

KANSAS FARMER

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SIXTEEN TO TWENTY
PAGES—\$1.00 A YEAR.

BREEDERS' DIRECTORY.

SWINE.

DUROCS Prize-winning strains. . . .
N. B. SAWYER, Cherryvale, Kans.

D. TROTT ABILENE, KANS., famous Du-
roc-Jerseys and Poland-Chinas

DUROCS. Registered stock all ages.
M. H. ALBERTY,
CHEROKEE, KANS.

MAPLE AVENUE HERD J. U. HOWE,
DUROC-JERSEYS. WICHITA, KANSAS.
Farm 2 miles west of
city on Maple Avenue.

CEDAR SUMMIT POLAND-CHINA SWINE FARM.
Only choicest individuals reserved for breeding purposes. J. M. GILBERT, Busby, Elk County, Kansas.

V. B. HOWEY, Box 103, Topeka, Kans.
Breeder and shipper of Poland-China hogs, Jersey cattle, S. L. Wayndotte chickens. Eggs in season.

MOUND VALLEY HERD POLAND-CHINAS.
Has some show gilts bred to L. B. Perfection (26172 S.) Others bred to Black U. S. Best (21767). Also a fine lot of fall pigs for sale. Prices reasonable.
W. F. WIMMER & SON, Mound Valley, Kans.

RIVERSIDE HERD OF POLAND-CHINA SWINE
Twenty young boars old enough for service. Wilkes and Kiever Model strains. Also sows and gilts bred or unbred. All stock sold recorded free.
M. O'BRIEN, Liberty, Kansas.

D. L. BUTTON, North Topeka, Kans., Breeder of Improved Chester Whites.
Stock for sale. Farm two miles northwest of Reform School. . . .

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

RIDGEVIEW FARM HERD OF LARGE ENGLISH BERKSHIRES
Sold out of everything but fall pigs. Place your orders for them now. Silver Laced, and White Wyandotte cockerels for sale.
MANWARING BROS., Lawrence, Kans.

Sunnyside Herd PEDIGREED POLAND-CHINA HOGS.
I now have for sale a fine lot of large, well matured early spring boars, two of them just past 1 year old; all fine, large, mellow fellows, broad backed, large boned and well marked. . . . Write me for description and prices. . . .
M. L. SOMERS. Altoona, Kansas.

PROSPECT PARK HERD —THOROUGHbred POLAND-CHINA HOGS—
Perfect We Know, a son of Chief I Know, the sweepstakes boar at the Omaha Exposition, at head of herd.
J. H. TAYLOR,
Telephone address Pearl, Kans. | RHINEHART,
Telegraph address | KANSAS.

FIFTEEN BRED GILTS,
Daughters of Knox All Wilkes, Majestic Chief and Ideal Black Chief; they are bred to Imperial Chief, the first-prize boar at Iowa State Fair, 1900, Ideal Black Chief and Kanawaka Chief by Midway Chief. These gilts are as good as any we have raised this year. We have some fall boars sired by Ideal Black Chief and Majestic Chief, the best we have ever raised. Parties wanting something to put at head of their herd should correspond with us. Prices right.
DIETRICH & SPAULDING, Richmond, Kans.
Farm one mile from station.

POLAND-CHINA HOGS
Herd headed by I Know Perfection 49263 O., sired by Chief I Know 37167 O., and out of Black Beauty F. 114649 O., assisted by Kansas One Price 491150 O., Look At Me Jr., and Young U. S. I have a few fall gilts by Kansas One Price and one by Lawrence Perfection 3d; also a few extra good March and April boars for sale. Gilts will be sold bred or open. Write me, or come and buy for yourself. I will guarantee all stock as represented.
W. E. NICHOLS, Sedgwick, Kans.

SWINE.

J. D. MARSHALL, Walter, Kans.
For Sale: Thirty-five fine gilts and by Miles Look Me Over (18879) prize-winner. 5 fairs in 1900; also a few fine boars. Call on me or write your wants.

KANSAS HERD OF POLAND-CHINAS has some extra fine spring gilts, some January gilts, and sows 18 months, bred to Sen. I Know, he by Perfect I Know; and some nice fall boars by Sen. I Know, and U. S. Tec. Address F. P. Maguire, Haven, Reno Co., Kas.

FAIRVIEW HERD DUROC-JERSEYS
Contains breeders of the leading strains. We have some fine Summer and Fall pigs to sell at moderate prices.
J. B. DAVIS, Fairview, Kansas.

DUROC-JERSEYS rise-winning strain. Young stock for sale.
WAKE & POCKE, Station B., St. Joseph, Mo.

PARKALE STOCK AND FRUIT FARMS THOROUGHbred HEREFORD CATTLE.
CHAS. A. SCHOLZ, Proprietor, FRANKFORT, KANS.

DUROC-JERSEY SWINE—REGISTERED.
Some extra J-1 and August pigs at reasonable prices. Write us and get first choice.
NEWTON BROS., WHITING, KANS.

PLEASANT HILL HERD POLAND-CHINAS
Twenty selected pigs of September farrow for sale.
HERMAN ARNDT, Templin, Kans.
Shipping station, Alta Vista.

PERFECTION CHIEF BOARS, GUY DARKNESS BOARS. CRESCENT HERD Has 'Em.
Come and see, or write your wants.
SAM W. HILL, Hutchinson, Kansas.

MAINS' HERD OF POLAND-CHINAS.
JAMES MAINS, Oskaloosa, Jefferson Co., Kans.
Headed by the grand boar, Anderson's Perfect I Know, dam Anderson's Model (49611), sire Perfect I Know 19172 mated to a lot of choice selected sows of the most noted prize-winning families. A fine lot of fall and spring pigs ready to ship. Write for what you want. Safe arrival and satisfaction guaranteed.

VERDIGRIS VALLEY HERD Large-boned, Prize-winning POLAND-CHINAS.
We have for sale 6 last fall boars, 3 extra good. Also 100 spring pigs. They are of the low-down, heavy-boned, lengthy, easy-keeping kind. The practical, money-making kind of hogs. We can furnish pairs or herds not akin, and of any of the popular and prize-winning strains. Prices reasonable. Nothing but the best shipped on order.
WAIT & EAST, Altoona, Wilson Co., Kans.

R. S. COOK, - - Wichita, Kans., Breeder of POLAND-CHINA SWINE.
The Prize-Winning Herd of the Great West. Seven prizes at the World's Fair. The home of the greatest breeding and prize-winning boars in the West, such as Banner Boy 28441, Black Joe 28503, World Beater and King Hadley. FOR SALE—An extra choice lot of richly-bred, well-marked pigs by these noted sires and out of thirty-five extra large, richly-bred sows. Inspection or correspondence invited.

33--PURE BRED POLAND-CHINAS--33
For present sale, I have CHOICE SOWS, Bred to Logan Chief 2d 24427 and Proud Tecumseh 24655. Most of the sows are sired by the 900-pound Corwin I Know 18448 and Hadley U. S. 20186. Also 50 choice October pigs at \$3 and \$10 for the next 30 days. My hogs have good heads and small, fancy ears. Come and see them or write.
JNO. BOLLIN, Kickapoo, Leavenworth Co., Kans.
I ship from Leavenworth.

MAPLE GROVE HERD OF . . . REGISTERED POLAND-CHINAS
HIRAM SMITH, Breeder, Colwich, Sedgwick County, Kansas.
Herd headed by the famous herd boar, BLACK CHIEF (42357), and assisted by IDEAL U. S. (Vol. XXII). I have on hand 30 serviceable boars and 35 gilts for sale at reasonable prices; quality, style, and breeding considered. Out of 30 richly-bred sows, such as Worldbeater's Beauty (109484), Dolly P. (105220), Black Bessie (104244), and Banner's Pride (108706). Inspection or correspondence invited.

PROTECTED PIGS PAY The verdict of thousands of stockmen who use Vesey's Star Anti-Cholera. It not only protects—it cures cholera hogs. It makes them grow and fatten; it causes early maturity. Sold under an absolute guaranty. You can deposit money in bank pending results. Call on or address ANTI-CHOLERA CO., 263 F Exchange Bldg., Kansas City Stock Yards

CATTLE.

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

MEADOW BROOK SHORTHORNS.—Some fine young stock, 20th Earl of Valley Grove at head of herd, for sale; breeding of the best, in color unexcelled. Address F. O. KINGSLEY, Dover, Shawnee County, Kans.

ROSEDALE HERD OF HOLSTEINS. . . . C. F. STONE, Proprietor. PEABODY, KANSAS. Home of Empress Josephine 3d, champion cow of the world. Gerben's Mechtelhide Prince at head of herd. . . . Young bulls and heifers for sale. . . .

Polled Durhams! THIS little ad. will direct you to the largest as well as the best Scotch bred Polled Durham herd of cattle in the United States. 150 fine Duroc-Jersey pigs. F. F. FAILOR, NEWTON, IOWA.

Norwood Shorthorns. V. R. Ellis Gardner, Kas. Sir Charm 4th at head of herd. Cruickshank top crosses on best American families. Young stock for sale.

PERCHERON HORSES, AND ABERDEEN-ANGUS CATTLE
GARRETT HURST, Breeder, Zyba, Sumner Co. Kans. For sale 1 young stallion, and 1 mare; also 3 cows, and 1 bull. All registered.

SHORTHORN BULLS FOR SALE.
A few choicely bred young bulls—spring yearlings for sale at very reasonable prices; also 2 Shropshire, and 1 cross bred Shropshire-Ootswold buck. Address JAMES C. STONE, LEAVENWORTH, KANSAS.

RED POLLED CATTLE. Largest Herd in America. S. A. CONVERSE, Proprietor, Importer, and Breeder. Cresco, Howard Co., Ia.

D. P. Norton's Shorthorns Dunlap, Morris County, Kansas. Breeder of Pure-bred SHORTHORN CATTLE. Herd bull, Imported British Lion 133692. Young Stock For Sale.

Sycamore Springs Stock Farm SHORTHORNS. H. M. HILL, Proprietor, La Fontaine, Kans. All stock reserved for the Gowdy, Wolf & Son, and Hill sale at Kansas City, November 20, 1900. Personal inspection of our sale draft and of herd invited. Correspondence solicited.

...SILVER CREEK HERD... SHORTHORN CATTLE.
GWENDOLINE'S PRINCE 130913 in service, a son of the \$1,100 cow, Gwendoline 5th. Best Scotch, Bates, and American families represented. Also bred high-class Duroc-Jersey swine. Can ship on Santa Fe, Frisco, and Missouri Pacific R. R. J. F. STODDER, Burden, Cowley Co., Kans.

RECORDED HEREFORD BULLS FOR SALE.
The get of Marlon 66646 and Anxiety Wilton A—46611, 10 to 24 months old. These bulls are large, and good individuals, and of the best of breeding. Inspection invited. FRED COWMAN, Lost Springs, Kans. Breeder (not dealer) of HEREFORD CATTLE.

SUNFLOWER HERD Scotch, and Scotch-topped SHORTHORN CATTLE POLAND-CHINA SWINE.
Herd bull, Sir Knight 124403. Herd boars, Black U. S. 2d 23663 S., and Sunflower Black Chief 28608. Representative stock for sale. Address ANDREW PRINGLE, Harveyville, Waukesha Co., Kans.

CATTLE.

BULLS AT ROCKY HILL.
On account of bad weather and inadequate room, our sale January 9th was called off after a few lots had been sold. We now offer a car load of toppy bulls at retail; will make very low price for the lot.
J. F. TRUE & SON, Newman, Kansas.
On U. P. R. R., 12 miles East of Topeka.

Polled Durham Cattle. Edgewood Polled Durhams. The largest and best bred herd west of the Mississippi river. Scotch blood a specialty. Bulls for sale. Address. . . . A. E. BURLEIGH, KNOX CITY, Mo.

ALFALFA MEADOW STOCK RANCH. 1,800 acres. Pure bred stock only. Herefords, Poland-Chinas, Light Brahmas, and Belgian hares. Stock of all kinds for sale. Pedigreed hares, \$2.
O. B. WHITAKER, Proprietor, Lincoln, Kans.

Maple Leaf Herd of THOROUGHbred -- SHORTHORN -- CATTLE, AND POLAND-CHINA SWINE.
JAMES A. WATKINS, Farm is two miles south of Rocky Island depot. Whiting, Kans.

BREED THE HOKNS USE BY USING A RED POLLED BULL.
CHAS. FOSTER & SON, FOSTER. Breeder of Red Polled cattle. Herd headed by Powerful 4582. Pure-bred and grades for sale. Also, prize-winning Light Brahmas.

MT. PLEASANT HERD OF SHORTHORNS
Herd headed by Acomb Duke 18th 142177. Herd composed of Young Marys and Galateas. Young Bulls for sale. Sired by Phyllis Duke 131838.
A. M. ASHCROFT, Atchison, Kan.
E. D. No. 3.

BELVOIR HEREFORDS. . . . OWNED BY . . . STEELE BROS., Belvoir, Kans. Announcement: We call especial attention to our select offering of 20 Bulls and 20 Females in the Combination Sale held at Kansas City, February 7 and 8, 1901. . . . Send for Catalogue.

ALLENDALE HERD OF ABERDEEN-ANGUS CATTLE. The Oldest and Largest in the United States. Splendid recently imported bulls at head of herd. Registered animals on hand for sale at reasonable prices at all times. Inspect herd at Allendale, near Iola and La Harpe, Allen Co., Kans, and address Thos. J. Anderson, Manager, there; or ANDERSON & FINDLAY, Prop'rs., Lake Forest, Ill.

Registered Herefords. THOS. EVANS, Breeder, Hartford, Lyon County, . . . Kansas. SPECIAL OFFERINGS: FOR SALE—Six bulls and fifteen heifer calves, one 8-year-old imported bull, one yearling bull, and 5 cows.

PURE BATES SHORTHORNS. M. W. ANDERSON, Independence, Mo. Wild Eyes, Craggs, Peach Blossoms, Duchess Craggs, Harts, Harringtons, and Braelett. 16th Duke of Wildwood 134671 at head of herd. Can sell young fo males, bred or open.

CATTLE.

PIONEER STOCK FARM.
J. H. McALLISTER, Proprietor.
 BREEDER OF—
PURE BRED GALLOWAY CATTLE, POLAND-CHINA AND CHESTER WHITE HOGS, JACKS AND JENNETS.
STANDARD BRED STALLIONS AND MARES.
AGEE, HOLT COUNTY, NEBRASKA.

125
RAVENSWOOD :: SHORTHORNS
 125

C. E. LEONARD, - - BELLAIR, MO.
 Males and Females For Sale. Inspection especially invited. Lavender Viscount 124755, the champion bull of the National Show at Kansas City heads the herd. R. R. and Telephone Station, Bunceton Mo. Ed. PATTERSON, Manager

H. M. Satzler,
 Burlingame, Kansas,
 BREEDER OF.....
HEREFORD CATTLE, BERKSHIRE SWINE, COTSWOLD SHEEP.
 STOCK FOR SALE.

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

POWELL'S HEREFORDS.
 Sires in Service: JUDGE VICTOR 62246, ROYAL BOY 82820.
 Special Offering: Three very choice bull calves, extra large, growthy fellows in good flesh. W. S. POWELL, Moline, Elk Co. Kans.

H. R. LITTLE,
 HOPE, DICKINSON CO., KANS.,
 Breeds Only the Best
 Pure-bred
SHORTHORN CATTLE.
 The herd numbers 135, headed by ROYAL CHAMPION 125698, a pure Cruickshank, assisted by Sharon Lavender 148002. For Sale just now 16 Bulls of serviceable age, and 12 Bull Calves. Farm 1 1/2 miles from town. Can ship on Mo Pacific, R. I., or Santa Fe. Foundation stock selected from 3 of the great herds of Ohio.



GLENDALE SHORTHORNS, Ottawa, Kans.
 Leading Scotch and Scotch-topped American families compose the herd, headed by the Cruickshank bull, Scotland's Charm 127264, by Imp. Lavender Lad, dam by Imp. Baron Cruickshank. Twenty bulls for sale.
C. F. WOLFE & SON, Proprietors.

LOCKRIDGE STOCK FARM
GEO. CHANNON, Proprietor
 Hope, Dickinson County, Kansas
 BREEDER OF PURE-BRED
SHORTHORN CATTLE,
POLAND-CHINA SWINE,
PLYMOUTH ROCK POULTRY.

FOR SALE: The young Shorthorn herd bull, Rosamond Victor 12th, a half brother to Bothwell's heifer, strawberry, that sold at the Kansas City Sale for \$700. Will also sell a few young bulls and heifers. Now offer in Poland Chinas 40 spring gilts, bred or open, and 100 fall pigs. Also 200 Plymouth Rock cockerels. Prices very reasonable as feed is too scarce to carry so many over winter.

CATTLE.

IDLEWILD SHORTHORNS.
 The blood of Roan Gauntlet and Champion of England can be had direct through our herd bull, Godoy 115675. His dam, Imp. Golden Thistle (Vol 26) is by Roan Gauntlet; his granddam, Golden Lady by Champion of England. Godoy is still active and a sure getter. A few years later you can not get this blood direct. Godoy transmits the old scale and substance produced only by Cruickshank. Thirty-five Cruickshank females in herd; also Booths and DoubleMarys. Can offer Godoy Calves from these tribes.
W. P. HARNED, Vermont, Cooper Co., Mo.

COBURN HERD OF RED POLLED CATTLE
GEO. GROENMILLER & SON,
 Coburn, Franklin Co., Kans.
 Breeders of full bloods, and high grades. For sale a number of extra good high grade bulls from 6 to 12 months old; also a few choice full bloods. Herd numbers 90 head.

HORSES AND MULES.
PERCHERON HORSES.
J. W. & J. C. Robison, Towanda, Kansas.
 Importers and Breeders. Stallions for sale.

SNYDER BROTHERS, WINFIELD, KANSAS.
 BREEDERS OF.....
SHIRE, AND PERCHERON HORSES, SHORTHORN, AND POLLED DURHAM CATTLE, POLAND-CHINA SWINE.
 BREEDING STOCK FOR SALE.

OAKLAWN FARM
 AS ALWAYS, VASTLY IN THE LEAD.
PERCHERONS, FRENCH COACHERS, SHIRES.
 ON HAND, HOME-BRED AND IMPORTED
270 STALLIONS, 235 MARES.

The greatest collection of stallions ever brought together. Our two large, recent importations for this year included the Principal Prize Winners at the **WORLD'S EXPOSITION, PARIS,** and at the Government Shows at Amiens and Mortagne, and the Tops, first choice, purchased from the leading studs of France and England. The superiority of the Oaklawn Percherons was also shown at the

INTERNATIONAL LIVE-STOCK EXPOSITION at Chicago, December, 1900, pronounced by press and public the greatest live stock exhibition ever seen, where Oaklawn's Exhibit was awarded **Three 1st Prizes, three 2d Prizes, three 3d Prizes, two 4th Prizes and two 5th Prizes** in the three stallion classes; **Championship, mare, any age; 1st and 2d Prizes for collections; \$100 Gold Medal, best group, five stallions; \$100 Gold Medal, best group, three mares.**
 Catalog on application. Prices reasonable.
DUNHAM, FLETCHER & COLEMAN,
 WAYNE, DU PAGE CO., ILLINOIS.

SHEEP.
 ..AMERICAN..
Angora Goat Breeders ASSOCIATION
 For all information as to registering, etc., address
W. T. McINTIRE, Secretary,
 227 Live Stock Exchange KANSAS CITY, MO

LIVE STOCK AUCTIONEERS.
JAS. W. SPARKS LIVE STOCK AUCTIONEER
 Marshall, Mo.
 Have been, and am now, booked for the best sales of high-class stock held in America. Write me before claiming dates.

