

# KANSAS FARMER

ESTABLISHED IN 1863.  
VOL. XXXIX. NO. 8.

TOPEKA, KANSAS, THURSDAY, FEBRUARY 21, 1901.

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,  
WICHITA, KANSAS.  
**DUROC-JERSEYS.** 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 (25173 S.)  
Others bred to Black U. S. Best (21767). Also a fine  
lot of fall pigs for sale. Prices reasonable.  
W. P. 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, Home, 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.  
MANWABING 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, Kansas. Telegraph address }

**VERDIGRIS VALLEY HERD** Large-boned, Prize-winning POLAND-CHINAS.  
We have for sale 8 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.

**A RARE CHANCE.**  
Six grand daughters of Frazers U. S., and 3 daughters of Knox All Wilkes, bred to Ideal Black Chief, best son of Missouri's Black Chief, and Imperial Chief, first in class at Iowa State Fair. One Chief Teumseh 8d gilt safe in pig to Ideal Black Chief—she is a bird. Four fall boars GOOD enough to head any herd. . . . Good fall boars and gilts reasonable. . . .  
"Poland-China Headquarters." . . .  
DIETRICH & SPAULDING, Richmond, Kans. Farm one mile from station.

### SWINE.

**J. D. MARSHALL, Walton, Kansas.**  
For Sale: Thirty-five fine gilts, sired by "Miles Look Me Over (18879) prize-winner in 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.  
WARE & POOKE, 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's 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 (43611), 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.

**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 28603, 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 Teumseh 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 \$5 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 REGISTERED POLAND-CHINAS** HERD OF . . .  
HIRAM SMITH, Breeder, Colwich, Sedgwick County, Kansas.  
Herd headed by the famous herd boar, BLACK CHIEF (42857), and assisted by IDEAL U. S. (Vol. XXII). I have on hand 80 serviceable boars and 85 gilts for sale at reasonable prices; quality, style, and breeding considered. Out of 20 richly-bred sows, such as Worldbeater's Beauty (109484), Dolly P. (105020), Black Besie (104244), and Banner's Pride (103708). Inspection or correspondence invited.

### CATTLE.

**TWO CRUICKSHANK-TOPPED SHORTHORN BULLS FOR SALE**  
Both reds; 8 and 9 months old. Also summer and fall farrow POLAND CHINA PIGS—both sexes. Prompt response to enquirers.  
O. E. MORSE & SONS, Mound City, Kans.

**CLOVER CLIFF FARM.** Registered Galloway Cattle.  
Also German Coach, Saddle, and Trotting-bred horses. World's Fair prize Oldenburg Coach stallion, Habbo, and the saddle stallion, Rosewood, a 18-hand, 1,100-pound son of Montrose, in service. Visitors always welcome. Address  
BLACKSHERE BROS., Elmdale, Chase County, Kansas.

### 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. PRABODY...KANSAS. Home of Empress Josephine 3d, champion cow of the world. Gerben's Mechtshilde 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 Charmin 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-Cotswold 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.** M. 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 breed 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 Marmion 66646 and Anxiety Wilton A—45611, 10 to 14 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 SHORTHORN CATTLE POLAND-CHINA SWINE.** Herd bull, Sir Knight 124403. Herd boars, Black U. S. 3d 2562 S., and Sunflower Black Chief 28608. Representative stock for sale. Address ANDREW PRINGLE, Harveyville, Wabash 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 tippy 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.** 1,200 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, Shady Bend, Kans.

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

**BREED THE HORNS OFF BY USING A RED POLLED BULL.** CHAS. FOSTER & SON, FOSTER, Butler Co., Kans. Breeders of Red Polled cattle. Herd headed by Powerful 4682. Pure-bred and grades for sale. Also, prize-winning Light Brahmas.

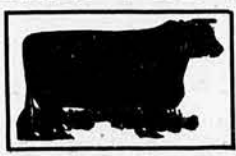
**H. N. HOLDEMAN, Girard, Crawford Co., Kans.,** —BREEDER OF— PERCHERON HORSES, HOLSTEIN FRIESIAN CATTLE, representing Josephine, Mechtshilde, and Parthena families. Poland-China hogs. Son of Missouri's Black Chief at head of herd. B. P. R., and B. L. H. chickens. Eggs in season, always guaranteed as represented.

**MT. PLEASANT HERD OF SHORTHORNS** Herd headed by Acomb Duke 18th 142177. Herd composed of Young Marys and Galatas. Young Bulls for sale. Sired by Phyllis Duke 181838.  
A. M. ASHCROFT, Atchison, Kan. R. D. No. 3.

**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's., Lake Forest, Ill.

**Registered Herefords.** THOS. EVANS, Breeder, Hartford, Lyon County, . . . Kansas. SPECIAL OFFERINGS: FOR SALE—Six bulls and fifteen heifer calves, one 3-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, Barringtons, and Braelett. 166th Duke of Wildwood 18451 at head of herd. Can sell young for 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. AGE, HOLT COUNTY, NEBRASKA.

RAVENSWOOD :: SHORTHORNS

C. E. LEONARD, - - BELLAIR, MO. Males and Females For Sale. Inspection especially invited. Lavender Viscount 124756, the champion bull of the National Show at Kansas City heads the herd. E. B. and Telephone Station, Bunceton Mo. ED. PATTERSON, Manager

H. M. Satzler, Burlingame, Kansas, BREEDER OF.....

HEREFORD CATTLE, BERKSHIRE SWINE, COTSWOLD SHEEP. STOCK FOR SALE.

IDLEWILD SHORTHORNS.

The blood of Roan Gauntlet and Champion of England can be had direct through our herd bull, Godoy 115575. His dam, Imp. Golden Thistle (Vol 28) 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 Double Marys. Can offer Godoy Calves from these tribes.

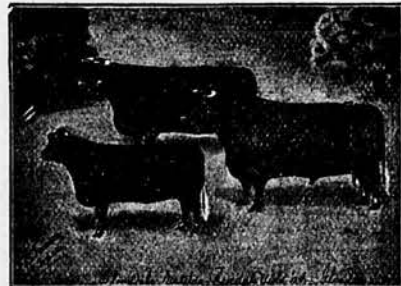
W. P. HARNED, Vermont, Cooper Co., Mo.

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.

H. R. LITTLE, HOPE, DICKINSON CO., KANS., Breeds Only the Best Pure-bred SHORTHORN CATTLE.

The herd numbers 185, headed by ROYAL CROWN 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 8 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. O. F. WOLFE & SON, PROPRIETORS.

TEBO LAWN HERD SHORTHORNS

HERD BULLS ARE: IMPORTED COLLYNIE 135022 bred by Wm. Duthie. IMPORTED BLYTHE VICTOR 140609 bred by W. S. Marr. IMPORTED BAPTON MARQUIS bred by J. Deane Willis. ADMIRAL GODOY 133872 bred by Chas. E. Leonard.

FEMALES are the best CRUICKSHANK families topped from the leading importations and American herds. These added to the long established herd of the "Casey Mixture," of my own breeding, and distinguished for individual merit, constitute a breeding herd to which we are pleased to invite the attention of the public. Inspection and correspondence solicited. Address all correspondence to manager. E. M. WILLIAMS, Manager. G. M. CASEY, OWNER, SHAWNEE MOUND, HENRY COUNTY, MO.

Draft Stallions OF THE SHIRE, CLYDE, AND PERCHERON BREEDS.

IMPORTED, and HOME BRED All Ages POLLED DURHAM AND SHORTHORN CATTLE. POLAND-CHINA HOGS. Prices Right. Snyder Bros., Winfield, Kans

HORSES AND MULES.

PERCHERON HORSES.

J. W. & J. C. Robison, Towanda, Kansas. Importers and Breeders. Stallions for sale.

30--HEAD OF JACKS--30

T. B. BRIGHT & CO., will hold their big sale of JACKS at FOX & LOGAN'S LIVERY STABLE in DANVILLE, KY., FEBRUARY 28, 1901. Fifteen head of them range in size from 15 to 16 hands high. Catalogues mailed on application. Address T. B. BRIGHT & CO., Look Box 634, Danville, Ky.

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 Amlens 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, stallion, any age; 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

A HAPPY NEW YEAR TO ALL.

Farmers! If you have any Fencing to do, the best way to make yourselves happy is to buy a SUPERIOR FENCE MACHINE and build your own fence. You can have the best fence for the least money, built on the ground to fit. Catalogue Free. Price of Machine \$4.75 prepaid. Good agents wanted. SUPERIOR FENCE MACHINE CO., 180 Grand River Avenue, Detroit, Michigan

MARK THE GRAVE. This headstone, 17-in. high, \$4. or this monument, 42 in. high, \$14. same size different style \$11. All in good blue marble, nicely lettered. Work guaranteed. Full instructions for setting. Send for Catalogue. W. J. Moore, Sterling, Ill

Columbus Herefords

Herd headed by COLUMBUS 51875, Hesiod 17th 56467, and Weston Stamp 15th 108358. Columbus is the sire of the \$7,500 Dale, the \$5,050 Columbus 17th, the \$2,000 Columbus 19th, the \$1,350 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. S. Van Natta, and Scott & March February 26 to March 1, 1901, when 160 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. RODERIOK 80155; MONITOR 58876, EXPANSION 93668, FRISCOE 93874, FULTON ADAMS 11th 88781. HESIOD 29TH 66304. 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.



LAMPLIGHTER 51834.

T. K. TOMSON & SONS, Proprietors of \* \* ELDERLAWN HERD OF SHORTHORNS DOVER, SHAWNEE COUNTY, KANSAS.

GALLANT KNIGHT 124488 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 Galahad out of Lila Linwood Golden Drop. Lord Mayor heifers bred to Laird of Linwood for sale. Also bred Shetland ponies. Inspection invited. Correspondence solicited. A few young bulls sired by Lord Mayor for sale. Address 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.



## BERRYTON FARMERS' INSTITUTE.

Papers Read at the Annual Meeting, January 31 and February 1, 1901

The KANSAS FARMER presents below as many of the excellent papers read at the Berryton farmers' institute as the editor has been able to obtain. These papers are worthy of careful study, and are fairly representative of the thought of the up-to-date farm communities of Kansas.

### What Farmers' Institutes are Doing for Our People.

N. J. TAYLOR, BEFORE BERRYTON FARMERS' INSTITUTE.

I once had the idea, and some of you may have had, that a farmers' institute had to do only with crops and stock, but it is more than a place to learn how to raise more corn, with which to raise more hogs to sell, to enable one to buy more land, upon which to raise more corn, to raise more hogs, to buy more land, to raise corn to raise hogs to buy land.

A farmers' institute is a school, a place where is taught and studied not only material things such as crop raising and kindred topics, but also how best to manage our schools, the training of children, the advancement of homes and in short about all that pertains to the making of pleasanter, better homes and better citizens.

#### IT IS CONTAGIOUS.

Knowledge is contagious. A few weeks ago some of us went over to Mission Centre to a farmers' institute. Major Sims had us seated up in front and we opened our mouths and took it in, and then when we closed our mouths to rest the knowledge soaked in through the pores. There was a town farmer there that taught us how to make money out of a weed. He said it was a vigorous grower, and we believed that; he also said that it would grow on poor land, and we believed that, for we had seen it. He also said that it was a valuable plant for cattle and hogs, that it contained a large amount of digestible protein, and was valuable feed. This we might not have believed, as he was a town farmer, and somewhat of a plutocrat, too, but three or four genuine clodhoppers said it was so; said the cows ate it greedily and gave more milk. Prof. Otis, too, said that it contained a good per cent of protein. The plant is sweet clover or bokhara.

And then Prof. Otis, one of the best posted men in Kansas, told us how to produce a balanced ration on the farm, so that the dairyman need not spend all the money received for butter to buy bran to make his cows give more milk to buy more bran; but the professor taught us how to so manage, that all the money can be kept on the farm.

Do not despise the town farmer, but rather be glad that he has time to experiment, and give us the benefit of what he learns thereby.

#### BALANCED RATIONS FOR MEN.

The domestic science department of the agricultural college sent a young woman down there, and she taught our wives how to feed us balanced rations, so that we should neither be too fat nor too lean.

A farmers' institute is a school whose teachers are experts or specialists in their lines; who have been successful; who thoroughly understand what they try to teach. For instance, on the subject of swine, George Berry is authority; he knows all about a hog, just what it should weigh at six months or at nine months. He even knows just how its tail should kink, and all about its uncles and aunts and grandparents. Mr. Fox knows just how and what to feed the dairy cow, and how much butter fat she ought to give. So of our other institute workers, they know whereof they speak.

#### RESULTS.

And now as to results; I can, of course, only briefly enumerate some of them. As has already been mentioned, Mr. Hilton has taught us to preserve or conserve the moisture in the soil, there-

by adding immensely to the annual yield of grain and other crops. You know it is an old saying of an alleged rich country that if you "tickle the soil it will laugh with harvest." Well, he taught farmers just how to tickle it, and the result has been that notwithstanding the hot winds of last summer, we raised a full average crop.

Two years ago, a boy read a paper here on the cure of poultry. He was making it pay too, and he was not doing it just for fun. Since that paper was read poultry houses have been going up all over the neighborhood.

#### CARE OF HOMES.

Professor Popenoe gave an address on the care of our homes and I went home and moved the old tumble-down stone fence from in front of my house, mowed the brush off, and seeded it to clover. A neighbor told me that it added one hundred dollars to my place. Any how my wife has been better natured ever since.

#### READ AND REASON.

Farmers' institutes have taught us to read; to reason logically and correctly; to think and to talk, that is, to express our thoughts clearly and forcibly. Farmers' institutes are even training men for statesmen. Mission Centre already has a man in the legislature, Overbrook has another, and if it was for them to handle the Grout bill, they would prove to be the "groutiest" men going.

#### INSPIRATION.

There is an inspiration in such meetings as this, and there are men and women who need it. There are men who think that farming does not pay; that luck is against them, and are almost tempted to think even providence and the government are leagued against them. They need to come to such meetings as this, and meet the successful ones. Men who began with nothing but their hands and brains and have raised their families and paid their debts and made themselves comfortable homes. There are half discouraged women, who feel that their burden is almost too great to be borne. These need to come here and meet the women, who began life in a hut but little better than a dugout and have raised their children to lives of usefulness, struggling up from poverty and privation, and even while doing so keeping abreast of the times, so that they are able to come onto this platform and teach their sisters how to make better and more attractive homes. "These are they" who have literally "come up through much tribulation," and it is inspiring to meet such people.

#### IMMUNE AGAINST KNOWLEDGE.

But there have been some failures. I said knowledge was contagious, and so it is. But some men are immune. You know children some times fail to take measles; they are immune. Men acquire immunity to knowledge by standing on Sixth Street. They stand on the sunny side until their heads bake. They shed knowledge as a cabbage leaf does dew. The place to keep the brain in good health so that useful seed will catch is not Sixth Street. Farmers' institutes have also failed to teach husbands to train wives into proper submission. I see a woman in the audience shake her head; I believe I know what is in her mind. She is thinking what about the wives training their husbands. They need no help in that line. Some of them have got it down pretty fine already.

#### THE FARMERS' ADVANTAGES.

The farmer is on top; he of all men is safest from commercial panics; his food is the freshest and best; from farm yard, garden, orchard and dairy. To him comes the blessed sunshine, undimmed by smoke from factory and mill. The air he breathes is untainted by foul smells from back alleys, or noxious vapors from a thousand fires. For him the morning is more bracing and the noontide more restful. These things make him strong and able to endure prolonged strain. In the crisis of our national life, it was a country raised boy who, grown to strong manhood, was able to bear the mighty burden of a struggling nation. And when other generals had failed, it was a country raised boy who by his resourcefulness, his keen observation, his industry and power of endurance, gained a victory and saved a nation.

#### THE CITIES' ADVANTAGES.

But in some things the city man is more fortunate than the farmer. His educational and social privileges are far greater.

