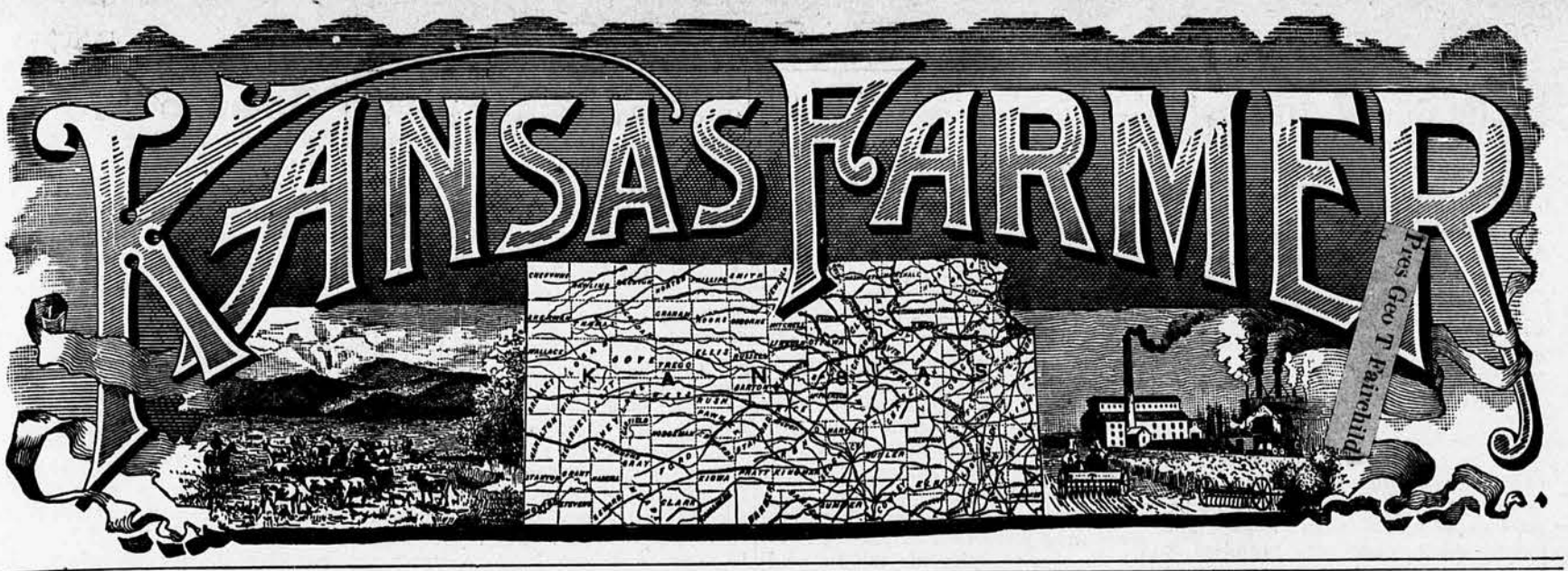

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BREEDERS' DIRECTORY.

Cards of four lines or less will be inserted in the Breeders' Directory for $15 per year or $8.00 for six months; each additional line, $2.50 per year. A copy of the paper will be sent to the advertiser during the continuance of the card.

HORSES.

JOSEPH FUHRMAN, NORTH WICHITA, KAS.—Breeder of French Coach and Percheron horses. Pure-bred young stock, of both sexes, for sale; also, grade animals. Prices as low as same quality of stock can be had elsewhere. Time given if desired. Inspection invited. Letters promptly answered Mention this paper.

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

CATTLE.

VALLEY GROVE HERD OF SHORT-HORNS.—For sale, choice young bulls and heifers at reasonable prices. Call on or address Thos. P. Babst, Dover, Kas.

NEOSHO VALLEY HERD OF SHORT-HORNS.—Imported Buccaneer at head. Registered bulls, heifers and cows at bed-rock prices. D. P. Norton, Council Grove, Kas.

ENGLISH RED POLLED CATTLE AND COTSwold Sheep.—Young stock for sale, pure-bloods and grades. Your orders solicited. Address L. K. Haseltine, Dorchester, Green Co., Mo.

SWINE.

MAPLE GROVE HERD OF FANCY BRED POland-China swine. Also Light Brahma fowls. Owned by Wm. Plummer & Co., Osage City, Kas. Stock of all ages for sale at reasonable rates.

FOR SALE CHEAP—Choice Poland-China boar pigs, Cotswold and Merino bucks, fifteen varieties of pure bred poultry. Prize-winners. No catalogue. Address with stamp, H. H. Hague & Son, Walton, Kas.

OHIO IMPROVED CHESTER SWINE—Pure-bred and registered. Stock of all ages and both sexes for sale by H. S. Day, Dwight, Morris Co., Kas.

D. TROTT, Abilene, Kas.—Pedigreed Poland-Chinas and Duroc-Jerseys. Also M. B. Turkeys, Light Brahma, Plymouth Rock, S. Wyandotte chickens and R. Pekin ducks. Eggs. Of the best. Cheap.

A. W. THEMANSON, WATHENA, KAS.—Poland-China boars. Gilts bred to Graceful F. Sanders; he is by J. H. Sanders 27219 and out of Graceful F. 63408, by A. A., by Black U. S. Sire and dam both first-prize winners at World's Fair and descendants of Black U. S.

SWINE.

DIETRICH & GENTRY, RICHMOND, KAS., (formerly Ottawa) have several fine, growthy young boars at very reasonable prices...Young sows can be bred to High Ideal 12115 S. A fine crop of fall pigs very cheap. *Write.* Mention KANSAS FARMER.

TOPEKA HERD OF BERKSHIRES.—Strong-framed, mellow and prolific. State fair prize-winners and their produce for sale. Also, Pekin ducks of enormous size. H. B. COWLES, Topeka, Kas.

V. B. HOWEY, Box 103, Topeka, Kas., breeder and shipper of thoroughbred Poland-China and English Berkshire swine and Silver-Laced Wyandotte chickens.

BLACK U. S. AND WILKES HERD OF POLAND-Chinas Nemo U. S. heads the herd, out of Lizer's Nemo 24471, the $275 son sired by A A 2d 18851, and assisted by Regulator Wilkes 11591. Have sows in herd bred to Woodburn Medium, the $1,000 boar, and Ideal U S., the son of Ideal Black U. S., that sold for $1 000 last September at Iowa State fair. Booking orders for pigs sired by these boars. Write what you want. Letters promptly answered. C. C. Keyt, Verdon, Richardson Co., Neb.

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PEDIGREED Poland-Chinas Short-horns. J. H. TAYLOR, Pearl, Kas.

ASHLAND STOCK FARM HERD OF THOROughbred Poland-China hogs, Short-horn cattle and Plymouth Rock chickens. Boars in service, Admiral Chip No. 7919 and Abbottsford No. 28351, full brother to second-prize yearling at Worlds Fair. Individual merit and gilt-edged pedigree my motto. Inspection of herd and correspondence solicited. M. C. Vansell, Muscotah, Atchison Co., Kas.

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A. B. DILLE & SONS, EDGERTON, KAS., breeders of choice B. P. Rocks. S. L. Wyandottes, Light Brahmas and M. B. turkeys. Chicken eggs $1 to $2 per 15; turkey eggs $3 per 11. Satisfaction guaranteed.

EUREKA POULTRY YARDS.—L. E. Pixley, Emporia, Kas., breeder of Plymouth Rocks, S. Wyandottes, Buff Cochins, B. and White Leghorns, B. Langshans, M. B. Turkeys and Pekin ducks. Chicks at all times. Eggs in season.

SWINE.

Thoroughbred Duroc-Jersey Hogs

Registered stock. Send for 44-page catalogue, prices and history, containing much other useful information to young breeders. Will be sent on receipt of stamp and address. J. M. STONEBRAKER, Panola, Ill.

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We offer choice selections from our grand herd, headed by a great imported boar. New blood for Kansas breeders.

WM. B. SUTTON & SON, Russell, Kansas.

S. McCULLOUGH, Ottawa, Kansas. Breeder of Pure-bred BERKSHIRE SWINE. Stock for sale at all times Satisfaction guaranteed. Write for what you want.

SELECT HERD OF BERKSHIRES

Have for sale pigs from State fair winners. Can fill classes for show. Boars for fall service. A few choice sows bred. Address G. W. BERRY, Berryton, Shawnee Co., Kas.

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

THE WOOD DALE BERKSHIRES

Champions of Two World's Fairs.

New Orleans, 1885, best herd, largest hog any breed. At Columbian, Chicago, won ten out of eighteen first prizes, the other eight being bred at or by descendants of Wood Dale. New blood by an 1894 importation of 21 head from England. For catalogue Address N. H. GENTRY, SEDALIA, MO.

GEORGE TOPPING, Cedar Point, Kas. (CHASE CO.) Importer, breeder and shipper of **LARGE ENGLISH BERKSHIRE SWINE** of best families and breeding. Choice pigs for sale at low prices. Also Single-combed Brown Leghorns and Mammoth Bronze turkeys. Eggs in season. Farm 6 miles south of Cedar Point. Mention K. F.

BOURBON COUNTY HERD, **English Berkshire Swine.** J. S. MAGERS, Prop., Arcadia, Kas. Imported and prize-winning American sows headed by Imp. Western Prince 32202. All selected and bred to head herds and to supply those wanting none but the best. Fall litters now can't be beat. Write or come visit me and see the herd.

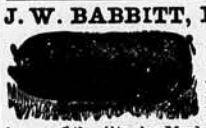
SWINE.

JAMES QUROLLO, KEARNEY, MO.

Breeder and shipper of prize-winning **Large Berkshire Swine.** S.C. Brown Leghorns and Bronze Turkeys. Headed by King Lee II. 29801, Mephistopheles 32412.

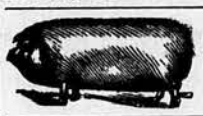
MARTIN MEISENHEIMER, Registered Poland-China Swine. Hiawatha, Brown Co., Kas. 20 brood sows, headed by Tecumseh Free Trade 10783 S., assisted by a son of Benton's Last 8827 S. Some of best females bred to Butler's Darkness, Black U. S Nemo (Vol. 9) and Victor M. Jr. (Vol. 9) Correspondence and inspection invited.

J. W. BABBITT, HIAWATHA, KAS.



BREEDER OF **Regist'd Berkshire Swine** 45 in herd, headed by Lord Majestic 34768, a son of Imp. Lord Windsor 30461; dam Imp. Majestic 30459. 6 boars, 12 gilts, by Model Duke II. 22467, and 9 fall of 1894 farrows, both sexes, for sale. Write or come.

