of the New Muck Land belt of Michigan, a section that is famed for the size and excellence of its potatoes. From his cellars seed potatoes are shipped into every State and Territory in the Union, and into some foreign countries also. If your seed should be "run down" or "run out" you would do well to correspond with him for some of his new pedigree seed potatoes.

Mr. Hammond also grows vegetable, flower and farm seeds, and will be pleased to mail our readers free copy of his catalogue for the asking.

THE STRAY LIST.

FOR WEEK ENDING MARCH 9, 1899.

Barber County—J. E. Holmes, Clerk.

HEIFER—Taken up by S. A. Ferguson, in Elm Mills tp. (P. O. Medicine Lodge), February 28, 1899, one nearly red heifer, bar on brisket; valued at \$25.

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The Poultry Yard

Conducted by C. B. TUTTLE, Excelsior Farm, Topeka, Kans., to whom all inquiries 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.

The Wyandotte.

The Wyandotte is another of the general-purpose fowls, and is rated next to the Plymouth Rock. From the first they sprang into popular favor and have continued so to the present time.

For general purposes the Wyandotte has proved a success, being of medium size, weighing on an average a pound less than the Plymouth Rock fowl, hardy of constitution, and prolific layers. They are easily cared for, and bear confinement well.

For table purposes they are of superior worth; their flesh is sweet, juicy, and tender, making excellent broilers and roasters. As layers they are among the best, averaging from 12 to 14 dozen eggs a year, and as winter layers they do well under ordinary circumstances.

There are five varieties of the Wyandotte class, and it is only a matter of opinion as regards a choice of the best. The general characteristics are the same in all, the difference of plumage being the only distinguishing mark.

The Silver-laced Wyandotte is of a silvery white plumage, with regularly marked white lacing on breast and a generous distribution of white and black throughout the entire body. The cock has a silver-white head, rose comb, silver hackle, with a black stripe down the center of each feather; silvery white back; saddle same as hackle; breast black with white center; tail black; wings half black and half white, or rather, black edged with white; when wing is folded there should be a well-defined bar across the wing; shanks and toes a rich yellow, free from feathering. The hen of the Silver-laced variety is marked similarly to the male, excepting the back and wing, which are whiter in the male than in the female. The breast of the female is of much importance in breeding good birds; the lacing should be large and distinct, the white centers of each feather to be free from black or brown penciling.

The Golden Wyandotte is marked like the Silver, excepting that the color is golden bay and black instead of white and black.

The White variety is, perhaps, the favorite of the Wyandotte class, from the fact that it is not as difficult to breed to feather, the plumage being pure white throughout. They are for this reason the more practical fowl for the farmer or those who keep poultry for market.

The Buff Wyandotte is in color a rich, deep, clear buff, uniform in shade throughout, except the tail, which is of a deeper buff or copperish bronze color.

The Blacks are of a rich, glossy black, with greenish sheen, excepting breast, primaries, secondaries, tail and fluff, which are pure black. The standard weight of cocks is 8½ pounds; hens, 6½ pounds; cockerels, 7½ pounds; and pullets, 5½ pounds.—The Helpful Hen.

Poultry Culture and An Education.

"As has on more than one occasion been suggested in these columns, poultry culture should be made a portion of the experimental work carried on at the several agricultural experiment stations conducted in this State under the direction of the State University—College of Agriculture. The importance of developing the poultry industry will be recognized when we find that the home supply of eggs and table fowl is inadequate to meet the demand, and that in consequence literally thousands of dollars worth of hen fruit and poultry is annually shipped into this State from the east. Hence the importance of experimental work on the part of the stations.

"In addition to this, however, we should like to see the experimental work supplemented by a short course of practical instruction on poultry at the Agricultural College itself. Neither of these two important considerations need necessarily require any large expenditure of money. The work at the stations could be commenced in a small way with only a few fowls and a couple of breeds, and extended and enlarged as occasion might demand. Mating and feeding—for both eggs and market poultry—proper feeding and management, insect pests and diseases, breeds best adapted to certain localities, etc., are some of the subjects that might be advantageously investigated. In the way of practical instruction

The Rush for Gold.

From the Times, Bluffs, Ill.