#### FOUR NEEDS.

Only four things are needed to give the farmer an immense advantage over the city man.

One of these we can have for the asking, and that is the graded school. Let four or five school districts combine, let us take a lesson from the business world and pool our issues. It has been demonstrated that it is a success financially and every other way.

Another is the telephone, which is coming. It is already in use among farmers.

Another need is rapid transit. If there is to be a great lecture, or musical entertainment in the city, we want to be able to make the trip in from ten to thirty minutes and at small expense, and so we want trolley lines. And fourth, the trolley lines are to be supplemented by good roads. Not perhaps by building expensive stone roads, but by better care of roads we have. The automobile is rapidly being perfected and cheapened, so that all we shall need will be broad smooth roads.

These are better days for farmers and we are at the beginning of still better. Our agriculture college, the Grange, and the farmers' institute are teaching people how to work to better advantage, so as to get larger returns from their labor. People have better homes, live better and larger lives. I am glad our wives enjoy for themselves and children more of the comforts of life, for they have earned this enjoyment.

#### The Soy-Bean.

BEN KESSLAR, BEFORE THE BERRYTON FARMERS' INSTITUTE.

The Kansas experiment station has introduced a new crop called the soy-bean which was brought from Japan where it is very extensively cultivated for human food, taking the place there of beef, on account of its richness in protein, but because of its peculiar flavor or we would not like it. The experiment station began raising soy-beans about ten or twelve years ago, and has increased the acreage ever since. As a result the station recommends them as a profitable crop for farmers of Kansas. The experiment station sends out its results in bulletins on every line of experiment it undertakes, free of charge to every farmer that desires them, and he has no need to fear that he may be misguided or swindled by the advice of these state institutions, as they are not paid by what they make from their proceeds, but are paid by the state, and receive the same salary whether their results are good or not and it will not make any difference to them whether you read their reports or not.

The success of every agricultural business enterprise or scientific achievement is gauged by the final outcome for the necessary labor and expenditure of money. Talk, theory, estimates, and hopes are all good in their way in any kind of endeavor, but in the end the practical, clear-headed man of the world casts all these aside and looks for the final results, and upon these he forms his decision as to the success or failure.

The results of all our new crops, such as Kaffir-corn, alfalfa, and soy-beans and their feeding qualities, have been well tested before recommending them to the people as profitable crops.

The best time to plant soy-beans is as soon as corn is planted. Plant in drills 32 to 42 inches apart, dropping seeds 2 inches apart in the row. One-half bushel of seed is required per acre. Cultivate the same as corn. When the pods turn brown, cut either with a self-rake reaper or with a common cultivator: rigged up for the purpose. They should be put into small shocks until cured. They seem to be a fairly good drought resistant, and are not touched by chinch-bugs. The beans are richer in protein than linseed-meal. When planted early in the season, the yield is from 10 to 20 bushels per acre. The soy-bean not only furnishes a substitute a little better than oil-meal, but at the same time gives a chance to prepare land for another crop, or have it fall plowed for spring crop. I believe this crop to be worthy of a trial in all parts of the state, and the trial should not be less than an acre. Five acres would be better. Hundreds of people have tried planting a quart of seed which they received by asking for at the station. with the result that the grasshoppers and rabbits harvested these small patches. I have found the jack-rabbit and cottontail both very damaging, especially after beans get from 2 to 3 inches high.

No extra growth is gained by too early planting. Farmers who have a sufficient amount of alfalfa, do not need soy-beans, but farmers not having alfalfa ought to try soy-beans. I think it essential to farmers to raise a home-grown product which will produce the


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same result as is obtained from linseed-meal at a reduced cost. With linseed-meal at \$25 a ton, soy-beans will be a profitable crop. Farmers who have been in the habit of buying oil-meal should try to raise at home all the feed given to their steers, cows, and young stock.

Soy-bean-meal being somewhat richer than oil-meal not over 3 pounds per day should be fed to a dairy cow. The softening effect on the butter may be overcome by giving feeds having the opposite tendency such as corn and Kaffir-corn. Like alfalfa and Kaffir-corn, the soy-bean has come to stay whether you and I plant any or not. Most Kansas feeds with the exception of alfalfa are deficient in protein which is the material in food that is needed to form flesh, blood, and milk.

Soy-beans will cost the farmer from forty to forty-five cents a bushel or from thirteen to eighteen dollars per ton to raise them. Pound for pound, soy-beans are worth a little more than oil-meal.

If the beans are allowed to become too ripe before being cut, they sometimes shell out very badly. Farmers have reported a loss of half or more of the crop from this cause, but if cut when pods turn brown, they shell but little. Soy-beans intended for seed should be stored in shallow bins, if kept in large quantities or in sacks, they heat and will not germinate. Farmers buying seed should take the beans out of the sacks as soon as received and spread them out on a dry place until planting time.

It is a long-established fact in old countries, as well as in the eastern states, that by rotation of crops the best results are obtained. I do not mean to say that where a man can raise from 40 to 70 bushels of corn every year that he ought to practice rotation farming, but where a man raises unsatisfactory crops he may benefit by rotation. Different crops feed upon different materials of the soil. Some plants draw large supplies of their food from the air, while others gather most of their plant food deep down in the subsoil. Rotation prolongs the producing powers of the land. Grow one kind of crop only and the soil in time will become exhausted, but changing crops will prolong considerably the period required to deplete the soil of its fertility.

The increase of the destructive insects is hindered by rotation. When but one kind of crop is grown, the conditions favorable to the growth of these insects which feed upon that crop are continued unchanged from year to year. Rotation is necessary for the economical feeding of live stock.

In the keeping of live stock it is necessary to feed them with a variety of feed, and it will be seen that these can be grown more cheaply than bought, especially when a proper rotation is observed.

#### How Can the Farmer Encourage His Children to Stay on the Farm?

MRS. J. C. BANTA, BEFORE BERRYTON FARMERS' INSTITUTE.

This is one of the interesting and unsolved problems of the day. When we find that the majority of the young men from the country attending the high schools, business colleges, and universities are preparing themselves for some other pursuit than that of agriculture, the question naturally arises, why is it thus?

How many farmers to-day are striving to interest their children in some way to have them better satisfied with the rural life than any other, but in vain!

During the past few years, hundreds of young men and women have left fine farms and sought work of some kind in the overcrowded cities. There they accept positions of almost any kind at very limited wages, which are only sufficient to keep them from week to week, and when the end of a year comes, they find they have nothing ahead.

The Ohio Farmer, in reply to a recent letter from a farm boy asking advice in regard to accepting an offered position in a city at \$50 per month, advises him to take \$15 per month on a farm in preference. Yet he says there are 10 boys looking for jobs in the city at much less than \$50 per month, to one boy looking for a \$15 job on a farm.

A good experienced hand in Kansas finds no trouble in getting from \$18 to \$20 per month, and this usually includes board, and often washing, and at the same time he is learning a business that will never be overdone at some other man's expense.

Now if he is steadily employed, even at an average of \$17 per month, by not very close economy he can lay by \$150 per year as a bank account, and have \$54 left for clothing and other necessities. Of course, this does not include

tobacco. Luxuries of any kind will break his bank account. Compare this with the young man who goes into the city and pays from \$2.50 to \$3.50 per week for board, and add to this his laundry bills, and often room rent, to say nothing of extra articles of dress, entertainments, and luxuries of different kinds for which he is at least tempted to spend his money. These facts and figures soon show him that his meager salary will not allow him to lay by anything with which to begin business, and when he is taken sick or is dismissed for any reason, he usually finds himself at the mercy of his friends, or facing a cold world without a dollar. We, as parents, who are interested in making farmers of our children so far as possible, naturally ask, what is the remedy?

First, then, let us consider the worthlessness of the calling. Agriculture is the leading industry of the world, for the reason that all classes are dependent upon its products for a living, and it is thereby justly called the keystone of civilization. It is also the most honorable business, for in all other pursuits, save that of mining, the profits are taken from our fellow men, while these take it from the earth. Again, it is the most healthful, free, and independent pursuit known to man, and when intelligently carried on is one of the most lucrative.

Another point is its freedom from evil temptations. Then when we consider its importance as an industry, and the many advantages connected with it, why should we hesitate not only to commend it, but to do all in our power to make honest, intelligent and progressive farmers of our boys.

There are some who may doubt whether it is a suitable place for a man of ability and education. Edward Bok, managing editor of the Ladies' Home Journal, in answer to the question, "What constitutes a successful farmer?" replied in these words:

"To be a successful farmer calls, nowadays, for as much thought and brains as to be a successful merchant or doctor. There is no doubt that to gain the best results out of a farm calls for more training and education to-day than in years gone by. This is because the markets are widening, competition is becoming keener, and also because of the greater adoption of machinery. The idea that farming is simply a manual pursuit is wrong. The farmer of to-day, and of to-morrow, must be a man of brain as well as of muscle, or he can not succeed. There is nothing that fertilizes the soil of a farm so well as the brains of the farmer. Cost of production and the best markets must be studied, and this requires an intelligent comprehension not only of what is going on in farming, but in the world in general. He must understand citizenship as well as farming, in fact. National conditions, national tendencies all have their bearing upon the farmer more than upon any other man, because he is the producer of what keeps the world alive. Haphazard farming never did pay; it has given some farmers a fair living in the past, but it will give fewer of them any living at all in the future. A young man going into farming now must have something more than money to buy land, implements and cattle. He must have training and knowledge; he must have a clear head on his shoulders, in short. The time has come, and conditions are imperatively shaping themselves more and more each day, when farming, or rather the science of agriculture, will be a profession, requiring the same mental capacity as medicine, law or literature. The day of the shiftless farmer is over."

**PARENTS' RESPONSIBILITY.**  
Now that we as parents are to a great extent responsible for the choice of business our children make, can not be denied; for we have the first opportunity of developing their tastes and habits, and as a consequence in most cases they are what we make them.

**THE TWO GREAT INFLUENCES.**  
There are two great influences brought to bear on every child's life. First, home-life; second, education. The home-life is the most important of all. Let us see to it that our home is much more than a place to eat, sleep, and work. Let it be a place where all take an interest in each other, where all may work harmoniously and rest as well and where sympathy, confidence, and helpful advice go hand in hand. No matter how plain or humble a home may be, it can always be made that "little sunny spot of green in the great desert of the world."

**DISCIPLINE.**  
The discipline in the home has much to do with its pleasures and success. If we would have our children respect us and heed our advice when grown, we

must teach them to obey from infancy up. Indulging a child in his own whims is a short road to ruin. How many do we meet who have been humored and pampered until they do not know what they want. They are utterly worthless to themselves, a disgrace to their parents, and a nuisance to all with whom they come in contact. They seldom make a success of anything.

#### ATTRACTIVE FEATURES.

Again, in the home we must provide not only comforts, but some attractive features as well. We, as mothers, are largely responsible for these. The restless natures of children demand some time and way for recreation. If it is not provided at home, they soon compare home with some other place where it is provided, and become dissatisfied and care less for home.

Give them neat rooms of their own, if possible, and provide them with the best of reading matter suitable for their ages; also innocent games, and encourage them in music to a reasonable extent. Give the boys time and a way to fish and hunt for a change, and if you as fathers can endure the sport, go and enjoy it with them and protect them from the dangerous part of it.

How many owe their success in life to the influence of a happy home, and how many have gone out into the world with no other backing than their home training, and have led lives of usefulness, and many of them have filled positions of highest honor. Then, when we realize that the future leaders in every department of life are but the children of to-day, and that we as parents have a part in the moulding of their lives, how important that those intrusted to our care should receive the best guidance and training in every way it is possible to give them.

#### INDUSTRIAL TRAINING.

There is still another important factor in the home, and that is the industrial training. This, above everything else, decides in most cases what the outcome of a child's life will be. In this way steady habits are formed and an interest created in work and the home that nothing else will do.

Young children should be given small tasks to be done, but they should always be shown how to do the work and given only a certain amount to be done at a time, and when the work assigned is promptly and well done, give them time to rest or have a change from it in some way. They should never be required to work long hours at a time, as this discourages them and they not only grow tired, but it tempts them to shirk or to do careless work, which should not be allowed. There is nothing that so discourages a child as to be kept at work all the time with no time for himself. This applies to the older ones as well as the younger. True, there are busy seasons when they must apply themselves more closely, but when the rush is over, give them a little rest or change.

#### THE PECUNIARY SIDE.

Allow the older children to have some way to make some spending money for themselves. When they are old enough to take care of it, give them some product of the farm, such as a pig, a calf, a horse, or a piece of ground on which to raise something for themselves, and when these are converted into money, let it be theirs; but it should receive the oversight of either parent, who should help them spend it for things they need, reserving a small part for some useful and helpful luxury. Help them to keep an account of what they spend. In this way they learn the value of money. They first learn how it comes, and what it takes to keep them in clothing, and also teaches them habits of economy. They will very soon begin to deny themselves things they can do without rather than spend their own money. They should not be allowed to spend it without permission.

#### EDUCATION.

No other one thing will help a young man or woman decide what he wants to do as will the kind of an education attained. If you hope to have your boys return to the farm to take up its work when they finish their education, do not send them to college to take a course in law, pharmacy, classics or civil engineering, or to West Point or Annapolis to take a military course, or to any other school to study for years along any other line than the one they expect to follow. When a young man decides to be a physician, he attends a medical school and prepares himself for that profession only. If he is going to be a minister, he takes a theological course. If a teacher, he goes to college or a good normal, where he can best prepare for that work, and if he expects to be a live, intelligent farmer, he should first obtain a thorough common

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school education, and if circumstances will allow, give him a course in some good agricultural school. But if this can not be done, a course in a good business college will be of great benefit. We do not mean by this that he shall take stenography, telegraphy, typewriting or ornamental penmanship, but he can obtain a more thorough knowledge of the common branches, which he will have more use for than anything else, and besides these he can take commercial business law, bookkeeping, and business penmanship, all of which will be great helps to him. Thus we see that in order to be successful in agriculture and horticulture, we must educate both hand and brain.

HOW IT CAN BE DONE.

The practical part can be most efficiently done at home on any up-to-date farm. This can be greatly aided by taking several of the best farm papers. Much valuable educating may be done at home in this way. Read these with the boys and they will soon become interested in the new improvements and best methods that are ever coming to the front, with regard to new machinery and the best soil adapted to different kinds of crops, and the best kinds of food for different kinds of stock, and so on. Thus if we look after the many little details which add so much to the farmer's life, we will be well repaid for our efforts.

WHAT CAN BE DONE FOR THE GIRLS?

Now last, but not least, what shall we say of the girls? Have they no special work to prepare for, or when grown shall we place them on the marriage market to be disposed of at first opportunity? To this we say no. Only within the last few years has home-making or house-keeping been regarded a profession, just as much as farming or any other business. Further, we must admit that the natural forces in a woman are those which pertain to the home, and for this she should have special training, and there is no place better fitted to prepare her for the truest expression of herself than a well ordered country home. No one is likely to take much interest in that she knows little about. There are many departments in the home, and a thorough knowledge of them can be learned in no other way but to take a part in them. No one can learn to cook without practice. Neither can she learn the care of a kitchen and its furniture, the pantry, cellar, cupboard and its contents, how to make good bread and good butter, except by practice. The same with the sewing; a business of itself, yet it belongs to every home, and should be learned by every girl as a part of her education. Where there are two or more large girls in a family, the work can be divided and taken week or month about. This gives a chance to have practice in more than one line of work, and is also a change. During the vacation is the only time much can be accomplished at housework.

After she has finished the work of the common schools and had sufficient home training, she should have such other school advantages as will fit her to fill with credit any position in life to which she may be called. She may not be able to attend college, but as it is estimated that in this country only one girl in 5,000 ever attends college, she need not feel discouraged. The world is so full of chances for a good education that any girl who is willing to apply herself and make an effort may have a good education nowadays.