MAINS' HERD OF POLAND-CHINAS. JAS. MAINS, Oskaloosa, Kas. (*Jefferson County.*) A grand lot of sows bred to Monroe's Model, Excel, McWilkes Jr. and Storm Cloud 2d. Also all other classes and ages of stock for sale. I guarantee safe arrival and stock as represented or money refunded. Breeding stock recorded in Ohio P. C. R.



JOHN KEMP, North Topeka, Kas., breeder of improved Chester White Swine. Some fine young boars fit for service for sale. Correspondence invited.

D. W. EVANS' HERD REGISTERED POLAND-CHINAS. FAIRVIEW, BROWN CO., KAS. 250 head headed by Swi Tecumseh 11929 S, by L's Tecumseh 11413 S., and Billy Wilkes 9399 S., by George Wilkes 5950 S. A public clearance sale on Thursday, February 14, 1895, of 75 sows bred to these and other noted boars. Inspection invited.

A. E. STALEY, Ottawa, Kansas. CHESTER WHITES AND POLAND-CHINAS. Light Brahma cockerels, $1.50.

PLEASANT VIEW STOCK FARM. J. A. WORLEY, Sabetha, Brown Co., Kas. **REGISTERED POLAND-CHINA SWINE** Short-horn Cattle and Light Brahmas. 100 Polands, headed by Anxiety 20251 A., Combination U. S. (Vol. 9), America's Equal 12279 S. and a son of Bolivar 24767. Eggs in season, $1.50 per setting of 15. Inspection and correspondence invited.

W. S. ATTEBURY, Rossville, Kansas. BREEDER OF **Chester Whites** Exclusively. Young stock at all times. Satisfaction guaranteed.

BLACK U. S. AND WILKES

300 head, registered or eligible. Boars in service, Modest Duke 12653 S., Wilkes Tecumseh 11760 A., White Face 12081 O. and Osgood Dandy Wilkes 12709 S. 60 young boars; 80 gilts. J. R. CAMPBELL & SON, Avilla, Jasper Co., Mo.

PRAIRIE COTTAGE FARM

Home of the Chester White Hogs. C. J. HUGGINS, Louisville and Wamego, Kansas. Have for sale brood sows, two boars, also a nice lot of spring pigs of both sexes, the get of my herd boars, Ben Buster 6189 and Jerry Simpson 6161. Correspondence and inspect'n invited. Prices reas'n'ble.

HOLSTEIN-FRIESIANS Careme 2d's Jacob Prince of Twisk 404 heads herd, backed with butter record of over 35 lbs. in 7 days. Young bulls for sale. Red pigs in pairs, heavy bone, good color, dams often farrowing 14 pigs. Males **DUROC JERSEY REDS** ready for service. Poland-China males ready for use. Pigs of all ages in pairs not related. Young gilts, either breed, bred if desired. Pigs shipped at my risk. Pedigrees furnished. M. H. ALBERTY, Cherokee, Crawford Co., Kas. Mention FARMER. **AND POLAND-CHINAS.**

R. S. COOK, Wichita, Kas., Breeder of **Poland-Chinas.** Won seven prizes at World's Fair—more than any single breeder west of Ohio.

CATTLE.

SUNNY SLOPE FARM, C. S. CROSS, Proprietor, Emporia, Kas. Breeder of PURE-BRED HEREFORD CATTLE. Herd headed by Wild Tom 51592, a son of Bean Real 11055 and assisted by sons of Cherry Boy 26475, Archibald 1st 59258 and Washington 22615. 200 head, all ages, in herd. Strong in the blood of Lord Wilton, Anxiety and Horace. A choice lot of young heifers, fit for any company. Bulls all sold. Correspondence solicited, or, better still, a personal inspection invited.

SHANNON HILL STOCK FARM. G. W. GLICK, ATCHISON, KAS. Breeds and has for sale Bates and Bates-topped SHORT-HORNS. Waterloo, Kirklevington, Filbert, Cragg, Princess, Gwynne, Lady Jane and other fashionable families. The grand Bates bulls Waterloo Duke of Shannon Hill No. 89879 and Winsome Duke 11th 115,137 at head of herd. Choice young bulls for sale now. Visitors welcome. Address W. L. CHAFFEE, Manager.

CLOVER LAWN HERD POLAND-CHINAS. Young sows and boars and spring pigs for sale. Prices reasonable. Stock first-class. W. N. D. BIRD, Emporia, Kas.

BERT WISE, breeder of Poland China Hogs, Holstein Cattle and Barred Plymouth Rock Chickens of choicest strains. Butler's Darkness No. 6846 S and Ideal U. S. Nemo at head of swine herd. Only choice stock shipped on order. Sows bred and a few extra good young boars for sale. Three are out of my Orient sows. Write your wants. Satisfaction guaranteed. BERT WISE, Reserve, Brown Co., Kas.

Evergreen Herd Poland-Chinas.

J. F. & P. C. Winterscheidt, Horton, Brown Co., Kas. 150 in herd. Boars in service: Admiral Chip 7919 S., George Wilkes Jr. 11583 S., Corbett 11839 S. and Winterscheidt's Victor (Vol. 9). 45 sows bred for coming pig crop. 10 young boars and 40 gilts ready to go. Write or come.

JOHN A. DOWELL'S HERD **REGISTERED POLAND-CHINA SWINE.** Robinson, Brown Co., Kas. 130 head, all ages, headed by Onward 8961 S., sired by George Wilkes. He is assisted by Tecumseh Wilkes, sired by General Wilkes 21927. The females belong to the best strains. Come or write.

W. E. GRESHAM, Burrton, Kansas, Breeder of **POLAND-CHINAS.** Won six prizes, including first blue ribbon west of Mississippi at World's Fair. Stock all ages for sale.

BROWN COUNTY HERD, **PEDIGREED POLAND-CHINAS.** ELI ZIMMERMAN, Hiawatha, Kas. 46 brood sows in herd, headed by Black U. S. Nemo (Vol. 9), Model Wilkes (Vol. 9), Sunset Chip (Vol. 9) and Billy Bundy (Vol. 9). Female lines: All Right, Short Stop, King I.X.L., Wilkes, Free Trade, Wanamaker. Aged sows, bred gilts and fall pigs for sale.

P. A. PEARSON, Kinsley, Kansas, Breeder of **Poland-China Swine** All ages for sale. Herd headed by Dandy Jim Jr. and Royalty Medium, a son of Free Trade.

(*Breeders' Directory continued on page 16.*)

AUCTION SALE

Four Choice Bottom Farms to be Sold to the Highest Bidder Without Reserve, at

Independence, Kas., Wednesday, Feb. 20.

THE BENNETT FARM,

371 acres choice bottom land, near Liberty; 200 acres in cultivation, 125 in wheat, ninety in timber; good improvements.

BROC FARM,

130 acres bottom land, near Elk City, in Elk river valley; 100 acres in cultivation; good buildings and orchard and timber.

CONNOR FARM,

160 acres choice land, three-fourths mile from Bolton, on Santa Fe railway; 100 acres in cultivation; orchard, etc., and other improvements.

WATSON FARM,

eighty acres Bee creek valley land, near Havana station, on the Santa Fe road; thirty acres in cultivation.

For particulars address

FOSTER BROTHERS, Real Estate Agents, Independence, Kas.

Or, J. C. FORD, Executor of Estate of F. F. Ford, 16 Gibraltar Building, Kansas City, Mo.

The Stock Interest.

THOROUGHBRED STOCK SALES.

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

FEBRUARY 7—W. H. Wren, Marion, Poland-China swine.

FEBRUARY 13—J. F. & P C. Winterscheidt, Horton, and M. C. Vansell, Muscotah, Poland-China swine, combination.

FEBRUARY 14—Dan W. Evans, Fairview, and J. A. Worley, Sabetha, Poland-China swine, combination.

FEBRUARY 28—Jno. A. Dowell, Robinson, Poland-China swine.

PROGRESS OF FEEDING EXPERIMENTS.

We have, at present, three feeding experiments under way, one with steers and hogs to follow them, and two separate experiments with hogs. The steer-feeding experiment promises to be an interesting one. It is designed to give evidence on two questions; first, as to the value of ground wheat for fattening steers, and secondly, a comparison of two lots of steers of six each, one lot being thoroughbred Short-horns and the other lot the type of common cattle usually styled "scrubs." These are the steers which were purchased more than a year and a half ago as yearlings, with a view to compare the feeding of these two classes of cattle. There were originally ten steers in each lot, but in the course of the past year and a half two of the scrubs died, leaving but eight in the lot, and among the Short-horns, four were somewhat younger than the rest and should be carried through another year before fattening, while six of them were growthy steers which ought to be fattened this winter.

With this material on hand, it was decided to select the six heaviest steers of each lot and prepare them for market on ground wheat. These two lots of steers were put in the feed pens November 1. The total weight of the six Short-horns was 7,155 pounds. The total weight of the scrubs was 5,962 pounds. The two lots are fed exactly alike in op n yards, each with a shed open to the south in which to seek shelter from storms. Their grain feed has so far consisted exclusively of ground wheat, fed dry, and their fodder consists of corn stalks, which, as a measure of economy, are run through the fodder-cutter in order to lessen waste. They are fed twice daily, each lot collectively, and care is taken to give them what they will eat of the ground wheat and no more. Of the corn fodder, there is more or less waste, as they do not eat the dry chips of stalk up clean. This waste is weighed and deducted from amount fed.

From November 1 to January 10, inclusive, seventy-one days, the Short-horns made a gain of 1,108 pounds, or 2.6 pounds per day. The scrubs, in the same time, gained 1,025 pounds, or 2.4 pounds per day per head. The Short-horns had, during this period, eaten 6,569 pounds of ground wheat and 6,362 pounds of cut corn stalks, which makes an average of 5.92 pounds wheat and 5.74 pounds corn stalks to each pound of gain. The scrubs made their gain of 2.4 pounds per day per head on 6,038 pounds wheat and 3,441 pounds stover, or an average of 5.89 pounds of wheat and 3.35 pounds corn stalks to each pound of gain. While the scrubs have gained less than the Short-horns, it is to be noticed that they have so far required a trifle less feed per pound of gain.

The experiment will be continued until they all get in good market condition. It is too early to prophesy as to the outcome; but it is of interest to note how they compare at this time and what gains they have made on exclusive wheat and corn stalk diet.

The two pig-feeding experiments embrace in all twenty-eight pigs. Twelve of these weighed, when the experiment begun, about 150 pounds each; the remaining sixteen are small pigs just weaned. The twelve large pigs are divided into three lots of four each. Each pig is in a pen to himself and is fed individually. Of the three lots, lot 1 is fed on red Kaffir corn, lot 2 on corn, and lot 3 on wheat. All three grains are ground moderately fine and fed in a slop. The experiment has not proceeded far enough to reach any conclusions, as they have been fed only twenty-one days. In that time, lot 1 (Kaffir corn meal) has gained 146 pounds, for the four head, on 568 pounds of meal. Lot 2 has gained 162 pounds on 559 pounds of corn meal. Lot 3 has gained 206 pounds on 554 pounds of ground wheat.