The rush of gold seekers to the Klondike brings thrilling memories to the "forty-niners" still alive, of the time when they girdled the continent or faced the terrors of the great American desert on the journey to the land of gold. These pioneers tell some experiences which should be heeded by gold seekers of to-day. Constant exposure and faulty diet killed large numbers, while nearly all the survivors were afflicted with disease, many of them with rheumatism. Such a sufferer was Adam Vangundy, who now resides at Bluffs, Ill., where he has been justice of the peace and was the first president of the board of trustees. In a recent interview he said:

"I had been a sufferer of rheumatism for a number of years and the pain at times was very intense. I tried all the proprietary medicines I could think or hear of, but received no relief. I finally placed my case with several physicians and doctored with them for some time, but they failed to do me any good. Finally, with my hopes of relief nearly exhausted I read an article regarding Dr. Williams' Pink Pills for Pale People, which induced me to try them. I was anxious to get rid of the terrible disease and bought two boxes of the pills, I began using them about March, 1897. After I had taken two boxes I was completely cured, and the pain has never returned. I think it is the best medicine I have ever taken, and am willing at any time to sign my name to any testimony setting forth its good merits."

(Signed) ADAM VANGUNDY.
Subscribed and sworn to before me, this 29th day of September, A. D. 1897.
FRANKLIN C. FUNK, Notary Public.

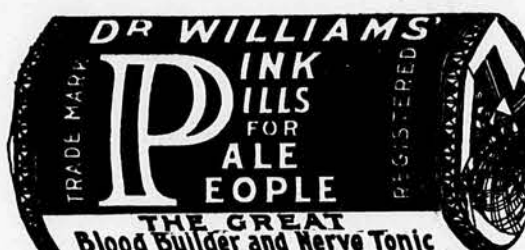
Mr. Vangundy's statement ought to be regarded as a criterion of the good merits of these pills, and what better proof could a person want than the above facts. These pills stand unrivalled as a tonic for the blood.

Modern Science Recognizes RHEUMATISM as a disease of the Blood.

There is a popular idea that this disease is caused by exposure to cold, and that some localities are infected with it more than others. Such conditions frequently promote the development of the disease, but from the fact that this ailment runs in certain families, it is shown to be hereditary, and consequently a disease of the blood.

External applications, therefore, may afford temporary relief, but to cure the disease it is necessary to treat it through the blood.

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tion we should like to see: (1) Teach the farmers (or rather students) the principles of practical poultry culture. (2) Show them the best breeds to raise to secure the various products. (3) Inform them what the market demands. (4) Best methods of packing and marketing. "At present there is no place to gain this information in a specific and systematic manner; the person about to engage in commercial poultry culture must 'pick it up' in the tedious and often expensive school of experience. Similar courses of instruction are now taught in a number of the agricultural colleges in England and Canada, and we believe in one or two of our Eastern universities. Why not try and have it done in the California University? Isn't it worth trying for?"

The above, from the California Poultry Tribune, is too good argument in favor of experimental work and the short course of instruction at our agricultural colleges, to let go by, since it is in line with several suggestions made by the Kansas Farmer in the last few months. By all means, let this branch of work be taken up at Manhattan, and it would be educational, indeed, to note the added impetus to the poultry interests of our State, which would be the natural result.

It is coming—it being only a matter of

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THE BEGINNING THE MIDDLE THE END

and all that lies between that and the end of the poultry business, from the hatching of the chick until it reaches the market; the best methods of hatching, brooding, feeding and marketing of eggs and poultry that is contained in our **BOOK ON POULTRY**. It contains 228 pages chock full of the things poultry people should know. Cuts of all the leading breeds, Incubators, Brooders and a full line of poultry supplies. It will help you out of many of the little troubles that arise in breeding poultry. Sent for 1.00 in stamps. **RELIABLE INC. & BROODER CO. Box B 62, Quincy, Ill.**

time, when the art of rearing and caring for poultry will be taught at our experiment stations and agricultural colleges on similar lines as now pursued with hogs, cattle and other stock; and why not, since the poultry interests of our State are of much greater magnitude than any of the other classes of live stock.

And the interest is growing among the people every year; broadening out and deepening, as they become better educated and better informed as to the opportunities presented for increasing their yearly income, and the results naturally to be expected from the increased and better care of their flocks.

The Farmer looks forward to the time when Kansas boys and girls, and even men and women who desire more definite knowledge on this subject, and who would gladly take such a course of instruction, will not be compelled to look to little but progressive Rhode Island or some other equally wide-awake Eastern State for their instruction in this branch, or else, as the writer tersely says, "pick it up in the expensive school of experience." Many, very many failures might be avoided and many partial failures successes by just this kind of instruction at the outset.