One writer says that college bred women so far have been successful only as teachers, and while teaching is a grand work and a commendable business for those who wish to take care of themselves independently of home support or as a stepping-stone to a better education, we believe most farmers' daughters can render valuable service in the home, earn a liberal support, and more thoroughly fit themselves for making the best wives on earth.

Dr. Weir Mitchell, an eminent physician, says that the French are wiser than we. Their primary and grammar schools demand a certain amount of knowledge in sewing and cooking. This is much insisted upon before they can enter the normals. In these are taught heating, lighting, care of furniture, care of linens, art of washing and ironing, while cooking is most elaborately dealt with; also cutting and sewing, and a host of other things. Compare this with the curriculums of our American schools, and we can easily see why the French can live on what we waste. They have been trained in the home arts, while our girls have only a slipshod training along these lines, where a great portion of them are to spend their lives. In order to lift the every day duties of home life above drudgery, much can be done by studying the laws

of hygiene, for on these depend the health of the family. They should study the laws of domestic science and sanitation. There is much to be learned about the composition of the foods we prepare, and what properties are best for certain conditions. If it is necessary to study what is the best food for stock or for the soil, why should we not know more of what is for our good and not so much what we like. Much study along these lines can be bestowed in the home, and it will help the girls to see another side to much of the oft-repeated and monotonous part of their work. Do not think you have done your part by simply sending the girls to a cooking school. You might fare as did the old lady who tried this plan:

MY DAUGHTER'S LEARNED TO COOK.

We used to have old-fashioned things, like hominy and greens.  
We used to have just common soup, made out of pork and beans;  
But now its bouillon, consomme, and things made from a book,  
And Pot Au Feu and Julienne, since my daughter's learned to cook.

We used to have a piece of beef—just ordinary meat,  
And pickled pigs' feet, spareribs, too, and other things to eat;  
While now it's fillet and ragout, and leg of mutton braised,  
And macaroni au gratin and sheep's head Hollandaised;

Escallops a la Versailles—a la this and a la that,  
And sweetbread a la Dieppoise—it's enough to kill a cat!  
But while I suffer deeply, I invariably look  
As if I were delighted 'cause my daughter's learned to cook.

We have a lot of salad things, with dressing mayonnaise,  
In place of oysters, Blue Points fricasseed a dozen ways.  
And orange Roley Poleys, float and peach meringue, alas,  
Enough to wreck a stomach that is made of plated brass!  
The good old things have passed away in silent, sad retreat;  
We've lots of highfalutin things, but nothing much to eat.  
And while I never say a word and always pleasant look,  
Depend I've had dyspepsia since my daughter's learned to cook.  
—Court Challis, in Good Housekeeping.

Care and Feeding of Young Stock.

H. J. RICH, OVERBROOK, AT THE BERRYTON FARMERS' INSTITUTE.

In taking up this subject, I think you will all agree that it is one of the most important connected with the farm, for upon the thrift of our young stock depend the largest receipts accruing to the stock-raiser and in our great Kansas stock-raising is the most important factor on the farm.

So it is that when our young stock grows rapidly and does well, we are very sure to realize a greater money value in return, and I know that you all have experienced that particular indescribable feeling that comes in making money by our own painstaking and work.

Now, I wish to divide my subject into four general parts which will apply alike, or nearly so, to all the young stock on the farm.

THE BREEDING.

First the breeding is a very important part of success in raising young stock. You can not put too much care and study into learning how to select and mate your breeding stock. It does not matter so much what breed as how bred. I think every stockman should have a standard to go by, and his standard should be that, which under his conditions, brings the most at the least cost of feed and care. You can soon realize the money advantage of thor-

ough breeding by reading of the large prices brought at some of the fine stock sales, although I do not advocate too high-priced animals for ordinary use, but the point I wish to bring out is, blood will tell very materially on the rapid growth of young stock. We must have vigor and vitality in our breeding stock.

SURROUNDINGS.

By surroundings I mean yards, buildings and so forth. It is very necessary to have good fences for all our stock and the fence question is a very important one in regard to expense, but it does not make any difference how expensive it is, it is one of the important items in successfully raising young stock. You can not give them the proper care if they run everywhere, especially in the yard around the house, or worse still the neighbors' house or premises. It is very necessary to have your stock just where and when you want it. It is very necessary to have numerous yards and fields so as to separate young and old stock and fattening cattle, and the weaker ones from the stronger.

BUILDINGS.

Buildings are very important in keeping stock warm and dry and for feeding purposes, also to keep our grain and hay in good condition to feed. We all can not have big barns and sheds but

we can do all we can to make our stock as comfortable as possible.

FEEDS.

Feeds for young stock constitute a very important problem for the stockman to solve. To obtain the best results, it is necessary to feed a variety of such feeds as furnish in the right proportion the properties that go to make bone, muscle, hair, hoofs, feathers, etc.

Now, our most common feeds in this country are too rich in carbohydrates

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**SHORTHORNS AT AUCTION!**

OSCEOLA, CLARKE CO., IOWA, MARCH 11 and 12, 1901



The Clarke County Shorthorn Breeders' Association will hold their Annual Sale of Shorthorn Cattle on above dates, at which time 112 head will be sold from 9 different herds of the Association, which will be a closing-out of the Mordica Hill Herd, and also the entire Kelsner Herd lately purchased by Cooley & Son, and contributed to this sale. Sale will be held in new Sale Pavilion, recently erected. Come everybody. All visitors from a distance entertained free at hotels.

**HIGGINS HOPE HERD**

Registered Poland-China Swine.

Having disposed of my entire crop of spring pigs, I now offer 25 SOWS, bred to my herd boar, PERFECT WM KNOW. These are tried animals and I offer them to accommodate those who have not secured pigs from this sire.

J. W. Higgins Jr., HOPE, KANSAS.

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KANSAS CITY, SATURDAY, MARCH 2, AT FINE STOCK PAVILION.

Chief Tecumseh 2d, Chief Perfection 2d and Perfect I Know for line breeding for a perfect type, and Hadley Jr. blood for a complete outcross by same type to cross on them. 60 HEAD OF THE BEST OF TWO GREAT HERDS, including a consignment of 10 head from the young but already popular herd of T. H. Mastin, of Kansas City, 5 of them by Chief Tecumseh, 1 Chief Perfection 2d, 7 Chief I Know, 4 Perfect I Know, 5 Chief Eclipse, 12 Hadley Jr., 3 Missouri's Black Chief, 1 Black U. S., 1 Kiever's Model, 1 Look Me Over, 1 Hidestretcher, and 20 granddaughters of these great sires. Did you ever see this equalled? Bred to and safe in pig to these way up sires, Black Queen's Chief, the 1,000 pound Chief Tecumseh boar; Perfect Boy, winner in class, headed first prize young herd and one of four that took first as get of one boar at Des Moines, 1900; Kansas Perfection; Perfection Chief 2d, by Chief Perfection 2d; Simply Perfection, by I Am Perfection; Majestic You Know; the \$380 Chief Eclipse; Hadley You Know; Hadley U. S.; and last but not least the 1,000 pound Allerton Tecumseh. Catalogues give full information. Apply to either party for them. Sale at 1 p. m. in steam-heated pavilion. Guests stop at Stock Hotel. Can ship by freight to nearly all points without transfer and save expense.

Auctioneer: Col. J. W. SPARKS. Clerk: T. W. MORSE.

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or fat-producing elements—for instance corn, Kaffir-corn, fodder, prairie hay, timothy, millet, sorghum, etc.—to obtain the best results in growing stock. Young stock of all kinds require a certain amount of protein, in fact we can not grow them successfully without this very important substance.

So it is very important for us to balance our feeds rich in carbohydrates with those rich in protein, such as the clovers, bran, soy-beans, oats, cottonseed-meal, linseed-meal, and green grass. This class of feeds is rich in protein or bone and muscle forming properties. And let me say right here, there is nothing that will take the place of skim-milk warm from the hand-separator, for feeding purposes for growing stock. It is nature's own food, compounded in her own way, with only the fat or heat producing element taken out. This can be replaced with corn or Kaffir-corn at a very small expense. And by a great deal of care, work, and study by our people at the different agricultural colleges, about the average amount of each of the elements that are required for the different kinds of growing stock has been found and by experiments growers have proved them to be very nearly correct.

Now, then, what we want to learn is to so combine our feeds for growing stock, that they will furnish in the right proportion these essential properties, or in other words, learn to balance our feeding rations. I believe in the young and growing stock it is just as essential, if not more so, to feed a balanced ration than it is for milk, beef, pork, or eggs, because it is the young and its condition and thrift during the growing period that make the profitable s ear, dairy cow, hog, or chicken. You will notice I have not left out the hen, and I want to say, she is a part of the stock on the farm, a part that is not to be sneezed at either if she is given half a chance. In fact it is my experience that she gives larger returns for money invested one year with another than anything else on the farm.

I hope that what I have said has impressed some of you at least to want to know how to balance a ration, and I had intended to give a few figures on this very important part of my subject, but I thought it would be so much better for us to give our names to Prof. Willard of our college, and have him send us the bulletins, which he will be only too glad to do. Now I think it is really a duty that we procure and study these bulletins, for they are for our special benefit, and we have the name of having the best agricultural college in the world. I want to say for my part that Kansas has nothing that she should be more proud of than her agricultural college, and the point I want to impress upon your minds is, that through reading and studying the work of the college we gain that which has taken our best minds and a large amount of money to learn and prove. And I say these bulletins are too valuable to treat lightly. As I said before, to learn to balance a ration properly, the bulletins will instruct a great deal better than I can, and then you will have them to refer to at any time.

#### CARE OF YOUNG STOCK.

The care includes the manner of feeding, troughs, feed-racks, curing of the hay, and gathering of the crops. In the manner of feeding growing stock, it is very essential to have the feed in the best condition. I mean by that it should be clean and free from mold. Clean utensils to feed from and in. The feed should be fresh, and as clean as possible from dirt. Being regular in time of feeding is an important point. Another thing is the amount fed each time. I had a great deal rather feed too little than too much. This is true in young growing stock. It is very necessary that they are kept hungry and active, because it is through vital power that they digest and assimilate the food given them, and unless they are allowed to become hungry between feeding times, they will lay around too much to develop their muscles and vital organs. So my plan is to feed all they will eat clean, twice a day and then have a yard big enough that they can exercise and play in. Did you ever think how much good play does an animal. I am sure you all have noticed that all our young animals play a great deal if they are doing well.

So in the care of the young, give them natural surroundings as near as possible. Warm places to sleep, plenty of a variety of properly balanced food, and clean dry places to eat it, and plenty of room to exercise. And above all things be gentle and quiet with them. Teach them to know and love you, and your success is certain. The main road to success and the key to the situation is a balanced ration of work and brains.

#### The Farmer's Ice-House.

WALTER STAPLES, BEFORE THE BERRYTON FARMERS' INSTITUTE.

Many are the needs of a farmer's ice-house. In the long hot days of July, when the farmer is out in the harvest field, what is better than a cool refreshing drink of water, which he can not have unless he has some one bring it to him or a little piece of ice to keep it cool while he is at work.

And on a Sunday afternoon when the thermometer is about 100 in the shade, how refreshing it is to have a nice dish of ice-cream, which the farmer can have at a very little expense if he has the ice to freeze it with. Again, how handy it is for the housewife, when she knows the threshers are coming, to be able to send to town for a piece of meat, and if something happens they do not get there the day she expects them, to keep it till the next day in the ice-box. And again how much nicer and fresher the butter looks when you get to town if you have had a little box of ice to carry it on. Again, how handy it is to have a little piece of ice when there is some one sick in the family.

Thus you see many are the needs of a farmer's ice-house. There is hardly a farm in Shawnee County that is not near enough to some creek or pond to furnish all the ice one would need. There is hardly a family that would use more than 150 pounds per day, so you see that about ten tons would last through the season, but as two-thirds of it will melt away, you would have to put up about 30 tons to have enough to last you through the summer.

A building 16 by 16 and 8 feet high will hold about 50 tons. The ice-house should be built square if possible. Board up the sides with sh'plap. Line the inside with building paper. Leave a 12-inch space, and board up again with common boards, so as to have an air-space between the ice and the side wall for the shavings or saw dust. Saw dust is very hard to get. Shavings will cost about \$25 per car and it will take about one car the first year to start with. They are better the second and third year than they are the first. After the shavings begin to settle in the spring, they should be watched and replenished with more. The hardest time to keep the ice is during the March winds and it should be watched that month to keep the shavings well packed down.

The ice should be put into the house in layers, one layer one way and the next layer the other. When you have a layer completed, you should break up fine ice all over the layer, to fill up the little air spaces made by the ice not fitting close together in places.

The cakes should be about 20 or 22 inches square and about 8 inches thick to handle nicely; if they are more than 8 inches thick they are too heavy for one man to handle and 8 inch ice will keep almost as well as 12 inch ice. One of the main things is to get the cakes sawed perfectly square. The man with the saw must be careful and hold his saw straight so that one cake will set on top of another in the house, without falling over.

Three men with an ice plow, saw, prod, and two pairs of ice hooks can put up about 15 tons per day, after the ice is marked out. When the ice house is filled, the ice should be covered with about 12 inches of shavings. After the first year the cost of putting up ice is very small.

You may build as expensive an ice-house as you are mind to. The better the house the better the ice will keep. There are also many different ways of building an ice-house. Two years ago I put up ice in a building, boarded up and down, battened, and with a shingle roof. The ice was packed in the pumice from a sorghum-mill and would have kept very well if it had had proper drainage.

#### The Farm Cow.

CHARLES FOX, BEFORE THE BERRYTON FARMERS' INSTITUTE.

It seems hardly necessary to produce statistics to prove the important position the cow occupies upon the farm. Yet a few figures may help us at this time. The more readily to understand her position as a factor upon the farm; a position I believe, far from being appreciated.

The U. S. estimate of the cows in this country in 1895, was 17,000,000. These were grouped as follows: Butter production 11,000,000; cheese production 1,000,000; domestic or house purposes 5,000,000. Secretary Coburn in his report for the year ending September 30, 1896, uses this language: "Kansas has more than half a million milch cows, and could as readily maintain ten times

that number, having an average producing capacity 100 per cent greater for each." He places the average value of their yearly individual dairy product for 1896 at \$9.65. In the last biennial report of the state board of agriculture, he says: "Kansas has 500 creameries, skimming stations and cheese factories within her borders." In the fifteenth annual report of the Kansas bureau of labor (1899) returns are given showing 70 creameries that have a total capital of \$615,838. Fifty creameries report the value of their products at \$1,004,487.96. These figures represent but a small fraction of the total product of the state."

#### KNOWLEDGE NEEDED.

With these figures before us; with that \$9.65 staring us in the face, as the average yearly dairy product of the cow, we can come to only one conclusion, viz, that many a Kansas farmer is milking his cows at a loss. The fact is, very few farmers know to a certainty what their cows are doing. The cow the farmer calls his best may be the poorest in his herd. I found this so when I began sending my milk to the creamery in 1895. Very few farmers know whether they are milking their cows at a profit or a loss. Hoard's Dairyman says that 38 out of every 100 farmers in the state of Iowa keep their cows at an actual loss. Why is it? There is only one answer. Lack of knowledge and no disposition to get knowledge. Many men have come up with the idea that they don't need to know much to keep cows. We must know something of the laws of life and health of cows. We must keep them comfortable—warm enough in winter to be comfortable, or they will shrink in their milk. We can not keep them comfortable unless we keep them in good health. We should make a study of our business. Take one or more dairy papers and post up on the feeding of our cows. Feed must not be thrown indiscriminately to cows. Learn the trade, for here is the secret of success. Nearly all the failures among cows are from the want of knowledge of the care and feeding of the animals. We should know more than we do about the botany of farm plants; which of the plants that we grow gives us the most protein and which is richer in carbohydrates and fats. We need to know their nutritive ratio and the nutritive ratio of a standard ration. What we want, if we desire to obtain the highest yield of milk, is cows that consume large quantities of feed and turn it into milk. Cows should not be exposed to cold or storms of wind, and rain, or snow, but should be at all times treated kindly, fed and milked with regularity. We must take a delight in over-work, and continually seek to improve our methods. The man who milks his cows, with cuss words in his heart, because he has to milk, need not expect success. But for the man who loves his work, and is determined to keep in touch with the progressive element in his class, the cow will do more for him than any animal he can have.