The object of this experiment is to ascertain the relative feeding value of wheat and Kaffir corn in comparison with corn when fed to hogs. Kaffir corn is growing more and more in favor with our farmers, owing to its drought-resisting properties, and it is of importance to know its value as a feed-stuff for domestic animals. Wheat, in like manner, has, during the past year, been employed in a new role, namely, as a feed for live stock, and we must know just where to place it. So far the corn occupies the middle position, the Kaffir corn having produced the least gain and the wheat the most, but these results may change before the experiment closes.

The experiment with the small pigs has only just begun, and there are, therefore, no gains to report. They are divided into four lots of four each; of these, one lot is fed on cottonseed meal and corn meal, one pound of the former and five of the latter. This proportion is liable to be changed, however. One lot is fed on ground corn and wheat mixed, equal weights. One lot is fed on corn meal, and one lot on ground wheat.

The object of this experiment is to ascertain, first, the effects of cottonseed meal on pigs. There have been so many instances reported of hogs dying from eating cottonseed meal that it was determined to try an experiment with this feed on a small scale. Second, we desire to compare the other three feeds when fed to young pigs. In this experiment, the pigs are not fed individually, all in the same lot eating out of one trough. The pigs are weighed individually, however, so as to note any variation in thriftiness.—*Prof. C. C. Georgeson, in Industrialist.*

Straw a Substitute for Hay.

Bulletin No. 35, of the Utah Experiment Station, treats of, first, the value of straw as a substitute for hay; second, short spring periods of grain feeding; third, relative value of ensilage, roots and straw as condiments; fourth, value of different grain rations. The following facts are brought out in the bulletin:

1. Steers fed on mixed hay alone for 112 days gained 1.09 pounds per day each.

2. Steers fed straw and hay, with grain, gained .78 pound per day each for thirty-three days. Steers fed on lucern and straw for fifty-six days gained practically nothing. Steers fed on red clover and straw for twenty-three days gained .56 pound per day each.

3. Steers fed on grain and straw for 112 days gained .23 pound per day per steer.

4. All the steers, after having been fed as specified in paragraphs 1, 2 and 3, gained but .34 pound per day each for thirty-five days on mixed hay, grain and roots. The smallness of the gain is thought to be due to the change of food.

5. Steers housed at night and in yard during day, when fed on hay and grain, and either roots, straw or ensilage, gained 1.35 pounds per day each for eighty-four days.

6. The experiments indicate that any attempt to crowd a steer late in the spring, after he has been moderately well fed, will result in a loss.

7. Roots made more gain than either straw or ensilage.

8. As the amount of grain fed increased the growth increased and the cost of the gain decreased.

9. Steers bought at 2 cents and fed in the manner indicated during the winter, cannot be sold at a profit in the spring for less than 3 cents.

To Prevent Horns.

EDITOR KANSAS FARMDR:—In answer to above question, would say that I have used both the advertised preventives and caustic potash for six years past. Either is effective if properly applied, and I consider it useless and cruel to raise horns. I prefer the caustic, as being easier applied and much cheaper, 5 cents worth being enough for about twenty calves. It must be kept in an air-tight bottle, taking out just as much as you use at one time and not returning to the bottle any that is the least bit moist, as it dissolves very easily. If you have but one or two calves your druggist will give you a piece about one and a half inches long for a penny. Tie the calf's legs; let one person hold the head; clip the hair from around the horn-nubs the size of a nickel; put something around the caustic to keep from coming in contact with your hand; moisten one end of caustic, rub on horn and as far around as clipped, changing from one to the other until the skin is thoroughly burned. Then your work is done, and you have a "natural muley." Do the work before ten days old—sooner the better. E. F. R.

EDITOR KANSAS FARMER:—I see J. S. Good wants to know what will prevent horns on calves. I used caustic potash with good results. Apply as soon as horn can be felt by the hand. Dip the stick of potash in water and rub on horn until it gets raw. Be careful not to get it in the calf's eyes or on your hands. F. S. COWLES.

Sibley, Kas.

Hog Dockage.

EDITOR KANSAS FARMER:—A matter of great injustice to farmers selling hogs upon the Kansas City market, or, for that matter, any of the other great live stock markets of the country, is hog dockage. I suppose it is generally understood that dockage is the shrinking of piggy sows forty pounds and stags eighty pounds each.

I am told the practice originated in the St. Louis market some time in the 60's. At that time St. Louis ranked high as a live stock market. One day, so the story goes, a packer, Ashbrook, by name, bought a lot of hogs high, and seeing his mistake conceived the idea of docking, which he proceeded to put in practice in a heroic way, which made his purchase reasonably cheap. The seller had no alternative but to take his hogs back or submit to the dockage. He chose the latter, and from that time the practice became general.

For many years the docking was done by the buyer, and was very irregular and uncertain. Many speculators and small dealers would buy hogs high and then dock them cheap, much to the confusion and embarrassment of large dealers who desired to do the business upon correct business principles.

After the organization of the Live Stock Exchange the matter of dockage was taken out of the buyer's hands and fixed rules adopted for the conduct of this part of the trade, which, with various modifications, still exist.

As briefly as I can state it, the following are the regulations:

On the first Monday in March, of each year, the Board of Directors of the Kansas City Live Stock Exchange appoints an Executive committee of three from the buying and three from the selling interests, and the Kansas City Stock Yards Co. adds another to represent it. This Executive committee of seven have charge of the whole dockage system. They appoint an inspector for each hog scale, a supernumerary or two and a chief inspector.

The chief inspector has general supervision over the subordinates, and in case of dissatisfaction by either buyer or seller with the inspector's decision, the chief inspector decides upon appeal to him, and his decision is final, and costs the one appealing $1, whether he wins or loses.

I think there are seven of these inspectors, and their salaries $100 per month. The market usually opens by 9 o'clock and is over by noon. I think their average day's work is about three hours. The revenue to pay their salaries is derived from a fund which is raised by levying an assessment of 15 cents upon each load or part of load sold, which is paid by the owner thereof. Until two or three years ago this fund was raised by the Stock Yards Company and the Exchange jointly. I suppose it became burdensome to the Exchange and they shifted it upon the farmers.

The principle of hog dockage is wholly wrong and an unnecessary burden upon the farmers. There is no shadow of reason for docking hogs more than there is for docking cattle or sheep for the same causes. They should be sold upon merits, just as other stock is; in fact, they are, and suffer this arbitrary dock at last, for if a farmer has a per cent. of pregnant sows or stags in a load he will get 10 or 15 cents less per hundred for the whole load and then at last have to suffer the unreasonable dock at the scales.

This is a matter which should receive the attention of the Legislature, and this inspection of hogs for the purpose of dockage should be prohibited by law. The government has inspectors at the scales to reject all hogs that are unfit for human food, and this is all the inspection necessary and all that should be allowed. Will follow this with an article on the Live Stock Exchange if desired. EDWIN SNYDER.

Oskaloosa, Kas.

Anæmic Women

with pale or sallow complexions, or suffering from skin eruptions or scrofulous blood, will find quick relief in Scott's Emulsion. All of the stages of Emaciation, and a general decline of health, are speedily cured.

Scott's Emulsion

takes away the pale, haggard look that comes with General Debility. It enriches the blood, stimulates the appetite, creates healthy flesh and brings back strength and vitality. For Coughs, Colds, Sore Throat, Bronchitis, Weak Lungs, Consumption and Wasting Diseases of Children.

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Scott & Bowne, N. Y. All Druggists. 50c. and $1.

A Great Stock Food.

The Kansas City Lead & Oil Works, of Kansas City, Mo., recently received the following from R. W. Gardner, Ainsworth, Iowa, a large cattle feeder of that State. He says: "I have one lot of steers which I fed six pounds of oil meal and six pounds of wheat and same of corn a day, which makes eighteen pounds all told, and are putting on an average of three and one-half pounds a day and have done it since the meal came. This looks big, but can show figures in black and white. We always considered two pounds a big gain on corn, and with meal you can double it at a much less price, for a steer will eat thirty pounds of corn a day for six months. Hereafter I will feed one-third oil meal to all cattle which we feed. We recommend it higher than any feed we ever fed, and less cost, considering the gain we can get. Will feed on grass with corn." Stockmen can secure this meal in any quantity from the Kansas City Lead & Oil Works.

FOR 1895

The Disc Harrows and Corn Planters

made by

THE KEYSTONE MFG. CO., STERLING, ILL.

will be unequaled. Send for description, mentioning this paper.

Agricultural Matters.

Imports of Corn Into Europe.

The following tables supplied to the United States Department of Agriculture by United States Consul Lathrop, Bristol, England, furnish some interesting information relative to the consumption of corn in Europe, and to the several sources whence the importing countries draw their supply.

Imports of corn [bushels of sixty pounds] into the different countries of Europe during the cereal year ending July 31, 1894, deducting re-exports:

United Kingdom	70,160,000
France	10,800,000
Germany	32,720,000
Belgium	4,800,000
Holland	6,560,000
Denmark	1,640,000
Switzerland	1,712,000
Austria-Hungary	6,424,000
Total	134,496,000

Imports of corn [bushels of sixty pounds] into the United Kingdom during the cereal year ending July 31, 1894, showing the countries whence supplies have been derived:

	1893-94.	1892-93.
Roumania	28,520,000	25,720,000
United States	21,755,000	15,800,000
Canada	5,786,000	2,476,800
Russia	9,128,000	7,200,000
Turkey	1,901,500	1,768,000
Bulgaria	853,000	568,000
Argentine	838,000	7,098,000
Other countries	205,160	597,000
Total	71,016,660	61,241,800

Imports of corn [bushels of sixty pounds] into Germany during the cereal year ending July 31, 1894, showing countries whence supplies have been derived:

	1893-94.	1892-93
United States	14,560,000	5,934,000
Roumania	11,560,000	5,904,000
Russia	2,248,000	880,000
Turkey	928,000	648,000
Austria-Hungary	752,000	984,000
Bulgaria	1,560,000	1,128,000
Argentine	368,000	1,776,000
Belgium	144,000	208,000
Holland	40,000	48,000
Servia	408,000	1,048,000
Other countries	152,000	176,000
Total	32,680,000	18,736,000

Imports of corn [bushels of sixty pounds] into France during the cereal year ending July 31, 1894, showing the countries whence supplies have been derived:

	1893-94.	1892-93.
Russia	2,096,000	1,176,000
Roumania	4,704,000	5,380,000
Turkey	1,324,000	960,000
America	2,296,000	1,168,000
Argentine	456,000	1,850,000
Other countries	440,000	512,000
Total	11,316,000	11,050,000

From the above it will be seen that the eight countries mentioned imported during the fiscal year last past over 134,000,000 bushels of corn. Of this amount the United Kingdom took over 70,000,000 and Germany 33,000,000 bushels; France took 10,500,000, and Holland and Austria-Hungary each 6,500,000; Belgium took nearly 5,000,000 and Denmark and Switzerland nearly 1,750,000 bushels each. The bulk of the corn imported into the United Kingdom comes from Roumania and the United States, but Russia, Canada and Turkey, in the order named, are drawn upon to make up about a fourth of the supply. Nearly half of that imported into Germany comes from the United States. America furnishes not more than a fifth of the French supply. In supplying Holland, America is slightly in the lead. The figures given above show a marked increase over the previous year. One of the features shown by the tables of special interest to our own farmers is that while Argentine has been cutting a wide swath in the international wheat market, her exports of corn to European countries have fallen off greatly. They aggregated nearly 11,000,000 bushels in 1893, and less than 2,000,000 in 1894. It will occasion surprise to some Americans that the little kingdom of Roumania furnished the principal corn-importing countries of Europe more corn than the United States. Roumania supplied 48,000,000 bushels and the United States 46,000,000 in the year 1894.