R. E. EDMONSON (late of Lexington, Ky.) and **R. Patterson** (of Chicago, limited), now located at 208 Shields Building, Kansas City, Mo., offers his services as Live Stock Auctioneer. All the Herd and Stud books. Wire before fixing dates.

CAREY M JONES, Live Stock Auctioneer
 Davenport, Iowa.—Have an extended acquaintance among stock breeders. Terms reasonable. Write before claiming date. Office Hotel Downs.

GEO. R. HUNGATE, The Reliable AUCTIONEER
 Son of A. J. Hungate, who spent 45 years as a prominent Auctioneer.
 I have sold more cattle during the past year than any man in Kansas. Sales made on the percent plan. Correspondence solicited and promptly answered. Address, Sixth and Quinoy Streets, Topeka, Kans.

LIVE STOCK AUCTIONEER
COL. J. N. Harshberger,
 LAWRENCE, KANS.
 Special attention given to selling all kinds of pedigreed stock, also large sales of graded stock. Terms reasonable. Correspondence solicited. Mention KANSAS FARMER.



Columbus Herefords
 Herd headed by COLUMBUS 51875, Hesiod 17th 56467, and Weston Stamp 15th 108353. Columbus is the sire of the \$7,500 Dale, the \$5,000 Columbus 17th, the \$2,000 Columbus 12th, the \$1,250 Viola. Five of Columbus' get, of our breeding, sold for \$7,140 or an average per head of \$1,428. Young stock of both sexes for sale sired by Columbus, and Hesiod 17th.
BENTON GABBERT & SON, Dearborn, Mo.
 Maple Leaf; Chicago, Rock Island & Pacific Railroads.



SUNNY SLOPE HEREFORDS.
 155 HEAD FOR SALE—Consisting of the imported herd bull, Sentinel, 7 2-year-old bulls, 73 bulls from 8 to 16 months old, 60 yearling heifers, and 10 cows.
 MY ANNUAL SALE—Will be held at Kansas City in connection with W. Van Natta, and Scott & March February 26 to March 1, 1901, when 150 head will be sold from the three herds at auction.
C. A. STANNARD, - - - Emporia, Kansas.

SCOTT & MARCH,
 BREEDERS OF PURE BRED.....
HEREFORDS,
 BELTON, CASS COUNTY, MO.
 BULLS in service. HESIOD 29th 66304; Imp. RODERICK 80155; MONITOR 58975, EXPANSION 93663, FRISCOE 92974, FULTON ADAMS 11th 83731. HESIOD 29TH 66340.
 Twenty-five miles south of Kansas City on Frisco, Fort Scott & Memphis and K. C., P. & G. Railroads.



...GUDGELL & SIMPSON... INDEPENDENCE, MO.,
 BREEDERS AND IMPORTERS OF.....
HEREFORDS.
 One of the oldest and largest herds in America.
ANXIETY 4th blood and type prevail.
 BOTH SEXES, IN LARGE OR SMALL LOTS ALWAYS FOR SALE.

T. K. TOMSON & SONS,
 Proprietors of * * *
ELDERLAWN HERD OF SHORTHORNS
 DOVER, SHAWNEE COUNTY, KANSAS.
 GALLANT KNIGHT 124463 in service. Females are pure Scotch and Scotch-topped on the best American families. 100 head in herd. A choice lot of young stock for sale. Correspondence and inspection invited.



PEARL SHORTHORNS.
 HERD BULLS:
BARON URY 2d 124970, LAFITTE 119915.
 A FEW CHOICE YOUNG BULLS FOR SALE RANGING FROM 5 TO 20 MONTHS.
C. W. TAYLOR, - - Pearl, Kansas.

VALLEY GROVE SHORTHORNS.
 THE SCOTCH BRED BULLS
Lord Mayor 112727, and Laird of Linwood 127149
 Head of the Herd.

LORD MAYOR was by the Baron Veltor bull, Baron Lavender 2d, out of Imp. Lady of the Meadow and is one of the greatest breeding bulls of the age. Laird of Linwood was by Gallahad out of 11th Linwood Golden Drop. Lord Mayor sires bred to Laird of Linwood for sale. Also bred Shetland ponies. Inspection invited. Correspondence solicited. A few young bulls sired by Lord Mayor for sale.
T. P. BABST, Proprietor, Dover, Shawnee Co., Kans.

GALLOWAYS.
 Largest Herd of Registered Galloways in Kansas.
 Young bulls, cows, and heifers for sale.
E. W. THRALL, Eureka, Kans.

GALLOWAYS.
 LARGEST HERD OF REGISTERED GALLOWAYS IN THE WORLD.
 Bulls and females, all ages for sale—no grades. Carload lots a specialty.
M. E. PLATT, Kansas City, Missouri.
 Office at Platt's Barn, 1613 Genesee Street.

KANSAS STATE BOARD OF AGRICULTURE.

Thirtieth Annual Meeting Held in the State House, January 9, 10, and 11, 1901.

THE PROCEEDINGS.

The Angora Goat.

R. C. JOHNSTON, LAWRENCE, KANS.

It is not my purpose to go back and give the origin and early history of the Angora goat from its first discovery and development to the present time, but only from its first introduction into the United States.

In 1849 Dr. James B. Davis of Columbia, South Carolina, imported from Angora, a province of Turkey, in Asia Minor, a bunch of nine goats. He kept them five years, and in 1854 sold his entire flock to Col. Richard Peters of Atlanta, Georgia. Since then other importations have been made by different persons at different times, until about four hundred Angora goats have been brought into this country.

The most prominent importers were W. W. Cheney of Boston, Mass.; Chas. S. Brown and I. S. Diehl of New York; J. S. Harris, now of Montell, Texas; C. P. Bailey of San Jose, California, and others.

Very little progress in breeding Angora goats in this country was made until some time after the war, when it was discovered there was great merit in them, and people in the mountain districts of Texas, New Mexico, California, Oregon, and Washington began to raise them in large numbers. From these states we have been getting our supplies. Having plenty of free range and desiring to avail themselves of it, they began to cross the Angora goat on the common Mexican goat, producing a fair shearing goat from the second and third crosses; but it was not till after the fourth and fifth crosses that all the characteristics of the common goat disappeared, and we had a pure white, good shearing goat, with long, silky mohair. The results of these different crosses are the different grades of goats now found on the market. Not till within the past four years did the public generally begin to know their great value, not only in converting the waste products of the farm into money, but in saving the labor, time and expense of the farmer in destroying the weeds and brush on his farm. I will confine myself to the Angora goat as we now find it in this country, and to its adaptability and usefulness to the farmer in general. I will draw a comparison between the Angora goat and the sheep, as an illustration, because they are very similar in their appearance, nature and habits. The manner of caring for them is so much alike that we can get a better idea of their value, as we are all familiar with the cost and care of handling sheep, while the final end of both is to be served on our tables as "delicious spring lamb."

CHARACTERISTICS.

The Angora goat grows to the same size as sheep, but it does not mature so rapidly. A six months old lamb will weigh more than a kid of the same age with equal care, therefore the goat is not as good to raise for the early market; but this is more than offset by the fact that it carries its lamb or soft joint longer than a lamb does, and its life is so much longer than that of a sheep. It is a prolific breeder, and a productive shearer until it is twelve and fourteen years old. It lives and thrives in any climate where sheep live and prosper, no matter how hot or cold. It readily adapts itself to the surrounding conditions, from the rich field of the valley to the rugged mountain wastes. All the shelter it needs in this climate is an open shed, facing the south, which it can go under to protect itself from the cold rains and snow of our northern winters. The rain and snow freezes on its long silky hair, and forms a mass of ice, which chills the goat. Keep it dry, especially after shearing, and it will stand any amount of cold weather. They feed and do well during the winter on corn fodder, straw and coarse hay, with a little grain during March and the first of April to strengthen them for the kidding season of May. A

goat abhors filth and dirt. While they eat every kind of food, it must be sweet and clean, with fresh, pure water to drink. They will only drink dirty stagnant water when compelled by extreme thirst. It is not best to have your does kid too early in the spring, as the kids are liable to chill and die during the cold, wet weather of early spring. The does do not milk so well, and are liable to disown their kids. Better wait till May, when we have warm weather and plenty of grass. Both doe and kid do better, and it will save you lots of trouble. They require the same care and attention during the kidding season as sheep during the lambing season. The high grades and pure-bred are more prolific than sheep, raising 90 to 110 per cent increase. They are a very hardy animal, having lots of sense, are good rustlers, and will not starve if there is anything in the neighborhood to eat. They seem just as happy gnawing the bark off a dogwood sapling as barking your choicest apple-tree. They feed in flocks, and do not scatter over the pasture like sheep. When alarmed they will bunch together and defend themselves. They are browsers, not grazers, and prefer weeds and bunch grass. They eat the leaves off every tree and bush that grows in Kansas, and not content with the leaves, they want the bark also. They eat every weed which grows, that I know of, except mullen and burdock. They seem "tickled to death" when they strike a patch of Jimson weed. They are perfectly happy in a bunch of smart weed. They watch and patiently wait for the thistle to put forth its bloom so they can enjoy that rare morsel. Buckbrush, which is destroying so many of our fine pastures, is their delight. In fact, goats are ideal brush exterminators. They do it at a cash profit, instead of a costly outlay. One writer speaks of them as "picking gold off the bushes." They are always sure of a good living, for no matter how dry or wet a season may be, it always produces weeds. They will condescend to eat grass when there are no weeds or brush in sight. After the frost has killed the weeds and leaves, they feed during the winter, as long as it is not covered with snow, on the blue grass, which grew undisturbed under their feet during the summer. Horses, cattle, and sheep will feed after goats in the same pasture, while goats feed on that which other animals will not touch. One need not sell any of the stock already owned to make room for the Angora goat; the farm is able to take care of that much more stock and render that much greater income. They are a vegetable scavenger. Hence its value in farm economy, in converting into money the weeds and brush on which the farmer every year spends time, labor and money to get rid of, at the season of the year when time is most valuable. This makes the cost of raising the Angora goat almost nothing.

They make the richest fertilizer from the foliage, and deposit it on the poorest and high spots on the farm, while horses and cattle fertilize the richest part of the farm, where the grass grows. The day is not far distant when every farmer will have a flock of goats in addition to his present stock of horses, cattle, hogs, and sheep, for they fill their place on the farm without crowding out any other animal.

RECLAIMERS.

Thus we find the Angora goat reclaiming thousands of acres of waste land in every state in the Union, and converting them into tillable fields or productive pastures, at the same time making millions of pounds of wholesome meat to feed, and millions of pounds of fine mohair to clothe the people of our land. Being a very hardy, self-reliant animal and a browser, one

A Month's Test Free

If you have Rheumatism, write Dr. Shoop, Racine, Wis., Box 27, for six bottles of his Rheumatic Cure, express paid. Send no money. Pay \$6.50 if cured.

will soon find his hilly and rough districts, which are to-day of no value whatever to any other industry, filled with this useful animal. They are comparatively free from disease. A sheep fence will hold them. They crawl through a fence, rather than jump over it. A 24-inch slat or woven wire fence with three barb wires above it, with posts 14 or 16 feet apart, will make a fence that will hold goats, horses, cattle and hogs; or better still, a seven barb wire fence with posts 7 or 8 feet apart will hold any animal.

FLESH, FLEECE, AND INCREASE.

They are shorn in the spring at the same time and in the same manner as sheep, but be careful to keep them out of a cold rain for a week or two after shearing. Their fleece of mohair weighs from 2½ to 4 pounds on average good goats, while extra fine pure-bred goats will often shear 8 or 10 pounds, which is worth from 30 to 40 cents a pound on the market, according to the grade and care in handling the mohair. The skin of a high grade Angora has double the value of a sheep's pelt, because of the furs, rugs, and kid leather manufactured from them, while the skins of the lower grades sell at about the same price as pelts. The Angora does are not as good milkers as the Maltese and Swiss goats, but they give plenty for rearing their young. They are good, kind and watchful mothers, and will fight for their kids. They are a profitable animal in the feed lot; give them like conditions, and the same amount of grain, they will take on flesh very rapidly, and fatten in one-fourth less time than sheep. They respond very quickly to good care. At the final test of all domestic animals, "the butcher's block," the Angora goat is not found wanting. Their flesh in summer, while browsing, has a very delightful flavor between venison and mutton, which gives the name venison to their meat. Being a browser like the almost extinct deer, it is right that it should assume the name of its meat. In winter, when fattening on grain, it loses that flavor, but acquires a mutton flavor. It has none of that "wooly" taste of mutton which is so objectionable to many people. Thousands of them are killed in all our packing houses and sold as "well dressed mutton." Only an expert can tell the difference, as their carcasses appear the same when dressed and hanging in the meat market. They will dress out a larger per cent of meat than sheep, hence it is that much more valuable. Its meat is more juicy than mutton and a finer flavor. Then you know what you are eating is absolutely healthy, and free from diseases.

Thus we find a new and profitable animal for the farm which will thrive and fatten on that which curses the land. And it will take its place among the leading industries of the country.

Practical Experience With the Silo in Kansas.

M. S. BABCOCK, NORTONVILLE, KANS.

In our experience as a breeder and handler of cows, extending over a period of some thirty years or more, we have discovered but two lines of feeding by which we could depend on securing a profitable flow of milk in the half of the year that we are compelled to depend on feed other than grass for the maintenance of our cows.

The first of these is to provide a ration composed largely of concentrated feed in some form, which plan is usually expensive, first in cost and furthermore is not the best adapted for the promotion of health in our animals.

The stomach of the animal that has subsisted on grass for the most part, or entirely, for six months in the year becomes accustomed to manipulating a large bulk of feed, and the change to a diet composed largely of concentrated feed is likely to produce a more or less feverish condition in the animal system, subjecting the animal to the attacks of any of the many ills to which cowdom is subject, and at best greatly shortening their period of usefulness.

SUCCULENCE.

The only other line of feeding with which we are acquainted, that can be relied upon to produce a profitable flow of milk, is one composed of a ration in which some form of succulent feed is a predominating factor, and of these ensilage is the only one we have found to be practicable for the Kansas farmer.

Any one who has occasion to travel over any considerable portion of eastern Kansas at this time of the year, and observing the amount of shocked corn rapidly increasing from year to year, can not but be convinced that we are rapidly awakening to the fact that the practice of allowing 25 per cent or more of the most valuable crop we raise to go to waste, after going to the trouble and expense of growing, is, at the present

date, ruinously extravagant whatever may have been the reason or excuse for it in the past.

With land worth from \$40 to \$60 per acre, and every pound of butter fat we can produce worth 20 cents or more this must be very evident to any one who will give the subject a little study, and the object of this paper will be to call the attention of our fellow farmers to the merits of the silo in the solution of the question of the preservation of our corn crop.

THE SILO INDISPENSABLE.

After an experience covering a period of five or six years, we have come to the conclusion that the silo is indispensable to the dairyman who expects to make the greatest success of his business, and will endeavor in as few words as possible to give a few reasons for the faith that is in us.

First. Ensilage is the cheapest feed we can produce.

An acre of ordinary corn will produce 15 tons of ensilage equal in nutritive value to 6 tons of hay, and occupying less than one-third the space when stored, and costing less to store.

Cows can be made to produce from 60 to 80 per cent as much milk on ensilage and clover hay as on grass, displacing entirely with commercial feeds. We believe, however, that a moderate amount of ground feed can be used in connection with ensilage and hay, with profit.

ANIMALS NEVER TIRE OF ENSILAGE.

One of the strong points with ensilage is its palatability—stock seems never to tire of it.

I never saw but one animal cloyed on it, and she was out of condition before becoming cloyed on the ensilage.

We feed our cows a little more than they will eat twice a day, and keep hay by them all the time when out doors, and they are always ready to start for the manger filled with ensilage the moment the doors are opened, and the steers will run over a man if he don't get out of the way, to get to it, and there is practically no waste after taking off the six inches or a foot of spoiled ensilage on top of the silo.

All kinds of stock will eat it up clean if not fed more than they want. We take the refuse from the cows' mangers and give it either to the young stock or horses, and if by any chance any is thrown out on the ground the hogs pick it up.

CONVENIENCE.

Another strong point in favor of ensilage is convenience in handling; ensilage can be stored within a short distance of the mangers and feed troughs to last the entire herd the whole season, and all be protected from the inclement winter, which we sometimes have even in sunny Kansas.

That the silo has come to stay is amply demonstrated by the fact that in the old dairy districts its use is rapidly increasing, it being estimated by good authority that as many new silos have been built the past season as in any three years previous, and it is very seldom any one abandons the silo after once using it.

A DIFFICULTY.

On general principles Kansas has a decided advantage over the more northern dairy districts in the way of climate, but so far as the silo is concerned the difference in climate is against us, for the reason that we have to put up our ensilage earlier in the season while the weather is still hot and dry, and one of the most serious troubles we have to encounter has been to prevent the ensilage from drying out on top of the silo and thus spoiling to a considerable depth.

You are all aware that we sometimes have more or less weather in August and September when the atmosphere seems well adapted to take the moisture out of most anything it comes in contact with.

After a considerable tribulation along this line we have hit on a plan to prevent this, which we believe is going to be a success.

USE SALT.

We reasoned that salt with its property to attract moisture could hardly fail to be of some benefit on the top of the silo, and so this year after our silo was filled and well tramped, and wet down, we sprinkled on about a barrel of salt and believe we saved several times its cost in ensilage.

Although our consideration of this subject has been mainly along dairy lines we do not believe that the usefulness of the silo is confined to the dairy.

While our experience in feeding ensilage for steers has not been very ex-

TO CURE A COLD IN ONE DAY
Take Laxative Bromo Quinine Tablets. All druggists refund the money if it fails to cure. W. W. Grove's signature is on each box. 25 cents.

tensive, nor conducted with sufficient exact data to make them especially valuable, we are fully convinced that very many of our beef producers could use the silo in their operations with profit.

We have not only found it an easy matter to keep our calves and yearlings thriving right along through the winter with one feed of ensilage per day in addition to their roughness, but we also find that we can effect the change from grass to dry feed, and vice versa, with the use of the ensilage without any apparent check in their thrift, and if the position that we take that ensilage is one of the cheapest feeds we can produce be correct it must necessarily follow that it is an economical feed for the use of the beef producer as well as dairymen.

Believing as we do that the silo is in direct line of agricultural progress and having observed something of the intelligence and thrift of Kansas farmers we expect to see the silo following close on the track of the creameries and cheese factories, consequently we very cheerfully accepted the invitation of your secretary to contribute our mite in opening the discussion of this subject before this body.

The Farm Separator and Its Bearing on the Operation of Creameries in Kansas.

By GEORGE MORGAN, COUNCIL GROVE, KANS.

Through our experimental stations and the various educational agencies now at work we are learning much along the line of economy in milk production; the Kansas dairyman is beginning to realize the vast importance to him of an intelligent understanding of how to breed, feed and care for the dairy cow.

The economical handling and marketing of the milk product is of equal importance. The question as to how this product can be taken from the farm in Kansas and put in proper condition for the markets of the world at the least possible expense is a very important one and we can only wish that the subject were in better hands.

WE WANT THEIR MONEY.

The great consuming sections of this country want our dairy products; we want their money; how can we make the exchange? A large amount of capital is now invested in creameries and skimming stations, and under the present arrangements milk is being hauled to these plants, the butter-fat taken out and the skim-milk hauled back again. No matter what the condition of the roads may be or how severe the storm, the milk must go or a serious loss be sustained. The butter produced under this plan is usually first class, hence it is satisfactory to the buyer, but at the Kansas end there is in many localities much dissatisfaction with the arrangement. It is costing us too much to make the exchange, from one-third to one-fourth of the money received for the finished product must be charged up to the expense account; this is disastrous to the business, both from the patron's and the creameryman's standpoint and many are looking around for relief. The inventive genius of the American manufacturer has come to our assistance and placed on the market a wonderful little machine known as the hand separator.