#### CONSTANT INCOME.

Dairying brings in a constant income. In raising crops to sell, the farmer has to wait until he can sell his products once a year. Dairying is the most progressive branch of farming. Skill and brain work get better pay than in any other class of work done on the farm. But we must watch the little things, the leaks here and there. The waste upon waste we see upon every farm; waste in feeding, waste in care and thoughtfulness. It is said that Armour used everything that is part of a pig, except his squeal and kick. It may be said with truth that the average dairyman throws away or neglects sources of income that, if concentrated, would buy out Armour's plant many times over.

#### THE FEED.

During the winter months many Kansas farmers feed their cows only prairie hay and corn. No cow will do her best on such feed. During the month of June we get our best yield of milk. The cow then has an abundance of feed, rich in milk producing materials. From this we should take a hint and make, as nearly as possible, June conditions for our cows the year round. The nutritive ratio of mixed grasses and clover is 1 to 7.4. So in feeding throughout the year, we should endeavor to, at least, keep up this nutritive ratio. While I have never practiced it, yet I believe from the study I have given this subject lately, that cows need a supplementary grain ration in the summer, even while feeding upon the best of grass—enough so as to balance the ration. Balance the grain against the



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not only removes hard impactions and impurities, but it strengthens the muscular structure of the bowels and assists the peristaltic or wavelike motion which carries forward their contents to excretion. Thus, PRICKLY ASH BITTERS is a bowel regulator in the truest sense—there is no unfavorable reaction attending it, nor liability that its use will become necessary to maintain regularity. It promotes daily evacuations, establishes healthy movements and is the best known remedy for permanently curing habitual constipation—that distressing condition to which so many of both sexes are subject.

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Grasses eaten in the pasture. I shall try it this summer.

NUTRITIVE RATIO.

The up-to-date dairyman must thoroughly understand the term nutritive ration. It is merely a term used to express the respective amounts of protein (muscle, blood and milk food) and carbohydrates and fats (heat and fat producing food). Nutritive ratio is obtained by dividing the sum of the digestible carbohydrates and fats by the digestible protein. It does not necessarily hurt a cow to feed her an unbalanced ration, but it is a waste of food in every case; and wasted food is wasted money. As a sequence, the successful dairyman will feed his cows food in such combinations that the animals shall obtain the most nutriment with the least waste. Cows like a variety in their food. It gives them a better appetite, inducing them to eat more and yield far more for what they eat.

STUDYING AND FIGURING.

I have never been able to feed my cows just as I thought they ought to be fed. But I confess I had never figured upon their ration until after I had been invited to write this paper. In fact, I did not know how. But I went to studying the question of a "balanced ration," and now I know how I am feeding and in what my ration is lacking. This winter I have been feeding 5 pounds of corn-meal, 5 pounds of Kaffir-corn-meal, what clover hay my cows would eat during the night, and what Kaffir-corn fodder they would eat during the day. Taking it for granted that my cows each eat 8 pounds of clover, and 7 pounds of Kaffir-corn fodder daily, this ration would give me 25 pounds of dry matter; 1.7 pounds of digestible protein and 14.467 pounds of digestible carbohydrates and fats, a total of 16.167 pounds digestible nutrients, with a nutritive ratio of 1 : 8.4.

Wolf's (German) Standard ration calls for 24 pounds of dry matter, 2.5 pounds digestible protein and 13.4 pounds digestible carbohydrates and fats, a total of 15.9 pounds digestible nutrients, with a nutritive ratio of 1 : 5.4.

The Wisconsin Standard ration calls for 24.5 pounds dry matter, 2.2 pounds digestible protein, 14.9 pounds digestible carbohydrates and fats, a total of 17 pounds digestible nutrients, with a nutritive ratio of 1 : 6.8.

You will notice that my ration is about right in the totals of dry matter and digestible nutrients, but has more of the carbohydrates and considerably less protein than I need.

AN EXPERIMENT.

As an experiment, on the 19th of this month I began feeding one of my cows the following ration: Eight pounds clover hay, 7 pounds Kaffir-corn fodder, 4 pounds corn-meal, 4 pounds Kaffir-corn-meal, and 3 pounds soy-bean-meal. This ration gives me 26 pounds dry matter, 2.215 pounds digestible protein, 12.996 pounds carbohydrates and fats, a total of 15.211 pounds digestible nutrients and a nutritive ratio of 1 : 5.9—being a pretty well balanced ration. This cow has been giving milk since the last of June, and at the time I commenced feeding this ration was giving 17 pounds of milk daily. On the second day on this ration she gave 19 pounds; on the 3rd, 21; 4th, 21½; 5th, 23; 6th, 23; 7th, 24; 8th, 24; 9th, 23; 10th, 24; 11th, 25; 12th, 24½.

The last six days she gave an average of 24 1-16 pounds daily, making a gain of 42.1 per cent. When we take into consideration the fact that it is very difficult to get a cow that has so long been giving milk, to increase her yield, this is a wonderful exhibit for the soy-bean and the use of a balanced ration. In these twelve days I fed 36 pounds of soy-bean-meal. I saved 24 pounds of Kaffir-corn and corn-meal, worth 13 cents. I received 66 pounds extra milk, worth 55 cents. Fifty-five cents for ¾ of a bushel, or 92 cents per bushel. Add the 13 cents saved and it gives me at the rate of \$1.05 per bushel, or \$35 per ton.

A PROGRAM.

We must get to the point where we are able to feed a balanced ration. Then by weighing the milk of the individual cows and testing its quality, determine just what each cow is returning to us, in pay for her keep and the capital invested. If we find that we have cows that are not returning to us a good profit, let the butcher have them and get better ones. The first three months after a cow calves, she should be pushed to her utmost, because a high yield during the first months after calving brings an increase during all the months of the milking period. One can not afford to neglect the cow dur-

ing these first months, for if she starts in with a low yield, no amount of care or feed afterward will succeed in securing her best yield. With proper care and feed far better returns can be secured by having your cows calve late in the fall, and I have had better success in raising calves that come in the fall, than when they come late in the spring.

A RECORD.

In 1896 I milked 15 cows, raised the calves, and besides this and the milk and butter used in the family, sold to the creamery 54,548 pounds of milk. Received for the same, \$345.19. Average per cow, \$23.01. Average pounds of milk per cow, 33.36 pounds. Lowest cost during the year, 3.6; highest 4.6. Lowest price, 12 cents per pound for butter fat, for June and July milk. Highest price, 19 cents for January and February milk. Last year I milked 9 cows, 2 of them heifers. Amount of milk sold, 31,723 pounds. Amount received for milk, \$240.17. Average per cow, \$26.68. Average amount of milk sold per cow, 3,998 pounds. Lowest price, 14 cents, for June and July milk. Highest price 20 cents, for November and December milk. Lowest test, 3.6; highest test, 4.6. Counting my calves worth \$17, my cows returned to me for the feed and care I have given them \$43.68; besides I fed my calves new milk until they were two months old. By that time they were eating grain nicely and they had the grain ration, grass, and all the water they would drink. The 9 calves were fed about ½ bushel of Kaffir-corn daily. It took about 600 pounds of milk for each up to the time they were two months old. This brings the average yield of milk for each cow to 4,498 pounds, besides the milk and butter used in the family. The coming year I intend to raise soy-beans for my cows, and hope to very much increase the milk yield for the year.

One of my neighbors, A. J. Morrow, milked last year 14 cows, 5 of them heifers; 4 of them twenty months old when fresh. He sold 4 calves at eight days old for \$27, and sold 2 for veal for \$17.25. Raised 3. Sold 35½ pounds of butter for \$5.45. Sold 46,202 pounds milk for \$346.39. Average test, 4.1. Average pounds sold per cow, 3,300. Butter and milk sold per cow, \$25.13. Including the calves sold, \$28.29.

If I were selling my milk to a butter producing creamery, I would buy a separator and feed my skim-milk sweet and warm. Sweet skim-milk is given a nutritive ratio of 1 : 2.

OTHER CONDITIONS.

I have not time to take up the manual value which the cow enables the farmer to return to the soil. It is a product which should be guarded closely; and the better the care and feed you give your cows, the richer will be the return from this item.

In conclusion, allow me to say that while I feel that this paper is very imperfect and far from doing justice to the subject, yet I know the thought and study I have given it have been of great benefit to me. I now know to a certainty many things I merely guessed at before, and the best part of it is, I have acquired my knowledge in such a way that I shall remember it.

So I say to you, my brother farmers, go and do likewise. Study this subject until from your own knowledge and figures you know just what you are doing, and my word for it, you will feel amply repaid. No man can successfully conduct a dairy, on the limited stock of knowledge that sufficed thirty years ago. Forward! is the watchword, and he who heeds not the call will be left in the rear.

Will Carlton, in one of his matchless poems, says:

"Then forward, men and women; let the bell Of progress echo through each wakened mind; Let the grand chorus through our numbers swell— Who will not hasten shall be left behind; Who conquers shall a crown of glory find; Who falls, if faithful, shall fall but to rise Free from the tear-drenched clay that clogs mankind, To where new triumphs greet his eager eyes: Forward will ever be the watchword of the skies."

Chimes From the Home.

MRS. C. A. KLINE, BEFORE FARMERS' INSTITUTE. Chimes from the home! What chime, be it many or few bells, that would strike the ear of the average farmer or farm worker, as agreeably as the music

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ELEGANT CENTURY UPRIGHT PIANO, \$125. Warranted 25 years; sent on free trial. ELEGANT PARLOR ORGANS, \$25 UP. Warranted 25 years; sent on free trial. ELEGANT CENTURY SEWING MACHINES, BALL-BEARING, \$13. Warranted 25 years; sent on free trial. CASH OR EASY MONTHLY PAYMENTS.

Advertisement for Century Manufacturing Co. featuring images of a piano, organ, and sewing machine. Text includes 'FREE!', 'We trust honest people located in all parts of the world.', 'BE SURE AND MENTION THIS PAPER.', 'WRITE FOR FREE CATALOGUE.', and 'CENTURY MANUFACTURING CO., East St. Louis, Ill.'

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Advertisement for Elkhart Carriage and Harness Manufacturing Co. featuring images of a carriage and harness. Text includes 'with one of these surreys. They are handsome, strong, stylish, easy riding and durable. Selling on our plan you can examine it thoroughly before you are required to buy it.', 'WE HAVE NO AGENTS but sell all goods direct from our factory to the purchaser at wholesale prices.', and 'ELKHART CARRIAGE AND HARNESS MANUFACTURING CO., ELKHART, INDIANA.'

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Advertisement for Columbus Carriage and Harness Co. featuring images of a carriage and harness. Text includes 'Under our plan of selling carriages, buggies and harness, you get the profits. The jobber and retailer are cut out. By dealing direct with our factory, you pay only the cost of making with a moderate profit added; and you take your choice from the biggest stock and fullest assortment.', 'Selling Carriages Direct', and 'THE COLUMBUS CARRIAGE and HARNESS CO., P. O. Box 775, Columbus, O.'

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BOOK AND CATALOGUE PRINTING.

The KANSAS FARMER office is equipped with all the needed presses, type, and other materials for doing the highest grade of book, catalogue, and newspaper printing. For several years this has constituted a considerable part of the work of this office. We do not execute the ordinary commercial job printing. This can be obtained at the office of your home paper and ought not to be sent away. But if you have a book or catalogue of any size to print, a first-class job can be had at the Kansas Farmer Office, TOPEKA, KANS.



of the ordinary dinner bell, for as the poet expresses the fact,  
 "We may live without poetry, music and art;  
 We may live without conscience, and live without heart;  
 We may live without friends, and may live without books;  
 But civilized man can not live without cooks.  
 He may live without books,—what is knowledge but grieving?  
 He may live without hope—what is hope but deceiving?  
 He may live without love—what is passion but pining?  
 But where is the man that can live without dining?"

It is an awful fact that the average human requires to be fed three times a day. It is an unfortunate fact that the ordinary stomach can not long endure indigestible and unpalatable viands. And good digestion waits on good cookery and good morals on good digestion.

The influence of the frying pan upon American civilization has not yet become a subject for scientific investigation, but when it does, marvelous will be the revelation thereof. Perhaps a noble race may be evolved out of fried meats, hot soda biscuits, and the great American pie; but it is hard to believe it. Emerson ate pie for breakfast; still Emerson did not hold his faculties like Gladstone, Holmes and other simple lives. Who can say but disregard for diet marks the difference between the dead and the living? An insulted stomach wreaks revenge upon an exhausted brain—exhausted because it has not been properly fed.

Why do our state institutions house so many farmers and farmers' wives? Because of a monotonous existence, overwork, fried pork and pie.

The great problem now confronting farmers and farm life is domestic help. The farmer can get all the outdoor assistance he needs to conduct any sized farm, but help in the house is nearly out of the question, thus resting the burden of the health, happiness, and who knows but the eternal welfare of the whole family upon the shoulders of one poor, weak woman, who resolves herself into wife, mother, housekeeper, cook, and seamstress, all in one. How this burden may be somewhat lightened and the home-maker aided in accomplishing the work confronting her, I shall endeavor to set forth in the requirements of a model farm kitchen. I believe the need of a model kitchen on the farm to be far greater than in town, to plan with extra care for the comfort of the whole family, the kitchen, for the work to be done in it is harder, the hours of toil longer, and usually more to work for; finish and furnish it well, and if there is anything left for the parlor, well enough. If not, the money has been well spent. Plan it for the most complete comfort, convenience, and cheeriness that can be put into it, for although not strictly true, as we often say, that a woman spends the greater part of her life in her kitchen, it is true that there are busy times on a farm when a woman who does her own work, or has inexperienced help, must necessarily spend the greater part of her waking hours in the kitchen. And there are but few men, I fear, who really know how much it lightens labor and makes it more a labor of love than drudgery to have a kitchen to work in that is perfect in all its appointments. A kitchen on a farm should be a large one, for there is such a variety of work to be done within its walls, and each kind of work must have its labor-saving conveniences. There must be room for tables broad and long, room for sink with waste pipe to carry off all surplus water and waste from kitchen force pump—which should be in one corner of kitchen and will save the good wife so many weary climbings of the back steps during busy times. Room for a good range, for that is one of the most essential pieces of furniture in a kitchen, for you know a smoking stove makes a scolding wife. There must be room for at least one cupboard, from floor to ceiling, for women are known to have a special fondness for closets and cupboards. If there is a dining room in the house, there should be in the wall, opening in both rooms, a dish closet with light sliding doors. It is such a help in the transit of dishes and cooked food from the stove and cook-table to the dining-table and back again. There should be a place free from draught for a gasoline or oil stove on which to cook the dinners on hot summer days for hungry men. The floor of your kitchen have of hard wood, well matched, polished and oiled, for it tells no tales of grease spots, and it only needs once in a while a coat of oil to keep it in good condition. For

the walls use light colors. Paper is not desirable in a kitchen, as it is affected by steam and absorbs the odors from cooking. If possible have on the cooler side of your kitchen a well arranged pantry, with the necessary shelves and drawers, in which to put away the needed supplies. Have your kitchen lighted with windows sufficient for a draught from all directions during the heated season, and to let in the sunlight through the long, cold winter.

Last, but not least, by the low south window, looking out over a wide open porch to the green meadows beyond, place a small easy rocker where mother can often sit and rest while her dinners are cooking. She can pick up the late paper or magazine and keep herself posted on the affairs of the day, and not feel that although she is in the world, she is no part of it.