Experience in Red Kaffir Corn.

EDITOR KANSAS FARMER:—I have raised Kaffir corn two years. The first year I put in three acres and a half; cultivated it three times and got ten bushels per acre. In same field, on each side of the Kaffir, I planted field or Indian corn; cultivated it three times, also, but it only made between two and three bushels per acre, it being a terribly dry year.

Last year I planted forty acres of Indian corn and thirty acres of Kaffir. The Indian corn was planted first, given best ground, harrowed twice and cultivated twice, and made twelve and one-half bushels per acre. The Kaffir was only given two cultivations, as the harrow covered it up too bad. The last seven acres of it was washed under so badly by a big rain that there was not a good one-fourth stand left, but the thirty acres made fourteen bushels per acre and the fodder is worth double the bulk of field corn fodder, and I would a heap sooner top an acre of it with a butcher-knife than shuck an acre of field corn. There never was a better feed to winter colts on than Kaffir corn fodder, as it keeps them loose, clean of worms and in growing condition. N. P. WILEY.

Make Haste Slowly.

EDITOR KANSAS FARMER:—Quite naturally, the last two drought-shortened crops, when contrasted with the successful experiments in irrigation, have turned the thoughts of farmers to that subject, to the neglect of other expedients susceptible of more general application, whose value has been proved. As far west as the western border of Reno county there has been no summer in twenty-one years so dry that corn properly managed has not made a growth that would have been profitable for ensilage.

This is not saying that at the critical period of its growth, between the appearance of the tassel and the falling of the pollen, the corn has reached its most profitable stage of growth for silage. But, if the hot winds begin to cook the tassel and kill the pollen the chance of a good crop is lost, but there still remains a margin of profit for the cultivator whose preparations are complete for converting the crop into silage while it is at its best.

Wherever possible, irrigation should be provided for the garden, orchard and truck-patch. The practicability of watering broadly general farm crops upon high land by pumping from the underflow has yet to be demonstrated. Conservative as well as far-sighted agriculture dictate the handling of a crop when at its best and in the best manner possible. The silo meets this demand equally, whether growth is arrested by drought or not. Upon high, hard land, a pit of suitable size, dug fifteen or eighteen feet deep, and lined with a single course of brick, cemented, will be, perhaps, as satisfactory and cheap as any. Often the brick may be made from the clay taken from the pit. A wooden superstructure, roofed over, providing the space above the wall, that cannot be filled, will be needed. Under this roof, at the center, will be arranged the track upon which a car will carry the feed to the stable adjoining and in line with the pit.

Another very good way is to build in a circle on the surface, using studding, 2 x 4, covering outside with thin lumber first, next tar paper, and to finish, best siding and painted. Fill between studs with brick, cemented. Break joints with the lumber and bend to fit studding and nail firmly. This form will resist the outward pressure of the green corn successfully. For convenience in feeding, a perpendicular box should be constructed inside of the circle with an outlet and shute at the proper height to deliver the feed to the vessel chosen for conveyance to the stock. The boards forming the back of the box should be removable, so that the edge can be kept at the level of the top of the silage.

The use of the lister has cheapened and at the same time increased our success in the cultivation of corn. Observation shows that shallow listing is soonest injured by drought. I suggest the re-enforcement of the lister with the improved subsoiler to be run, say, twelve inches deep, and followed closely by the lister, planting the corn immediately over the broken subsoil. This will furnish a receptacle for surplus water where it will do the most good and to that extent prevent the washing out of the corn by heavy, dashing rains. P. C. BRANCH.

Reno county.

Alfalfa, or Lucern.

The following, from McBeth & Kinnison, who are located in one of the greatest alfalfa regions in the country, will be read with interest:

"This wonderful forage, seed and hay plant is at present receiving great attention from the farmers of Nebraska, Colorado, Kansas, Texas and Indian Territory, and one who has had years of experience with alfalfa sums up the reasons why it should be planted, as follows:

"1. As a fertilizer. Down deep in the earth, from ten to twenty-five feet, sink the roots of this wonderful, vigorous clover, searching for nourishment and bringing to the surface the chemicals and fertilizing material stored so deep in the earth for ages. The roots, at the surface, of well-developed plants are over one inch in diameter; they decay from the outside a trifle each year, while the decayed matter is replaced with stronger growth each spring.

"2. Stands drought. It makes the desert blossom as the rose; that is, on dry, barren, sandy soils, where no other plants live, the lucern sprouts, sinks its roots deeply after moisture and nourishment, and the sand becomes rich and able to yield bountifully. Abundant illustrations are found on every sandy soil where tried; in the desert of Utah, Colorado, etc., and on the sandy lands of every State where tried.

"3. Stands wet. No matter how heavy it rians, how deep the snow falls, how wet the spring or winter is, if your soil is well drained, it will flourish through all and yield copious cuts of rich hay.

"4. It is of untold value for old soils. Planted here it will sink deeply and bring forth bountiful crops, and when plowed under when twenty inches high, refits it for wheat culture.

"5. It is early. The first crop fit in May, a second prodigal yield in July, a third in August, and so on, allowing you to cut from two to six tons of nutritious hay per acre. The former is a small yield, the latter fair, where once you have a good stand of grass.

"6. Hay and seed. Two crops of hay and one of seed may be cut in one season from the same piece of ground. We have purchased seed from our customers that has yielded from twelve to sixteen bushels per acre, but the average yield for Finney county, Kansas, for season of 1893, will not be over six bushels per acre.

"7. It is 'live forever,' that is, one good sowing will last ten to twenty years, always bearing.

"8. All horses, cows, pigs and sheep relish it and fatten very quickly thereon. It furnishes an extravagant flow of milk.

"9. It is the great reclaimer, furnishing more good hay per year than any known clover or grass.

"10. Because it will grow on any land where oats, wheat, corn and rye will flourish."

Notes for February.

BY N. J. SHEPHERD, ELDON, MO.

This is a good time to finish up the plowing.

Get everything in readiness for spring work.

Plan to reduce the cost of production by increasing the yield.

Plan to do what is done well; better do a little less and do thorough.

Study your soil and market and grow such crops as your experience shows to be most suitable.

Have everything in readiness so that the seeding and planting can be done under the best conditions.

If you have never done so before, plan out and start in to follow a regular system of rotation that will save your fertility.

Plan to grow the greater part of what you need to eat and in this way at least reduce the amount that you must pay out.

It is poor economy after feeding the stock this long to allow them to run down in condition. Give a little extra feed if necessary.

The breeding animals need a little especial attention from now on. So far as is possible keep them to themselves and give a little extra feed.

See that all useless or unnecessary fencing is dispensed with and then see that what is needed is in a first-class condition. A sorry fence is little better than none.

Give your stock as good a variety as possible. Being on dry feed so long they will need it. Buy bran, mill feed and oil meal to use with roughness.

Overhaul the implements. See that the plows and harrows are sharp, ready for spring work. If new tools are needed, get them in good season so that they will be on hand when needed.

Look after the supply of seeds; be sure what you intend to plant are good. Using good seed is one of the essentials in the growing of a good crop, and it is poor economy to use any other kind.

In nearly all cases the more nearly the seeding and planting can be done at just the proper time the better will be the growth and yield. Hence, make it an item to be fully ready at the first opportunity.

If small fruits or trees are to be planted out, make the necessary arrangements so as to plant early. While, with good care, trees may be planted almost any time in the spring, in nearly all cases reasonably early planting will give the best results.

Generally this month we have a good thaw-out, and often it is a good plan at this time to take advantage of it and break sod land intended for spring planting. In a majority of cases it will save time in the spring later on, when work is usually pressing.

Grass and clover, when to be sown on wheat or fallow land, can nearly always be sown this month. Use plenty of seed and take care to see that it is distributed as evenly as possible over the surface. A good, even stand is an important item in securing a good yield of grass.

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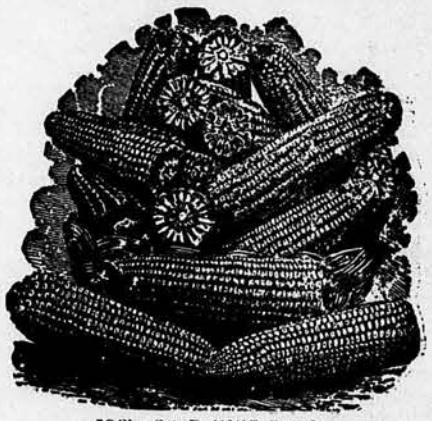
Iowa Gold Mine Corn.

This fine new variety was first introduced by the Iowa Seed Co., of Des Moines, Iowa, three years ago, and has scored a wonderful success. It is a valuable acquisition on account of its earliness, depth of grain and handsome color, and is the ideal corn for the farmer who feeds live stock, since it wastes such a small amount in cob. A writer in the *Field and Farm*, of Denver, says:

"R. Eckhardt, of Evans, Weld county, says the Iowa Gold Mine corn, which seed he was led to purchase through an advertisement in the *Field and Farm*, has yielded more and is far ahead of any corn before tried in his locality, and thinks it is the best suited to this country."