PAST THE EXPERIMENTAL STAGE.

The value of the farm separator to the private dairyman has already passed the experimental stage. The evidence of our experimental station and the testimony of all who have made a careful, intelligent comparison between the gravity system and the modern cream separator is practically a unit in favor of the latter for the private dairyman. The question as to its advantages in localities where creameries are established is one upon which there is much difference of opinion. The most serious problem confronting the Kansas creameries at this time is operating expenses. This applies alike both to creamery and patron, whether under cooperative or proprietary management, it makes but little difference. All are vitally interested in the expense account. If the eastern creamery enjoys a patronage of from 10,000 to 30,000 pounds of milk per day, while many of our creameries are running along at from 3,000 to 5,000 pounds, then we have lost much of the advantage we possess on account of our cheaper dairy foods in the increased cost of operating. Evidently, as long as present conditions exist, some system of centralization is inevitable.

LITTLE LABOR, MUCH PROFIT.

The farm separator we think, will assist greatly in solving this problem. It means a minimum of labor with a maximum of profit. The product is carried in condensed form from the pa-

tron to the creamery. In our state, dairying is incidental to beef and pork productions. The conditions at times are peculiar and perplexing. The farmer has a way of putting the creamery on half rations, forgetting that few people appreciate a full dinner pail more than the Kansas creameryman. When his bank account goes up, the creamery account goes down. When times and crops are good, it is no uncommon thing to find him at milking time quietly sitting upon the fence with a complacent smile upon his countenance, as he watches the calf do the milking act, but when reverses come, the cow and the creamery are counted amongst his best friends. Where long large investments are made in skimming stations, and these spells strike the patrons, it often proves very disastrous to the management, as they feel compelled to keep running though the patronage has gone below any chance of profit. We feel safe in saying that fully one-third of the skimming stations in this state from October to May do not pay running expenses. It is in these localities where the farm separator will prove of the greatest benefit. If the patronage is light then the expense is correspondingly light. We place the average cost of a skimming station at \$1,000 and the average cost of operating at \$600 per annum. This, of course, will include interest, taxes, insurance, breakage, wear and tear, labor and fuel. A great many plants now running in Kansas do not average over 1,500 pounds of milk every other day during fall and winter. Forty cows at 20 pounds of milk per day per cow will produce 1,600 pounds of milk in two days. Here is an investment, then, of \$1,000 with \$50 per month expense to handle the milk of 40 cows.

SWEET SKIM-MILK.

At points where the patronage is liberal, any radical change would not be advisable. It will to a great extent work its own way. But at these weaker non-paying stations much good can be accomplished by the use of the farm separator, especially in outlying territory where the distance is too great to haul milk. True, to carry out this plan the farmer must now make an investment for which he is amply compensated in the increased value of the skim milk and the convenience of having it on the farm morning and evening to be fed while warm, sweet and fresh and in the best possible condition to be fed to the young animal. The milk patron often suffers a severe loss on account of his Sunday's milk during the heated term. He also loses again by feeding new milk to the calf for six or eight weeks on account of the danger incurred in feeding the creamery milk. Where milk is fed from the farm separator by careful management and the use of Kaffir-corn-meal, the calf can be put upon the skimmed milk at 15 days old. It has been our experience that the patrons with from 10 to 15 cows save enough in one year to pay for a \$100 machine.

CALF DOES THE WORK.

A dairyman of Lyon County, Kansas, put a farm separator in his cow barn where he was milking 60 cows. A tread power run by a calf was used. Objection was at first raised by the calf but as it got no breakfast until the work was done, it soon tumbled to the situation. Stanchions for the young calves were arranged at one end of the building, a gallon milk crock was placed in front of each calf. In a few minutes after the milk had been taken from the cow, it had been run through the separator and fed to the calf. The many advantages of such a plan must be apparent to all. Calf raising is now and will be for years to come an important factor in connection with dairying in Kansas. The danger of stunted calves has kept a good many people out of the dairy business in late years. The farm separator is doing much to solve this problem. It is also true that pasteurization of the skimmed milk by the creameries has been of great value in calf raising.

THE PROMOTER.

There is at this time within a radius of twenty miles of Council Grove five creameries and two skimming stations in operation at an expense of not less than \$500 per month. Three of these plants have been put in during the last eighteen months at \$4,000 each. This was the work of the promoter and was accomplished by fraud and the grossest misrepresentation. This entire territory covered by five creameries and two stations will not produce over 700 pounds of butter per day for the fall and winter months. The capital invested will not be less than \$20,000.

Under the farm separator system, one creamery and one butter-maker

PUBLIC SALE. 120 HEAD. ARMOUR - FUNKHOUSER. IMPORTED, AND AMERICAN HEREFORDS.

KANSAS CITY, FEB. 19 and 20

We shall offer a grand lot of bulls and cows from the best American and English families. The Riverside Hereford Cattle Co. will sell 10 head of the celebrated Shadelands with us.

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CRESCENT HERD OF POLAND-CHINAS

AT PUBLIC SALE!

TUESDAY, FEBRUARY 19, 1901,

At Farm, Ten Miles Southeast of Hutchinson, Kansas.

Thirty-two Bred Sows and Gilts; 40 Serviceable Boars; 40 Fall Pigs. Included in sale are GUY DARKNESS 18292, and PERFECTION CHIEF 24978. Up-to-date breeding. Good individuals. Catalogue ready. Send for it. It gives terms, breeding, how to send mail bids. Address

SAM W. HILL, Hutchinson, Kansas.

J. P. MCCORMICK, Auctioneer, Mt. Hope, Kans. T. H. FOLEY, Assisting, Hutchinson, Kans.

could handle the entire output, thus saving a large outlay in capital and operating expenses. The danger with the new system lies in maintaining the quality of our butter. The difficulty can be overcome by delivering the cream every day during the summer. By properly cooling the cream and thoroughly cleaning all utensils used about the cream, it can be delivered every other day in summer in good condition, but we know by experience that few will do this, and for safety, we would prefer every day delivery.

THE CREAMERY SHARK.

Kansas farmers and others interested in the dairy movement should keep a sharp outlook for the creamery shark, the fellow with a \$4,000 or \$5,000 proposition. The fact is we have plants enough now in operation in Kansas to handle all the butter that will likely be produced for several years to come. What we do need is patronage enough to run these plants up to their full capacity the year round, thus reducing cost of operating to the minimum. In localities where there is neither creamery or skimming station, we would put out the hand separator, make arrangements with some responsible creamery to buy the product delivered at the depot, where it can be shipped to any point desirable at a small expense. It may be well to say that at least four-fifths of the separators now in use in

Kansas are run by hand power. The tread power is not being used only in large dairies. The hand separator is another evolution along the line of improved methods in dairying. It is the final solution of the creamery problem in Kansas.

Conditions, Possibilities and Future of Southwestern Kansas.

F. R. FRENCH, LAKIN, KANS.

Your most excellent and worthy secretary hypnotized me some time last October, and in a rash moment I consented to prepare a paper to be read at this meeting. For some years I have been in the habit of dropping into his quarters and in a small way expressing my thoughts and experiences to a kindred spirit, and now he has kindly thrust me before a large audience. The secretary is thoroughly imbued with his work in blazing the way in the accumulation of cold facts and figures, of the resources and achievement of this great state, while I have been plodding along enjoying with you the fruits of his labors—mentally, at least.

Methods have assumed a new form, although conditions have changed but very little in southwestern Kansas, so far as seasons and rain-fall are concerned. We still lack abundant moisture as you people view it in this section, but our present method has brought success and is paving the way

for greater results when the country is more thickly settled by those who are willing to adopt the ways that have placed our farmers in a comfortable and comparatively independent condition. We have good grass and water, and I need not stop to call your attention to what Henry Clay and the lamented John J. Ingalls said about the former.

COME AND SEE.

We are not using it, and the beef steer is bringing good returns on our cheap lands, and his sister is producing more steers. It is a combination that is bringing gratifying results, and it is surprising that we were so long in finding out our superior advantages. Centuries ago a wise man propounded the question, "Can any good thing come out of Nazareth?" and the reply was "Come and see." The same query has frequently been put to me about the west third of the state during the last few years, and I am glad to be called to answer in the affirmative. You probably have no especial desire to "come and see" western Kansas, but in order that no portion may be neglected and that the thousands who may will come to see the fairest portion of the Sunflower State, your secretary requested me to outline to some extent the possibilities and future of southwest Kansas, after my fifteen years of observation.

I am not, strictly speaking, an agriculturist, farmer, or stock-raiser, although I claim to have a weakness, if you may call it such, for the three great branches of this excellent calling. The father of our country—the noble George Washington—you will remember, said, "Agriculture is the most healthful, the most useful, and the noblest employment of man," and when I first read that, in my boyhood days, and coupled it with the sage remark of the other agriculturist, Horace Greeley, "Go West, young man," I resolved that some day I would test the truth of the first, and obey the injunction of the second wise philosopher.

I came West, and for fifteen years have from the same point of observation in southwestern Kansas, been growing stronger in the belief that our first President was entitled to my highest regard for his truthful saying, and that Horace Greeley's memory would be kept green in my recollection for his blunt utterance.

THE PROGRESS.

I am not unmindful of the fact that you all know western Kansas, to some extent, but you have not had the opportunity to note daily the progress of the country, the results achieved, and the more than probability of its rising greatness as a stock-raising, fruit-growing, and agricultural country. I am a plain and matter-of-fact observer, and do not want to take your time with glittering generalities, but simply furnish reliable information of what has been done by those who are there, and can be done by others who will join us under favorable conditions.

DECEIVED.

The drawbacks and unforeseen difficulties were many for the first ten years. We were deceived by favorable rains and unusual crops in the first year or two, and we went to farming as they do east of us. But these delusive ideas have passed away, and only advantages which we have practically demonstrated are good need occupy our attention, and in order to show you clearly, I have a few object lessons to hold up before you in this paper, of results, both under irrigation and without irrigation, which will be sufficient to convey to your minds the actual conditions which enable me to predict with certainty greater results in the west third of the state during the next few years. Cheap lands, whether taken from the Government, or bought from individuals, can now be secured, but prices are advancing, population is increasing, and the free land and low prices are gradually disappearing.

ROOM.

We have in Kearney County two distinct methods of farming—the first by irrigation, by means of water from our large irrigation canals whose source of supply is the Arkansas River, and the second is without irrigation. It may seem strange, yet it is a fact, that without irrigation a large number of farmers are making more clear money and doing it easier with less work and less expenses than the brethren who think they are the more favorably situated. It may not always be, but it is a fact clearly demonstrated to-day. Outside of irrigation the stock-grower has a "short grass" range with no expense for water. He raises cattle, horses and mules. He tills the ground for fodder crops, such as Kaffir-corn, Jerusalem and the lesser sorghums, and has little

expenses to provide feed for the winter. His cows, poultry and hogs furnish sufficient meat, reduce living expenses to a minimum, and an occasional crop of wheat, rye, millet, Indian corn, and broom-corn gives him advantages over the farmer who has to buy water. Consequently, I am prepared to assert that from Dodge City to the state line and north to the Missouri Pacific the same conditions exist and will apply, and the same results be achieved. This large scope of country embraces about fourteen counties, and in each county there are to be found some local advantages, of which I have not time to speak at present. Sufficient to say, however, that the land is of the same character generally, and opportunities for the location of an increased population are waiting for the coming of the thrifty emigrant, and none need be disappointed in locating in this particular section. In each county there is more or less Government land to be acquired by homestead. Tax sale certificate may be taken on large tracts of land and other lands may be purchased from loan companies and individuals. The pioneers were driven out by Indians and grasshoppers in 1874, the farmers under the boom excitement went the same route, owing largely to hot winds and lack of knowledge of the country, but now the third and permanent settler, as has been the history of other sections, is coming with capital to reap the advantages the others lost. Under the present state of affairs, the population of these counties can increase several thousand to each county without disturbing the present favorable conditions, and with a population of from 3,000 to 7,000 in each county in the southwest, we may confidently look for gratifying results. Cattle can be subsisted and cared for at from \$4 to \$5 per head annually, and whether fed by the owner or by contract, there is profit for both owner and feeder. It will not do to say that these opportunities are limited, because it can and will be done in all the territory of which I speak. Southwestern Kansas will be the supply depot for young cattle grown on cheap lands with cheap grass, along with mules, horses and hogs for eastern Kansas and Missouri stock-feeders. Your buyers here in the East are learning that fact, and our farmers find that they have simply to grow the stock and the buyers are on the ground to take all they can get at good prices. Another feature of stock-raising is that our grass and range and the healthfulness of the climate is attracting more closely the breeders of horses, and they are shipping large numbers of brood mares into the country to establish ranches, and some day it will be a common remark in referring to horse flesh to say she was "bred in western Kansas," and my favorite animal, the mule, will also be similarly referred to. There are some large and special advantages in western Kansas, west of Dodge City, that can not be overlooked as you go west over the Santa Fe railroad. I refer, of course, to irrigation, and that beautiful, bountiful and beneficial crop called alfalfa. The farmer under irrigation has his alfalfa—four good crops were harvested this year—which is an inexhaustible bank account, and like your wheat in eastern Kansas, produces a phenomenal seed crop that brings rapid gain. Then he has his horticultural opportunities with advantages for general agriculture if he desires to pursue them. As a side line he fills his pond with fish, has an ideal country and a continual bloom of alfalfa for his bees, and it requires no great stretch of the imagination to say that the immediate Arkansas Valley is a land flowing with milk and honey, and the possibilities of its growth and support of a large population can be easily discerned. The frugal and energetic German, the industrious Irishman, and the quick and progressive American farmers will combine their efforts to overcome any dis-

CLOSING-OUT SHORTHORNS, AND POLAND-CHINAS....

WEDNESDAY AND THURSDAY,
FEBRUARY 13 and 14.
SHENANDOAH, IOWA.

To Breeders and Farmers:

In announcing our closing-out sales of high class Short-horn breeding cattle and Poland-China swine we may state as the sole reason that of advanced years on the part of one and ill health in family of the other. This is our first public sale; all our surplus stock has found a ready private sale.

There are about 75 head of cattle and about the same number of hogs—separate catalogues. Fifteen daughters of imported True Briton in the sale. All cows and heifers of breeding age safe in calf or with calf at foot. The fine Cruickshank bull Scotchman 137020 in service. Both Scotchman and imported True Briton are included in sale, together with a fine string of younger bulls. Catalogues sent to all who ask. Sale takes place at farm, two miles from town. Stop at Delmonico Hotel as our guests. Free conveyance to farm.

Get Catalogue of our fine offering of bred Poland-China sows.

D. M. PRIEST, F. J. MOFFITT,
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PUBLIC SALE!

56--REGISTERED GALLOWAY CATTLE--56

At Kansas City Stock Yards New Sale Pavilion, Thursday, February 14, 1901.

The offering will consist of the entire herd of S. M. Winslow, Oskaloosa, Mo., headed by the prize-winning herd bull, Basanio 6441. In this division there will be 20 Crusader cows; all extra good ones Phil Grace, of Rose Hill, Iowa, will offer 8 bulls, the choice of his last year's crop, and H. H. Harris Jr., Marshall, Mo., 3 bulls, sired by the champion bull, King Hensol. Sale will begin at 10 o'clock a. m.

FOR CATALOGUES, FRANK B. HEARNE, Manager, Independence, Mo.
ADDRESS....

AUCTIONEERS: COL. J. W. SPARKS, and COL. W. A. WHITE.

advantages that now seem to prevail and show to the world that we have an El Dorado that will surpass the diamond fields of South Africa. Now allow me to present a few object lessons to illustrate my assertions, statements of men who have overcome difficulties and made successes. In reply to my questions, Mr. Whinrey, an old soldier who lives ten miles north of Hartland, in my county, said: "I came here in very moderate circumstances but now with one hundred head of cattle and a place well improved, I can freely recommend people of average means to locate here and make money and build homes easier than in any other section that I know of. I had to learn by experience, and before I did so I lost fully as many cattle as I now have. I have raised every year, without irrigation, rough feed in abundance for my cattle, and I now have easy sailing in a business way whether cattle are high or low. We have room for more, who can do better than I have done with sufficient capital to start with. We are making more money with less work than any section I know of." How did he make it? Not being a strong man physically, knowing little of farming practically, he naturally became a cow man after he discovered that the rain-fall was insufficient to produce diversified crops, and drought and hot winds drove him to the alternative of doing something or leaving the country. G. C. Dulehohn is another pioneer of the plains region, who year after year continues to raise wheat, corn, and follows to some extent general farming; but after numerous failures in grain planting he began to keep an eye on the calf crop, and has a bunch of 100 cattle and 320 acres of fine unincumbered land. He came to Kearney County in very moderate circumstances and followed day labor and teaming for a time, but is now well settled and satisfied in his comfortable home.

SHEEP AND CATTLE.

Robert Wilson is a leading flock master in the north part of our county, and with his son has been giving close attention to sheep and cattle, with a little general farming on the side. He came to Kearney County with an abundance of capital, spent \$3,000 to \$4,000 to get ready to farm and went to raising corn, oats and wheat, and when the hot winds and dry weather assailed him, found he was a heavy loser. His brother located beside him and built a fine house, made similar improvements and lost. The brother is now in Indiana, while the one who remains has snatched victory from defeat and fully recovered his losses. His flock of 1,500 sheep, with 400 choice lambs this season and 6,000 pounds of wool, with a bunch of 50 head of good cattle, has enabled him to find a pleasant way out of difficulty, and this year with a wheat crop of ten bushels to the acre, he can look back with pleasant and comfortable satisfaction, and substantial wealth will be the result of his labor within the next few years. With his experience he thinks that the dry land farmer will realize the greatest profit and make more money on the same amount of capital than the farmer under irrigation. My personal knowledge of these statements enables me to substantiate all. Mr. Whittaker is another bright example of what has been done on dry land. Fourteen years ago he lived in Lakin and was doing work by the day. He had two cows and a team, not to say anything about an industrious wife. He filed on a claim, but not being fixed for farming, having only about \$100 in money, he hesitated about making a settlement on his homestead 20 miles north of town. The good wife may have encouraged him to try it. He has made a good living from that day to this, and a few days ago I asked him for results. He said, "I have a half-section of unincumbered land, \$1,500 worth of improved cattle, comfortable home and buildings, and money in the bank." He was just delivering a dressed hog to the butcher fattened on corn raised on his place, and had 50 pounds of butter to deliver to his patrons. He says men with from \$1,200 to \$2,000 capital can do much better in a short space of time.

THE LAND OF IRRIGATION.