Farmers! When you build your homes, make them just as beautiful and convenient as your means will allow. None have a better right than you and none need more the helps to brighten and cheer daily life. Beautify not alone the parlor and best rooms, but the kitchen also, for from out the kitchen and its daily routine of toil go our sons and daughters—not only to their work on the farms, but to make homes and kitchens of their own and the higher model we give them, the better and happier will their homes be.

Who can say what wonders will be revealed during the twentieth century? Nothing will add more materially to the welfare and happiness of the American people than the making of our country homes so attractive and profitable that the better class of citizens will be willing to remain on the farm, and their children be content to follow in their footsteps.

**The Influence of the Country on the Development of Character.**

MARY L. TEVIS, TECUMSEH, BEFORE THE BERRYTON FARMERS' INSTITUTE.

It is a common idea that in order to develop character, we must early meet with the trials that test and strengthen it. That to endure and master the trying situations of later life we must be accustomed to them from childhood. At first glance we are prone to think that the city, with its hurry and din of business, its fascinations and its opportunities, was instituted for the training of the boys and girls of this generation to become the men and women of the next. But facts and history disprove it.

From studying the biography of the successful men of our country, we find fully 95 per cent were reared in the country. Such a large per cent is partly due, perhaps, to the fact that during the last fifty years the population of the country was large in proportion to that of the cities; but it must be admitted that it is largely due to the habits formed by country life.

**INFLUENCE OF COUNTRY LIFE ON CHARACTER.**

These simple habits, the plain, natural ways of rural life, into which one with proper surroundings unconsciously glides which thus become a part of him and are not put on and off as occasion seems to demand, are the traits which become deep-seated; these and these alone enter into and mould our character, for character is the expression of the whole nature.

Character rightly developed and trained makes the individual strong. Character puts him at the head of a nation. Character gives him the power to sway men's minds at will. Character causes him to stand clearly silhouetted against a background of weakness, the outcome of misguided judgment, cruel neglect, and careless indifference to his proper guardians. Character is higher than intellect. It has been well said that reputation is what we are thought to be, character what we are.

Upon a careful analysis of character we find its three prime attributes to be, obedience, truthfulness, and industry.

**THE HABIT OF OBEDIENCE.**

Might it not well be said that obedience is nature's first human law? The infant learns first to obey—or in some cases possibly, to disobey—before he can talk or run.

What life is more conducive to the habit of obedience during the youthful period, the formative period of character, than the country home, with all its pleasant surroundings, where the child's every moment is under the guidance and direction of his parents? For in the country there are not so many other interests and attractions to draw the child away as in the city home, where he is not constantly under the mother's care.

In the business world what is more gratifying to the superintendent than intelligent obedience of the man under

his authority, an obedience yielded willingly, and one that can only be yielded to by a person trained to obedience. Such a man is sure to rise to the place of foreman, superintendent, or the highest position in the firm. And there is nothing more essential to the success of a school than quiet obedience to the teacher's rule.

The habit of obedience compels men to face the cannon's mouth, to advance in an unbroken column, winning the victory with irresistible strength. Obedience compels men to stand at their posts in every part of our great warships, from the man beside his monster gun to the stoker in the almost infernal heat of the furnace room, driving the vessel to certain victory. It was obedience that won for us our victories at Santiago and Manila, victories unparalleled in the world's history.

The deep and lasting impression made on the mind of a child is exemplified in the instance of the battleship Texas at the close of the battle of Santiago. Captain Brooks, who had been taught by Christian parents in a country home, called all the men on deck and every head was bowed for a moment in grateful praise for their preservation during battle. "Train a child in the way he should go and he will not depart therefrom."

**HABIT OF TRUTHFULNESS.**

The lessons of obedience being well and truly learned, the next, that of truthfulness, is easily taught; and how important.

How it impresses itself upon our minds. How much we rely upon the individual who is truthful, whose lightest word is truth. How important it is in every position in life; in the home, in the business relation, in political life, and in the literary world. What courage it requires under some circumstances, but so necessary to a successful life. When an individual once deceives us, either in private or public life, from that time he loses our respect and loyalty.

But truth is not veracity alone; it is also the power to see things as they are, to grasp the real, divested of all its exaggerations, to see life as it is, not to lose sight of the true aim in life, not to give undue importance to wealth, position or power. In no other place can a child have the truth instilled into his very being as in the country, freed from the thousand and one temptations which surround the city lad, with his host of companions, too many of whom disregard entirely the habit of truthfulness, and often even sneer at the boy, who to secure some small gain, will not swerve from what he knows to be true.

**HABIT OF INDUSTRY.**

In the country, from infancy the child is taught to see things as they are. He is in close communion with nature, whose very life is truth.


A boy or girl whose first impulse is to obey, and whose heart knows only truth, has one thing yet to learn, one habit yet to acquire to insure a successful life, and that is industry, the very motive power. Without this, though possessed of other virtues, he would be as useless as a locomotive without steam.

The mind can hardly grasp the result of industry. Industry cultivates the soil, makes the arid plain to blossom as the rose, levels the giant forests, connects the remotest parts of the earth by iron bands, builds locomotives, chains the lightning, brings all the elements to serve man, erects lofty edifices, builds the monster vessels, the rulers of the ocean, and overcomes all difficulties.

The cradle of industry is the farm. The merchant, banker, or professional man is buried in his labors away from home, and it may be his wife is visiting, shopping, or at the club, while the children are on the street, or for want of employment, passing the time at home with some of their good but likewise idle companions. Life on the farm has always a ready task suited to the strength and time of the doer. It is these influences, these opportunities, these habits, which develop such men as are always called to direct an important task or to manage any great undertaking. I can recall no more typical example of a man raised and imbued with the influences of country life than the present-day statesman, educator, and man, Mr. Jacob G. Schurman, recently sent as head of the commission to the Philippines. The story of his life is interesting to us because it is a romance of real life, such as is not unfamiliar in America. "At the age of ten, he was a country lad on a backwoods farm on Prince Edward Island. At thirteen, he had become a clerk in a country store, at a salary of thirty dollars a year. At eighteen, he was a college student, supporting himself by working



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**....PIG-TIGHT....**  
 An Illinois farmer said that after harvest he had fully 200 bushels of loose oats on the ground that he could not secure any benefit from, because the fence around the field would not turn hogs. Figure the loss for yourself. He also said, all this would have been saved if he had used the Kitzelman Woven Wire Coiled Spring Fence, and the value would have gone a long way towards paying cost of the fence. With the Duplex Machine any farmer can make it himself at the actual cost of the wire. Catalogue free for the asking.  
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 Highest award World's Fair, 1893. Price, each, 4, 5, 6, 7, 8, or 9 inch, \$2.50; 10 inch, \$3.00. Users value them at \$25. Consult hardware dealers, or write for particulars of our full line. **TWAN BROS., Dept. X, Streator, Ill.**  
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in the evenings as a bookkeeper. At twenty, he had won a scholarship in the University of London, in competition with all other Canadian students. At twenty-five, he was professor of philosophy at Arcadia College, Nova Scotia. At twenty-eight, he was appointed president of Cornell University. At forty-four, chairman of President McKinley's special commission to the Philippines."

It is this habit of industry as displayed by such men as Mr. Schurman, that makes the graded schools, the high schools, the colleges welcome the pupil from the country. It is the habit of industry that places him at the head of his classes, makes him reliable, the support of his teacher, and one that can always be depended upon. It is a fact, acknowledged by city teachers, that the child reared in the town is harder to govern, makes less progress in his studies, is a poorer thinker than the child which is required from almost babyhood to have little duties that depend on him, and as he grows older, heavier and heavier tasks are laid upon his shoulders until he reaches maturity, and he goes out into life fully equipped for its responsibilities.

Garfield, as we all know, drove oxen, taught school, and became President. Roswell P. Flower drove oxen, taught school, and became governor of the Empire state. When once asked if there was not some subtle connection between these two extremes of occupation, the governor replied that he knew of none, unless it lay in the fact that the same qualities were necessary in both. He thought the quality of patience, acquired in driving, leading, or coaxing oxen, is absolutely necessary in the higher pursuit of school teaching, and that any man who succeeds in both these humble but useful occupations can do almost anything.

THE SUCCESSFUL MAN.

Thus we see in every walk of life, the man winning success is the one who was reared in the country home, whose boyhood was spent in the district school, whose character was moulded under the open sky, separated from the noonday sun only by the refreshing shade of the sturdy oak. Nor is it necessary in order that he achieve real happiness or true success, to ever leave these sacred influences. We too often confound success with notoriety; happiness with riches; character with reputation.

Those are legions that have lived and died in their country homes, who have left as good examples, have lived as noble lives, have died as grand a death as any merchant prince or king-crowned lord.

Our Little Ones.

MRS. ANNA B. REES, BEFORE THE BERRYTON FARMERS' INSTITUTE.

This is a subject as old as the world and as deep and profound as any that ever bothered the sages of old. It, like love's dream, is old yet ever new.

I shall not undertake to tell you mothers how you shall dress your little ones for in that each mother should have the privilege of working out her own ideas. Suffice it to say, it is cruel to dress them so different from their little associates that it causes remarks and ridicule, for the little hearts are as susceptible to ridicule as we who have reached maturity. Neither shall I undertake to tell you how you shall remedy their ailments, but will leave that for your own judgment and to him or her who has made it a life study and who should concentrate his or her whole energy for that one purpose.

But what I have to say comes from my own experience and observation. If in any way the shoe pinches you, take it and wear it, it costs nothing.

THE CHILD ABSORBS FROM ITS ENVIRONMENT.

I honestly believe that a child absorbs meanness from the atmosphere like a sponge absorbs water, and that naughtiness and being in mischief come as natural as eating and drinking. Though they have the better nature, it lies dormant and must be warmed and brought to life by parental love, care, and watchfulness.

METHOD OF TEACHING.

The greatest mistake lies in the teacher and method of teaching. It is in our district schools as in our homes. The most successful teachers are those who regard their scholars as their especial care and are deeply interested in their successes or failures, encouraging them when they fail and holding them with the reins of kindness when they attempt to escape the bounds of authority. Some mothers spend hours in playing and romping with their little ones, including the babe in arms, who as soon as old enough enjoys his part of the frolic as much as his older

brothers and sisters. These mothers do not miss the time spent in such play while it makes a bright spot in those children's lives, for love to a little child is like sunshine to the flowers; it develops the better nature and makes it unfold in its true beauty. Other mothers who have as great a degree of affection for their little ones and who would spend as many sleepless and anxious hours by their bedside, never seem to have the faculty of showing it nor entering into their games and amusements. I hardly believe they are to be blamed but rather to be pitied. They could take very beneficial lessons from those very children.

NO TIME.

Again, other mothers never find time to spend in play. It would be idleness to them. To keep their house in apple order, and the little ones clean and the pantry full takes all their time. Poor, foolish mother! How rested you would feel, and how the little ones would enjoy it if you would sit down on the floor and frolic with them for half an hour. It would rest you for the balance of the day and your dreams might be brightened by its remembrance. A daily practice of it would be looked forward to as an oasis in the desert of your drudgery.

CHILDREN'S NATURES.

The natures of our children are so different, even children of the same family. Some are so bright and sunny, others sour and gloomy; some sweet and gentle, others rough and boisterous; some weak and timid, others strong and brave. What will satisfy one creates longing in another; what affords great delight for one disgusts another. So the working out of their likes and dislikes, of their pleasures and displeasures is a constant subject of study for the mother or father.

CONDITIONS OF THRIFT.

Our children, like our calves and colts, thrive better on good wholesome food and plenty of sunshine and fresh air. We who are so wonderfully blest with good homes in the country give no heed to obtaining the sunshine and pure air and therefore can devote more time to good food and cleanliness. As to the first, rich pie and cake or greasy meats will not tend to the health or happiness of any child. One mother I know was always asking her little girl if she wanted pie or cake to "piece" on. That girl to-day is a puny, weak child and quite subject to disease.

I quite agree with the old Lawrence doctor who said, "keep a baby just clean enough so it wouldn't smell." He meant by this that too frequent washing and dressing weakens the child's constitution. One mother I know of used to dress her baby as often as five times a day. It is needless to say it was the first one, and that she never lived near Berryton, although Berryton excels in its fine babies as in everything else.

DON'TS.

For the benefit of our little ones we might lay down some DON'T rules.

First. Don't deceive them. If mother wants to leave home and it is not convenient to take them, tell them firmly and decidedly they can not go. It may cause some bitter tears at first, but they will soon be dried.

Second. Don't tell them the dogs will get them if they don't go to sleep or that the "sand-man" is coming for them. It is simply lying and the sin is as great as if you were prevaricating to a person of your own age. The Bible says, "Inasmuch as ye did it to one of the least of these my brethren, ye have done it unto me."

REGULAR HOURS FOR SLEEP.

How many less nervous little children—older children, too—we would raise if we had regular hours for sleep for them! Little ones up until school age would profit so much by an afternoon nap and a regular bed-time. Some look back over their lives and find that one of their mistakes began at this very point.

Another thing a baby—a very young baby is capable of being taught. Teach them to go to bed by themselves at a regular hour. Poor mother, don't you think you ought to have some time free from baby and when will you get it only in the evenings? I know of lots of children nine and ten years and older too, who are afraid to go up-stairs to bed and either sit up until some one older retires or go asleep in the rocking chair or in some corner to escape notice and are carried bodily upstairs to bed.

I well remember the first time I put my little girl upstairs to bed awake and by herself. I was tempted several times to bring her back; one night broke her entirely and she being with her little brother, never bothered. Now

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when bed-time comes they are ready and go to bed without any fuss, even when we have company. And oh! it seems so nice. I fell like drawing a long breath for you who are lugging your big boys and girls upstairs to bed. THE MOTHER'S FREEDOM. Many a mother who is shut in day after day with her little ones longs for a walk in the cool air alone, or a run to a neighbor's for a few minutes without the children, is a most welcome change. Yet when our little ones have grown to be several years old, we look back over their lives and it seems that they were babies only a little while and then it was a very pleasant pastime caring for them. PLEASANT COMPANIONSHIP. The work they caused has been well repaid by their companionship and pleasant daily association. After all, rearing our children is not a daily grind as some would have us believe, but a fascinating panorama of moving pictures, as we watch their little improvements and daily advances that take them farther and farther away from the realms of babyhood. And we find all too soon, that they are taking a place in life, made for them and that can be filled only by them. NECESSITY THAT THEY BE STARTED RIGHT. Let us all bear in mind that as the 20th century advances towards its 30th mile-post, somebody's children will still be legislators, senators and presidents; somebody's children will still be electricians, mechanics, and inventors. And as our country is destined to make such wonderful strides in advancement before its close, it is all the more necessary that our children should be very carefully started on the road to true manhood and womanhood, so that the part they are called upon to work out may be executed in harmony with these times.

**SEVENTEENTH ANNUAL SALE** FROM THE ELMWOOD HERD OF **Shorthorns** Tuesday, March 12, 1901, at Manhattan, Kans. We will sell a very choice lot of useful Shorthorns. Of the 35 head 22 are young bulls, from 12 to 21 months old, and good size for age. The balance will be young cows and heifers with calves at foot or bred to our Scotch bull, Red Knight 120752. This offering will be of fine colors and choice breeding, being Rose of Sharon, Flat Creek Marys, Josephines, Lady Elizabeth, etc. We believe this will be the best lot of young bulls offered at public sale in the west this year. Gifford Bros. Milford, Kansas. Catalogues sent on application to..... We should be pleased to have you come to the sale, or send mail bids to Col. J. W. SPARKS AUCTIONEER. Attention is called to the Shorthorn Sale of H. O. Tudor, at Holton, Kans., March 19, 1901.



**Horticulture.**

Is a Timber Famine Coming?