We give below an illustration of the corn in which the depth of grain and filling out



IOWA GOLD MINE CORN.

properties are well shown, but the beauty of the corn—its beautiful golden color—cannot be shown in black and white. The introducers say: "We have shelled selected ears of this variety which produced sixty-four pounds of shelled corn and only six pounds of cobs to the bushel. This is an unparalleled record. It cannot be equaled by any other corn in the world. Thousands of our customers say they consider it the *ne plus ultra* in corn; that it would be impossible to attain any nearer perfection. We can most confidently recommend it as the acme of perfection and stake our reputation on its pleasing every one who tries it. It will grade No. 1 in any market. One carload lot of 400 bushels of Iowa Gold Mine corn was carefully weighed, and after shelling it was re-weighed, and there was just 456 bushels. Just think of it—a gain of fourteen bushels to the 100! We shall not be satisfied until every farmer in the country has seeen this grand new variety."

Our readers can get a sample of the corn without cost by simply asking for it on a postal card and mailing the card to the Iowa Seed Co., at Des Moines.

Irrigation.

EVAPORATION AND STORAGE OF SOIL MOISTURE.

Address by H. R. Hilton, of Topeka, before the Kansas State Board of Agriculture, January 11, 1895.

A boulder projecting from the mountain side we call granite, or limestone, or sandstone. The same rock disintegrated, or ground fine, we call soil. The fineness of this soil or smallness and shape of these rock particles largely determines its fertility and value.

The growing plant must have its food dissolved in water before taking it from the soil. The soil may be rich in every element of fertility, but these must be made into a delicious "beef tea" soup before the plant can take up the nitrogen, potash or phosphates present in the soil. In other words, every soil is barren to the growing plant till a certain percentage of moisture is present to dissolve and make its fertile elements available, hence the mechanical arrangement of the soil grains becomes important, because this determines most the quantity of water a given bulk of soil will absorb and retain.

In the finest clay soils there are from 10,000,000,000 to 25,000,000,000 grains in a gramme (about fifteen and one-half grains Troy). These rest one against the other, just as cannon balls do when stacked up in pyramids. Each cannon ball has six points of contact; and the spaces between the cannon balls is almost equal to the space occupied by the ball of lead. So in the soil, but the finer the soil grains the lighter they rest against each other, and, relatively, the greater the amount of space between.

In ordinary soils, when dry, this space is about 50 per cent. of the whole mass; that is to say, in a cubic foot one-half is soil and one-half is air space. If water is applied it will gradually fill this air space, and when the soil has taken up all the water it will hold, one-half of the cubic foot will be soil and one-half water.

By pulverizing the soil finer, or making the grains more round and uniform, the soil may be made to take up 60 per cent. of its bulk of water; that is, in a ten-inch depth of soil, fully saturated, there will be six inches of water and four inches of soil; or, the same results may be secured by the application of manures and fertilizers, which cause a re-arrangement of the soil grains and increase its power to retain moisture.

While a cubic foot of ordinary soil, when isolated from other soil, will absorb 50 per cent. of its own bulk of water, no matter at what point the water is applied—top, bottom or side—it does not follow that in its natural position in the soil it will remain so saturated. If it should, vegetation would soon be strangled to death for want of air. It is only during heavy showers that such a condition exists in a good soil. When the shower ceases the surplus finds its way into the subsoil. The percentage of moisture held back from drainage is what determines the value of the soil.

An ideal soil for grass, wheat or corn should contain, in each cubic foot, less than 50 per cent. of soil, balance of space to be occupied in nearly equal proportions by water and air. This means that a good soil will hold back from drainage 20 to 25 per cent. of its own bulk of water, or a soil reduced to a moisture content of 10 per cent., on which one inch of rain falls, will increase its moisture content to 25 per cent. for a depth of six or seven inches without giving up any to drainage. The finer the soil grains the greater the power it has to retain moisture, because the smaller the spaces the greater the friction and greater the resistance offered.

In soils of equal fineness, the soil having the most rounded forms has the greatest surface tension power. Soil grains uniform in size have also greater surface tension than soil grains equal in number but irregular and varied in size. For instance, in a test made recently, dry sand from the top of a sand hill south of Garden City, pulled the water up to a height of thirteen and one-half inches. The finest sand sifted out of the Kaw river, at Topeka, under similar conditions, pulled the water only one inch above the water level. The sand-hill sand was undoubtedly finer, but its greatest advantage seemed to lie in its more uniform size and more rounded form. The Kaw river sand was angular and irregular, and what is known as "sharp" sand.

To appreciate the differences in the capacity of different soils to retain water it is important to understand something of the manner in which water moves and acts in the soil. Prof. Milton Whitney, of the United States Department of Agriculture, our best authority on this subject, gives the following lucid description and illustration:

"There is, on an average, about 50 per cent. by volume of space within the soil which contains no solid matter, but only air and water. This we shall call empty space. In a cubic foot of soil there is about a half cubic foot of empty space, but this is so divided up by the very large number of soil grains that the spaces between the grains are extremely small. When a soil is only slightly moist the water clings to the soil grains in a thin film. It is like a soap bubble with a grain of sand or clay inside, instead of being filled with air. Where the grains come together the films are united into a continuous film throughout the soil, having one surface against the soil grains and the other exposed to the air in the soil. As the soil grains are surrounded by this elastic film, the tension on the exposed surface of the water will support a considerable weight, for the soil grains, thus enveloped, are extremely small and have many points of contact around which the angle of the surface is more acute and the film is thicker and is held with greater force.

"If more water enters the soil the film thickens and there is less exposed water surface. If the empty space is completely filled with water there will be none of this exposed water surface, and, therefore, no surface tension. Gravity alone will act, and with its greatest force. If the soil is nearly dry there will be a great deal of this exposed water surface, a great amount of surface tension, and, with so little water present, gravity will have its least effect.

"The grains in a cubic foot of soil have, on an average, no less than 50,000 square feet of surface area. There is less, of course, in a sandy soil, and more than this in a clay soil. If there is only a very small amount of water in the soil the film of water around the grains will be very thin, and there will be nearly as much exposed water surface as the surface area of the grains themselves. If a cubic foot of soil, thus slightly moistened, and having this large extent of exposed water surface, be brought in contact with a body of similar soil fully saturated with water, in which there is none of this water surface, the water surface in the drier soil will contract, the film of water around the grains will thicken, and water will be drawn from the wet into the dry soil, whether it be to move it up or down, until, neglecting gravity or the weight of water itself, there is the same amount of water in the one cubic foot of soil as in the other. When equilibrium is established there will be the same extent of exposed water surface in these two bodies of soils.

"When water is removed from a soil by evaporation, or by plants, the area of this exposed water surface is increased and the tension tends to contract the surface and pull more water to the spot.

"When rain falls on rather a dry soil the area of the exposed water surface in the soil is diminished, and the greater extent of water surface below contracts and acts, with gravity, to pull the water down.

"Fertilizers change this surface tension and modify the contracting power of the free surface of water to a remarkable degree, and so modify the power which moves water from place to place in the soil."

In fine or well-pulverized soils gravity is of minor influence in distributing the falling rain through the soil. Surface tension is the great power. It is important to remember that a dry soil has no surface tension or capillary power, and that the rainfall acts in an entirely different way when it falls on a moist soil from that which it does when it falls on a dry soil. We will take, for instance, the effect of one inch of rain falling within thirty minutes on various soils. If the top foot of soil contains 10 per cent. of moisture, the first rain drops thicken the films around the surface grains. Those immediately underneath, having a thinner film and greater pulling power, draw from the grains just above. The grains nearest pull from these till we find the entire inch of rain distributed through the top six or seven inches of soil, increasing its percentage to 25 per cent., which is the limit of the power of most soils to hold back from drainage. This may be decreased some by the pull from soil immediately below if the mechanical arrangement of soil is favorable and moisture content less. As a rule, the rainfall will be distributed equally through the mass of soil of equal fineness, so far as 20 per cent. content will go.

Now note the effect of the rainfall on some soil which has the same mechanical arrangement but no moisture in top foot of soil. The air space in the dry soil is about 50 per cent. The falling rain immediately fills all the air spaces. There being no moist soil or water-films to pull it down, the water must descend by gravity. The fineness of the spaces retards the flow and the air imprisoned below the moist soil offers resistance. Two inches of soil fully saturated will hold the entire inch of rainfall, and in a pulverized soil, if not sandy or gravelly, rarely descends over three inches from surface. If two inches of dry soil will take up one inch of water from below and hold it, three inches of dry soil will have equal power to hold one inch of rain in spite of gravity, so long as there is no moist soil in contact with it to distribute it. In very fine soil, the top soil tends to puddle during a rain, forming a muddy blanket on surface several inches thick, that prevents the further rains from passing through and forces it to drain from the surface, causing washing. In sandy soils the spaces between the soil grains are larger, and in this soil gravity usually overcomes the friction and much of the resistance of finer soils is wanting, and water passes through the sandy soils, even when dry, although not so rapidly as when slightly moist. Gravelly soils offer slight resistance to descent of water and hold back a low percentage for use of plant life. In gumbo or hard-pan soils the arrangement of the soil grains is so close that water penetrates through them slowly. They are capable of retaining a high percentage of water, but take it in slowly and give it out slowly, sometimes too slowly to supply demands of the plant growth.

As already stated, the finest soils retain most water, because of the smaller spaces between and in the aggregate larger surface space in a given bulk of soil. The soil that has most water surface has most root surface. The finest soil grains are easiest dissolved, and hence are most available for plant food. Water not only dilutes and prepares the soil grains, but in combination with organic matter sets free or brings into use many of the essential chemical elements.

We hear often of soils wearing out. This often means that the finest soil grains have been dissolved and taken out by the plant roots, leaving the soil mass with a coarser mechanical arrangement, which reduces its power to retain moisture. With lessened water supply, its ability to prepare food for plants is reduced, and in the midst of plenty the plant starves. The soil has still the elements of fertility, but not available. It only wears out when it is all dissolved. This loss may be restored mechanically by thorough cultivation and pulverization to fine the soil and increase its capacity for water again, or chemically by adding stable manure or commercial fertilizers. The effect of the latter seems to be fully as much in causing a re-arrangement of the soil grains, or in filling in the large spaces between, thus increasing the water content, as in furnishing new food elements.

The writer has tested soils of the Kaw valley, near Topeka, and of the uplands near Hoyt, Jackson county, and found that manured soils from same field would take up and retain 10 per cent. more water than the unmanured. It is evident from this that we must attribute a goodly share of the increased fertility to the increased water content. We have further proof of this in the irrigated fields of southern California, where the poorest soils are, by simply watering, made to produce the finest of crops. All irrigated lands, regardless of quality, far exceed the highest manured lands when natural rainfall is depended upon, taking for comparison such plants or trees as are adapted to either climate.

The writer has made numerous tests, in the past year, of different soils, as to rate water will flow through a depth of five inches fully saturated.

In Kaw valley surface or subsoil an inch of water will pass through five inches of soil in twenty minutes. On the uplands, west and north of the Reform school, the time was twenty-five minutes, and the red subsoil, two and a half feet from surface, sixty minutes.