The Incubator Lamp.

I have just read: "Have the incubators and brooders that are using lamps constantly burning, in a fireproof house some distance removed from valuable buildings. With the best of care something may sometime go wrong with the lamp."

Well, my friend, you who are afraid of lamps, don't buy an incubator. The above advice is impracticable in the extreme. How many of you who have incubators that did not have to save and make several sacrifices to get them, and how many of you would ever have had one at all if you had wanted to get a "fireproof" building to put it in? How many incubator makers are there who think it is at all necessary to have a fireproof building to set their machines in? If anything is liable to happen to a lamp it is all the more reasonable that the incubator should be near at hand so that it can be watched. There is a limit to all things, even the height to which a lamp wick should be turned; and if the required heat cannot be had without turning the flame above the limit it is not in the lamp to furnish the necessary amount of heat, and a larger burner must be used. A poor burner is always dangerous. A good burner will go the three weeks, one batch through, without any special cleaning if it starts in clean.

The burner should be rubbed off every day with a soft cloth when the lamp is trimmed, and at the end of the hatch every burner should have a thorough cleaning with a brush and hot soapsuds. We use a piece of flour sack for the daily wipe off, and when the cloth becomes too dirty to be used any more it is burned and a fresh clean one used. Pieces of old knit underwear or old toweling, or anything that is soft and will absorb the dirt, lamp black and surplus coal oil, will do, and for the thorough cleaning we found nothing better than the hot soapsuds above mentioned and an old hair brush. A crumb brush and tray is a useful article to keep about the machines, as there are always burnt matches and other odds and ends to carefully brush away. Sometimes we used the crumb tray, but more often we kept one of the moisture pans and a turkey feather brush conveniently near. It is said of me that I can't do a thing or have anything without there is some part of the hen business mixed up in it, and it does seem so. Why, even the neck of my ink bottle has been wearing a distinguishing band for a year past. I was going to band one of the chickens, but something came up to do just then and I carelessly clasped the band around the ink bottle and there it has stayed until it looks like an old "residentialer." I don't remember any more what became of the chicken, but this has nothing to do with the lamp question. If you cannot get a machine that you think in your own mind is safe, don't get it at all. A man who will smoke a cigar or pipe anywhere, and fling burning matches in all directions, will sometimes have fits almost at the bare idea of an incubator set in the house. Ask him why he thinks it more dangerous than other lamps, and nine times out of ten he don't know. He just feels that way and can't help it.—Mrs. May Taylor, in Journal of Agriculture.

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MARKET REPORTS.

Kansas City Live Stock. Kansas City, March 6.—Cattle—Receipts since Saturday, 3,589 cattle; calves, 150; shipped Saturday, 708 cattle; 205 calves. The market was strong to 10c higher. The following were representative sales:

Table with columns: No., Ave. Price, No., Ave. Price. Rows include DRESSED BEEF AND SHIPPING STEERS, WESTERN STEERS, NATIVE HEIFERS, NATIVE COWS, NATIVE FEEDERS, NATIVE STOCKERS.

Hogs—Receipts since Saturday, 3,998; shipped Saturday, 1,015. The market was steady to 5c higher. The following are representative sales:

Table with columns: No., Price, No., Price. Rows include various hogs and sheep.

Sheep—Receipts since Saturday, 4,493; shipped Saturday, 281. The market was steady to strong. The following are representative sales:

Table with columns: No., Price, No., Price. Rows include Col. lms., C. lms., T. ewes.

St. Louis Live Stock. St. Louis, March 6.—Cattle—Receipts, 3,500; market steady; native shipping steers, \$4.55@5.75; light and dressed beef and butcher steers, \$3.00@5.10; stockers and feeders, \$2.30@4.50; cows and heifers, \$2.90@4.65; Texas and Indian steers, \$3.00@4.85; cows and heifers, \$2.25@3.90.

Hogs—Receipts, 6,000; market strong; pigs and lights, \$3.60@3.70; packers, \$3.65@3.75; butchers, \$3.70@3.82 1/2.

Chicago Live Stock. Chicago, March 6.—Cattle—Receipts, 13,000; market strong; beefs, \$3.85@5.85; cows and heifers, \$1.75@4.50; Texans, \$3.50@4.90; stockers and feeders, \$3.50@4.65.