These illustrations will represent the possibilities of a location in the western third of the state. Now let me take you to the land of irrigation in the upper Arkansas Valley. Henry Entz, one of our pushing, energetic Germans, in a ten years' residence, with a capital of \$2,000, homesteaded Government land, and fought the drying winds and scant rain-fall for several years until his capital was almost gone. He changed his plans, came down into the valley with only \$200 left, and bought an unimproved 160 acres under irriga-

tion, for which he paid \$1,000. To-day, after eight years' hard work, he says \$10,000 could not buy it. Besides a well-equipped farm, he has 130 head of cattle, and for the past three years he has sold \$800, \$1,000 and \$1,200 worth of peaches from the place. His alfalfa seed crop this season is nearly 200 bushels, and the price ranges above \$4 in the local market. As an intelligent farmer should, he keeps an itemized account of his receipts and expenses and offered to show me his books if I desired to see them. He says that an industrious farmer with \$2,000 in capital can do better than he has done, because he will start with the experience of those who are now settled in the country, and have no wish to sell out. You will notice that he commenced on the so-called dry land with good capital (\$2,000) and made a failure. He did not realize at that time that his first location was adapted to other methods; that sheep and cattle, with the sorghums, Kaffir-corn and Jerusalem-corn would enable him to overcome the discouraging results of the first few years. His capital was small to think of such effort. He decided rapidly on the necessities and acted promptly. He is a horticulturist and a farmer, and knowing the value of the soil and the wonderful results of water when applied generously to crops, and the great feeding qualities of alfalfa, he has made this remarkable success. This man left the dry land for irrigation and his work shows what can be done by others equally well equipped. As a rule we think that men with only one arm, and widows left with children to care for and a mortgage to lift are at a great disadvantage in the race for a livelihood, but I could give additional pictures of a one-armed citizen who, a few weeks since, sold his cattle and ranch for \$10,000, representing his labors for the past twelve years. Also a charming widow who, with indomitable Yankee pluck, lifted a big mortgage and placed herself where she will be able to give her children the best of educations and leave them a well improved and valuable farm. These facts represent the advantages and give a fair idea of the possibilities. With a climate that is exceedingly mild and healthful, with a soil rich in food-stuffs for the growing of crops, we can truly say that southwestern Kansas has a bright future whose advantages outnumber her disadvantages at a ratio of 16 to 1. Western Kansas has done much for the advancement of eastern Kansas in bringing to the attention of the farmers and feeders new crops that were unknown in the East until their value was first ascertained in the western third of the state. As a passing note let me call your attention to alfalfa; it first found its home under irrigation and for a long time it was thought that it could not be grown except by such methods, but we find that the farmers of one of your big corn

counties, Jewell, have recognized its value, and many others are doing likewise. The same is true of the Kaffir-corn and Jerusalem corn. From necessity, we had to seek for a substitute for Indian corn and now the central part as well as the entire state is growing Kaffir-corn as a valuable adjunct to your Indian corn crop. Ten years ago Kaffir-corn was almost unknown east of Dodge City, and as late as 1893 only 50,000 acres were reported in the whole state. Now the acreage is more than 500,000 and will continue to grow as its value becomes better known. So I ask that when you speak of western Kansas, remember that we have done much to assist you in your success, and we ask your assistance in helping us to further develop our work in irrigation and subduing that portion of the arid belt of our magnificent state. Need I tell you more of the possibilities of southwestern Kansas? With the population we now have the illustrations I have given you are conclusive evidence of a future growth. We are in the same condition as was the small boy sitting on the banks of the creek with a string of fish to prove the results of his efforts. The next boy who comes along does not wander up and down the stream looking for a better place, but drops his hook beside the successful boy. This is the condition of affairs in southwest Kansas to-day. They are coming one by one, dropping in quietly to good locations and are being welcomed by those who are already there, willing to aid them by the experience and knowledge which they have mastered through years of discouragement and tribulation. With ten to fifteen farmers located in each congressional township, with moderate capital, they will have ample room for grazing and farming, school facilities and church privileges abound, and success will follow industrious effort. If you should ask what we most stand in need of, I should say a cheap, reliable and easy means of lifting large quantities of water to the surface. We pump water by wind-mills from 12 to 200 feet, but can not lift a sufficient quantity to irrigate more than a few trees, garden vegetables, and the like, and furnish water for stock. Before another decade shall have passed, this seeming obstacle will have been overcome, for it seems impossible to conceive of a country with a soil unsurpassed, with an inexhaustible supply of water beneath it, but that some day in the very near future, inventive genius will come to our assistance and the problem of the desert being made to blossom as the rose will be speedily solved. When that is accomplished, the stone that the builders rejected as only fit for buffalo grass and cattle will become the head of the corner, with a teeming population of prosperous, happy and contented people.

Personals.

Mrs. E. P. Green has recovered from an attack of the grip at Canaseraga, N. Y., by the use of Dr. Miles' Pain Pills.

Among the victims of the grip epidemic now so prevalent, F. Coyle is now recovering at Canton, Ohio, by the use of Dr. Miles' Nervine and Pills.

W. E. Nihells, of St. Louis, Mo., who was down with grip, is reported much improved. He used Dr. Miles' Nervine and Pills.

The friends of Mrs. L. Denison will be pleased to learn of her recovery from grip, at her home in Bay City, Mich., through the use of Dr. Miles' Nervine and Pills.

Everybody says that J. W. Udy is looking splendid since his recovery from the grip at his home in Des Moines, Iowa. They all know that Dr. Miles' Nervine was what cured him.

Prosecuting Attorney, Charles L. Dewaele, who has passed the three-score mile stone, had a time with the grip; but when seen at him home in Roscommon, Mich., the other day, he said Dr. Miles' Nervine was what cured him.

At nearly three score and ten Mrs. Galen Humphrey was fighting against odds when the grip attacked her; but she took Dr. Miles' Nervine, and now her neighbors in Wareham, Mass., remark on how well she is looking.

After an illness of five weeks from the grip, Mrs. Harriett Jackson is again about and looking fine. She began taking Dr. Miles' Nervine after the fourth week. Her home is in Bowling Green, Mo.

The Practical Side of Kansas Horse Breeding.

T. H. TERRY, BAVARIA, KANS.

While every one must admit that raising good horses does pay and always has paid well in Kansas since breeders have learned that it takes care and education along this line to make it a success, the only question is, what does the market require?

We must all admit that to do anything and make a success, we must first know what we want, then study the best way and means to do this, and this can only be done by long and tireless work. At any other business before a man is considered competent to handle it and make a success of it he must first serve a long apprenticeship and study how to become perfect. But in horse-breeding many think they know all about the subject without this loss of time and the result is many failures.

ANY KIND OF HORSE.

We all remember only a few years ago any kind of a horse sold for good prices, and some of us also remember, (to our sorrow), that since that time only the very best sold for enough to pay for raising them. We must look for the reason of this, and the reason is plain. At the time when horses brought good prices every mare was bred without any regard to her age, condition or what her chances were for raising a good horse. Many good sires both imported and American bred, were shipped to the western range and turned loose and left with their offspring to rustle for themselves. The result can easily be seen, while many such mares produced good, fair horses and many more would have done so if given proper care and attention. Many were turned loose and given no further care and were expected to raise satisfactory horses without grain or shelter, and many without the friendly straw

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stack to get behind out of the storm. The result of this promiscuous breeding with only one end in view (to get horses) depressed the horse business until nearly all thought the horse market would never raise again to justify anyone to raise more than enough for their own use. Those men who did this promiscuous breeding are willing and ready to swear that horse-breeding can not be made a success. Others predicted that steam and electricity would drive horse off the earth for every one except the farmer, and some went so far as to say even the farmer would soon use steam for his work, and that we would not need one-fourth the horses to do our work, even here in Kansas. During the time this craze was going over Kansas many good sires that cost large sums of money were destroyed or used as work stock, and breeders went so far to the extreme the other way. At this time the result of the promiscuous breeding was thrown upon the market and sold for what they would bring, and this was usually very little.

But a change has come over the business of horse-breeding, and we again see the farmers looking for good sires and are breeding all the mares they have, and others, usually good level-headed men, are paying such prices as were paid in our county (\$3,000) for a

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3-year-old untried sire in the fall of 1900.

THE BREEDER WHO KNEW.

The prospects are that sometime in the distant future the market may be overdone as before, but it will be many years, as very few men will pay big prices for imported sires, as they did in the '80's, when they invested millions of dollars in promiscuous breeding. But the breeder who had an idea what he wanted and went into the business of breeding and taking care of the stock and raising what the market demanded, and put them in good saleable condition, made a success, and while he did not get as big prices as formerly, did well.

To the breeder of to-day, who will make up his mind what the market wants and will work with that end in view, and will get the best mares he can afford, and use the best sires he can get, he will succeed in raising either light or draft horses.

THE BUYER.

After a breeder has made up his mind what he expects to do, and after looking over his mares, then he should look for the best sire he can find (as the best is none too good), and breed for one purpose, and try and get his stock uniform, so that when the buyer comes to see the matured horses he can mate them up. And this reminds me of a story told me by one of the largest buyers in central Kansas. He said he was in a country town one day and a large farmer came to see him and asked him if he wanted to buy horses. He told him he did, and asked him what he had. He said he had all kinds. The buyer went out to see them, and he said the farmer told the truth, as he had 45 head and they were all kinds. Out of the 45 head he found only 2 he could use. The balance were not marketable stock and would not match up. Now this man made a failure of the horse business. He bred to a sire because he was handy or cheap. In the same county was another farmer who had some horses to sell, and he also saw the same buyer and asked him to come out and see his stock, saying he had 30 head of high grade Percheron horses. The buyer went out and bought from him nearly one car of good, fat marketable horses. This man made a success of the horse business, for he had an object in view, and bred to the best all the time. The buyer could afford to pay him more for the stock, as he did not have to run over the country, and his stock was fat and ready for market.

NO SIRE TOO GOOD.

One thing I wish to impress on the mind of the farmer breeder who depends on others to furnish sires. No sire is too good for your mares, and when you get a good sire that throws good, uniform colts, stay by him, and do not leave him because some smooth talker comes in with a new one and says he is the best in the world and is fat and looks well and the owner says he is the best ever imported. Use full blooded horses if possible, as by doing this you are more sure of getting a uniform class of horses, but it is not necessary to get an imported horse to get a good one. When you are getting something good from a sire, stay with him.

Now about a year ago I was attending a sale, and among others sold was a large Percheron sire, and when the horse was brought into the sale ring the owner made the following statement in public, "that there were not two car loads of matured horses from him in the country." Now this I thought strange, as I knew the horse had been a successful breeder and he had had him eight or ten years in the county, so I asked him if this was the truth, why it was. He said the colts all made good salable horses and the buyers gave more for them than the owners thought them worth, so they were sold and shipped out of the country.

Another illustration of this. In our own county there is, or has been, four other sires that have made a large number of seasons in this county and all were great breeders, yet to-day you will find very few matured horses from them as the buyers watch and as fast as they are old enough they are bought and shipped to market. While this is a

poor way to improve the stock as the best should be kept, it is a fact.

CARE OF THE DAM.

After the breeder has bred his mare, reason and good common sense will tell him he should give her reasonable care. This does not mean he should get her extra fat or let her be idle, but should try and keep her strong and healthy, as the condition of the dam controls her offspring. Good steady work and plenty of feed keeps her in the best condition. If he be a wheat farmer and has wheat to run on during the fall and winter, she will need little grain and except in bad weather no stable room but a good shed to get behind during the night and a good stable in case of a storm. I find mares kept in this way throw a larger per cent of live, healthy foals than under any other treatment they can receive. But if this is not at hand and they have no green feed, they should be given some soft feed, and I find bran or a few feeds of alfalfa very good for this purpose. Too much care can not be taken to keep them in good condition during the winter. A dam in poor condition can not give a good offspring.

About six weeks before foaling time they should be watched more closely, as they are more inclined to have bowel trouble, and a little care at this time may save more trouble in the future. As the time gets nearer she should be put in a secure place and more attention given her, as by this many colts are saved and many are lost that could have been saved by proper care.

AFTER FOALING.

After the colt is foaled, too great care can not be taken for a few days, and it should be watched to see that the bowels are in good condition. More colts are lost from constipation early in the spring than from all other causes combined, but by reasonable attention this can be avoided in most cases.

The mare should be allowed complete rest for eight or ten days, and after that put at work gradually, and I find that the breeder who leaves the young colt at home when at work in the field has the best success, as I believe there is a large per cent of colts damaged by following the mare during the hot weather, while if left at home with some light feed where it can get at it to eat, and plenty of good water the colt will be in better condition than if allowed to run with the mare during the day.

AT WEANING TIME.

The time to wean the colt is a matter that must be left to the judgment of the breeder, as some colts are better weaned at four months than others at six months, but too much care can not be taken at this time, both of the colt and dam, and colt should have plenty of good soft feed and plenty of exercise, as this is the most trying time of its life, and it should always be kept growing, winter and summer.

When the colt, if a male, gets old enough to geld, the breeder should allow none but experienced men to attend to this, for while almost any one can do it, yet many that would be good horses are ruined by improper work.

Before closing this, I feel that a word to those who handle the sires will not be out of place, for while many think that the best sire is the one that carries the most fat and shows up the best, others who have taken care to post themselves know this is often a mistake.

FEED AND CARE OF THE SIRE.

I will give my experience, and my horses have proved that my theories, while they are not perfect, are good.

I usually have a small piece of cane near my barn and about July 1, I commence feeding this gradually and keep increasing the feed of cane and cut down the feed of grain, until I feed them all the green cane they can eat and very little grain. This cane I feed until frost kills it, and during the hot weather they have very little grain. As soon as the cane is killed I commence feeding more grain, and by this time I have them back to a normal condition, and the hot grain out of them, and they are now ready to commence to build up a gain for the next year's work.

I do not feed much grain during the winter, and try to give them a change. A little cane, hay, straw, and alfalfa during the winter, with one end in view, to keep them healthy and in good condition, and with little grain and change of feed and a small lot to exercise in, I have succeeded well for many years.

About February 1, I commence feeding more grain and keep increasing until they have all the grain they will eat by April 1. After March 1, they are traveled 3 to 10 miles each day for draft horses, while the trotting horse

gets more. So that by April 1, they are in prime condition and a drive of from 6 to 10 miles per day only keeps them in a better condition, and I have no trouble in the falling or losing flesh during the season, and I find my horses give better satisfaction than those kept in show condition.

The Hog, from Birth to Sale.

JOHN COWNIE, DES MOINES, IOWA.

(Stenographic Report.)

When I accepted the very kind invitation of your secretary to be present at this meeting, and address the farmers of Kansas on a subject somewhat pertinent to agriculture, I didn't anticipate that I would be called on to prepare a paper. But the secretary wrote me after I had accepted his invitation that I would be expected to prepare a paper, and it would be published in the proceedings of your board. While I appreciate that honor very much, I am sorry to confess that I have been too busy to prepare a paper, so I propose to talk to you for a short time this afternoon on the hog, from birth to sale. Given the time to prepare a paper, it might have been somewhat more finished, but I don't know that it would be any more edifying, and, while I may not give due attention, in what I may say, to all the points that you would like to have discussed, I will be pleased to answer any questions that you choose to propound, and, in the nature of a preliminary, as I am a stranger here among you, and that you may not think I am a theorist, I desire to say a few words before I begin the subject proper.

FORTY YEARS WITH THE HOG.

It is now over forty years since I embarked in the swine business. I was a young man then; had settled with my parents in Iowa, and by helping my neighbors to thresh, I had earned the magnificent sum of \$2.50. That, forty years ago, was a large sum. We didn't have any National Banks then, or I might have been tempted to start a National Bank, with myself as president, but instead of that I invested in swine, and from that day to this, I have never been without hogs. Hogs were scarce in Iowa forty years ago. Where we had settled I knew of only one man who owned a hog. He had brought an old sow with him from Indiana, turned it out in the woods, and I walked five miles to where he lived in a log cabin and stated that I wanted to invest \$2.50 in hogs. He knew me; four or five miles was nothing. I knew people thirty and forty miles away. Now we don't speak to our neighbors next door (laughter). Well, he says, "Johnnie, I will let you have a pair for \$1.25 apiece." That was the size of my pile. "But you will have to catch them yourself." I caught two. I had about as hard a job as I had to earn that \$2.50. I carried them home on my back in a sack, five miles, and started in the hog industry. Do you remember those days when we used to butcher? All the

neighbors for fifteen miles around would come and help butcher. We didn't sell the hogs alive then. We butchered them. My stock was butchered, and I took them to market. The price then wasn't very high; not as high as it is now. I have heard a great many people complain of the price of hogs within the last forty years, and I have never known them to be as low as they were at that time; \$2 per hundred if they dressed over 200 pounds, \$1.75 if below that. Mine were the \$1.75 kind. The merchant to whom I sold them, when I brought them into town, took one of them up, twisted the tail around his finger, held it up, and says "Johnnie, what do you call that, anyway?" I says, "It is a hog." He says, "I took it for a coyote." Those were "English bacon" hogs. But I got away from that style of hog. We had the Poland-China, the Berkshire, and



HONORABLE THOMAS B. REED

Has a most interesting article in this week's (Feb. 9) number of **THE SATURDAY EVENING POST** OF PHILADELPHIA

In which he treats of the declining influence of certain forms of public speaking, and its greater influence in other directions. Political, pulpit and after-dinner speaking are ably discussed.

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several other breeds. I started with Poland-Chinas, and I remember years after that first experience, that I stood in the Chicago market and had the proud satisfaction of selling four carloads of hogs of my own raising, every one of them and received for them \$5,375. I had the proud satisfaction of reading in the Chicago papers, that several of the commission men who saw those hogs, pronounced them the finest lot that ever crossed the scales in the Union Stock yards at Chicago. I don't say this in the spirit of egotism, but I have prefaced my remarks to the hog with this statement, in order that you may know that what I am to say in regard to this animal is not theory, but is personal experience, at close range; sometimes a little too close to be comfortable. I remember that, after I received that check, I had intended, as was my wont, to stay over night at Chicago. Prices had advanced; there was a boom in the market, and I had received far more than I had expected when I left home. Well, I took the first train for home. I had left a partner out on the farm who had helped me all through those years, and I had no peace until I could get home and show her that check for that \$5,375. It was a big pile for me to make at that time, and when that check was cashed there was not a mortgage left on the house, and there has not been one on it since, so you see I owe to the hog the greater part of my worldly possessions. That wasn't the only time I made good sales of hogs. For twenty years my average sales aggregated over three thousand dollars. When the children grew up and had to be sent away to school, and when the wheat crop failed, as it does with us in Iowa, my main reliance to foot the bills was the hog, and he never yet failed me. When the oldest boys graduated and had to be started in business, the hog was the one that I depended upon to furnish the means to start them, and give them what I didn't get in starting in business. You will then excuse me if I do say that I think a good deal of the hog. The hog and I are personal friends. We like each other. For that reason, I wish to speak to you plainly in regard to breeding and feeding hogs in the manner that has been most profitable to me. I am frank to confess to you men of Kansas, that I have been engaged in the hog industry for the average human life time; and that I have been in the hog industry for one object, and one aim, and that was to make money. There was no sentiment in it at all. I went into the business to make money, and I have made it, and out of the hog. I am not ashamed to say it. I have stayed in the hog business because there was money in it.

THE HOG HOUSE.

The first requirement in the hog industry is a good hog house. You can't get along without that. In the old times we had them gathered around the straw stacks, lying around fence corners, and sometimes quite successfully. But there is too much risk from loss, unless you have proper shelter for both brood sows and young hogs. They must have protection, and so I say that the first requirement is a good hog house. I know a great many will say you can't afford it, it takes too much money. I say you can't afford to be without it. You must have a good house. If you are to make a success you must have the means at hand that will insure it. I have in my pocket here a sketch of a hog house that I have myself. I have seen a good many of them, and I think it is an ideal hog house. The lower part of the sketch is the foundation, and the lower part of it shows the cross section, and the end of it. I think it is probably too small for you to see it. Here is one showing the internal arrangement on each side of the alley. This would make an excellent hog house. I have this alley running down the center. I would have the alley forty feet wide, with pens on each side six or eight feet, and a window to each pen. No outside door, but I would have a door as shown opening into each pen from the alley, and a window to allow light and ventilation for the hogs, at all seasons of the year. I would set the hog house north and south so that morning sun would strike one side, and the afternoon sun the other, so that during the day when the sun was shining every pen would be warmed and lighted and lit up with the sun light, every corner of it. Have a

gate to each pen. That is important. When I first built a hog house, I had it all built with movable partitions, my belief at that time being that the hogs had to be all together for fattening purposes, and I put in partitions for farrowing time. There is no objection to partitions, whether the apartments be large or small. If divided into pens the hogs will never pile in one place and smother each other. Pens are absolutely necessary for farrowing time. Suppose you had an alley here, as long as you please. Your sows, after being bred, are allowed full access to this building. You remember—go back in memory—I know a number of you have had the same experience I have had. You remember you tried to raise hogs without any buildings; be out in the field working in the spring; come up to the house and find that the sow is going to farrow; no place to put her; you improvise some pen, hay ladder, wagon-box or something. You try to get the sow to go in. She won't. You start after her. You can't get her in. You call the hired man; you call Bill and Charley and Mary to help get her in. You can't get her in; you call mother. Mother comes with a broom, and of course you get her in then. The next morning you have a fine litter of pigs—but they are dead. All this can be obviated by having the house that I have described. Have your house clean; a light bed of good clean straw. You see a sow preparing to farrow; gathering straw, selecting a pen for herself. Stand around a little while until she gathers up the straw and goes into a pen. Go up and close the gate, and she is there. No running, no chasing; got her right there; she has her own nest made and there is no trouble whatever.