Sample from southern part of Osage county, top soil, took sixty minutes, and subsoil, a sort of hard-pan, twenty-five minutes. It takes an inch of water seventy minutes to pass through five inches of the light, ashy soils of Wilson and Allen counties, and less than half that time to pass through the subsoil. One inch of water will pass through five inches of the Arkansas valley soil, from Barton county, in ten minutes. At this rate the soil would absorb a rainfall of six inches per hour.

What conclusions can we reach from these differences in rate water flows through soils? The soil through which one inch can flow to subsoil every

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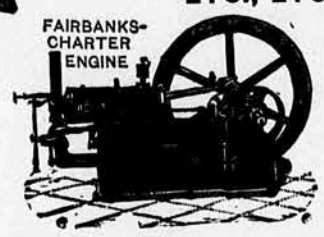

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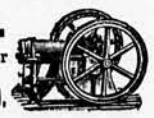

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twenty minutes will certainly take in more of the heavy rainfalls than will a soil through which water flows at rate of one inch per hour. In the latter case, in heavy rains, the waste and washing at surface must be great, and quantity stored proportionally less.

The conditions most favorable to storage and retention of moisture is a surface soil that water flows through with reasonable freeness, underlaid with a subsoil of more retentive nature to arrest the water from draining beyond reach, and retain it within reach of root growth. It is desirable in a climate like that of Kansas to have as large a percentage as possible drain at least six inches below the surface, and as small a percentage as possible descend more than three feet. Water will rise by capillarity from three feet below surface to the plant roots, six to nine inches below surface, as fast as necessary to supply that removed by the plant in its daily growth and by evaporation. From a greater depth the percentage would probably be relatively smaller. The top two and a half feet of soil, if not gravelly, sandy or fissured with seams to drain water freely, will hold and retain seven to eight inches of rainfall at one time. If below this depth the soil has 20 to 25 per cent. of moisture, there will be little water pulled from the surface, but if the percentage is less, then that above will be some less. It is generally true, however, that a soil cultivated and well stirred has greater surface tension power than soils that have never been disturbed by the plow. Also, that water freshly applied has greater tension than soil water, and the fresh water will pull the water in the subsoil towards the surface under certain conditions.

The temperature of the soil is an important factor in the retention of soil moisture. The lower the temperature of the soil, down to 40°, the more moisture it will take from the air, and the higher the level of water in the soil will rise. When the soil temperature increases the level of water recedes from the surface. High temperature is the most fruitful cause of water waste in soils, and any system of cultivation that secures a lower soil temperature in midsummer months is most favorable to plant growth in our latitude.

When rainfall equals four inches per month, and is equally distributed, fruitful seasons are sure to follow under almost any system of farming in Kansas. But as we know neither the times, nor the seasons, nor the quantity, the intelligent farmer must direct his best efforts to so manage the soil and crop that the longest period without rainfall can be tided over with least serious results.

Evaporation is the greatest adverse factor the Kansas farmer has to deal with, and the one that many have treated with a good deal of indifference, or at least have not realized how insidious an enemy he has had to contend with. In looking over the records of the summer months in this latitude, we find that seasons of high temperature are rarely good crop years, unless the rainfall has been excessive. While it is true that light rainfall and high temperature are coincident, and naturally so, yet some seasons of light rainfall, like 1875, are excessively fruitful, when temperature is low.

Prior to 1887, the maximum temperature at Manhattan exceeded 100° only in the dryest seasons, say one year in seven. Since 1887, the maximum has exceeded 100° every season but one, and Kansas has had more unfavorable seasons in the past seven years than in any other seven of its history. Only 1889 gave a fruitful crop.

In considering ways and means to modify the ill effects of high temperature over limited rainfall or water supply, it is important to know how the roots of plants are distributed in the soil. The most thorough and advanced work that has come to my attention along this line is that done by the Wisconsin Experiment Station. These show that roots of corn plants reach a depth of four feet, and, if the soil conditions are favorable, the mass of roots in the third foot is almost as great as in the foot of top soil, and the lateral spread at depth of two feet or more is five to six feet across. Many roots pass laterally far beyond the adjoining rows, making a lateral spread of over four feet on each side of the plant. Roots of wheat, oats and barley go three to four feet down in search of food and water if conditions are favorable. Red clover roots rarely go over two feet in depth. Timothy roots penetrate three feet. Blue grass twelve to fifteen inches. Corn roots in their natural position have a spread somewhat like an umbrella, the roots starting from the tip, and those on the outer circumference following a course similar to the curve downward of the umbrella ribs. The roots of adjoining rows meet and pass each other midway between the rows four to six inches below the surface, but close to the corn row the roots are two to three inches below the surface. A cultivator run close to the row, and over three inches deep, must catch and break many of the leading roots several feet in length, with their great mass of branches, causing widespread injury. It is not safe to cultivate over two and a half inches close to row, after the corn is two feet high, or four inches deep in center, if root-cutting is to be avoided.

If corn is listed in rows three feet eight inches apart and eighteen inches apart in row, this gives each plant a surface of five and a half feet square. If we allow three feet as the greatest depth the roots will reach, then each plant has sixteen and a half cubic feet of soil over which the roots may range in search of water. If this mass of soil is 20 per cent. moist it will contain twenty-five gallons of water, of which one half will be available for use of plant and one-half cannot be removed from the soil by the plant roots. The total amount of water in the top three feet, 20 per cent. moist, represents seven and one-fifth inches of rainfall, and if none is lost by evaporation would supply two-fifths of the amount of moisture needed to raise a crop of fifty bushels of corn per acre. The remaining three-fifths would have to be supplied by six inches of rainfall, or artificial supply, making over 1,000 tons of water per acre in all. The seasons are rare when ten inches of rain does not visit Kansas corn fields during the season of growth, and more rare where an average of fifty bushels per acre is harvested. In fact, twenty inches of rainfall rarely gives us more than half this amount. The rainfall record of Leavenworth, Independence, Topeka, Wellington and Salina shows average rainfall of from eighteen to twenty inches for the five months, April to August inclusive, compiled from records covering from five to fifty years. In the same territory the average corn crop for thirty-three years is thirty-one bushels per acre, requiring about 600 tons of water per acre, or six inches of rainfall. In thirty-two years the corn plant has used about one-third of the rainfall, April to August inclusive, and the remaining two-thirds has either run off or been evaporated. Under average cultivation, the loss by evaporation in Wisconsin is thirty tons of water per acre daily. In our warmer climate this would be exceeded, and means a loss of an inch of water from the soil every three days, and in the month of July would exceed 1,000 tons of water, an amount sufficient to make over three tons of dry matter, or a crop that we get only from the best farms in the average seasons.

Is it not evident, from the facts presented, that evaporation is the great problem in Kansas agriculture and, in fact, everywhere?

There is a remedy for this in the artificial application of water by irrigation, which is by far the best preventive for this evil. But what can those do who have no facilities for irrigation, and depend on natural rainfall? We cannot control the high temperatures of July, that rob us of our soil moisture. We cannot produce rainfall to supply the loss by evaporation. These are both beyond our control. But we can do much to modify the ill effects of superabundance of heat and limited supply of moisture in our methods of soil culture.

If evaporation is the greatest enemy in crop production, then all our intelligence, skill and energy should be brought into use to weaken its power.

Water near the surface of soil is an easy victim to evaporation. Land should be so cultivated as to store the natural or artificial supply of water as far below the surface as possible. This suggests subsoiling and deep plowing, and this is the great purpose in both—to so arrange the soil, mechanically, as to make it receptive, so that it will take in all the rain that falls as fast as it falls. A soil plowed sixteen to twenty inches deep will absorb and retain an inch of rain per hour for several hours, in fact, any rainfall outside of a cloud-burst. It is the best preventive for washing, because the water is run in and not run off.

Having captured all the shower, the next most important thing is to retain it for use of plants. This suggests a mulch of dry soil. Dry soil has no capillary power. Water will not rise through it unless the soil below is fully saturated and in contact with excessive supply. By drying out the top two or three inches of soil evaporation is checked and greatly lessened. The cultivator or harrow loosening the top three inches of soil as soon after every rain, or application artificially, as the soil can be worked will destroy its capillarity, and admitting air freely to depth stirred, rapidly dry it. A soil compacted by rain or irrigation water is in favorable condition to evaporate rapidly the soil moisture. The greatest loss generally follows immediately after the rain has fallen, or the irrigation water has been applied, hence the importance of prompt stirring of soil, and in times when the period without rainfall is prolonged, then the surface stirring should be frequently repeated.

This practice should not be limited to the cultivation of corn. It is equally important after harvest of small grains to prevent the land becoming hard. For fall wheat the plowing should be done in July, and the surface stirred several times before seeding, and especially after every shower of rain. The ground is generally in good condition to plow immediately after the removal of wheat or oats, even if no recent rains have fallen, but if plowing is delayed thirty days, then it must be further delayed until it rains. This makes a double loss. First, loss of moisture left in the soil after the grain crop is removed. Second, poor seedbed, because of late plowing. If ground cannot be plowed immediately after harvest, a harrow should be run over the stubble promptly and thus save much moisture till it can be plowed. For spring crops, deep fall plowing, followed in early spring by a shallow plowing and surface stirring, gives, in my judgment, an ideal condition for storing and saving moisture.

Manures, when fully rotted, increase the moisture content of the soil, and this in return enables the plant to get the fertile elements out of the soil. The higher percentage of water a soil contains, the greater percentage of chemical elements in the soil will be made fit for plant use. As the plant takes up the water in the soil and evaporates it through the leaves, it at the same time conveys to the plant, in soluble form, the food it needs. These soluble fertile elements are arrested and retained by the plant for its growth and upbuilding. The water only is evaporated. We can understand from this the value of artificial watering, which enables the husbandman to keep the percentage of moisture in soil sufficient and uniform, which supplies the plant with its daily food in undiminished and unvaried supply. With natural rainfall the plant sometimes has a feast, sometimes a famine, and this irregularity of drink and diet checks growth and fruit development.

Changes in the moisture content of the soil bring about changes in the feeding habit of the plant, and these changes are usually injurious. The more uniform the percentage of moisture and temperature, the more perfect the product. Plants are unable to take moisture from the soil where the moisture content is less than 10 per cent. It must have an excess of this amount to grow and mature fruit.

What has been presented here to-day simply suggests how little we know of the foot of soil under our feet, and the great need of more thorough and exact investigation. We can never intelligently interpret results without a knowledge of soil temperature and moisture content during the period of growth, in connection with air temperatures and rainfall.