D. C. BURSON, TOPEKA, KAN., COLLABORATOR OF THE U. S. DIVISION OF FORESTRY, BEFORE THE LUMBERMEN'S ASSOCIATION.

The man whose occupation, income or general business is dependent upon the products of the forests, we presume, should be classed or recognized as a lumberman; and as a large per cent of these lumbermen have inherited their occupation or business from their ancestors they naturally would be anxious to know in what shape they are going to be able to hand this legacy down to their posterity. This can only be done by an inquiry or research into the forest supply, which is the fountain head of all these mighty industries. And it is for the purpose of impressing this very important matter more strongly upon the minds of the American lumbermen that I appear before you this morning.

It is a difficult matter to obtain any accurate data upon which to base a very close estimate of the future lumber supply. A monograph upon the trade and supply of lumber has just been issued by the treasury bureau of statistics. This, in connection with reports from the division of forestry, furnishes some very important and even startling facts. But the lumberman of the past and present has never experienced any inconvenience in procuring all the material he requires to meet the demands, consequently he has no reason to stop to inquire, "How long will this continue? Is the supply perpetual, or is the end near at hand?"

By a careful examination of the figures given of the supply and demand we may be able to approximate—for it would be impossible to accurately number the trees of the forest, or even guess at the future demand. The United States geological survey has the opportunity and facilities for making a comparatively near approach to the number of acres of timber lands within the boundary of the United States, and this they place at a little over 1 million square miles, or 640 million acres. From this a close estimate would place the production at about 2 trillion feet, board measure, of available lumber. And it also shows that the 30,000 sawmills in the United States cut in the year 1900, 40 billion feet. We find that about one-half of the standing timber of the United States is west of the Rocky Mountains, which being so far removed from the commercial marts, make it almost inaccessible. Therefore, we will first call your attention to the supply east of the Rocky Mountains, which is estimated at 1 trillion feet. And the statistics place the annual cut to different divisions as follows:

Lake region, 13 billion feet; southern states, 10 billion feet; northwest and North Atlantic, 6 billion feet; middle states, 5 billion feet, and to the mountain and Pacific states, 6 billion feet. By this we see the annual cut east of the mountains is 34 billion feet, while the annual cut west of the Rockies is only 6 billion feet. We see, also, that unless some radical change is made in the handling of our timber supply every available tree between the Atlantic Ocean and the Rocky Mountains will be cut off within the next thirty years. By including the mountain and Pacific supply it will only take fifty years to denude the entire United States.

This certainly shows cause for alarm, for you are all aware that the consumption is rapidly increasing.

**INCREASING DEMANDS.**

There are also increasing demands for wood for which the lumberman is not familiar, such as wood pulp, soda and sulphites. The amount of wood consumed by these industries amounts to over 800 million feet, board measure, annually, or would take the entire timber from 200,000 acres every year.

It is not our home industries alone that increase the demand for American lumber. The rigid policy of the European states in limiting the rate of their annual cut to the increase of forest growth has forced European lumbermen to come to the United States to obtain a lumber supply. This accounts for the rapid increase in our export lumber trade, being in 1897 only 39½ million dollars, while in 1900 it was \$50,600,000, over 25 per cent of an in-

crease. Unless there is some embargo placed upon this export business we are liable to be shipping 100 million dollars' worth of our most valuable timber to foreign ports every year. Therefore, with this increasing foreign demand and the multiplication of new wood-consuming industries in the United States, would we not be safe in predicting that more than one-half of the present population will suffer the pangs of a timber famine?

Yet we often hear it remarked by uninformed parties that timber is growing as fast as it is cut. This, of course, will not be admitted by any intelligent man. The facts are that forest fires keep pace with the natural growth.

These may be startling facts to some of you. And methinks I hear you say: "Is there no remedy? Is there no way to avert this coming danger? Are we to hand down to posterity an heritage in this deplorable condition?"

It is well that we should ask ourselves these important questions. If there is a lumberman here from the virgin forests, we would say: "You can greatly assist in averting this approaching calamity. Be more conservative with your timber land. Cut only fairly matured trees. Protect the young and thrifty; be vigilant in keeping down fires and commence reforesting denuded lands. By doing this you are working for your own interest as well as the nation's."

The salvation of our country is in setting out plantations of valuable timber trees and giving them proper cultivation and attention. And after all is said and done, it is here where the money can be made. Artificial tree growing is no longer an experiment. But it is hard to convince an old woodman who has spent years in cutting off 100-year-old forests that will produce not more than three of four thousand feet to the acre that he can set out new forests that will produce that many feet of valuable timber every year. Yet such is a demonstrated fact. There are timber plantations in Kansas that are to-day producing from \$20 to \$30 per acre for every year since they were set out.

It is along this line that we must look for the redemption of our country.

**Strawberry Culture—Early Summer.**

O. W. BLACKNALL, KITTRELL, N. C.

Next to the picking season the early summer is the busiest time with the strawberry grower. Thorough, though shallow cultivation, should now be given. It is not only better but really cheaper to stir the soil after every packing rain. Constant culture answers three separate purposes, all highly important. It kills all weeds and grass effectively and inexpensively. It lessens evaporation and consumes moisture to an astonishing degree. It renders the soil pervious to the atmosphere, a necessary condition of thrifty plant growth.

An experiment very easily made will convince the most skeptical of the fact that good cultivation pays and pays well. Select two rows, or more, if desired. Let the soil and general condition be the same at the start. Cultivate one frequently, fining the soil after every packing rain. Cultivate—or rather work the other, for work is the word when cultivation is delayed and grass gets a hold—at intervals of a month. The difference in the condition of the rows which receive the good and the bad cultivation will be the convincing argument. This will be most marked, especially if drought supervenes. It will begin to manifest itself before five days are over and become greater as the weeks pass. Nor in the end will any money be saved in cultivation. For the one "working" will cost as much as the three cultivations.

The word "working" as applied to crop cultivation, always impressed me like the word "works" when applied to an authors combined writings. The words bring before the mind's eye something lengthy and tedious—something that has been deived and sweated over, and, after all, oftener than not found futile.

But to return to the subject in hand. The proper implements to cultivate strawberries are a small tooth horse cultivator and a light hand hoe. Two furrows with the cultivator should always be run in each middle. Go down one side of the row plowing as evenly near the plants as is safe. About six inches is the proper distance from young plants. Then come up on the other side doing likewise.

Following the cultivator should come the hand hoes, stirring the soil in between the plants and other spots not reached by the plow. Stirring the soil by means of the cultivator is so much quicker and cheaper than by hand hoes



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is the reason that careful plowing as close to the plants as is safe, should always be given. And quickness, expedition, is an important thing in strawberry culture. It enables you to select just the right time to cultivate the plants—the time when soil and weather are at the best.

It is surprising how quickly and cheaply cultivation can be done when done often. Only when delayed does it become terrible, much as the man's annual hair combing, which was terrible simply because it was annual.

Nevertheless, the strawberry can stand more neglect than almost any crop that grows. Many a grower allows grass to possess his strawberry fields till about August 1st. Then making a desperate onset he plows, digs, grubs, pulls, tears and totes grass till his patience and his time are exhausted. If the season is favorable he gets a fair crop of inferior berries. But if timely rain withholds, his plants, weak in vitality, dwindle and pass in nothingness, or its equivalent, as far as profit is concerned.

Old strawberry rows which it is desired to continue in bearing, should, as soon as the crop is off, be sided by a turning plow, leaving as narrow a strip as is practicable to get a good stand. On this strip left, chop out the plants with hoes, leaving the plants a foot to eighteen inches apart, as the soil is weak or strong and the variety a weak or strong grower and runner maker. A little later split out the middle with turning plow, throwing earth back, but not on the plants. A good time to apply fertilizer is in the furrow on each side of the row before the earth is thrown back.

This plowing done, the old bed or field should be cultivated just as above given for a young field. If practicable it is best to mow the old plants, looser up the mulch and while dry burn all off together before the rows are sided. This burning effectually destroys all parasites and disease spores and does the plants no harm. In a short while they sprout up brighter, greener, stronger than ever.

Cultivation should continue as late in the season as grass grows. It is our rule to give the last thorough cultivation about August 15th. After that the soil is stirred no more till the berries are gathered the following spring. But all the weeds and grass are carefully scraped out with hand hoes till the mulch is applied a few weeks before ripening time.

**Food for Strawberries.**

There are different opinions as to trimming strawberry plants when they are put out. Some cut off all the old leaves, and preserve only nascent leaves in the center of the plant; others take off the dead or decayed leaves only, and plant with all the old healthy leaves on the plant.

When the plants are put out they should be kept free from weeds, and the ground should be kept loose about them.

If the plants are strong, put but one to form the stools; if weak, two. They should be planted in separate hills, or rows two to three feet apart, and a foot apart in the rows, the runners cut off till past fruiting, when they may be suffered to run for new plants.

**SOIL AND MANURE.**

The proper soil is light, warm and gravelly; the manure to be applied should be other than animal. The usual plan is to manure the ground with rotten dung, with a view to increase the size and quantity of fruit; but in doing this, the flavor of the fruit is destroyed in proportion to the richness of the soil. Besides this form of high manuring produces strong vines with comparatively little fruit.

Rotten leaves, decayed wood, fermented peat, ashes, in small quantity mixed with other vegetable substances in a compost heap, will make better manure than any animal substances whatever. If these are not on hand a valuable fertilizer can be had in nitrate of soda and powdered phosphate of lime. They have no weed seeds and no odor.

Their application to strawberries will sometimes treble the yield. The berries are larger in size, handsomer in color, solid and of fine flavor. Animal manure will not produce such favorable

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results, as it is not converted into plant food until after the demand of the fruit, although in time for plant demands.

Nitrate of soda and powdered phosphate of lime being soluble are assimilated by the plant at once and appropriated at a cost of less than \$10 per acre, using 400 pounds of the mixture which contains the three ingredients considered necessary for seeding plants, nitrogen, phosphoric acid and the alkali, not a muriate which checks the formation of sugar in the fruit, impairing its sweetness; also lime, yielding readily to the growing plant such a full supply of each as may be essential to its healthy growth.

[We can not allow that the mixture is a complete fertilizer. Soda may replace potash to a certain degree, but potash is an essential food of plants. Potash, specifically potash not merely an "alkali" is wanted.—Ed. American Gardening.]

As the vines which bear this fruit require great moisture from the time of blossoming to bring the fruit to its proper size, the soil and situation in which they are placed must not be too dry.

Per cent of ash in the fruit is 3.40. The composition of the ash in the strawberry is as follows:

Potash.....	21.06
Soda.....	28.48
Lime.....	14.20
Magnesia.....	7.75
Oxide of iron.....	5.89
Phosphoric acid.....	13.82
Silica.....	3.05
Sulphuric acid.....	3.15
Chlorine.....	1.60

This is the analysis of Dr. Salisbury of Albany, N. Y., whose work is recorded in the reports of the New York Historical Society.

The foliage and stems contain on the average five times as much of the various elements as the fruit alone, but as these are not sent to market, the farm suffers no export but that of the fruit. It is to be noted, of the alkalies in the ash, soda predominates.—Andrew H. Ward, in American Gardening.

**The Sunflower Plant: Its Cultivation, Composition, and Uses.**

In response to a large and growing popular interest in regard to the growth of sunflowers for economical purposes and the manufacture of oil from their seed, and for the purpose of giving to those interested in the matter all the information available, the U. S. Department of Agriculture has made some investigations as to the composition of the sunflower, the methods of culture, and the manufacture of oil from the seed. The results of these investigations are contained in Bulletin No. 60,

Division of Chemistry, entitled "The Sunflower Plant: Its Cultivation, Composition, and Uses," now in press and soon to be issued by the Department. The bulletin was prepared by Dr. Harvey W. Wiley, Chief of the Division of Chemistry, U. S. Department of Agriculture.

It shows that the sunflower can be grown successfully over large areas in the United States; that it is a crop which makes a considerable drain on the elements of soil fertilizers; that one of the most valuable constituents of the plant is the oil which exists in large quantities in the seeds; that the economic production of the sunflowers is now confined almost exclusively to Russia, where it is an agricultural industry of considerable importance; that in the United States it is grown as an ornament and for the production of seeds, which are used chiefly for poultry and bird feeding and for condimental and medicinal properties with farm animals; that the oil of the sunflower seed is not produced commercially in the United States; and that in the cultivation of the sunflower the methods pursued for growing Indian corn are to be followed, and the plant is capable of cultivation over almost as wide an area as Indian corn.

The bulletin will be illustrated with one plate and two text figures, and a limited number of copies will be for sale by the Superintendent of Documents, Union Building, Washington, D. C., at 5 cents.

**Wormy Apples.**

There is nothing new about wormy apples except the way to avoid having them. There are several species of grubs or worms which work in apples, but the one which does nearly all the damage is the core worm. The core worm is the offspring of the codling moth, and this is the insect which a man wants to fight in his apple trees.

The best general remedy for the core worm, or codling moth, according to information furnished by the Vermont Experiment Station, is Paris green. Some apple growers use London purple; others use white arsenic; but they amount to the same thing. They all poison the core worms. Other insecticides like hellebore, kerosene or sulphur, are not effective in this case.

In the hands of the average man Paris green is the best remedy for the codling moth. The poison should be thoroughly mixed with water at the rate of a quarter of a pound to the barrel—that is about one pound of Paris green to 160,200 gallons of water. About a pound of lime ought to be added to each barrel of water, which will prevent scalding of the foliage. It should be applied with a spray pump and fine nozzle.

In case Bordeaux mixture is used on the trees the Paris green may be added directly to that solution at the rate already recommended.

The first spraying for the codling moth should be made as soon as the blossoms fall, or within a week afterward. It is very important to do this before the little apples begin to hang down their heads, as after that time they do not catch and hold the poison.

**The Melon Louse.**

Melon growers should consider at this time of year any steps that they propose taking for preventing the ravages of the melon louse during the coming season. It is too late to do anything after the lice appear. Their habits are such that no effective spraying or other general treatment is possible.

Two methods have been suggested looking toward the prevention of loss. One consists in thoroughly cleaning up and plowing the old melon fields now, if melons are to be planted on the same land next year. This serves to destroy many of the insects which pass the winter in the trash and litter of the old melon field.

Perhaps a better method is to change the crop on the old field and grow melons in a new place. If this plan of rotation is followed, it discourages the insects and gives them nothing to work on at the old location and it takes considerable time for them to find the new one.—Oklahoma Experiment Station.

Potato scab can be prevented by the use of corrosive sublimate or of formalin on the seed potatoes. In tests made this year at the Vermont Experiment Station the potatoes treated with corrosive sublimate showed less than four per cent of the crop scabby, and those treated with formalin showed nine per cent scabby. In the same soil and from the same seed, untreated potatoes came out with forty-one per cent scabbed. An increase of thirty-seven

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per cent in the measure of first-class potatoes ought to be worth any man's time.

**Angoras and Orchards.**

EDITOR KANSAS FARMER:—I notice Greisa says in the FARMER to turn Angora goats into the orchard. I think if one wants to see some scientific skinning of young trees, the thing to do it up "brown" is a well-horned Angora. Why they would pretty nearly climb an apple tree. I have had them walk up a 2 by 4 laying against the hen-house and go to the peak. But their main forte is to skin young trees.

Macksville, Kans. D. H. WELCH.

**In the Dime Museum.**

"What's the trouble over there in the corner?" said the living skeleton to the fat woman.

"The two-headed girl is having a quarrel with herself."

"Just so; but what about?"

"She says she'd rather be four-legged than two-headed, so that she could hang up more Christmas stockings."—Town Topics.

**Science And Superstition.**

We cordially congratulated science upon having made people less superstitious.

"Bless you, no!" exclaimed Science, deprecatingly. "Why, I haven't done a thing on earth but change the styles in superstitions! Simply replaced ghosts with microbes, don't you know?"—Detroit Journal.