THE PASTURE.

Another important thing is the pasture. I am aware that conditions are different in Kansas from what they are in Iowa. Perhaps in the western part of the state you may not be able to maintain a good pasture, but if you are to make a success of hog raising you must have range. I have one pasture, hog tight, forty acres, which is close to a hog house. You should have two or three pastures, and, after putting one in pasture five or six years, turn it to corn. Don't have too small a pasture five or six acres. They will root, and then you will have to put rings in their snouts. I don't like to do that. Give them a large field, and there will be practically no rooting. Confine a hog, and he will start around in the morning. In the summer the hog gets up about four o'clock, and starts around the fence to see if there is an opening. If there is he will find it, but if he makes a start and goes around, and there is no opening he starts to root, if the enclosure is small, but if you put him in a forty-acre pasture, and he starts around, it will take him a mile, and he gets tired about ten o'clock and lies down, or goes to feeding. Give him an eighty-acre tract and it is good pasture all the time.

THE BREED.

It is not my intention to say anything about the breed of swine. All the leading breeds are good enough for me. I care not what breed you select. However, I know that up in Iowa we have been breeding our hogs too fine. We began with the very roughest class of animals. Those that I purchased ran almost wild in the woods of Iowa, in the bottoms of the Iowa River. Great, coarse, long-eared, long fore-headed fellows. I remember the time that I caught that first one. I got hold of him by the ear. His nose was so long that his ears were just about the middle of his body. We have bred that snout away. I urge farmers to select find-blooded animals to breed with, but I would say: make your sows somewhat coarse. If you want a fine animal to cross, select a well-bred male. One mistake made by farmers is in purchasing a single male animal. If I had but half a dozen sows, I would never think of purchasing less than two males; something might happen, so that, if something happens to one you will have one to fall back on.

FARROWING.

Another thing: Have your pigs come about the same time—within a week or two—so that they will all be of one age and one size. That is one great secret in successful swine raising. It will save a great deal of difficulty at farrowing time. I used to have a great deal of trouble at that time, in losing sows. I remember one year I lost 15 sows that could not give birth to their pigs. You have all no doubt had trouble of that kind. I have lost some valuable sows, finely bred, because they could not give birth to their pigs. At that time I didn't know what was the matter. Now

I know all about it. That may be saying a good deal. But I never lose a sow now in farrowing, not one. There is no grain produced that is more fat producing than corn. We fed our young hogs altogether too much corn. The reason that these sows died, was that they had been fed too much corn, and their pigs were too large and fat, and they could not give birth to them. I had fed corn, as my neighbors had done. Now I scarcely feed an ear to my brood sows. They are not fed a great deal, and I never have any trouble in farrowing; haven't lost a sow for a dozen years. I feed a sow to make bone and muscle. I am not feeding the sows then; I am feeding the embryo pig, and what I want in that pig is bone and muscle. I remember once I had fifty sows farrow in two weeks; had as fine a lot of pigs as I ever raised. I was proud of those hogs.

THE PIG AND ITS MOTHER.


You see I lived in a neighborhood where there was a great deal of rivalry, as to who would raise the finest hogs; who had the fattest cattle; or who got the biggest price in the Chicago market; used to make up a train all together, and go on a high time down there. This time I felt sure my hogs would outstrip all of them, coming so close together, all at once, from three to five hundred at once, and I started in to feed those sows corn-meal, oil-meal by the car-load, bran shorts. I fed those sows three times a day regularly, all they could eat, and perhaps I ought not to say it, but I want to tell you my failures as well as my successes, in three weeks I had but one pig left. I did some thinking after that. I used to lay awake nights thinking; good deal of money gone, all through my own stupidity, and the worst of it all was, it was caused by something I could have prevented. I killed those hogs just as deliberately as if I had taken a hammer and struck them in the head. I overfed the sows, caused fever, and killed the pigs. That happened a good many years ago. I don't lose any pigs that way now; haven't lost one within fifteen or twenty years, but I don't feed the sows that way. It don't take a great deal of food to nourish the pig until he arrives. He is small, and he needs very little sustenance. If corn is used there will be fever. Corn-meal, oil-meal, shorts are all milk-producing feeds, and they ought not to be fed to a sow while the pigs are young. I have lost them that way.

THE FIRST TWENTY-FOUR HOURS.

It is better for the sow not to have anything the first twenty-four hours but a drink. Don't give her cold water in the early spring. Take the chill off of it. I have seen some good sows that gave promise of being good milkers ruined, and a litter of pigs lost, all through the negligence of the owner, giving the sow a drink of ice water immediately after farrowing. I don't do it. Go into the house, get a little warm water and add to it. If it is not very cold run your hand around in it, take the chill off of it. Give her very little to eat. For the first week you may add a handful of bran, something light, but the less you give her for the first twenty-four hours the better. Clean out the pen. Give her a good dry bed. Pat her. If you are good friends with your sow, get right in and talk to her, hold the pigs up to nurse; she will let you do it. You are no hog man unless you are on good terms with your sows. If you can't take to your sows as you would to your children, quit the business. If you can't be on good terms with your domestic animals you ought to be in one of the professions. If you are to make a success you must be on good terms with your live stock, and they must know it.

AFTER THE FIRST DAY.

After the first twenty-four hours feed, but feed very sparingly, gradually increasing the feed, so that, by the end of the first month the sow will be getting a full ration. No danger after that, I will guarantee, for if you have six or eight pigs sucking the sow, they will get away with all the milk she will produce, after the first month. No danger of fever then. Encourage the young pigs to eat as soon as possible. For that purpose have a place apart from the others where they can go by themselves; have a board raised up above the floor four or five inches that they can creep under. There is nothing better to feed young pigs than shelled corn soup. Afterwards give them ground oats, made into a swirl. See that it is fed sweet; never sour. If by any chance it becomes sour, add a package of baking soda to it. I learned that from an old neighbor I had, and have never forgotten it. If you have scours in your pigs, that have had something



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that didn't agree with them, with their digestive apparatus, and there is nothing better to relieve it than good, plain soda, such as your wife uses in the kitchen.

BRAINS WITH THE FEED.

An old neighbor of mine in Iowa, who has been remarkably successful in raising hogs told me this, and he was one of those people who never liked to tell anything. He wasn't like me in that respect. I had another neighbor, a man that never made a success at raising hogs, but he was successful in raising corn, and sent his children away to school, and I remember one time his oldest boy came home, after attending the State University, and he was looking at the pigs running around. They were hard looking; didn't have much care, and showed it. He went over visiting a neighbor one evening, the one I referred to, and the old gentleman was feeding his pigs. They were as fine and thrifty a lot of pigs as you ever saw. This old man was rather short on education, while the other family professed to be pretty well educated, and to belong to a better class. The old man knew that they looked down on him and his family because they had not had a school education, and didn't read a great deal. But the old man was a professor, when it came to hogs; he knew all about them, and the young man remarked to him, "Say, how is it you have always such fine hogs, and ours are always so poor and die off? You have such a nice lot here. I have been away all summer at school, but pa and the rest of us don't seem to understand how to raise hogs like you do." The old man was stirring up swill. "What do you put in that swill?" "A little meal and a little bran and a little shorts. The old man kept stirring. "But there is one thing it needs after that." The boy looked at him and says, "What's that?" "You have got to throw in a handful of brains; you folks are a little short on that." (laughter) Now, it does require brains to make good hogs. You can't learn it in school, except the school of experience, good sense and sound judgment. This man was no scholar, so far as books were concerned, but he is a scholar when it comes to feeding hogs.

Now, I am taking too much of your time. (cries of go on, go on). In regard to feeding the sows, as I said, I would encourage the pigs to eat. You can make a trough out of a 2 by 6, made in that shape (indicating a V shape), best sized trough to clean out. But never under any circumstances, feed your pigs more than they can eat. And don't let the trough sour, or don't let the feed stay there until it sours. If you do there will be trouble. Feed enough, and no more. Let them clean it up every time and when they are six weeks old you can wean them.

WEANING.

The common method is to shut them up, and let the sows go out in the pasture and shut up the pigs. Then the music begins. That is the way I used to do. The sows hang around there the whole day and then they get caked, and we would have trouble with them, and sometimes an excellent brood sow ruined. I don't do that now. I have a feeding floor adjoining my hog house. The feeding is all done on this floor. I shut the sows in on this floor, and allow the pigs every access to them. I feed the sows all the oats they can eat; give them all the water they can drink. The pigs are fed all the shelled corn they can get. They go up there, eat and get to the sows. By the end of a week these sows are dry, and the pigs get so disgusted going up there and finding nothing that they just quit. Absolutely at the end of one week not a pig will go near its mother. You can turn the sows right out in the pasture with the pigs and there is no more trouble. Now, this is not a theory. I have done that way for years, and I never have pigs suck the sows again. It is a very easy thing to dry a sow that way, feed them nothing but oats, and let them drink water, on a dry floor. It is not always convenient to have so many different pastures and the pigs in another. In this way you can utilize one for both.

FATTENING.

In regard to fattening them, I am aware that the young hog is the hog in demand now, and the great object is to sell the pigs, even before they are hogs; when they are shoats, less than a year old. I have never pursued that method. I never liked to sell a hog until he weighs four hundred pounds and over. I know that our professor tells us, that it takes more corn to make a pound of pork on a hog over three hundred pounds in weight than before. Pigs in this respect are a great deal

like children. I used to walk the floor with our little kids night after night; lots of trouble. But I tell you, I come down to Kansas now, and have boys up home feeding my hogs. They get past it. They don't require half the care they did when they were little fellows. When you get pigs to about six months old they take less care, and require very little attention. They about take care of themselves. I have my pigs along in May; after we are sure of good weather. Then I let them run in the pasture the whole summer, and they grow to be long, lank, big-boned and big-muscled fellows. No fat on them yet. The following September we commence fattening them. In February they weigh 400 pounds. A few years ago such hogs were at a discount. It was all "English bacon," "English bacon." I told them that before long they would be wanting fat hogs. It wasn't long. Of course, you must get them off at the right time, at the regular season.

EAR CORN AND WATER.

There is nothing that will fatten hogs better than ear corn and water. I remember the time when we used to milk the cows to get milk for the hogs; used to set up and cook feed for them, and to make a swill for the hogs. As long as I did it I never had a good hog. I feed nothing to my fattening hogs but ear corn and clear water, cold water. I would not let you cook it, if you would do it for nothing; and would not allow you to grind it. The Lord started out the hog with a pretty good set of grinders. My method of fattening old hogs is simply this: My hog house is kept clean and well bedded. I have a feeding floor on the east of the hog house, 16 feet wide. Every morning go in and call the hogs to get up. They come right out into the yard where they are watered. Get them out at the same hour every morning. In the winter they don't like to get up as early as in the summer. Like the hired hands in that respect. About sunrise suits them. Water them out in the yard. If you do this, every particle of droppings will be left in that yard. While they are out there you have a clean floor for them to feed on; crib close by. The floor should be as clean as this floor is here. Then open the gate; tell them breakfast is ready. They will come right in. In about an hour they will clean it up. If they leave any, give them a little less. If they need more, give them a little more. You can soon determine just what they will clean up, but don't give them any more. As soon as they get through, open the door into the hog house. They will walk in, go right into their pens, clean, well fed. They will lie down and it will only be a few moments until you hear "a-u-g-h, a-u-g-h!" They are putting on fat then (laughter). Open the door; see that the windows are open; let them have good ventilation. Allow them to remain there until three o'clock in the afternoon. Then put them out again; water them, let them on your feeding floor again, and about four or four-thirty, open the door and let them back into the hog house. They will go in and lie there until the next morning. Then they are putting on fat. I have fed three or four hundred hogs that way, and I have never had that hog house but what I could lie down in this suit—just got this suit to come down here in—I could lie down in that hog house and not soil my clothes, and the man who does not keep his hogs in that condition ought to quit the business.

THE HOG A CLEAN ANIMAL.

The hog is the cleanest domestic animal we have, and if he is properly cared for there will not be one particle of droppings or urine in that hog house. They will set one corner off into a kind of closet, and they will go back and forward to that. Give them just enough room to lie down, and no more. It is an advantage to have your hog house divided off into pens. If you haven't enough hogs to fill up your hog house shut off part of the space; give them just enough room to occupy, and no more. You should keep your hog house just as clean as this room. After you have fed them, clean the feeding floor. What would you think of your wife if she let the dishes set on the table from one morning to another. Suppose the supper was served on the same dishes. You would say to yourself that you wish you had not married that woman. I would no more think of feeding my hogs on a feeding floor that had not been cleaned immediately after the last meal, than I would of eating my dinner off of the breakfast dishes without washing. I have not done it for thirty years. It is a small matter. We have a wooden hoe, made out of a

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2 by 6, three feet in length; have an old saw for the lower edge. That is wide enough to sweep off three or four feet at a time. If your floor is smooth, and if you can do it immediately after feeding, you can clean it off as clean as if swept. By having the floor three feet high on one side, you can clean it month after month and it will not pile up on you. No matter how wet or muddy it is, if your hogs are confined in this building their feed is always clean. They eat outside, not under roof, so it will dry out. I prefer to have it outside, even if I have to shovel snow off of it.

Feed your hogs corn and water. I would add a few oats and perhaps a basket or two of raw potatoes once a week, but my main feed would be corn and cold water. With shoats, it is entirely different. When you get the hog eighteen months of age you have one of bone and muscle. Then you need fat producing grain. Oats, shorts, make an ideal feed for young shoats.

MARKETING.

Again, after I have my hogs fattened, I would not drive them to market. I live three miles from a railway station. Whenever I have driven them that distance, I have had a loss of from five to seven pounds. If I hauled them I have never had a shrinkage of more than 1½ to 2 pounds. Then I would have my carts well bedded; ride with them myself; go with them to Chicago; stay with them in the yards, water and feed them, and stay by them until they cross the scales. Whenever I get some one that can tend to that better than I can, I will turn it over to him. Stay right with them. There is money in the hog business, if it is properly conducted. There is no money in it if it is not properly conducted. There is no reason why science can not be employed in feeding hogs, any more than in the construction of a railway bridge.

You have to think; you have to experiment. Every man is the architect of his own fortune. Let him get up and hustle, and do some thinking; get action on himself, and luck will be with him.

A member:—You have not said anything about hog cholera.

Mr. Cownie:—I kept hogs for 38 years, and I never had hog cholera on my farm. They had it all around me of late years. I am almost ashamed to say it: I got into politics, and if a man can raise hogs and run politics, in Kansas, it is more than they can do in Iowa. I got into politics and got the hog cholera.

Some Agricultural Problems of the Twentieth Century.

BY HERBERT MYRICK, EDITOR AMERICAN AGRICULTURIST, NEW YORK.

The first problem we should tackle is that of better management of the farm and its contingent business. Some of us may at first think that we are conducting our farm as well as possible, and that there is no room for improvement, in our own case, at least. That is a dangerous state of mind to get into. These are days of progress, improvement, change. This applies to every vocation, as much to the farm as to the factory.

While many farms are splendidly managed in every way, now few they are compared to the five million farmsteads in the United States. The leaks in agriculture are so many and so large that they would ruin any other business. This is proof positive that agriculture is one of the best of all vocations, when properly managed. The fact that it is still the occupation of a majority of the people, is further proof. I know that "official estimates" go to show that our western farmers have been "raising corn at a loss" for many years. But if we may judge by the

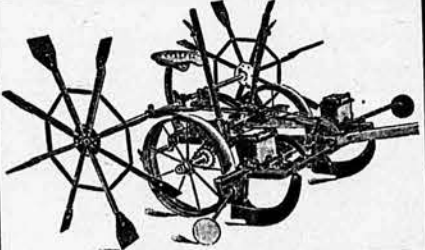
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present condition of Kansas, the more such "farming at a loss" is persisted in, the better. The fact is, that "estimating" business has been overdone. It is the outgrowth of a too common carelessness among farmers in the matter of keeping records as to the details of their business. Improvement in this respect is one of the problems that practical farmers have got to work out. And the sooner we do it, the sooner will our profits still more increase.

CO-OPERATION IN BUYING AND SELLING.
This is going to be the next great step. Practice and science are enabling us to master the problems of production. Ordinarily, we can raise stuff enough to feed the world, but to net a fair return for our products by the time they reach the consumer, is a different proposition. Too often farmers are forced to pay the highest prices for what they consume, and accept the lowest values for what they sell.

Now this is dead wrong. Such conditions are due mainly to two causes: 1. Imperfect or uneven distribution of products. 2. Unregulated transportation.

We often see the great cities, flooded with small fruits and other perishable products until prices are so low as to hardly pay the freight. Yet at the very same time our nearest village or town may be comparatively bare of such fruits and vegetables, even at good prices, or some of the other large city markets may be in a like condition.

This evil is bad enough when applied to non-perishable grain, wool, cotton, etc., but it is still worse regarding the products of the dairy, small fruit, garden or truck farming. And with the increasing diversification of agriculture, demanded by home markets, this abuse will probably grow, unless promptly grappled with.

The evils of improper distribution are intensified by abuses in transit. Freight rates are still far from equitable. Freight trains are too frequently slow, and the service poor. Transfers at terminals are subjects of complaint. Even after a car or train reaches market, it may not be run down to the unloading platform as promptly as the best interests of the trade require.

Intimate knowledge of the present situation leads me to declare that agriculture is to-day suffering relatively as much from injustices in transportation as in former days, when the evil became so notorious as to lead to the so called "granger-laws" regulating transportation, which have since been sustained by the highest courts.

Producers must organize to cooperate in such distribution of their crops that there will nowhere be either a scarcity or a surplus. We should aim to keep the markets evenly supplied with a good grade of produce, sufficient for the normal consumptive demand. When this is done, the question of surplus products will largely settle itself, except in years of rare abundance of foods for the world's needs.

Of course, this matter of distribution is an enormous question. But already we are getting used to big questions in this twentieth century! We know, too, that "great oaks from little acorns grow." If we succeed in a small beginning, it is easy to develop a larger structure that will endure. Your Johnson County Coöperative Association at Olathe, was a "little one" at the start, some twenty-five years ago, but with good management has developed into one of the most conspicuous of coöperative successes. There is no magic in it. Coöperation is not so much a new method of conducting industry, as an innovation upon present distribution of the products of labor.

THE VITAL PROBLEM.

All the economic questions are trivial compared to the vital problem of so distributing the products of the soil, that they shall reach the consumer in the best possible condition and at the least expense. Such an outcome means better markets, less fluctuation in prices, more intelligence on the part of producer and shipper, fewer and better commission merchants or handlers, and therefore more equitable distribution of products to all concerned.

Such reform in distribution is bound to come. It is the great problem of the twentieth century. Already there is growing up among the producing interests of our farms and in our orchards, truck gardens, dairies, creameries and cheese factories, a sentiment in favor of a strong coöperative organization to promote their business interests. Considerable work has been quietly accomplished in that direction, and a producers' commercial organization is gradually developing that should result in giving the farmer better and broader ideas of business, and put him

in position to handle his marketing to better advantage. Like other successful enterprises, this affair is attending strictly to No. 1, without undue publicity. It is silent, but not secret.

"INDIVIDUALISM AND CO-OPERATION."