Maryland and Wisconsin so far have led all the other States in investigating the physical properties of soils and making practical tests by field experiments, and so far we are compelled to look to the work of Prof. Whitney, of the Department of Agriculture at Washington, and Prof. King, of the Wisconsin Experiment Station, for what information we have of this important subject, and by reason of lower temperature and greater rainfall the conditions there are scarcely applicable to Kansas.

We need to make investigations for ourselves.

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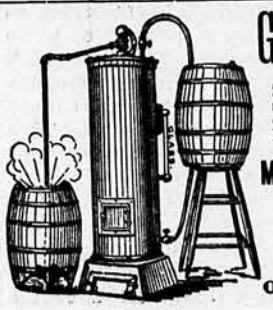
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The Home Circle.

To Correspondents.

The matter for the HOME CIRCLE is selected Wednesday of the week before the paper is printed. Manuscript received after that almost invariably goes over to the next week, unless it is very short and very good. Correspondents will govern themselves accordingly.

AN OLD MAN'S DREAM.

Oh, for one hour of youthful joy!
Give back my twentieth spring!
I'd rather laugh a bright-haired boy
Than reign a gray-haired king!

Off with the wrinkled spoils of age!
Away with learning's crown!
Tear out life's wisdom-written page
And dash its trophies down!

One moment let my life-blood stream
From boyhood's fount of flame!
Give me one giddy, reeling dream
Of life all love and fame!

My listening angel heard the prayer,
And calmly smiling said:
"If I but touch thy silvered hair,
Thy hasty wish had sped.

"But is there nothing in thy track
To bid thee fondly stay
While the swift seasons hurry back
To find the wished-for day?"

Ah, truest soul of womankind,
Without thee what were life?
One bliss I cannot leave behind,
I'll take—my- precious—wife!

The angel took a sapphire pen
And wrote in rainbow dew,
"The man would be a boy again
And be a husband too.

"And is there nothing yet unsaid
Before the change appears?
Remember, all their gifts have fled
With those dissolving years."

Why, yes, for memory would recall
My fond paternal joys
I could not bear to leave them all,
I'll take my—girl—and-boys.

The smiling angel dropped his pen.
"Why, this will never do.
The man would be a boy again
And be a father too."

And so I laughed—my laughter woke
The household with its noise—
And wrote my dream when morning broke
To please the gray-haired boys.

—Oliver Wendell Holmes.

BOSTON BAKED BEANS.

Best Food on Earth When Properly Prepared.

Impossible to Get the Genuine Article Outside of the Hub, But Here Is a Recipe as Used by Down East Housewives.

A story is related in connection with baked beans which, although it has never been proved to be true, is a strong testimonial in favor of the dish. It is to the effect that a Bostonian delayed for weeks in New York on business wearily sought place after place in search of his favorite dish. Invariably he had served up to him the alleged article, that was to him uneatable. Finally he found a restaurant where he was personally assured by a waiter that he could have the genuine article. When the beans came they were of the stock New York kind, and the Bostonian, in a fit of anger, drew a revolver and shot the waiter in the arm.

He was arraigned before a justice who once lived in Boston, who, after he had heard the facts in the case, discharged

A NEW ENGLAND BEAN POT.

the prisoner on the ground that he was fully justified in shooting. No matter how ignorant the justice was of law, he at least "knew beans."

Another story, which also testifies to the value of beans, is related of some Gloucester fishermen. The crew of a coasting vessel spied a fishing schooner at a little distance with the United States flag flying from the masthead union down, which is always a signal of distress. The schooner was not apparently disabled and all her rigging was in ship-shape order. But thinking something serious had happened or at least that the fishermen had run out of water, the captain of the coaster sent a boat to the schooner to ascertain the trouble. When it neared the schooner one of the men cried out:

"What's the matter; do you need water?"

"No, we've got plenty of water and provisions," was the reply, "but we have been out of beans two weeks—we want beans."

The reason why baked beans outside of New England are so unlike the genuine article is that they are not properly cooked, and more especially because they are not cooked in an old-fashioned down-east bean pot. There are probably no real bean pots on sale outside of New England. They are all about the same in appearance, and are made of potter's clay, which is the material flower pots are made of.

Anyone can have nice baked beans if he secures a bean pot and follows these directions: First get your beans. The large red kidney variety is largely used, but the small, white pea bean is more generally popular.

One quart of beans is sufficient when cooked for two meals for an average family. They should be soaked in cold water for an hour or so. Then salt and pepper should be added, together with half a teaspoonful of mustard and half a teacupful of molasses. The molasses gives the beans a delicious flavor, and, at the same time, it is not too pronounced, nor is it possible to detect the molasses. When the beans are in the pot, half or three-quarters of a pound of salt pork well streaked with lean should be placed on top, and then enough warm water poured into the pot to just cover the beans.

Beans should be baked in an oven of even temperature for either a day or a night, or, in other words, about twelve hours. It is better to bake them in the daytime, for then they can receive more attention. As the water gradually evaporates more should be added from time to time, but care should be taken to keep the beans covered. This must be done until the beans are nearly ready to be taken out, when no more water should be added, so that they will not be so moist as to become mashed or broken.

The pot can remain in the oven, where it will simply keep hot for an indefinite time without injury. Beans should be served in a covered dish. Beans that have been left over are delicious warmed up in a stewpan with a little water added, and many bean epicures think the more times beans are warmed over the better they are.

In a number of New England towns the local baker bakes beans for half the town. Saturday nights the pots are taken to the bake shops, where the baker marks each one with the initials of the owner and places them in his big oven. Next morning the owners call for their beans and pay the charge of ten cents, and invest ten more in brown bread. It is an amusing sight on Sunday morning to see a line of citizens going from the bake-shop to their homes, each with a bean pot on one arm and a loaf of brown bread on the other.

Good old-fashioned brown bread is the proper accompaniment for baked beans, and it is as difficult to get the genuine article in New York as it is to find good baked beans. Here is a famous recipe for Boston brown bread of the proper kind: One cup rye or graham flour, 1 cup of white flour, 2 cups Indian meal, 1 cup molasses (scant), 2 teaspoonfuls soda, ½ teaspoonful salt, 1 cup sour milk and 1½ or 2½ cups water.

Steam for three hours and then dry in the oven for half an hour. The brown bread should be eaten warm and what is left over can be either steamed again or toasted.—N. Y. World.

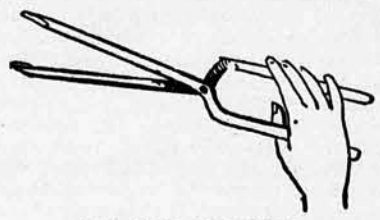
Patching the Table Linen.

Tablecloths, unless the breaks are quite small, should be patched when holes appear. First baste a square of the same material under the hole, then cut the edges of the hole even, turn under and hem down to the patch as neatly as possible. Then turn the cloth on the wrong side and hem the patch down to it in the same manner. This adds a neat finish to both sides, and the cloth will be flat when ironed. If there is a figure, stripe or any given pattern try and match it when patching. Always mend before washing, for you cannot do so well afterwards, as the washing and ironing stiffens the edges of the tears.

INVENTIONS FOR WOMEN.

Novelties in Tongs and Molds Which Housekeepers Appreciate.

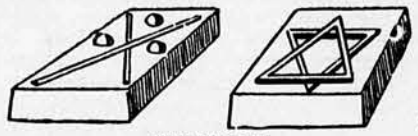
English manufacturers have a faculty for inventing those trifling novelties that add so much to a housekeeper's happiness. The woman who kills bugs only at the expense of all her nerves and her peace of mind will feel like burning incense before John Bull's shrine for his latest gift to her especial world in the shape of a pair of metal tongs, the ends of which are flattened out making convenient "nippers," between which his bugship can be caught



THE IRON BUG TONGS.

and crushed to death without making his murderer unduly uncomfortable.

Another invention of a somewhat different character will please people who sometimes give dinners to enthusiasts of one sort or another. This



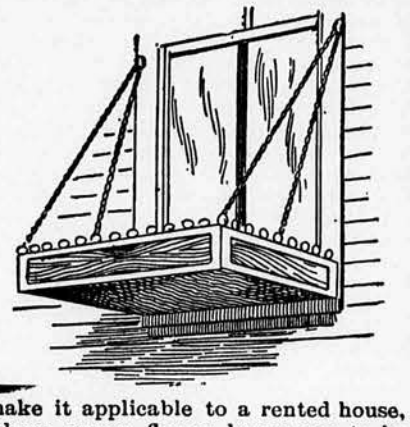
TWO MOLDS.

consists of a set of individual molds for jellies or blanc mange, the patterns of which show golfing tools, billiard balls and cues, masonic emblems, or even small bicycles.

HANGING WINDOW GARDEN.

A Simple Affair That Can Be Constructed for a Few Cents.

Many people are so situated that their gardens, if they have any, must be on a platform on the outside of some sunny window. Such hanging gardens are capable of affording a great deal of enjoyment. Many, however, are deterred from enjoying such miniature garden from the fact that the ordinary frame work that is used for the purpose is too expensive to construct, and is applied much too permanently to



make it applicable to a rented house, where many flower lovers are to be found. The illustration shows how a simple affair can be constructed, and how easily and simply it may be attached and detached from the outside of a window. It is a shallow box, with the inner side left off, the outside being as elaborate or as simple as one may elect. The inner edge of the box is attached to the window frame by hooks and hook eyes, while the chains on either side end in rings that are supported by hooks at the top. Beautiful flowers, and not a few of them, are capable of being grown in such a hanging garden.—American Garden.

Woman's Most Attractive Age.

The most attractive age of a woman's life is the period when she is still young enough to be pretty and old enough to be sympathetic, writes Octave Thanet in Ladies' Home Journal. For as grace is a woman's greatest beauty so sympathy is her greatest charm. A graceful and sympathetic woman is bound to be attractive to the end of her days. If she adds a taste in dress and some sense to her equipment for pleasing and does not grow deaf I see no reason why she should not be fascinating in her old age. Since the question, however, concerns itself only with the most attractive age of woman I must give the answer in my first sentence. What that age as measured by years may be ought to vary with the individual.

Fried Johnny Cakes Are Fine.

Did you ever eat fried "Johnny cakes?" They are perfectly delicious, and are, I think, indigenous to Missouri. I never ate them anywhere else, at any rate. Take a cupful of sour milk, one cupful of sweet milk, two eggs and enough soda to sweeten the mess. To this add in cornmeal and flour till you can make firm round balls of the dough by working it in your hands—make them small, using one-third flour, the rest meal—and then drop them in hot lard and fry as you would doughnuts. Eat them when hot, with butter, or make a gravy as for cream toast, then cut the doughuts open and cover with the gravy.—N. Y. World.

Vaseline for the Toilet Table.

Vaseline should have a place on every well-regulated toilet table. Rubbed into the eyebrows and on the lashes it stimulates their growth. It is sometimes good to take internally, as a remedy for colds. It is an excellent salve for burns and cuts. It should not be used much on the face, however, as it produces a growth of hair.