Chicago Grain and Provisions. Table with columns: March 6, Opened, High'st, Low'st, Closing.

Table with columns: Commodity, Price. Rows include Wheat, Corn, Oats, Pork, Lard, Ribs.

Kansas City Grain. Kansas City, March 6.—Wheat—Receipts here to-day were 282 cars; a week ago, 183 cars; a year ago, 136 cars. Sales by sample on track: Hard, No. 1, 65 1/4c; No. 2, hard, 64 1/2c; No. 3 hard, 63 1/2c; No. 4 hard, 60 1/2c; rejected hard, 59c. Soft, No. 2 red, nominally 74c; No. 3 red, 72c; No. 4 red, 67c. Spring, No. 2, 63c; No. 3 spring, 62 1/2c.

Corn—Receipts here to-day were 45 cars; a week ago, 49 cars; a year ago, 246 cars. Sales by sample on track: Mixed, No. 2, 32 1/2c; No. 3 mixed, 32 1/2c; No. 4 mixed, 31 1/2c. White, No. 2, 33 1/2c.

Oats—Receipts here to-day were 4 cars; a week ago, 23 cars; a year ago, 51 cars. Sales by sample on track: White, No. 2, 30c; No. 3 white, 29 1/2c.

Rye—No. 2, 56c; No. 3, nominally 55c; No. 4, nominally 54c.

Hay—Receipts here to-day were 17 cars; a week ago, 38 cars; a year ago, 38 cars. Quotations are: Choice prairie, \$7.00@7.25; No. 1, \$6.25@6.75. Timothy, choice, 7.00@7.50. Clover, pure, \$6.50@7.00. Alfalfa, 7.00@7.50.

Chicago Cash Grain. Chicago, March 6.—Wheat—Cash, No. 2 red, 72 1/4@73c; No. 3 red, 66 1/4@71 1/4c; No. 2 hard winter, 66 1/4@69c; No. 3 hard winter, 64 1/2@66c. No. 1 northern spring, 67 1/4@70 1/4c; No. 3 spring, 64 1/2@67c.

St. Louis Cash Grain. St. Louis, March 6.—Wheat—Cash, No. 2 red, elevator, 73c; track, 74c; No. 2 hard, 68 1/2@69c.

Kansas City Produce. Kansas City, March 6.—Eggs—Strictly fresh, 14 1/2c per doz. Butter—Extra fancy separator, 19c; firsts, 17c; seconds, 14c; dairy fancy, 15c; country roll, 11 1/2c; store packed, 10c; packing stock, 9c.

TOO LATE TO CLASSIFY. FOUR JACKS FOR SALE—W. C. Ward, Linwood, Kans.

ONE BRONZE TOM LEFT. WRITE QUICK. JOHN C. Snyder & Sons, Kildare, Okla.

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MAMMOTH WHITE ARTICHOKE, F. O. B. AT Kansas City, price 60 cents per bushel. Address F. A. Heller, Bonner Springs, Kans.

I HAVE A THOROUGHbred 2-YEAR-OLD Holstein bull for sale or exchange for another Holstein bull. Correspondence solicited. G. J. Coleman, Box 204, Mound Valley, Kans.

BARGAINS—M. B. Turkey toms, 24 pounds, large B bone, \$4; B. P. Rock cockerels, \$1 to \$2. Can order direct, describing wants, to save time. See February issues, page 1, for premiums. Mrs. F. A. Hargrave, Richmond, Kans.

BAIRD & MASON, EUREKA, GREENWOOD CO., Kans., Real Estate and Rental Agents. Special attention given to care of property belonging to non-residents. Fine farms for sale. Reference: Eureka Bank or any business man in Greenwood County.

FOR SALE—At Wyndon Place, 10 miles southwest of Topeka, an Alma road, four registered Short-horn calves, 8 to 12 months old. Postoffice address, J. W. Sheldon, southeast corner Sixth and Van Buren, Topeka, Kans.

PEKIN DUCKS—Took first premium at Wichita State Fair; also two firsts, two seconds and one third at Wichita Poultry Show, 1888. Eggs from ducks, some of which scored 96 1/2 to 97 1/2, \$1.50 per 15. O. E. Martinson, Wichita, Kans.