I believe in both. But the individual alone, especially if a tiller of the soil, can accomplish little. By uniting with his fellows he can accomplish much. And he can do this without sacrificing his individuality to any necessary extent.

The gravest economic error of the nineteenth century has been compressed into this saying:

"Competition is the life of trade."

This is not true. The statement is a lie. Experience shows that too often competition is the death of trade. And in its last analysis, the burden of competition is borne by the laborer, by the producer, by the worker. Capital largely escapes.

The great economic truth of the twentieth century lies in this fact:

"Coöperation is the life of industry."

In America capital has been first to grasp this truth, but in short-sighted greed and in the absence of legal regulations, certain capitalistic combinations have taken on undesirable features. In England, on the other hand, it was the workmen of Rochdale, who, fifty years ago, inaugurated the coöperative movement. To-day the English coöperative wholesale society does a business of \$300,000,000 a year in manufacturing and supplying merchandise to some 2,500 coöperative stores that furnish the necessities of life to the common people, by whom they are owned and operated.

We are now just beginning to realize in this country that this matter of the distribution of the products of the soil and of the factories must be solved, through coöperation. Instead of cheap rant against corporations, our intelligent farmers are now seeking how they may form corporation of coöperative societies to their own advantage. It is perfectly feasible, for instance, for Kansas creameries to coöperate in shipping their butter by trainload direct to the English Coöperative Wholesale Society, which handles one-fourth of all the butter imported into Great Britain. This would effect a large saving. Some firms already ship wheat direct from this country to the English miller, cutting out several intermediate expenses.

MORE EXECUTIVE ABILITY.

In agriculture and in handling its business interests, is another crying need of the twentieth century. Our agricultural colleges should give a better training to business than any business college, because we farmers really need it more than other folks. I don't mean typewriting, but I do mean practical experience in the work of a business house or bank, and some commercial law, as well as farm accounts and the like.

Along with business training, our young men should develop executive ability. The agricultural college should afford practical training in organization of industry, in farm management, in associated effort. This sort of thing must come largely from experience. It can't be taught from books or lectures. Let the boys and girls at Manhattan start, own and operate a coöperative store—the experience will teach

TO CURE THE GRIP.

Advice of a Famous Physician.

First and foremost, REST. Take care of yourself. Your already weakened nerves want rest, and must have it. If the attack is severe, go to bed and remain there. More fatalities result from neglect of this precaution than from any other cause.

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Drink plenty of pure, cold water. It allays the fever, stimulates the kidneys to action and opens up the pores of the skin. Keep the bowels open with Dr. Miles' Nerve and Liver Pills.

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them what no professor or text book can impart. Or help the farmers somewhere to organize a coöperative butter factory, or marketing association, or buying agency. We learn by doing. Education only begins when we leave school or college.

CHANGES IN AGRICULTURE

bid fair to be even greater in the future than in the past. Diversified crops and intrusive methods are inevitable. New crops and new markets are to be fostered and catered to. Waste will be converted into profit. New industries will consume waste profits. Kansas will yet make more money from the now wasted portion of her corn stalks, than she now does from the grain of the corn plant. In New England the stalk used for fodder, pays all the expense of corn culture, leaving the grain net profit! That is why the East continues to raise corn in spite of western competition. Every straw stack will yet be utilized at a profit.

The application of manufacturing to farm products is still in its infancy. Why, up in the Northwest a few men with the nerve and millions to employ the necessary genius, are converting hitherto worthless wire grass into twine. And this twine is going to make us independent of the manilla or sisal hemp monopoly. It is also woven into beautiful matting or wall coverings, and into furniture of every sort, while the chaff is used for bottle covers, and the sweepings for making paper.

Look at the industries that have been created out of the once despised cotton weed. Some day the Kansas sunflower will likewise be the basis for new and profitable industries. So, too, the humble sugar beet will yet make the United States independent of the subsidized sugar of Europe or the coöle-grown and trust-monopolized sugar of the tropics.

FORESTRY AND IRRIGATION.

are pressing problems. I believe the American people have the genius and the money to impound the waters to the north and west of Kansas so that the floods, that now cause such disaster annually, may be converted into rainfall or irrigation that shall rob the summer drouth of its terrors. This is a truly imperial problem, worthy of a mighty people. Its solution should be grappled with in a broad, national spirit, yet with strict regard to economy, sense and efficiency.

New forests are to be created. Tree planting has only begun. Existing forests to the north east and west, must be conserved. Private ownership of forests does not imply the right to defraud the whole people of the public benefits of forestry.

In irrigation, law must give way to sense. The Wyoming system will untangle much of the uncertainty and litigation that now does so much injury to irrigation. The conservation of waters, as of forests, demands the best effort of state and nation. The water belongs to the people—no individual or corporation shall be allowed to monopolize water to its own profits. Water is to the soil of the western half of the United States what air is to our lungs, and must be equally free!

IS THIS SOCIALISM?

If it is, I am a socialist! But it is not—it is simply common sense. Still I am not aware that Kansas people would be "afeerd" even if the conservation of water and forests involved socialism. Some people have accused Kansas of being socialistic, but in these respects you are trivial compared to Massachusetts. Kansas laws permit of corporate manipulation that would be impossible under Massachusetts statutes. I make this point here because certain interests never tire of sneering at Kansas efforts to work out certain problems, pertaining to the public welfare. Now I believe that Kansas is all right. The civic activity of her people is worthy of all praise. The people may make mistakes; we all do; we learn thereby—but the hearts of the people of Kansas have been right ever since the days of John Brown. The yeomenry of Kansas have soaked her soil with their blood in behalf of the rights of man. Freedom permeates the very air of Kansas prairies. Progress inspires every Kansas home. Aspiration for a higher and better life is characteristic of Kansas people.

And this twentieth century will show that, in solving the agricultural problems referred to above, Kansas farmers are doing their whole duty, not only to themselves, but to the general public, and to posterity.

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Relation of the Traveling Library to the Farmer's Home.

ANNIE L. DIGGS, STATE LIBRARIAN, TOPEKA, KANS.

Despite some very serious things to the contrary, it is nevertheless true that more and mightier influences are at work to make the world better and brighter than ever before since the birth of time.

Despite all wars and rumors of wars there has never been a time when so vast a number of the children of men raised protest against the slaying of their fellow men.

Despite the drunkenness and uncleanness of those herding-places of humanity, which we name cities, there was never before a time when so many men and women lived sober, cleanly lives.

Despite the pitiful poverty, the misrule and misery of life, there was never before a time when so much thought and time were given to scientific effort to alleviate conditions.

Despite the selfishness so apparent and so prevalent, there was never before a time when the universal brotherhood of man was so widely recognized. The growing spirit of the age is named fraternity.

Out of the ever cumulating fund of fraternity there grows a constantly increasing desire to share with and to serve our fellow men.

BLESSED BOOKS.

Of all the good gifts wrought for us, and brought to us by this "time-spirit," none serve us in more soul-satisfying ways than books—blessed books.

Whoever has found comfort and counsel in books is straightway possessed of a desire to share the pleasure with others. It may be that there lives a man or woman so selfish, so devoid of the spirit of fraternity as never to desire to have some one else read the book which he has enjoyed, but if such abnormal person do exist, I have never met him—or her.

This beautiful impulse to share has found expression in our own time and country in an enterprise which in the last few years has taken on the name of the traveling library. The story of its genesis is this: In 1892 Mr. Melville Dewey, librarian of the New York state library, inaugurated the system in that state. Following New York, Michigan, Wisconsin, Ohio, and several other states took up the work as a state enterprise.

OUR SYSTEM.

Our own traveling library system, which the Kansas legislature two years ago made a part of the state library service, was built up to fine proportions by the club women of this state. In 1897 the State Federation of Women's Clubs undertook the collection of books by donation and carried on the work of sending them over the state for nearly two years.

The judges of the Supreme Court became, under this law, the directors, with power to name members of the Commission aside from the state librarian, and the president of the Women's Federated Clubs—these were specified in the law. The Commission as organized in July, 1899, consisted of Mrs. Annie L. Diggs, chairman; Mrs. Mary V. Humphreys, Mrs. Lucy B. Johnston, Mr. Edward Wilder, Mr. H. G. Larimer, with Mr. James L. King secretary.

HOW TO OBTAIN A CASE OF BOOKS.

The method of obtaining a case of books is to address either the state librarian, or Secretary of Traveling Libraries Commission, asking for the

printed blanks to be filled out by the applicant. The requirements are very simple, the only guarantee being the signature of one or more citizens who will answer for the care and safe return of the library. There are 50 books in each case. A fee of \$2 is asked to cover cost of transportation. This is the sole expense for the use of the 50 books for six months' time. The various tastes and needs of various communities have been thus far ascertained by asking the parties sending for books to name a list of books desired, and as nearly as possible the request is granted. The best literature of the world is sent out—books of travel, biography, history, poetry, popular science, and fiction. A large percentage of the libraries go to the public schools in the country places. Some go to village stores or post offices, others to study clubs, and some to farmers' homes. The prime purpose of the enterprise is to take the books to sparsely settled communities, where the thirst for reading can not otherwise be met. It is my very earnest desire that the outcome of my talk to-night may be the means of sending to many a Kansas farmer's home and fireside the books which will bless and brighten the lives of both the old and the young people of our state.

"The tidal wave of deeper souls Into our inmost being rolls, And lifts us unawares Out of all meaner cares."

I wonder if the magical stories of Kipling's Jungle Book, of Earnest Seaton Thompson's Animal Stories, of the Boy's Book of Inventions, of Reiley's Poems, of Ruth McBary Stuart's Stories of Sunny Southland, and all the luscious list which may go to the young person of the Kansas home, may not compensate for whatever deprivations the boy or girl may feel in being remote from town or city.

Given good health, good wholesome work—not overwork, not drudgery—and the privilege of the various kinds of books which may go out in the traveling library, I can think of no more ideal place to live than on a well ordered farm. The nearness to nature, the wholesomeness of the environment ought to produce the highest type of character. One whose life lines are thus pleasantly cast ought not only to be contented, but to give thanks.

"To wake each morn as if the Maker's breath did them afresh from nothingness derive, That they might sing how happy is our lot, how beautiful it is to be alive."

Kansas the Mecca of Man's Noblest Servant.

EXCERPTS FROM A PAPER BY REV. J. W. THOMPSON, MARION, KANS.

We may, perhaps, devote some time profitably in justifying the assumption of the theme, that the horse, among animals, is man's "noblest servant."

It has, doubtless, come to your attention that very recently this long and generally conceded position has been attacked by an English writer of scientific pretensions in a popular review, and that the claim is put forth for the canine kind as coming closest to man in intelligence and nobility. And prophets there are in our land, and not less profane, not mayhap clamoring for the humiliation of the noblest of the brute kind by exalting to his place a "whining cur," but predicting in glib and gleeful tones "the passing of the horse," and "horseless age," when man's companionship in travel, recreation and labor will be wholly superseded with passionless, soulless machinisms of iron and steel, and wood and rubber. But never, not at least in fair Kansas, will sanction, or encouragement be lent to sentiment so gross and unworthy, but while large-headed men and noble-hearted women continue to hold ascendancy and control, the title "Noble," will be reserved for the horse along among the inferior order of creation, and in the distribution of "Coronets" he will wear

the crown. All that comes to us along down the ages, goes to show that he is entitled to the honor and place, and that up to the present it has been conceded to him as of birth-right claim. Beginning with the highest of all testimonials, a good foundation is laid for this stand-point in Inspiration, which, with mightier than human pen, has written high above the reach of all ambitious rivals his name as closest akin to the human, and associated in the most important and sacred relations. Eighty-eight times in the Word of God is he spoken of, beginning in the book of Genesis and continuing to the end of Revelation. Patriarchs and prophets, kings rulers, sages, common people make mention of him, often in glowing terms, and in imagery suggestive of the magnificence of form, grandeur of spirit, and superiority of intelligence in which in these later times we see him clothed.

Joseph, as a wise steward of the house of Pharaoh, gave bread to the famine sufferers of foreign lands in exchange for their horses, which largely increased the wealth and glory of the Egyptian kingdom. The wisest of Israel's kings, Solomon, in later days sent down into Egypt and brought up horses to the Promised Land in large numbers, some say to the number of 40,000, for the royal stables, alone, enhancing still more the magnificence of the greatest reign in all the history of the chosen people. Queen Esther, the beautiful, stipulated for the man whom the king would delight most to honor, that "he be clothed in kingly apparel and be mounted upon the horse that the king rideth upon," and with crown royal upon his head be brought on horse-back through the streets of the city, the charger led by one of the king's most noble princes. The Patriarch Job, glorifying the horse as one of God's most majestic creations exultantly exclaims, "Hast thou given the horse strength? Hast thou clothed his neck with thunder? The glory of his nostrils is terrible! He paweth in the valley and rejoiceth in strength. He goeth on to meet armed men. He mocketh at fear. He swalloweth the ground with rage. He saith among the trumpeters—ha! ha! and he smelleth the battle afar off, the thunder of the captains and the shouting."

Jeremiah cries out, "Behold, he shall come up as clouds, and his chariots shall be as a whirlwind, and his horses are swifter than eagles." "How canst thou contend against horses?" Isaiah proclaims that when the Messiah shall come and lift up His ensign to the people from afar that "none shall weary nor stumble; their arrows shall be sharp and their bows bent; their horses' hoofs shall be counted like flint, and their wheels like a whirlwind." John, the Revelator, in his visions of the future glory of the kingdom that was to be without end, says, "I saw heaven

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open, and behold! a white horse, and He that sat upon him was called 'Faithful and True.' And the armies which were in heaven followed Him upon white horses, clothed in fine linen, white and clean."

And all throughout Bible times and lands, wherever mentioned he is clothed with emblems of grandeur and power, and spoken as of kingly mien and manner, associated in royal processions or in triumphal marches, or on great state occasions with the noble personages or heroes he bore on his back, or carried along in chariot or carriage.

And quite as conspicuously he figures in records and testimonies coming from other and profane sources.

THE HORSE IN MYTHOLOGY AND ART.

In the catacombs of ancient Egypt, cut in stone, his form appears, wearing an amaranthine wreath about his head, emblematic of the unfading fame to be accorded him in that land of imperishable monuments.

And Grecian and Roman mythology have left no myth unemployed to add to the fascination of the story of his origin and history. "Too fond of the horse," as pertinently expressed by one, "to consider the union of his nature with man's as a degrading compound," these highly sentimental and imaginative ancients conceived the poetical creation of the Centaurs, being half-man and half-horse, suggestive of the notion that the horse is something more than beast and that he is fittest of all creatures for companionship with the human; and in this strange union exalted to the place of the wisest and greatest of deities, and supplying numberless of such weird and fantastic stories as that concerning Chiron, skilled in hunting, medicine, music, and the prophetic gift, patron deity of Aesculapius, the first among men to study the healing art and supplying the patronymic to the profession up till to-day; and the royal steeds recklessly driven by Phaeton, "full fed with Ambrosia," "harnessed by the hours," and dragging the chariot of the Sun, flying through the celestial sphere, setting on fire the world, scorching the great and little Bears, burning the Ethiopian people by the intense rays of the sun chariot to perpetual blackness, and driving the Nile by the burning heat carried with them till it sunk in the sand and hid away its head in the desert never to appear again; and the winged Pegasus, the off-spring of Neptune and Medusa, that Minerva caught and tamed and presented to the Muses, that drank at the marble fountain of Pirene, and had his abode on Mt. Helicon, on the summit of which was the grove where the poetic divinities had their statues, and where also were statues of Apollo and Mercury and Bacchus and Orpheus and of famous poets and musicians, a steed that all who would soar aloft to reach sublime poetic heights and find the gods to help them out, must court and mount, and with steady hand and gentle rein guide in his flying tireless speed, while he "posts o'er land and ocean without rest," and dares to vault even to the skies, and scale the battlements of heaven, "pure air and fire," "a beast for Perseus," that causes "the very earth to sing when he touches it," "the basest horn of whose hoof is more musical than the pipe of Hermes."

And art, ancient and modern, has lent its aid to preserve in undying fame and honor, along with hero-man, the noble steeds that accompanied and served them.

THE HORSE IN WAR.

All the world's great warriors have had an additional halo of glory shed around them by having associated with them some "hot and fiery steed" who "bounds the earth as if his entrails were hares," whose neigh is like the bidding of a monarch, and whose "countenance enforces homage."

Painting never was satisfied with its service in portraying immortal military heroes until she has them on her canvas mounted on chargers with crested neck, and "ears up-pricked," and "hanging braided mane," and nostrils distended "drinking the air and forth and again sending vapors as from a furnace," and eye scornfully glistening like fire, showing high courage and hot desire.

And sculpture has put them in granite and marble and bronze, to be perpetuated, man and horse, as long as these most lasting materials will endure.

And so (as summarized by another), "In Berlin the most noted statue is Frederick the Great, and war horse. In Trafalgar Square, London, it is Lord Wellington and his war horse Copenhagen, that he rode at Waterloo. In Paris it is Napoleon and his war horse Marengo, that he rode in crossing the Alps. In Washington it is Gen. Grant

and his great war horse Cincinnati; and Sheridan and the black demon he rode at Winchester; and Thomas and the magnificent chestnut he rode at Chancellorsville; and Custer and his loud-snorting stallion Don Juan that he rode in the grand review at Washington at the close of the war. And in Richmond, Virginia, it is Gen. Lee and his war horse Traveler," and so the world over and time throughout hero-man and a hero-horse have thus stood and classed together with welders of the chisel and the brush.

THE HORSE IN POETRY.

And so, likewise, with those who have spoken in poetic verse, scarcely one who has dealt with stalwart song set to heroic measure, from Homer and Virgil, who celebrated Greek and Roman valor, to Lord Tennyson, who immortalized in verse the charge of Lord Cardigan at Balaklava, and his war horse Renald, on which he led the brave six hundred, or to our own poet who wrote "Sheridan's Ride," picturing the gallant commander, and gallant steed he rode, in equally graphic colors; with scarcely an exception, I say, have such as these failed to couple the mute steed with the patriotic hero, singing their praises in the same martial strains, and binding them together in indissoluble union to remain in cherished remembrance through all coming time. And the prince of the poets—"the myriad minded Shakespeare," in upwards of a hundred separate connections, a critic records, has introduced the horse, and there is scarcely a trait or characteristic of the noble animal that has not been illuminated by his magic pen. And inspired with a realizing sense of the boundless extent and limitless fertility of his subject, this master genius of the ages declares "It is a theme as fluent as the sea; turn the sands into eloquent tongues, and my horse is argument for them all." Again, describing him majestically in motion, he says:

"Imperiously he leaps, he neighs, he bounds, And now his woven girths he breaks asunder, The bearing earth with his hard hoof he wounds,

Whose hollow womb resounds like heaven's thunder.

The iron bit he crusheth 'tween his teeth Controlling what he has controlled with. Sometimes he trots, as if he told the steps, With gentle majesty and modest pride; And anon he rears upright, caports and leaps, As who should say, "Lo! thus my strength is tried."

And this I do to captivate the eye Of the fair breeder that is standing by."

But enough as to his nobility and majesty, traits high and near enough human to command endless homage, from exalted and appreciative souls, and to justify fully the title conceded him in the theme, as man's noblest servant.

UTILITY OF THE HORSE.

And I turn now to questions of utility, as he who nobly serves must have useful place to fill, and qualifications of ample order to occupy it. Whatever may become conditions elsewhere in other countries, commonwealths and communities, Kansas always will have a large place and use for the horse of every worthy class and kind in which produced. Never was a more timely book issued under more suggestive and appropriate title than that put out by our secretary of the Kansas Board of Agriculture, the elegant work, "The Horse Useful." Coming forth at a time when, under the impulse of a widespread infatuation, induced and extend-

Recoveries from Grip.

Mrs. E. I. Masters, at her home in Monitor, Ind., used Dr. Miles' Nerveine and Pills to cure after effects of grip.