**How's This!**

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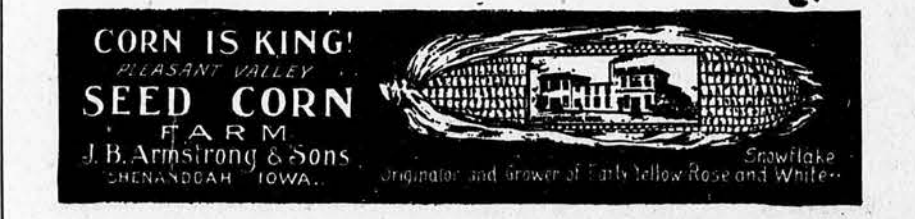
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### The Home Circle.

AS FAR AS I KNOW.

"As far as I know," said a person one night,  
 "There is naught in this world but what is just right;  
 I have all I want both to eat and to wear,  
 The flowers I gather are fragrant and fair,  
 The birds in the trees always sing a glad song,  
 And as far as I know there is nothing wrong.

All the people I know are loyal and kind,  
 And I am contented in body and mind;  
 I read about folks who are awfully bad,  
 About souls that are weary and hearts that are sad,  
 About children that quarrel and people who fight,  
 But as far as I know everything is all right.

"I read here are people who do many things  
 That on them the worst kind of suffering brings,  
 That women are wicked and men are untrue,  
 And sinfulness runneth society thro'.  
 But as far as I know—as far as I know—I can not affirm that these stories are so."

The person who said that, as far as she knew,  
 Was a child of 6 years, and to her it was true;  
 O what would we give could we all say to-night,  
 There is naught in the world but what is just right!  
 That we have all we want to eat and to wear,  
 And that justice and goodness abound everywhere.

—Thomas F. Porter in Boston Globe.

#### A Harness for the Sun.

The KANSAS FARMER has received from the manufacturers at Los Angeles, Cal., a description of the apparatus by which a small portion of the enormous working power of the sun has recently been harnessed and made to work according to the will and pleasure of man. The following excerpts from this description, written by William E. Smythe together with the illustrations, will enable the reader to understand what has been accomplished and how it was done:

There were a good many attempts during the past thirty years, and, indeed, more than a century ago, to make a commercial proposition of sun-power. Some of the more recent of these efforts have been announced in a highly sensational way as likely to furnish power for moving trains and steamships and even for leveling down great mountains. No such absurdities have been associated with the solar motor, which is now attracting the attention of scientific men and popular crowds at South Pasadena.

Indeed, nothing has been claimed for

suppose that its maximum has been reached, nor that it will be with the present model. At this writing its best record is the raising 1,400 gallons per minute at a lift of 12 feet. The average percentage of sunshine in the arid region as a whole is 70 per cent, and this figure would correctly represent the proportion of the year in which sun-power could be relied upon. Making due allowance for the hours of idleness after sunset, 1,400 gallons per minute, which equal 155 miners inches, would irrigate about 200 acres of alfalfa, about 300 acres of oranges, or about 500 acres of deciduous trees. Although there are large districts where water may be had at a depth of 12 feet, that is by no means an average lift, so that the actual capacity of the solar motor can not fairly be set so high. Its capacity will vary with the lift, with the character of crops, and with differences of soil.

#### USES NO FUEL.

The important consideration is that the new power effects a complete saving of the item of fuel, since it gathers all the heat for its boiler directly from the sun. Water-power might be just as cheap if it were as widely diffused as the sun-power, which, unfortunately, it is not. Water-power is being more and more used to generate electricity for pumping, but this can only be supplied by companies which have made a large investment and who then charge the irrigator an annual rent of \$50 per horse power. In addition to this, the irrigator must supply his own pumping plant, so that his expenditure for electricity is practically a total loss as compared with sun-power. The natural comparison of the solar motor is with the windmill, since both are automatic, being operated by the elements.

"How does it run, and how does it look?" will naturally be asked. It looks not unlike a huge umbrella, although this illustration should not be construed to mean that the solar motor is a frail structure. On the contrary, it is large and substantial, weighing 8,300 pounds. But its shape much resembles an umbrella open and inverted, and is so disposed as to catch the sun's rays on the mirrors which line its inside surface and to reflect both light and heat with concentrated energy on a long, slim boiler, which is where the umbrella stick ought to be. It should be noted that no lenses are used, but that the heat is reflected from plain mirrors and so centered upon the boiler.

#### THE SIZE OF IT.

This reflector measures 33 feet across its diameter at the top and 15 feet at the bottom. It contains exactly 1,788

sun harnessed. A long pole is reached to the glittering boiler, and soon begins to smoke and then takes fire and bursts into flame. Evidently it is hot up there, and this simple test carries conviction on that point to the most unscientific mind.

ONE HOUR AFTER SUNRISE, 150 POUNDS OF STEAM.

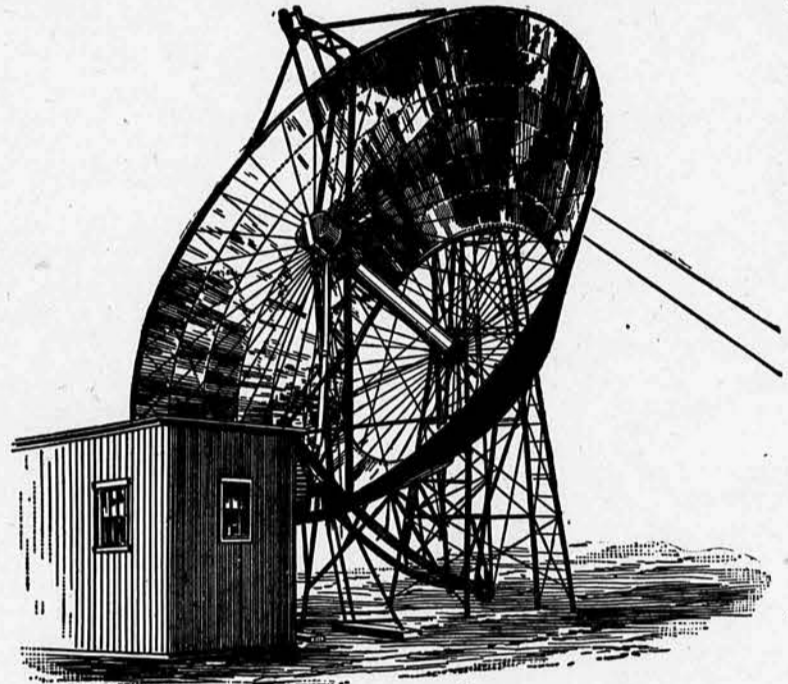
In about one hour the intense heat has raised the cold water to a high temperature, evaporated it into steam, and a pressure of 150 pounds is shown on the gage in the engine room. For be it understood, the solar motor is not a sun engine in the sense that it is operated without the intervention of steam power, as the water wheel is turned by the falling stream. The sun strikes the mirrors; the mirrors reflect the heat upon the boiler; the heat turns the water within the boiler into



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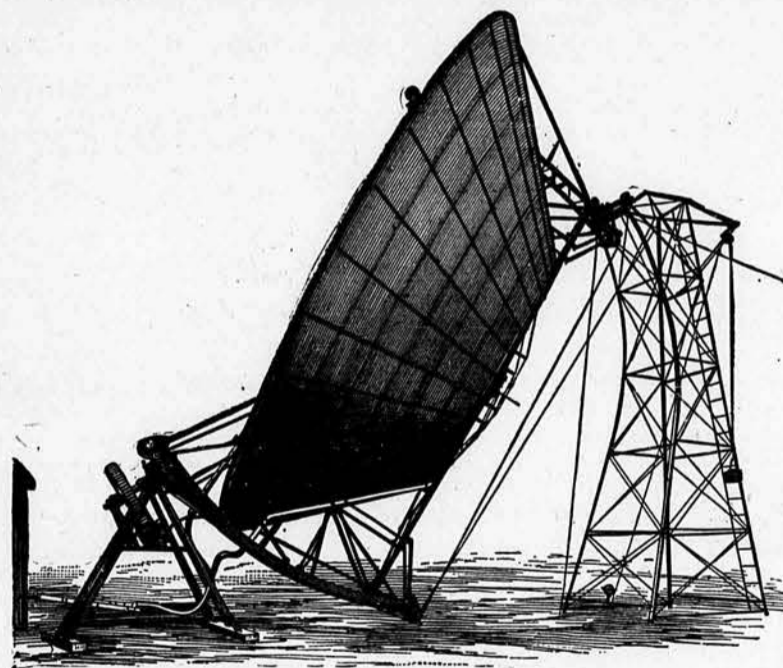
uses for which it is adapted in localities where fuel is most abundant, since it is plain that no fuel is cheaper than



THE SOLAR MOTOR, FRONT VIEW.  
 Showing the Sun's Rays Concentrated on Boiler.

steam; the steam passes from the head of the boiler through a flexible metallic pipe into the engine cylinders; and from that point the process is the familiar operation of the compound engine

and the centrifugal pump. There is nothing occult, nothing new. Every boy has felt the concentrated heat of the sun gathered in the burning glass held by a mischievous neighbor, or had his



THE SOLAR MOTOR, SIDE VIEW.  
 Showing the Fixed Support and Mounting of Reflector.

it. The device speaks for itself in the modest but impressive language of actual daily performance.

#### THE WORK IT DOES.

It drives a 10-horse power engine from an hour and a half after sunrise to within half an hour of sunset. Its performance has gradually increased with each day's trial and the perfecting of details and there is no reason to

mirrors, 3½ by 24 inches in size. The reflector is set in meridian like a telescope, the axis being due north and south and the movement from east to west. The boiler is tubular, 13 feet 6 inches long, with a capacity for 100 gallons of water, and 8 cubic feet additional steam space. It is made of fire-box steel, covered with lamp-black and other absorptive material. Before this boiler is thrown into focus its black cylinder is but an inconspicuous feature of the novel mechanism which stands face to face with the sun. But when with a few turns of the crank, it swings into the concentrated rays reflected from hundreds of mirrors, it suddenly assumes the appearance of shining silver, or perhaps of a great, gleaming icicle, and becomes the irresistible cynosure of all eyes. Here, at last, is the

## Special Club List

In order that we may save our regular subscribers some money, and at the same time supply the very best newspapers and magazines, we have selected a few representative journals, such as are most in demand, which we offer at a very low combination rate, exclusively for the subscribers to the KANSAS FARMER. If more than one paper or magazine is desired, in each case subtract one dollar from the combination rate. We supply sample copies of the KANSAS FARMER only.

	Regular price.	Clubbed with Farmer
Ainslee's Magazine	1.00	1.75
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American Bee Journal	1.00	1.75
American Sheep Breeder	1.00	1.75
American Swineherd	.50	1.25
Breeders' Gazette	2.00	2.00
Chicago Horseman	4.00	4.00
Clark's Horse Review	2.00	2.50
Cosmopolitan Magazine	1.00	1.75
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Gentlewoman	1.00	1.25
Globe-Democrat, semi-wkly	1.00	1.75
Harper's Magazine	4.00	4.00
Harper's Round Table	2.00	2.50
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Hoard's Dairyman	1.00	1.60
Home Culture Magazine	1.00	1.70
Housekeeper	.50	1.40
Irrigation Age	1.00	1.75
Illustrated Poultry Gazette	.25	1.15
Jersey Bulletin	2.00	2.00
Kansas City Journal	.25	1.15
Kan. City Daily Star	4.00	4.00
Kan. City Daily Times	4.00	4.00
Kansas City Weekly Star	.25	1.15
Literary Digest	3.00	3.60
McClure's Magazine	1.00	1.75
Mail and Breeze	1.00	1.50
Munsey's Magazine	1.00	1.75
National Humane Alliance	.50	1.15
National Nurseman	1.00	1.75
New York World (tri-wkly)	1.00	1.65
Practical Dairyman	.50	1.25

St. Louis Republic, Tuesday and Friday		
Swine Advocate	1.00	1.75
Swine Breeders' Journal	.25	1.10
Topeka Capital (semi-wkly)	1.00	1.25
Topeka State Journal	1.00	1.50
Weekly Wool and Hide Shipper	1.00	1.35
Western Fruit Grower	.50	1.25
Western Garden and Poultry Journal	.50	1.35
Western Poultry Breeder	.25	1.15
Western School Journal	1.00	1.60
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Neglect of a Cough or Sore Throat may result in an incurable Throat Trouble or Consumption. For relief use **BROWN'S BRONCHIAL TROCHES.** Nothing excels this simple remedy. Sold only in boxes.



eyes momentarily blinded by the reflected light cast from a hand mirror. These principles are old and known to us all. In the solar motor they are applied on a larger scale and made to perform useful work in connection with the steam engine and the pump.

THE SUN'S POWER.

Now that the thing is accomplished, it does not seem at all extraordinary that we have found a way to apply a little of the sun's enormous heat to actual economic uses. It marks but one more step in the assertion of man's control over the forces of nature. Long ago we harnessed the winds and the waters, making them bear our burdens and perform our tasks. More recently and far more wonderfully, it seems to me, we made the subtle currents of electricity the docile servants of our will. Science long since demonstrated that the solar heat falling normally upon four square feet of surface during one minute is equivalent to one horse power. Prof. Langley of Smithsonian Institution recalls the fact, in his interesting work, "The New Astronomy," that in the eighteenth century Bernieres, a Frenchman, and an English optician named Parker, each constructed burning glasses of great size and power, under the influence of which "iron, gold, and other metals ran like melted butter." One of those glasses was presented to the Emperor of China, who was so much alarmed at its performances that he had it buried in the ground where it could work no sinister miracle.

WORKS FOR NOTHING AND BOARDS ITSELF.

The most obvious advantage of the solar motor is the saving of fuel. It will be used over wide districts where the cost of fuel is prohibitive and will even supersede all other power in the any fuel. The saving is effected not merely in the purchase price of coal or wood, oil or gasoline, but also in the item of handling these materials. The solar rays are not only furnished without cost, but, by a convenient provision of nature, are freely transported to the place of use, which is wherever the reflector may happen to be erected.

100 HORSE POWER.

The usefulness of sun power will be by no means limited to irrigation, nor should it be inferred by the size of the present engine that 10 horse power bounds its possibilities. The new motor will be used for various industrial purposes. Plants of 100 horse power, with several reflectors grouped about a central engine, are already feasible, and it is quite within reason to expect that with the improvements which will naturally be added as time goes on, the present maximum will be much increased.

The possible uses, to which a successful apparatus for concentrating and making manageable considerable quantities of the heat gratuitously furnished by the sun, form a vista of industrial development capable of revolutionizing the industries of the world. But the reader of the statement that the energy imparted by the sun is equal to 1 horse power to every 4 square feet must not suppose that any such amount of power can be realized through the medium of a boiler and steam engine, or by the use of any apparatus at present known to man. Great and admirable as the steam engine is, it yields in effective work only a small fraction of the real energy applied to the boiler in the form of heat. If a little science will not tire the reader this may be presented so as to be easily believed.

The unit of energy frequently used in discussing this subject is the amount of heat required to raise the temperature of 1 pound of water 1°. To raise 2 pounds of water 1° requires 2 units of heat. So also, to raise 1 pound of water 2° requires 2 units of heat. So if 100 pounds of water must be raised 100° the heat will be 100x100=10,000 units of heat. If it be inquired how much heat will be required to raise 100 pounds of water from the ordinary temperature of well water, say 60°, to the boiling point, say 212°, the figures will be like this:

Increase of temperature required, 212°-60°=152°.

To raise 100 pounds of water 152° requires 100x152=15,200 units of heat.

But in bringing water to the boiling temperature we have only just got ready to produce steam. It has been found that about 966 units of heat are required to change 1 pound of water into steam, after it has been heated to the boiling temperature, provided it is not confined so as to increase the pressure. If then we convert 100 pounds of boiling water into steam, we must apply 966 units of heat to each pound, or 96,600 units to the 100 pounds of water. If the steam is confined so that the pres-

sure increases, somewhat less heat is required to convert the water into steam. But making allowance for this reduction and considering the heat required to raise the water from ordinary temperature to the boiling point, it is approximately correct to say that 1,000 units of heat are expended in changing 1 pound of water into steam, this is addition to that which must be applied to produce pressure that can be used in a steam engine. If now the steam be given a pressure of, say 80 pounds to the square inch, about 100 units more heat will be required. Or, to convert water at ordinary temperature into steam at 80 pounds pressure requires about 1,100 units of heat for each pound.