NORTHERN-GROWN ONION SETS AND SEEDS. Red Wethersfield, per pound, 75c; Red Globe, per pound, 90c; Yellow Danvers, per pound, 85c; White Silver Skin, per pound, 90c; Bottom Sets, any kind, per bushel, \$2.75. Seed potatoes, all sorts, at lowest prices. Write me. E. R. Hayes, Commission Merchant, Topeka, Kans.

FOR SALE CHEAP—320-acre farm in 30-25-12, near Tonovay, Greenwood County, on Missouri Pacific railroad; 165 acres in cultivation and balance in meadow and pasture. A nice gentle slope. Nearly all smooth and well watered. Four-room house, stable, corrals, etc. Ten dollars an acre. Frank Dibert, Eureka, 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.

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SIXTY HEREFORD CATTLE AT AUCTION. SIXTY. March 16, 1899, at Salisbury, Missouri. Consisting of cows with calves by side, cows bred, and helpers bred and unbred; and a very choice string of helpers and young bulls sired by VENTURE 54351, the great prize-winner and sire of the great show bull Climax 60942 (that recently sold in the late C. S. Cross sale for \$900), and the grandsire of the \$1,025 bull, Climax 4th 71031. This is a very desirable lot of stock, of best breeding and will be in nice breeding condition. CATALOGUE NOW READY. WRITE FOR ONE TO EITHER N. E. MOSHER & SON, Salisbury, Mo., H. C. TAYLOR & SON, Roanoke, Mo., J. E. SUMMERS & SONS, Huntsville, Mo.

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Advertisement for various agricultural implements including a Steel Beam Cultivator, Disc Harrow, and other machinery. Includes prices and descriptions.

The Apiary.

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

Heavy Losses in Bees.

From present indications there have been heavy losses of bees in all quarters during the last extreme cold weather that has past over almost the whole country. In localities where no one expects bees to winter-kill and scarcely gives the winter problem any attention at all, they have suffered heavily, and, in fact, in the extreme north, where bee-keepers make preparation for hard winters, there is, no doubt, a less per cent of loss. The greatest sufferers are those who make but little preparation in the way of protection for bees in winter, and, owing to more genial climates, usually let the bees just take it as it comes.

Bee-keepers who do not take the pains to furnish a good winter hive for each colony of bees, must sooner or later suffer such losses. That the present modern beehives, when used as winter hives, are responsible for the majority of these losses there is but little doubt. Bees when in reach of honey at all times do not freeze, and it is safe to say that the present losses are largely from starvation. Bees may readily starve to death in a hive that contains enough honey to feed them for three months, and the last twenty days of solid cold weather has brought about these conditions exactly. During this time a colony of bees clustered up tightly did not get at any time an opportunity to expand even a few minutes to move sidewise to reach the honey in the combs, and hence did starve when plenty of honey was in sight, and but a few inches from them.

Such a continuous spell of cold weather as has just past would not have prevented the bees from properly feeding had the honey been located directly over the cluster of bees. The heat of the cluster as it naturally rises, permits the bees to travel upwards, and had our hives been constructed so as to permit of the honey being stored directly over the bees (and it is their nature thus to do) instead of at the side of the same, no such losses would have occurred. Hence, the lesson we must learn is, that the present modern hives are strictly a summer hive, and that we must use extra protection in winter, either by the use of chaff hives or take our bees to the cellar.

Queenless Colonies.

More colonies than usual will be found without queens this spring. This is true on account of the fact the bees have suffered badly the present winter owing to the extreme cold weather, and all colonies that have been left out on their summer stands unprotected are winter-killed down very weak, if they have at all survived. A corresponding loss of queens will also be found, and all colonies that have sustained this loss, will, in a short time, become extinct if some attention is not given them.

Queenless colonies may now scarcely be considered worth the attention to save them if we cannot secure queens for them, but it is not only this, but if these hives are allowed to remain in this condition, robbers will soon find them and a greater destruction will occur. These hives doubtless contain more or less honey, and the bees that are in them will be a great help to other colonies if they are united with them. This is the proper thing to do with all those queenless colonies now, and this should be done on the first warm day that presents itself. All the unoccupied combs and hives should be taken up and placed away where they are safe and where the bees will not find them.