Mrs. A. E. Lopeer, in the little town of Modelia, Minn., used Dr. Miles' Pain Pills and Nerve and Liver Pills and was well in a few days.

President McKinley is slowly recovering from grip and its after effects.

George J. Flannery was relieved of the awful pains in his head in fifteen minutes, by the use of Dr. Miles' Pain Pills. Now he is rapidly recovering at his home in Buffalo, N. Y.

Speaker Henderson is again in his chair in the House of Representatives after a severe attack of the grip.

J. C. Helfrey, foreman of the Westinghouse factory in East Pittsburg, had a severe attack of grip, but he used Dr. Miles' Nerveine and Pain Pills and was soon back in his place.

Rev. C. Body was in a serious condition at his home in St. Paris, Ohio, but Dr. Miles' Nerveine and Nerve and Liver Pills pulled him through all right.

ed by a certain sensational and sporadic class of newspaper publications, the multitude seemed to be taking to the ridiculously absurd notion, clamorously shouted on all sides and proclaimed from the house tops, that the horse had outlived his usefulness, that bicycles and automobiles and electric motors would utterly supplant and supersede him, that work of our secretary was a breath of pure, fresh air in a hot and fetid and malarious fen, and proved a reviving and refreshing influence to many already become pallid and pulseless and palsied under the spell brought over them. The public was called by it to calmer and cooler consideration; induced to take a second, sober thought, and to review and revise a position so rashly rushed into. And under influence so superinduced and with more prosperous and propitious times, I mistake greatly the signs and omens in the air, if in our live and alert commonwealth, the swing of the pendulum is not already strongly and positively in the other direction, and the keener and better spirits of Kansas people are prepared to greet without question the proposition that never was the horse more needed, more appreciated and more useful in the highest sense, and for all the more worthy purposes for which created and designed to fill, than he is this day and age.

The heavy draft horse is wanted to pull the plow; to carry the heavy loads to the barns, or the market; to propel the mower, the reaper, or the header; and even to drag the ponderous threshing machine, and the still more weighty traction engine up the over-steep declivity, or through mud or sand in which soon it buries itself, (as your speaker has seen done), left to self-propulsion in reliance upon falling friction on the yielding and sinking surface. The omnibus and coach and express horse still has, and is likely to continue to have plenty of call, until mud and slush and snow no longer relieve the monotony of smooth and hard and polished streets and highways, and paved and brought to a plane of precise mathematical measure.

THE LIGHT HARNESS HORSE.

The light harness and roadster horse also will be in demand while physicians continue to be called in haste and without fail to the bedside of the sick, the suffering and the dying; and while the faithful remain in the land who, rain or shine, through mud or sleet or drifting snow, will go to church and Sabbath school, or on errands of charity and mercy; and while men and women with cultivated taste and high appreciation of God's noblest creatures, find genuine and unalloyed pleasure in coursing their way over hills and through valleys and along the level and piked roads, drawn by steeds swift of foot, and keen of spirit, and with something akin to human sympathy and appreciation of the ravishing beauties of nature through which passing, and bespeaking the thrilling, pulsating joys of life in moving, breathing, animate form; and while, also, there are lovers of noble stamp, young men to woo, and coy maidens to be won, who know and appreciate the moonlight drive, with no companions but the mute ones, who tell no tales, at the other end of the lines, and with nothing to disturb the bliss and harmony of two communing souls, and no disputed questions between them but whose hands shall bear the reins, or whether hands are needed at all to press upon the restraining and guiding curb.

THE SADDLE HORSE.

And the horse for saddle uses, too, has a place long and thoroughly established and to become larger with advancing time. While no state of lower altitude, less favored with a skirting fringe of mountain range, has purer or more life-giving ozone, and none has more sunshine and balmy air, yet the feeble and infirm are in every land, many whose situation or circumstances in life have constrained them to close indoor housing, and who become pale and sickly and blood impoverished for want of different conditions. And the fatal tuberculosis germ, omnipresent everywhere, floating in the atmosphere and borne by the breezes even from afar, finds a lodgement in myriad lungs, and lingers only for weakness and stagnation and foul and filled cells to facilitate the development that terminates the life it fastens upon. And as the very best preventive and panacea for either the victim of incipient consumption, or the depleted and run down anemic without color in the face, or rich blood coursing the veins, the horse and saddle stand out paramount, and offer a relief not elsewhere or otherwise to be found. It is high time for old and young, fathers and mothers, sons and daughters, to learn that a mounted charger bounding

THIS FEED MILL
does all kinds of work on one set of gears. The Tandem Sweep compels each horse to pull his own share. No Gearing. No Friction. Capacity, speed and comfort increased. (Also make 1 size belt-power mills). Price lists free. C. N. F. Bowker Co., So. Bend, Ind.

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When the stock goes into winter quarters you will want to be sure of a reliable and constant supply of water. A bored well is the safest and surest. Our Well Machinery does it best and cheapest. Drills 25 to 100 ft deep. We make all appliances. Have stood the test of 15 years. We also have Gasoline Engines for all purposes. Send for free catalog. W. M. Thompson Co., Sioux City, Iowa. Successors to Sioux City Engine & Iron Works.

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along through the invigorating atmosphere, emptying and filling at almost every stride every air cavity and lung cell in the riders body, and compelling the sluggish stream of life's vital current to flow sturdier and stronger, and surcharged with a super-abundance of animal electricity, and generating and throwing off the inspiring fluid every moment, is far better than any doctor or medicine for the weak and ailing, and will do more for the tubercular patient than cod-liver oil, or whiskey, or both combined; and differs as night from day, from the inanimate "wheel" with air-inflated tire and cramped seat, to be doubled over and trundled along at an expenditure of vital energy, every particle of which needs to be conserved and set to work to building up and repairing the waste that has already been too great.

Then there are the cattle, not upon a thousand but upon ten thousand hills, all over our rich grazing state to be driven and herded and handled; and who can conceive of our men and boys astride a tread wheel, or mounted upon a motor engine, chasing or heading off the bounding ox, as he rushes through thickets and up and down rocky steeps and across rivulets and streams and over hedges and fences that are insufficient to keep him in check?

THE MILITARY HORSE.

And military use always hitherto has exacted a large number of the horse-kind, and will doubtless continue to do so until wholly regenerated mankind marks the dawn of Millennial day. Though not coveting scenes of carnage and blood, yet as demonstrated in the Chinese imbroglio of the past summer, the very best method of preventing war is to be thoroughly equipped and prepared for war. And horse and man are associated naturally in every thought of war, indeed, warrior and war-horse are almost cognate terms. And in this service there is demanded first of all, the proud and noble and spirited horse, with loftily arched neck, stately mien, and bold and daring courage, for the officers' mounts, that, when fully caparisoned will show himself worthy and appreciative of the honored position at the front he is expected to take. Then the cavalry horse is required, with sinews of iron, and bone and tendon and muscle that will not yield under the most intense strain, the best and most serviceable product that breeding science and intelligent nurture and treatment can produce. And, last of all, the cheaper and commoner class have large use and demand for artillery and ambulance and transportation service, the kind called for in such large numbers in Kansas during the past year, by our British cousins, who discovered that that loudly touted champion, the dog, was not the best associate for the soldiers in the Transvaal, and that not even the mule could take the place of the noble horse in crossing the stony gorges, climbing the rocky steeps, or clambering up the heights of the Kopjes where the Boers were almost impregnably entrenched. And we may proudly remember to-night that it was a Kansas soldier boy who first scaled the Chinese wall and planted the flag that signified deliverance to the captive ambassadors of all the powers, held there the past summer. And it was the Kansas horse that aided Lord Roberts to reach and capture Spion-Kopf and to replant the English standards in Southern Africa where they had fallen ignominiously before the savage attack of a most daring foe. And Kansas horses should ever be ready and in waiting, in numbers sufficient and quality superior to go with Kansas boys on any mission of peace or war, that means greater liberty, larger light, more abundant happiness and blessing to men.

KANSAS CONDITIONS FOR PRODUCTION OF HORSES.

Aside from the question of utility, there is the matter of the profit of production; the value of the industry of horse-raising, peculiarly great in this favored commonwealth. With resources making production the cheapest found in the sisterhood of states, and geographically so situated with reference to the great markets of the world that the most condensed product possible becomes highly desirable, the finished horse may be looked to as promising to yield the largest clear profit to the producer. With pasture almost unlimited in quantity and of the highest quality with native grass that never fails to grow in the most unfavorable seasons and in all the variety that can be regarded essential; with pure water procurable in abundance quite throughout the state; with sufficient lime found everywhere to insure a large and substantial growth of bone; with a high average altitude and a corresponding

light atmosphere encouraging superior lung development, rendering the lower altitudes almost a stimulant to horses when taken to them, and providing against nearly every infirmity of breathing; with more clear and sunshiny days than are experienced in any of the central tier of states of favorable temperature, allowing a longer season for running at large, and for outdoor exercise, advantages are afforded here the value of which can scarcely be computed and that undoubtedly have been but partially realized and improved.

Then, for the feeding season and the period kept up and educated and fitted for the market, both grain and forage rations are the very cheapest and best, taken year by year, found in this broad country. Oats, the first and foremost of grain foods for the horse, yields largely in bushels and of very superior quality, running as high as 40 pounds or upwards to the bushel in many localities, and seldom commanding anything like the price of the states with better market facilities. The same holds true of barley, rye and corn, all of them valuable for use in horse-feeding, furnishing the large variety needed, and a convenient substitute when one or the other fails. And as for roughness, no country certainly can be named that is superior, or even equal to the average Kansas community. Straw of all sorts oat and wheat and rye and barley, and of the very brightest and finest, most years is procurable at very little above the cost of drawing, and at so much less than in other sections as to seem to be, like air and water, and God's free grace, "perfectly free," "without money and without price." And good bright blue stem hay, and in some localities the rich rye grass, almost equal to the famed California bunch grass, at prices ranging from \$2.50 to \$4 or \$5 per ton, delivered in the mow, makes one who has been accustomed to \$10 or \$20 or even more paid generally in the other states, feel that he can use it without limit or stint, and for bedding and other waste purposes as is very largely and commonly done. Then the rich and nutritious, and to all classes of horses, toothsome alfalfa has come in with its enormous three or four crop yield in a season; a perfect boon to weanling foals and to all young and growing stock, and better than medicine for rejuvenating aged, or ailing or broken down horses, a crop the worth of which to horse-producers each year is bound to demonstrate has never yet been but partially realized even by the most appreciative.

And sorghum, thickly sown and cut when the seed has but begun to turn and the stalk has matured into sugar-sweet, has an almost invaluable use for a limited period after coming off the grass, in purging and cleansing out and preparing for the stronger winter feed. Then the Kaffir-corn, first introduced into this country through a citizen of this state, Mr. J. Hanna, of Sterling, in connection with the government experimental station located at his place, and over which, with Professor Denton, he had principal charge; it would seem its one particular mission and use is for the horse-producer. And no other single plant, perhaps, that has ever been brought and committed to Kansas soil would come as near alone supplying everything required to nourish, develop and mature the perfect horse. A desert country produce that no year fails to provide something of a season for, wholesome for food in its growing state, with blade and stalk remaining green and succulent till the grass is fully ripened, and making fodder after that with soft and tender fiber, unencased with the hard and flinty covering of nearly everything else of its kind, every particle appears palatable and digestible, and the horse thrives on it and takes on condition that no other fodder plant ever hitherto found alone has shown capability of producing. And the grain, making meal of richly nutritious properties, either left on the fodder to be fed with it, or garnered and ground, answers well every purpose demanded in a grain ration; so that Kaffir-corn, coming forward so conspicuously at this epochal period in the history of the horse, appears to plead his increased production, and offers a helping hand that none can appreciate like those who have accepted its assistance.

PRICES AND DEMAND.

And with rapidly advancing prices and improved markets for all grades; with greater demand than can be met in properly improved and classified stock; with prices already paying well those wisely and judiciously engaging in the breeding enterprise; and with, instead of an unwieldy surplus in sight, what those situated best to know declare to be "a horse famine," staring us in the face, never before were times



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Our new importation of FRENCH PERCHERON STALLIONS was landed at our barn, at Shenandoah, Iowa, September 16. Buyers will find at our establishment 60 Head of first-class Percheron stallions from which to make their selections. Prices are made right. Come and see the horses. It will do you good. Mention Kansas Farmer when you write.

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fore promising or stars more propitious for the horse industry in Kansas than just now. And in planning, shaping and preparing these conditions, and presenting an open and inviting field, putting everything immediately at hand, and bidding to enter in and possess the ground, Providence—the mouth-piece of Deity—could not seemingly speak louder or plainer, if employing articulate voice, in indicating what course should be pursued and pointing out the path to take.

WHERE THE BEST HORSES ARE PRODUCED. But not only for cheapness; but it is the horse at his best; best in nerve, best in form, best in service, that makes Kansas the Mecca of his tribe.

While seeking and entering into no quarrel with Kentucky or California, or any other of our great horse-producing states concerning the question of superior adaptability for growing and maturing the horse at his best, it is neither idle boasting nor undue self-laudation to affirm that Kansas is a land native to the horse kind, and that she is entitled to a place in the front rank in the world for capability of producing the highest and noblest type of horse grown. The logic of the conditions already enumerated proves it, and the history and experience already passed through, brief though they may be, demonstrates it beyond the possibility of doubt. Maturing him into all the size and elegance of form and finish his class warrants; giving him bone and sinew and muscle and heart and lungs and stomach the best; providing him the most uninterrupted and unbroken opportunities for exercise and the use of all his numbers and faculties allowing the handler and developer nearly every day in the year to be out with him in the open where his free and boundless spirit expands itself and finds the full play and exhilaration it needs and seeks, absolutely nothing more is required to insure his utmost perfection.

SOME KANSAS SAMPLES.

And in the only line where actual trial and test have been applied, in light harness speed contests, where the metal he is made of has been subjected to hammer and crucible; where the stuff entering into and composing him has been given chance to show whether it was oak and iron, or pith and clay, he has grandly proven to the world that his Kansas origin or home never hindered, but rather furthered and augmented his powers and prowess. Away back in the sixties, in the early youth of the state, there came into it a colt of only ordinary ancestry and lineage, that grew up and matured under only primitive Kansas environment, but that when he went out of it went forth, like one of the old prophets, or a John the Baptist from the wilderness, to challenge the attention and command the homage and admiration of the world; the stallion champion of his era, Smuggler, known and noted far and wide as any horse of his epoch, and holding his place of champion for a period of ten years, from September 1874 to August 1884. Silkwood, in blood not entitled to wear the purple of royalty, with only cheaper Kansas sire and dam, after earning brilliant laurels at home, made his way westward till he reached the Pacific coast, where in the golden state, aspiring and ever claiming to be the brightest star in the constellation of speed-horse producing commonwealth, went on an all conquering career up and down and throughout their borders, compelling aristocrat after aristocrat to lower the flag and surrender to his superior speed, till he captured the crown of the coast at the lateral gait, which he continued to hold and wear, till two mightier than he, from his own native soil, tore it from his grasp, and planted it so high out of reach that it is likely to remain where it is lodged for some years to come. And these same two, Gentry and Patchen, both bred and reared on Kansas farms, from parentage naturalized by many years of residence, products exclusively of Kansas breeding, soil, climate and conditions, started out from colthood upon careers that have never even been approached for a series of triumphs, running through successive years, going on conquering and to conquer, till they held all the state and national and world championship honors in sight or worth contending for; till they vanquished time and again every comer and saw them one by one relegated to the rear, broken down, or used up and unable to meet them again for a fight to the finish; till, like Alexander, or Cæsar, could they have spoken, they would have cried for new worlds to conquer; till old Father Time himself was hacked and hewed down until only half a second was left to be worn away to reach the two minute mark; till there being nothing else left for them

they set out together and traveled up and down the land from ocean to ocean, and from the lakes to the gulf, battling each other in contests without parallel, for exhibitions of speed, stamina, courage, enduring and staying qualities, and until they had commanded and captivated more countless crowds than all others than Kansas pacing kings ever called together, enraptured, thrilled and made wild with enthusiasm and delight. Gentry and Patchen! the world never saw their likes before, and is not likely to, soon again!

BRAINS AND BREEDING.

And here, in attaining this goal, is opportunity and call for the cultivation and employment of all the brains, genius and learning that Kansas can command and draft into service in prosecuting such enterprise. Home breeding and improvement, like every other line of employment having to do with the forces of life and nature, is strictly and substantially a science, and one of the deepest and most profound that mortal man ever dealt with. No laws in operation in the universe are more exact and more inexorable than those regulating and governing animal reproduction and no chance, or haphazard, or loose methods will succeed here, going about it after the manner of a lottery business, where luck is the sole or chief factor to be relied upon. Ignorance may successfully handle a hoe, pick corn from the husk, or cotton from a pod, but it requires thinking minds, with something of the energy, application and discernment that, devoted wholly to biological problems made a Lamarck, a Darwin, a Galton, and a Weismann, to become experts, leaders and champions in carrying scientific horse-breeding to its highest achievement.

HEREDITY AND ENVIRONMENT.

Having vitality to do with questions of heredity, of the influence of feed and environment, of the effect of culture, development and use in particular directions, there is not a step to be taken in producing a single individual from the first problem of suitable mating to the last of fitting and finishing for the highest market or the best practical service, that does not require pondering, scrutinizing, balancing, weighing with all the care and accuracy that the most learned and capable lawyer or physician employs in approaching his most critical or intricate case. And no marvel that superficial, shallow-minded, unthinking, unreasoning persons, dabbling but playfully in it, touching the subject here and there, gaining the little knowledge that is always "a dangerous thing," are ready on the first rebuff, or apparent contradiction or confusion run across, to conclude that it is all "guess work," "a game in the dark," a trick or accident, a matter of mascoots, or hoo-doo's, or signs, or stars, or some other superstitious thing. Dealing with laws and forces more subtle and elusive than electricity or magnetism, more complex and confusing than those of astronomy or chemistry, they are like totally unversed and unskilled stumblers and blunderers entering some great experimental laboratory, and going about a play by the baldest chance, with the tools and implements, the fluids and solids found there, and to be regarded the most fortunate of all mortals if they do not blow themselves up everything in reach and connected with them; and should they escape with enough of their autonomy left to form any conclusion, it naturally would be that the whole affair is the greatest combination of risk, and accident, and uncontrollable chance and happening conceivable.

And that has been the history and experience of many going-it-blind, or content with a mere smattering of breeding science and art, resulting in dismal disappointments and failures, and engendering an impression and belief more or less rife that it is the most uncertain and unreliable of all undertakings, a game only to gamble with, with opposing odds that no measure of knowledge and intelligence can overcome. But weak and false as all of the other blind and infatuated notions and whims of ignorance and superstition ever were, it is, nevertheless, a truth that in few matters of practical importance have we made less progress away from the beginning and border land into the deeper and surer things of absolute and fixed scientific principle than in that pertaining to heredity and the breeding and improvement of animal life. And it is not less a truth that it is the most abstruse and recondite of all the sciences; presenting the greatest difficulty in compassing and gathering the data essential for entire accuracy; and baffling most attempts at generalization; and misleading, more commonly than wont to "jump at conclusions;" and defeating and overturn-

ing wholly every sort of artificial, or mechanical, or man-made law, rule or regulation sought to be applied. However, such condition only serves to render more inviting the field; presents in more enticing form the prize; serves as additional stimulus and spur, to mental caliber of sterner and more heroic stuff; points to deeper and more persistent effort and endeavor.

BREEDING A SCIENCE.