Now let us see how much work we can get from this steam. When steam works it is cooled. In the steam engine it cools only to the temperature of boiling water or a little above and is steam still. The entire 1,100 units of heat which were required to produce 80-pound steam remains in the steam after use, except the 100 units which were required after it became steam, to give it pressure. Roughly speaking then, 80-pound steam can yield in work only 1-11 of the energy required to make the steam. As a matter of fact, the useful work recovered is far less than this, for there are many losses from cooling, from friction, etc., which have not been taken into account here.

The great loss above pointed out—about 1,000 heat units for every pound of water converted into steam and used to produce power—is practically the same whatever the pressure given to the steam, so that for higher pressures the loss is less in proportion to the work recovered.

While, therefore, the statement, that the sun bestows upon the earth energy equal to 1 horse power for each 4 square feet of the surface upon which it shines, is not disputed, it is plain from the above showing that only a small fraction of this energy or that derived from any other source of heat can be recovered in useful work through the medium of the steam engine. It is, therefore, obvious that the field for the inventor and the discoverer is far from exhausted in this kind of research. But since the sun is so willing to work without pay, asking only for suitable harness, it may be that the invention above described will render less imperative the economical use of heat energy. [Editor.]

What is Expected of the Bride's Family.

Ah Lat paused in her own experience to tell me how the daughter of a very rich man nearly "lost face" because her father had forgotten to send the fuel. It seems the bride's family in China must not only provide the ingredients for the dishes she intends to prepare, but also the wherewithal to make the fire.

This rich bride's mother-in-law, with a sarcastic look, announced that there was no wood. The haughty bride could not stand this, so she turned to the servants and ordered them to break up a fine red lacquered chest in which was packed rolls of silk, brocade, and crape (part of her trousseau), and with these costly stuffs and the pieces of the chest the fire was made, the dinner successfully cooked, and the family's pride saved! When she told her father he cried, "Well done, my daughter!" Ah Lat found this feast the day after her wedding most trying, as the bride must serve the men's table, and they are allowed to make all sorts of jokes at her expense and personal comments, and she must be able to bear it all with a cheerful smile. She makes her reputation for life in the family by the wit and cleverness with which she answers these sallies.—Lily Howard in February New Lippencott.

Impressed.

It was the first time Miss Pertie Goodwin had ever seen the inside of a sculptor's studio.

She noted his clay-stained blouse and soiled hands and glanced briefly at the figure of a horse he was modeling.

"Gracious!" she said to the friend who was showing her about. "What won't some people do to make a living!"—Chicago Tribune.

No Picnic.

The trolley stops; an Irish lady and 10 children climb in.

Conductor—Are these your children, madam, or is it a picnic?

The Lady—They are my children and it's no picnic.—Schoolmaster.

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



NEW IMPORTATION

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.

M. L. AYRES, Shenandoah, Iowa.



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Our Percheron stallions are beautiful coal blacks. Our English Shire stallions are clean chestnuts and dark bays. Good bone, good back, good quarters, and GOOD ALL OVER. With moderate flesh, 2-year-olds weigh 1,675 to 1,800. They show action and style equal to an English Hackney. The exhibit made was at the Nebraska State Fair. They won first in their classes and sweepstakes over all ages. We boldly assert no better stallions in America.



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THIRD importation of German Coach and Percheron horses for 1900 arrived in October. At the last Illinois State Fair we took 15 prizes out of a possible 16. Our buying facilities are unsurpassed as the oldest member of the firm lives in Germany and owns a couple of big stock farms. He buys 25 per cent cheaper, taking quality of stock into consideration, than any American buyer can buy. Therefore, intending buyers of first-class stallions and mares will act to their interest by coming direct to our place. Correspondence solicited.

OLTMANN'S BROS.,

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AMERICA'S LEADING HORSE IMPORTERS.

We imported more prize-winners at Universal Exposition, Paris, and the Government Show at Amiens and Mortagne than all others combined. Our Percherons won every first prize except one at the Universal Exposition at Paris. We imported more horses from France than any other three firms in America. We are the only firm buying in France without the aid of an interpreter, hence we get the best horses for the least money. More Coach Stallions, more ton black Percheron stallions than can be found in the stables of all other importers.

If you want the best, call on or write **McLAUGHLIN BROS.,** Sixth and Wesley Aves., Columbus, Ohio.

Norman Horses

SAMPSON No. 6866 is at the head of the stud. Present weight, 2,350 pounds, and for bone and quality he has no equal in this country.



We guarantee satisfaction and can undersell all competitors, as the purchaser pays but the actual producing price.

ALSO SHROPSHIRE SHEEP and POLAND-CHINA HOGS. **PINE RIDGE STOCK FARM.** L. M. HARTLEY, Proprietor. SALEM, IOWA.



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All our horses are personally selected by Mr. Watson, who buys only of the best breeders in Europe. Mr. Watson was the World's Fair Judge of Draft Stallions. Our December importation is the 25th shipment made direct from Europe by him. OUR STABLES are located corner Ninth and E Streets. Our office on the ground floor of the Barr Block TWELFTH AND O STREETS. We invite inspection. No trouble to SHOW HORSES. Visitors welcome.



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A limited number of choice young stallions for sale (including the herd stallion, Favorite).

Correspondence Solicited. Inspection Invited.

HENRY AVERY & SON, WAKEFIELD KANS.



### In the Dairy.

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

#### Crops for Dairying in Western Kansas.

Considerable misunderstanding seems to exist even in the minds of Kansans, as to the crop possibilities of the western half of the state. The statistics as gathered and published by our state board of agriculture for the quarter ending December, 1899, show some interesting facts. The average yield of oats for the state was 27½ bushels per acre. The returns from Ford and Kearny counties show a yield of 20 bushels per acre and from Smith County 23 bushels per acre. The average of seven western counties (Decatur, Ford, Kearny, Logan, Rooks, Smith and Thomas) taken at random show an average yield of 15 bushels of oats per acre. The average yield of corn for the same time was also 27½ bushels per acre. Decatur County produced 24 bushels per acre, Ford 23, Kearny 22, and Smith 19. The average for the seven counties was 18 bushels. These western counties seem to be very successful in raising barley, the yield running as high as 20 and 21 bushels per acre. The average for the seven counties mentioned was 16 bushels per acre, or 3 bushels per acre above the average of the state. The Kaffir-corn is measured in tons only, the average for the state being 3½ tons per acre while the average of the seven counties mentioned was 3 tons. The average acreage of prairie hay for the state was 15,325 acres per county. The average acreage of the seven counties mentioned was 7,177 acres per county. The average acreage of sorghum for the state was 4,427 acres per county; the average for the seven counties was 3,622 acres per county. The most striking comparison is that of alfalfa. The average of the state is 2,352 acres per county; the average of the seven western counties was 3,320 acres, or 23 per cent above the average of the state. It is also interesting to note that alfalfa is grown in every county in the state except Haskell and Stevens in the extreme southwestern portion. D. H. O.

#### Wants a Rational Feed for Ten Cows.

Mr. F. W. M., Gypsum, Kans., writes: "We have been reading your columns on dairying in the KANSAS FARMER with the greatest of interest, and wishing to establish a rational feed for our milk cows would like to consult with you on the subject. We have been milking ten cows and have been feeding grain since the first of January. Their rough feed consists of good corn fodder and corghum hay in bundles all they can eat about five pounds of alfalfa hay, also the run of wheat straw stack. For grain, we feed, half of each by weight of corn and cob meal and bran, about ten pounds per head per day. We make allowances for weight of cow and length of milking period. The cows are good ordinary cows, some of which will give from four to five gallons of milk per day. The majority have been fresh since September 1. They are stable every night. We get about 120 pounds of milk per day. I understand that linseed-meal is too costly to be considered. What is the cost of linseed-meal and cottonseed-meal? I raised 14 bushels of soy-beans but will need most of them for seed. I intend to put out 10 acres, but if not more satisfactory than last year shall discontinue. I have not heard a word concerning the stations 1900 crop."

Considering the amount of milk Mr. M. received from his cows, he is feeding a fair ration and plenty of it. The main objection to it is, that it is a little too carbonaceous, and if his cows are inclined to put on flesh, they may do so at the expense of the milk-pail. If our correspondent has plenty of alfalfa, he might feed a little more of it to advantage and less sorghum hay. In the absence of alfalfa a little oil-meal or cottonseed-meal might be fed to advantage. Without knowing the type and individual characteristics of the cows it is hard to say whether this extra feed will pay, but if our correspondent will do as every dairyman ought to do, and have a pair of scales in the barn to weigh

each cow's milking, he can soon tell whether or not the extra feed pays. Good dairy cows, fresh last September, ought to respond to good feed in a way to materially increase the yield of milk our correspondent is receiving. The common cows at the agricultural college, that were fresh in August and September, are to-day giving nearly 30 pounds of milk per day per head.

In regard to soy-beans, the college crop has not been so good on the average as last year's crop. The yield has varied with different varieties and with different locations from 7 to 12 bushels, and some small plats produced at the rate of 30 bushels per acre. The dry weather from the middle of June to the middle of July greatly reduced our yield. Notwithstanding this small yield we find soy-beans, on account of their richness, to be a profitable crop to grow to take the place of oil-meal. At Manhattan, oil-meal in ton lots costs about \$1.45 per hundred pounds and cottonseed-meal 80 cents per hundred pounds. D. H. O.

#### Is It Policy to Connect Dairying With General Farm Work?

C. S. DAVISON, MICHIGAN, KANS.

It is true that the tendency of the age is towards specialism; this is particularly true outside the occupation of farming. This question, as applied to the United States in general, I would not undertake to answer, because climate, soil, and productions differ in different localities. But in this section of our country, where all the productions are suited to feed the cow and calf, I would say that dairying should be connected with general farm work. And why? Because it pays better that way. It affords a continuous and steady income with which to defray the running expenses of the farmer and his family. It does not promise great things in a hurry. It is not a matter of speculation as cattle feeding has grown to be—making a thousand dollars one winter and losing it all the next. It is a sure thing with little risk, and those are things to tie to.

Some raise the objection to connecting dairying with general farm work on the ground that it makes too much work, is too slavish and confining, etc. It is true, it makes plenty of work, but the old adage applies here, viz.: "There is no gain without great pains." Farming and stock raising in all phases require close application and close attention in order to insure success.

The principal advantage derived from connecting dairying with farming lies in the fact that it furnishes remunerative employment for a portion of the day for three hundred and sixty-five days in the year. After all is said, "Labor is capital," and the man who puts in the most time, well directed, in each year is the one who is ahead. It is hard to figure out wages and profits on the farm products except for the time actually employed in tending and harvesting the crops. This leaves a vacancy of some five months for the man who does nothing and whose crop is making nothing and who is eating up what he has already made.

We often hear it said that if a farmer counts wages for his time and work he don't make interest on the capital invested.

How about dairying? We will take a 160 acre farm and 15 cows. He has \$450 capital in cows. The cows produce \$30 worth of milk each month (counting \$2 for each cow) for ten months in the year, or \$300. From these cows the farmer raises twelve calves, worth in the fall \$150. This with the price of milk makes a total yield of \$450. So much for the credit side, and now for the debtor side. Estimating pasture at 50 cents per month for five months and feed for the balance of the year at \$1.25 per month, we have a total cost per cow of \$11.25 per year and for fifteen cows \$168.75. Deducting the amount from \$450, the gross earnings, we have a balance of \$281.25 for labor, interest on money, and keep of the calves outside what the skim-milk furnishes. To carry it still farther, the labor would require one hand half the time to milk, handle cows and calves and deliver milk at stations. This would be \$10 per month, and \$120 for twelve months. The \$120 deducted from \$281.25 leaves \$161.25, the amount available to pay interest on the \$450, cost of cows, and to cover losses. Interest on money at 8 per cent, \$36, which deducted from the \$161.25 leaves \$125.25. Taking from that \$12 for grain pasturing for calves, leaves \$112.75 to count as profits after losses are paid. That amount would replace the herd every four years. I know of no other part of the farming industry where, after all expenses are paid, that will net as handsome a profit as dairying. There is another advan-

tage which accrues to the farmer who connects dairying with farming. He is grassing his land, resting and changing it, and fertilizing it, thereby making it more productive and valuable. As we have mentioned before, it adds cares to other farm work, and if you are growing old and feeble and don't need the profits let it alone, but if you are young and vigorous and want to start in life, connect the two occupations. In connecting the keeping of dairy cows with farming the farmer is induced and influenced by personal interest to secure the best results possible, and in order to attain these, will try to secure his rough feed in the best condition possible, thereby making a saying at that point.

The last point, and one of great importance, which we will consider briefly at this time, is the fact that dairying with farm work furnishes employment for the boys and young men growing up on the farm, also boys and farm hands who wish to secure employment during the entire year. Many young men work six or seven months of the year and then on account of the scarcity of farm work lie idle the balance of the year. His condition, financially, in the spring is pretty much the same as it was the previous spring. His condition otherwise is worse than a year before, for four or five months loafing has no upward tendency. There is nothing more conducive to the best interest of a community than that its young men should be steadily employed. It makes them more thoughtful and steady and they grow up better citizens. It is true there are some young men in nearly every community who do not want employment more than half the year, with the balance to loaf. They are entirely above milking a cow. But I want to call your attention to one fact, that the Lincolns, Garfields, and Jacksons of our country were not drawn from this class of young men.

#### Which is the Best Breed.

O. A. SEATON.

Which is the best breed? That's easy. Some one has already answered that and said: "The breed you like best is best for you." But if you wish my opinion I would say, the Jersey for cream; the Holstein for milk; the Hereford to rustle for beef; and the Shorthorns for all three, milk, butter and beef.

A farmer once asked a horse-buyer, "What is the best color for a horse to sell well?" The reply was: "Fat was the best color." That won't do with milk cows. As a rule, a cow that takes on fat readily, when giving milk, is not a free milker, nor does she give milk rich in butter fat. She can not take the fat out of her food and put it all on her back and ribs, and much in the

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pail too. Look for straight lines for leaf and angles for milk, whatever is the breed, though some breeds are specially adapted to producing beef and other milk. No one would make the mistake of choosing a heavy draft horse to go for the doctor, in a case of life or death, nor a racer to help him up, if stalled on a big hill.

I believe the characteristic markings are as distinct, to those who can read them, between beef cattle and good milking stock as between the two breeds of horses.

A cow with straight back and lower line, a full neck and smooth hips ought to fatten readily. And one with a ewe neck, cat hams, rough hip bones, large udder and big dinner basket will give 5 or 6 times her weight in milk in a year and make one-third her weight in butter, if properly fed and handled.

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His summary is as follows:

	DeLaval Separator.	U. S. Separator.
Milk received	5605 lbs.	3952 lbs.
Average temperature	87½ deg.	89 deg.
Average speed	5825	8025
Total loss of fat	4.02	1.84
Loss per 100 lbs. of fat	1.55 lb.	1.87 lb.
Total loss in cash	\$1.15	\$0.42

L. P. LACOURSIERE,

(Government Butter and Cheese Inspector.)

Sworn to before me Nov. 21, 1900.

T. E. LANONETTE, T. P. ex of O. C. Ste. Anne.

NOTICE.—The DeLaval lost \$1.15 in separating 5605 lbs. of milk, or .205 on 1000 lbs., while the U. S. lost 42 cents in separating 3952 lbs. of milk, or only .106 on 1000 lbs.; which shows that the DeLaval lost in actual cash practically twice as much as the U. S.

In other words, a Creamery separating 10,000 lbs. milk daily would save in a year in butter fat alone by using the U. S. Separator \$361.35 that would be lost by using the DeLaval Separator.

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