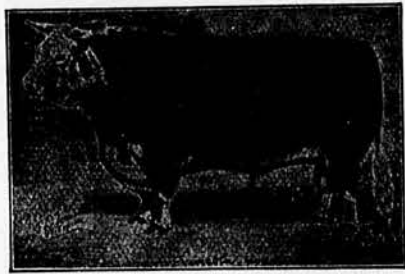
All combs in hives upon which the bees have died should be stored away carefully for they are very valuable to again build up colonies on. A good set of combs is fully half the value of a colony, and by its help we can soon again replace our loss. These combs may be cleaned of dead bees and dirt only as far as we can do so by lightly brushing the same from them, but we cannot undertake to clean them thoroughly without injuring the combs, such as removing dead bees that have crawled into the cells and died there. But just put them away in this condition and when they are given to the bees they will readily clean them and remove all dead bees from the cells.

It is rather difficult to procure queen

bees very early in spring. Southern bee-keepers usually have them a month or more before we can rear them in the North, so that by sending south for them, we can supply many of our queenless stocks in time to save them. Not unless such colonies are very strong in bees, will it pay to secure queens for them. When they are weak it is best to unite them with others.

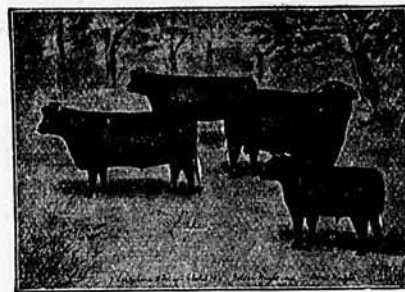
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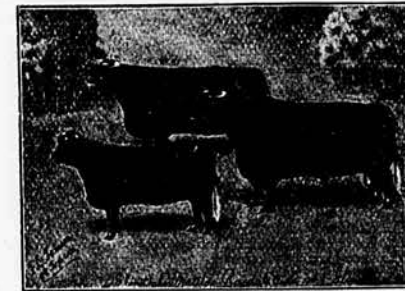
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Lincoln 47095 by Beau Real and Klondyke 42001, at the head of the herd. Young stock of fine quality and extra breeding for sale. Personal inspection invited. ALBERT DILLON, Hope, Kas.



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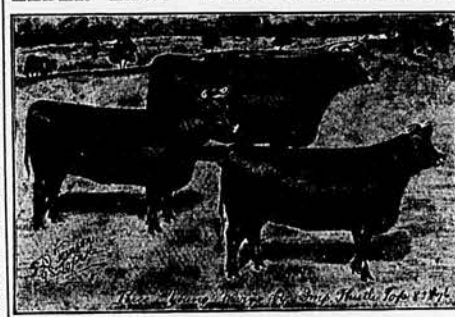
Golden Knight 108096 by Craven Knight, out of Norton's Gold Drop, and Baron Dry 2d by Godoy, out of Myrtle 50th, head the herd, which is composed of the leading families. Young bulls of fine quality for sale; also offer a choice lot of grade bull and heifer Shorthorn spring calves. C. W. TAYLOR, Pearl, Dickinson Co., Kas.



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Leading Scotch and Scotch-topped, American families compose the herd, headed by the Cruickshank bulls, Glendon 118370, by Ambassador, dam Galan thus, and Scotland's Charm 127284, by Imp. Lavender Lad, dam by Imp. Baron Cruickshank. Young bulls for sale. C. F. WOLF & SON, Proprietors.

ELDER LAWN HERD SHORT-HORNS.



THE Harris bred bull, GALLANT KNIGHT 124466, a son of Gallahad, out of 8th Linwood Golden Drop, heads herd. Females by the Cruickshank bulls, Imp. Thistle Top 83876, Earl of Gloster 74523, etc. Size, color, constitution and feeding qualities the standard. A few good cows for sale now bred to Gallant Knight. Address T. K. TOMSON & SONS, DOVER, KANSAS.



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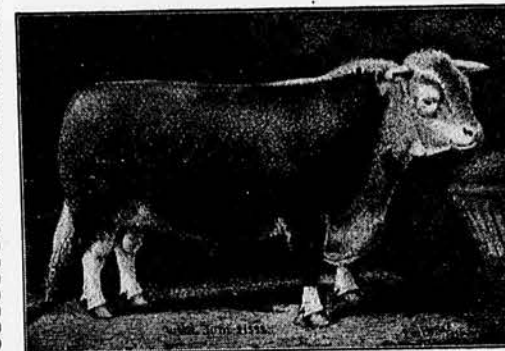
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Sold in Kansas City 1898	1,757,163	3,596,828	815,580

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