And, notwithstanding the difficult problems to be tackled, notwithstanding the intricacies and perplexities to be wrestled with and passed through, notwithstanding the seemingly tangled web to be straightened out, notwithstanding the labyrinthian path to be pursued, yet, at the same time, there is no problem of Euclid that is finer and more inspiring, there is no chase of the huntsman, or pursuit of the fisherman that is more fascinating and alluring, there is no contest in the forum, on the athletic field, in the ring or on the turf that is more exciting and more thrilling, there is no plot of the novelist or story of the historian or biographer, or inspiration of the philosopher or poet that is more enrapturing and entrancing, and there is no record on the rocks, or language of the spheres, or writings in the clouds that is more expanding, quickening and uplifting to every faculty and power of an intellectual being.

Whether contemplating in actual operation the great general principle of the "uniformity and fixedness of types," yet noting the almost infinite room and provision for variation and adjustability admitting of the production of varieties nearly as numerous and diverse as different species; or whether learning by practical experience how to interpret the great law that "like produces like," broadening it out and extending it till it includes all the ancestry for generations back and embracing calculations for the possible influence of every one; or whether running square up against the stern and stubborn fact of "reversion," or "atavism" under the operation of which return becomes possible to the lower and primitive type by injudicious or violent cross-breeding, or even by doubling up and intensifying lines and qualities too largely held in common, balking frequently calculations unwisely made, but at the same time aiding those who properly comprehend and wisely keep within compass of its benevolent provision; or whether discovering the real and full potency of good pasturage, of the bursting oat bin or wholesome water, or fresh air, or healthful quarters; or finding out the important part played by exercise, training, cultivation, or use in particular directions; whatever the agency, force or influence treated with, the tendency and effect, to live and alert and close thinking and well-informed minds, go only in one direction; toward creating a deeper and profounder realization of the possibilities open and at the command of the truly scientific breeder, and yet giving him a stronger apprehension of the rigid and unyielding restrictions and limitations under which he is placed, confirming and establishing forever the central, vital truth that science never fails to lead to—the absolute authority and reign of law in the universe—and yet impressing the fact of its sublime helpfulness and serviceableness to all who know to honor, bow to, and obey its dictates—the position is arrived at, most happy and most wholesome to experience, that leads one to feel that while only a subject and steward of a higher power, yet that he can be a master and a monarch in his own sphere, and that with unqualified and unerring certainty, as surely as he can combine substances to manufacture gun powder or nitro-glycerine, or mingle chemicals to make the soothing balm or the healing lotion, he can fill his fields and barns with animals of form and action superb, of docility and intelligence exalted, of soundness and serviceableness entirely perfect, of type and trait touching the highest, or he can multiply and perpetuate defects and deficiencies, weakness and worthlessness, infirmities and temperaments making his product a bane and stigma to the name and tribe.

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PREFERENCES.

There are some who assert that pure cane syrup is too rich, and is preferred only by children, who have natural, not acquired taste, and that cane syrup is better when diluted and toned down by adulteration. There is some force in this, because few articles are so generally or so largely adulterated as table syrups, and syrup users have become accustomed to mild and insipid syrups and can seldom get pure syrup of any kind. Even the golden syrup of sugar refineries, which was, years ago, the best and highest priced can syrup, can now seldom be purchased pure and unadulterated. It often contains as much as 80 per cent of glucose, and is not sold for what it really is. Syrup makers need now to make cane syrup of milder and better flavor and lighter color than was required generations ago, in order to meet the change in public taste.

There are many who prefer rich and pure cane syrups to insipid, mixed syrups, but are unable to get them. New Orleans imports 100,000 barrels of glucose annually for mixing with sugar cane syrup. Eastern syrup and molasses brokers have asserted that the present over-adulteration and excessive mixing with glucose are injuring the trade in table syrups. Quantities of syrup which consist mainly of glucose, colored and flavored to imitate cane syrup are imported into Kansas. Our state should fill its own markets, and should export to other markets, good and pure syrup made from our own cheap and rich sorghum cane. Recent decisions of English courts, under the English Food Act, that when a customer asks for cane syrup, he must receive the genuine article asked for, and not an adulterated imitation, seem fair and right and just.

WHERE CANE SYRUP IS PRODUCED.

Sugar cane syrup is produced in the seven states which border on the Gulf, from Florida to Texas. The statistics of the latest census are not yet available. In 1890, the production of sugar cane syrup, and of "Merchantable Molasses" was 25 million gallons, and the production of sorghum syrup was 24 million gallons. It is believed the production of sugar cane syrup has increased and that the production of sorghum syrup has declined since 1890. Sugar cane syrup is in better demand, at better prices than sorghum syrup.

VALUES.

It has been said, "Money is the best tape line by which to measure values." At this date, sugar cane syrup is quoted in its home wholesale market, New Orleans, at 30 to 33 cents per gallon, while sorghum syrup is quoted at its home wholesale market, St. Louis, at 10 to 22 cents per gallon. Side by side, in northern markets, unmixed sugar cane syrup sells at about twice the price of sorghum syrup. The first sugar cane syrup of each season is eagerly waited for and often brings fancy prices. Before the close of the syrup season it is often quoted in market reports with the remark, "None in first hands." Syrup dealers often go from factory to factory, during the manufacturing season, contracting for syrup instead of waiting for it to be sent to market. A commissioner of agriculture of the state of Louisiana said in a public address, "The supply of sugar cane syrup is wholly inadequate to the demand. There is the amplest field for the disposal of the product. The possibilities are very great for increase of syrup manufacture. It goes without saying that pure and good cane syrup would be preferred throughout the country to adulterated syrups and molasses bleached with chemicals."

ONLY BRING UP THE QUALITY.

These facts indicate that Kansas syrup makers have only to bring the quality of sorghum syrup to equality with sugar cane syrup to enter an era of prosperity. The crystallizable sugar and the uncrystallizable sugar are the same in sugar cane juice and in sorghum juice, so far as syrup making is concerned. The mineral matter in sorghum juice varies from that in sugar cane juice in no essential respect. The vegetable impurities are alike. The essential difference between sorghum juice and sugar cane juice, is that sugar cane juice has but 1 1/2 per cent of solid matter, not saccharine, while sorghum juice has much more. Sugar cane juice is naturally so pure that merely skimming off impurities makes good sorghum. When sugar cane juice and sorghum juice, or their syrups, are alike well refined, that is, purified, an expert can not tell one from the other. Sorghum juice of ordinary quality always contains enough saccharine substance to produce first-class table syrup.

The quality of sorghum syrup depends upon the purity of the juice. If no impurity is removed the syrup is intolerable. If much impurity is removed, the syrup is good. If all impurity is removed, the syrup is a first-class table syrup. In the present imperfect way of making sorghum syrup, grassy, silmy vegetable matter is left mixed in sorghum syrup, and gives it its characteristic and unaccountable qualities. In a generation no improvement has been made in quality of sorghum syrup. Sorghum juice is, as when good wheat is, unsalable because mixed with trash. Winnow out the light trash, sift out the heavy trash, then the wheat is marketable. The art of making fine syrup from sorghum consists almost entirely of extraction, that is, extracting undesirable matter from the juice. The sorghum syrup maker has not now, and has never had full control of the quality of his syrup, because he has not been able to separate well the excess of vegetable matter from sorghum juice. He has control only of the quantity of syrup and the density of his syrup. He is dependent upon the accidental purity of his sorghum juice. When he has learned how to purify sorghum juice efficiently it will make little difference whether the juice is unusually pure, or usually impure. He will always make good syrup from ordinarily good cane. The experience of the past fifty years shows plainly that this can not be done by merely boiling and skimming sorghum juice. It will be done by new and better ways of making syrup. Progress in sorghum syrup manufacture is not possible until improvement is made in the quality of sorghum syrup. The decline in the production can only be checked by new and better ways of making the syrup.

NOT GOOD ENOUGH.

These statements have been made earnestly, because it is often singularly difficult to convince sorghum syrup makers that their syrup is not good enough. Trained by usage, they like sorghum syrup even for its faults. They seem not to consider that syrup users, generally do not choose sorghum syrup, or that, after fifty years of sorghum manufacture it is difficult to find even a sample of it in New York City, or other great markets. They seem to ignore the essential fact that they can sell sorghum syrup only in local markets, or export it at ruinous prices to syrup mixers who necessarily can pay only a low price for syrup which is so impure that it is unsalable until improved in ways known to themselves.

A Kansas syrup maker said, frankly, "I tried to make good syrup. I thought I made good syrup. My neighbors said it was good, but when I sent it to Chicago I found it was not good enough."

An Iowa syrup maker said, "It does seem strange that we go on in the old-fashioned way, year after year, when we can not help knowing that sorghum syrup is not good enough for direct use in any great market of the world, and when we see progress in all other lines, all around us."

THE STANDARD.

It is not setting the standard for sorghum syrup too high to take sugar cane syrup as the standard. Sugar cane syrup is made, mostly, in as crude and primitive little factories as sorghum syrup makers have. Kansas syrup makers are not inferior in ambition and intelligence to sugar cane syrup makers. Sorghum juice is not less rich in syrup making material than sugar cane juice. Sugar cane juice has, naturally, greater purity. Sorghum juice may be made as pure as sugar cane juice naturally is. Kansas has the advantage of much cheaper cane, as rich in syrup making material. It is not too much to expect sorghum syrup to have as good quality as average sugar cane syrup. Northern enterprise and persistence should accomplish it.

SUGAR-CANE SYRUP MILLS.

In all the sugar cane growing states there are thousands of small steam and horse-power syrup mills which make syrup for use and for export. These little syrup factories are welcomed and encouraged, because it is well known that the primitive horse-mill leads to the steam syrup factory and that leads to the great central sugar factory. It is a matter of gradual development. Kansas should develop small syrup factories. When they have learned how to make as good syrup as is made in small syrup factories from sugar cane, syrup which is in as good demand, at as good prices, then well-equipped steam factories will build themselves.

It may seem absurd to some to suppose that first-class table syrup can be made in small and poorly equipped horse-mills, but it is a singular fact which has not been explained, that the

best sugar cane syrup, and the best sorghum syrup has, so far, been made in little horse-mills, with the crudest appliances, and not in the best equipped steam syrup factories. This is not true in other lines. It may not be true when syrup manufacture has been perfected. But it can now be clearly demonstrated that a Kansas sorghum syrup maker, with a horse-mill, an evaporating pan and a few secondhand barrels, with no chemicals, can always make good syrup from unsolled juice of ordinary cane. This should be the turning point from a discouraged and declining syrup industry to a growing and prosperous manufacture.

VARIETIES OF SORGHUM.

For eight years an earnest effort has been made to find, among hundreds of varieties of sorghum, a variety giving as pure juice, naturally, as sugar cane gives. Such a variety has not yet been found. It seems reasonable to suppose that among so many varieties a few are specially adapted to syrup manufacture. At the present time there is no generally agreed on choice of varieties.

EXPERIMENTAL WORK.

In the past three years the effort has been to find ways to make sorghum as pure, by purifying it, as sugar cane juice naturally is, and so make as good syrup from sorghum as is made from sugar cane. There is very great promise in this line of work.

The State Experiment Station, and the Department of Agriculture can greatly assist sorghum syrup manufacture by experimental work in either, or in both of these lines, that is, by developing and improving cane for syrup making, or by developing more efficient means for clearing sorghum juice for syrup making. They have special facilities for such experimental work. Few syrup makers have time, means or skill for purely experimental work. Few of them are trained to observe results, and the conditions, and to reason correctly from effect to cause or to verify conclusions rightly. It is not necessary to experiment on a large scale, in an expensive way, nor to strive for original discovery. Ceaseless experimenting has been done in cane sugar, and in beet sugar, and sugar refining, and in allied lines, and some of this experimental work, which has prospered these industries, may also prosper syrup manufacture. But when the right way has been found in a laboratory way, it should be proved in a working way. There are many possibilities in Kansas, but there is not perhaps any other line in which competent experimental work may so quickly clear the sky of clouds, and so quickly replace present adverse conditions as experimental work, which will show unskilled syrup makers how to make sorghum juice as pure as sugar cane juice naturally is. Only this initial step is needed; more will follow of itself.

OUR TROUBLES.

It should be borne in mind that the troubles of Kansas syrup manufacture have not been caused by lack of good syrup making material in Kansas cane, nor by too great cost of cane, nor by impossibility of making fine syrup from Kansas cane. It has always been ready to give as good table syrup as is made from sugar cane, at less cost. The troubles come from lack of experimental syrup work which should have been done a generation ago. Experimental work should always precede, not follow manufacturing work. It should find the difficulties, and find ways to obviate them. It should mark the right road and should guarantee results. "Progress is by considering old ways, and by trying new ways." It is not progress to go on in old and unprofitable ways, until capital and credit and hope are dead. It is not right to entirely abandon the sorghum industry, when the essential fact remains that Kansas sorghum juice is as rich in saccharine material as sugar cane, or sugar beets, at half the cost of either.

MUCH SORGHUM.

The development of syrup manufacture, for home use and for export, is of special interest to Kansas, because cane is specially adapted to our soil, our climate, our people. We may not grow sugar cane, nor sugar beets, but we grow sorghum better than others. In 1854 the Department of Agriculture first imported sorghum seed for distribution. In that year the settlement of Kansas began. And from that year to 1900 the acreage of sorghum increased in this state until it has a larger acreage than any other state, and a better acreage than in its native countries. This state has 40,000 acres in one variety of sorghum, for brooms. It has half a million acres in another variety of sorghum, Kafir-corn, for grain and

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feed. It has half a million acres of sweet sorghum for forage. It may also have half a million acres of cane giving purer and better syrup than the adulterated syrups now imported, and may also export as much and as good syrup as is now exported from the seven cane growing states of the South. In our new soil and dry climate cane is less troubled with grass and weeds than in humid states. On our level plains labor-saving implements plant, cultivate and harvest cane with less labor. Cane is perhaps the surest crop we have. Though largely planted it has developed no special insect pest. Cane seed has value for seed or for feed. The crushed canes have value for fuel in the manufacture. With as good extraction of juice as is had from sugar beets, or sugar cane, a ton of ordinary sorghum gives twenty gallons of syrup. It is easy to see that at the present value of sugar cane syrup, in New Orleans, a ton of sorghum cane should make syrup worth six dollars. With the cheap and weak horse-mills now in use, giving but ten gallons of syrup to each ton of cane, but with a home market for really good syrup at 40 cents a gallon, each ton of cane should yield four dollars. The cane grower should get two dollars a ton, and the syrup maker should get four dollars from a ton of cane.

Vaccination for Blackleg.

DR. V. A. NORGAARD, BUREAU OF ANIMAL INDUSTRY.

There can be little doubt that blackleg has existed as a bovine scourge from time immemorial and through constant exposure to the infection the cattle gradually acquired a more or less complete immunity to the disease. The buffalo for instance, was undoubtedly immune while the half-wild breed of long horns, which a few years ago formed the vast majority of the herds of the West, possessed great power of resistance to blackleg. For this reason the disease was practically unknown in this country ten years ago, although there is evidence of its continued appearance with shorter or longer intervals among the herds of the West. The losses were, however, as already stated, looked upon as unavoidable and did not in magnitude compare to the losses, which nowadays may befall the cattle owner who neglects to protect his high grade or full-blooded animals against this disease. The recrudescence of blackleg dates back to the time when the stockmen began to improve the native breeds with strains of pure-blood cattle. As the long horned, long legged, far roaming beasts became gradually transformed into the deep chested, beefy and more indolent cattle of the present day, there also occurred a gradual retrogression in the vitality and the power of resistance against diseases which characterized their bovine prototypes. In certain sections of the country where the disease had been practically unknown or where it only occurred with intervals of two, three or four years it gradually became more and more prevalent until at the present time it has become a daily occurrence; and as the value of each individual animal increased to a point where disease or death would signify a direct loss of from twenty to forty dollars the cattle owner began to realize that any effort to protect the health of his herd was a paying investment even if the efforts had to be extended to the individual animal. It is, therefore, not surprising that vaccination for blackleg was adopted to such an extent as has been the case during the last three or four years, especially when it is considered that the disease has gained such a foothold that at the present day there is probably not a single county in the state of Kansas where blackleg does not occur; and I doubt whether there is present here to-day a single cattle owner who has not had more or less dearly bought experience with this disease.

AN INFECTIOUS DISEASE.

Presuming that you have all had opportunity for observing natural cases of blackleg, it will not be necessary here to enter into a detailed description of the symptoms and post-mortem appearance, but it suffices to say that blackleg is an infectious disease, caused by a specific germ which is almost universally present in the ground in all districts where the disease is known to prevail. This microbe upon gaining entrance into the system—usually through punctured wounds made by briars or stubbles—develops rapidly and causes those hemorrhagic bluish-black gas filled swellings with which you all are familiar. The course of the disease is very rapid and the animal usually dies within twenty-four hours

after the appearance of the first symptom.

These swollen parts contain at the time of death millions upon millions of blackleg germs, and if immediate action is not taken to destroy them they will be scattered through the agency of dogs, wolves, buzzards and crows over vast areas where they will become permanently located, and when transformed into the so-called spores can retain their fatal properties for many years. In this manner a single case of blackleg is sufficient, when not immediately destroyed by fire, to permanently infect a pasture, and at the present time there is no known means whereby such infection may be destroyed. It is of the utmost importance, therefore, that every effort be made to dispose of the carcasses in a manner to insure the complete destruction of all blackleg germs. The most satisfactory method by which this can be done is by burning, but in pastures where wood is scarce, burying may be resorted to. Where wood is abundant the cremation is most easily effected by raising the carcass from the ground and placing two or three logs under it and then heaping a cord or more of wood over it. By means of fagots and a quart of kerosene oil a fire is started which will consume the entire carcass.

If the carcass must be buried, care should be taken to have the hole sufficiently deep to insure that the carcass is at least five feet under the surface of the ground, and, before the earth is filled in, one or two pailfuls of slaked lime should be scattered over the carcass.

One of the most effective methods of freeing an infected pasture from blackleg is to allow the grass to grow up high, and, when sufficiently dry, to burn it off. One burning off, however, does not redeem an infected pasture but the process should be repeated several years in succession. This method, however, is in most instances impracticable, as few cattle owners can afford to practice it, and the only means left for the protection of the animals is vaccination.

WHAT IS VACCINATION?

By vaccination we understand the injection into the system of a minute amount of attenuated or artificially weakened blackleg virus for the purpose of producing a mild and clinically unrecognizable case of blackleg. The virus is obtained from animals which have died from blackleg by securing the affected muscles, cutting them into strips and drying them in the air. When perfectly dry they are pulverized, mixed with water to form a paste, smeared in a thin layer on flat dishes, placed in an oven and heated for six hours at a temperature which approaches that of boiling water. The paste is thereby transformed into a hard crust which is pulverized and sifted and measured out into packets containing either ten or twenty-five doses. This powder constitutes the vaccine, the strength of which is thoroughly tested on experiment animals before it is distributed among the cattle owners.

The process of manufacture as it is here described appears extremely simple, but it requires, nevertheless, constant vigilance and great experience to produce a vaccine which on the one hand will be sufficiently strong to enable the animals to resist a subsequent attack of the disease, and which on the other hand has been made sufficiently harmless to insure that the most susceptible animal does not develop an acute case of blackleg as a result of the injection.

If all animals were equally resistant to the disease or equally susceptible to it a happy medium could easily be decided on, but the great difficulty in the preparation of the vaccine lies in the fact that no two individuals possess the same power of resistance. In fact some animals, fortunately a very small number, are so susceptible to the disease that the injection of the vaccine results in the development of a fatal case of blackleg, but statistics from this country as well as from Europe show that these cases amount to less than one in two thousand among the several million animals which have been vaccinated during the past fourteen years, that is, since vaccination for blackleg was first introduced.

MILLIONS OF DOSES.

The preparation of blackleg vaccine was first taken up by the Bureau of Animal Industry in 1896, but it was not until the summer and fall of the following year that the Bureau began to distribute vaccine free of charge to all cattle owners in the United States who wished to employ this method for the protection of their stock. Since then about two and a half million doses have

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