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HOME OF REDEEMING LOVE,
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Object.—To provide a home for *penitent* fallen women, and to rescue them from lives of shame; to reclaim, educate and instruct them in industrial pursuits, and to restore them, when possible, unto their homes and parents. BENEVOLENT FRIENDS, this institution is non-sectarian and non-salaried each worker freely doing her part to "rescue the perishing, lift up the *fallen* and tell them of Jesus, the mighty to save." God is blessing the work and good is being done. Now, we want you to "help just a little" and enable us to do still greater good. The erring daughters *must* be reclaimed they are more often sinned against than sinning. The Savior said, "Neither do I condemn thee; go in peace and sin no more." Address REV. LYDIA A. NEWBERRY, WICHITA, KAS.

The Young Folks.

FREEDOM, OUR QUEEN.

Land where the banners wave last in the sun,
Blazoned with star-clusters, many in one,
Floating o'er prairie and mountain and sea;
Hark! 'tis the voice of thy children to thee!

Here at thine altar our vows we renew
Still in thy cause to be loyal and true—
True to thy flag on the field and the wave,
Living to honor it, dying to save!

Mother of heroes! if perfidy's blight
Fall on a star in thy garland of light,
Sound but one bugle blast! Lo! at the sign
Armies all panoplied wheel into line!

Hope of the world! thou has broken its chains—
Wear thy bright arms while a tyrant remains,
Stand for the right till the nations shall own
Freedom their sovereign, with Law for her throne!

Freedom! sweet Freedom! our voices resound,
Queen by God's blessing, unsceptered, uncrowned!
Freedom, sweet Freedom, our pulses repeat,
Warm with her life-blood, as long as they beat!

Fold the broad banner stripes over her breast—
Crown her with star-jewels. Queen of the West!
Earth for her heritage, God for her friend,
She shall reign over us, world without end!

—*Oliver Wendall Holmes.*

QUEEN VICTORIA'S DOGS.

She Has Some of the Finest in the World in Her Kennels.

Some of the finest dogs in the world are owned by Victoria, queen of England. Her majesty is particularly fond of animals, and she loves every species of dog, from the largest St. Bernard to the tiny King Charles spaniel, which can be put into a coat pocket. There is a man at Windsor castle who does nothing else but take care of the dogs, and the royal kennels there are of stone, and the yards are paved with red and blue tiles, and the compartments in which the little dogs sleep are warmed with hot water, and they have the freshest and cleanest of straw in which to lie. There are fifty-five dogs in these kennels, and almost all of them are acquainted with the queen. She visits them often while she is at the castle, and she looks carefully after their health and comfort. The dogs of Windsor castle keep regular hours. They are turned out at a certain time each day for their exercise

GINA, THE LITTLE POMERANIAN.

and sports, and they have a number of courts connected with the kennels upon which they scamper to and fro over green lawns. There are umbrella-like affairs on these lawns, where they can lie in the shade if they wish to, and in some of them there are pools of water where the dogs can take a bath, and in which they swim and come out and shake themselves just as though they were ordinary yellow dogs rather than royal puppies.

The queen has her favorites among the dogs, and some of them become jealous of the attentions she pays to others. Among those she likes best is one named "Marco." This is said to be the finest Spitz dog in England. It has taken a number of prizes. Marco is an auburn dog. His hair is of tawny red. He weighs just about twelve pounds, and he has brighter eyes, quicker motion and sharper bark than any other dog in the kennel. He is just three years old, and he carries his tail over his back as though he owned the whole establishment.

The queen's collies are very fine, and a number of them are white. One of these is called "Snowball" and another goes by the name of "Lily."

Another little dog, an especial favorite with the queen, weighs just seven and one-half pounds, or no more than the smallest baby. This is the queen's toy Pomeranian "Gina," who is one of the most famous dogs of the world. Gina came from Italy, and has won a number of prizes at the dog-shows of England. Gina is a very good dog, and sat as quiet as a mouse while her photograph was taken not long ago.

Among the other dogs of the kennel are a number of pugs, and one knock-kneed little Japanese pug which the late Lady Brassey, the distinguished traveler, presented to the queen. There are big German dachshunds and little Skye terriers, and, in short, every kind of beautiful dog you can imagine in these famous kennels. The queen names the dogs herself; and near the kennels is a little graveyard where these pets are buried when they die.—Frank J. Carpenter, in St. Nicholas.

TRUE HEN STORIES.

How Biddy Got Away with a Snake That Wanted to Eat Her.

Did you ever know that snakes and hens are sworn enemies? Indeed, chickens have been known to attack good-sized black snakes. This, however, is only a moderately-sized snake story I am going to tell; that is, the story of a medium-sized snake.

One morning a lady who was visiting in the country looked out of her window and saw an old hen behaving in a most eccentric fashion. Knowing what "total abstainers" hens are, she knew that the old Biddy was not indulging in a spree, so concluded that she must be suffering from sunstroke.

On looking more closely, however, she discovered that the hen had a veritable case of "snakes," in spite of all her temperance principles. For there, coiled ready for a spring, was a snake some twelve or fifteen inches long. As the snake sprang, the hen backed off. Then, while her enemy was recovering itself and preparing for another dart, the hen rushed in and pecked at its head most vigorously, backing off again as she saw the snake ready to jump. This maneuver continued until the snake lay stretched to coil no more, when the hen began in a leisurely, business-like way to make a breakfast of that snake, beginning with the head and swallowing it inch by inch, until not a wiggle of its slender tail remained in view.

Apropos of the total abstinence habits of hens, I am reminded of a trick played by a small boy on some stately old hens, who stepped haughtily around his father's yard, as if they merely allowed the family to live there for their convenience. He soaked some bread crumbs in whisky and scattered them liberally in the chicken yard. Now, I never knew a hen who would refuse to eat anything that was thrown to her, from a cold roast to a diamond ring. So very soon the bread crumbs had vanished, and in a short time the jolliest party of old hens who ever got a jag on were clucking and cawking around, tanglefooted beyond the wildest experience of unfeathered bipeds. For, being by nature a little cross-eyed in their toes, they stepped on their own feet, and got in their own way, and all the while cackled and jeered at each other for being drunk. One old rooster in particular was a sight for gods and men. He leaned with limp tail and uncertain head, in suggestively familiar attitude, against the gatepost, blinking his stupid little eyes and trying in a maudlin way to crow, but with indifferent success.

I'll wager the whole lot got up with a headache next morning and went right off to sign a pledge.—Fannie Tailer, in St. Louis Republic.

Little Dot Had Great Luck.

Little Dot—I'm just the luckiest girl that ever was.

Aunt—Why so?

Little Dot—When I was out walkin' my foot began to hurt so I had to sit right down and take off my shoe; and what do you think it was that hurt? It was a button-hook that had got in my shoe.

Aunt—But where was the luck?

Little Dot—Why, don't you see? I had the button-hook to put on my shoe again.—Good News.

She Was Full of Glory.

"O, mamma," cried five-year-old Dorothy, "I'm just as full of glory as I can be!"

"What do you mean?" inquired her mother, with natural surprise.

"Why-ee," said Dorothy, "there was a sunbeam right on my spoon, and I swallowed it with my oatmeal, mamma."

Highest of all in Leavening Power.—Latest U. S. Gov't Report.

Royal Baking Powder

ABSOLUTELY PURE

LOVED HER PARROT.

Mrs. Leary Tried to Save Her Pet at the Risk of Her Life.

The affection of men and women for animals has led to many strange adventures—and to none more thrilling, perhaps, than one which occurred lately in New York city. In a five-story apartment house, the first floor and basement were occupied by an apothecary. In this basement a sudden and fierce fire was caused by the explosion of some chemical preparations; and the flames spread so rapdly that the occupants of the upper tenements were unable to reach the street. However, they

AT THE RISK OF HIS LIFE.

escaped to the roof, whence they could pass to the roofs of the adjoining buildings.

Among the people who escaped to the roof was an elderly lady, Mrs. Leary by name. She suddenly flew into a state of distress upon remembering that she had left her parrot, a tenderly cherished pet, in the rooms below. At the risk of her life, she went down to get it.

She secured the bird, but when she attempted to regain the roof she found her way completely barred by the fire. She could pass neither up nor down. All she could do was to go to a window and mingle her screams with those of the parrot, which she held in her arms.

An attempt was made to reach her with a ladder, but this proved impossible. She was about to jump out of the window, when the people below shouted that a fireman was coming down to her from above.

This was the case. Several firemen were on the roof. One of them, Dennis Ryer by name, tied a strong rope around his body, and his comrades lowered him to the window at which stood Mrs. Leary and her parrot. It was at the risk of his life, for the flames were already enveloping the front of the building.

Ryer reached the window and seized Mrs. Leary firmly in his arms. Then the fireman on the roof carried or dragged them both along until they were opposite a window of the adjoining building. Through this window Ryer thrust his human burden, and then climbed in himself. As soon as he had seen the woman to a place of safety, Ryer returned to his regular duties in extinguishing the fire. Mrs. Leary clung to the parrot through it all; but, to her great grief, the bird was suffocated during the rescue.

Jack's Idea of a Dinner.

A Buffalo boy when asked to write out what he considered an ideal dinner menu evolved the following:

Furst Corse.
Mince pie.
Second Corse.
Pumpkin pie and turkey.
Third Corse.
Lemon pie, turkey and cranberries
Fourth Corse.
Custard pie, apple pie, chocolate cake and plum pudding.
Dessert.
Pie.

Get your business training at the Wichita Commercial college, Y. M. C. A. building.

DOUBLE Breech-Loader $5.00. RIFLES $1.75 WATCHES GUNS BICYCLES $15 All kinds cheaper than elsewhere. Before you buy send stamp for 60 page catalogue. POWELL & CLEMENT CO. 168 Main St., Cincinnati, O.

YOU SAVE 50% IF YOU BUY A HIGH GRADE OXFORD WHEEL For men, women and boys at prices ranging from $15.00 to $60.00. WE HAVE NO AGENTS We ship from factory subject to approval and are the only manufacturers selling direct to consumers. Don't pay local dealers a profit of 50 per cent, but WRITE TO-DAY for our handsome catalogue. Address, OXFORD MFG. CO., Bicycle Dept. T714 355 Wabash Ave., Chicago

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School of Business and Shorthand
We make specialties of rapid calculating and simple and concise methods of recording and posting as they are used in actual business. Commercial course, six months, $30; Shorthand and Typewriting, six months, $40; English course, three months, $10. Bayard Bld., 1212-14 Main St., Kansas City, Mo.

Wichita Commercial College
Write for catalogue. F. H. Robins, Pres.
Actual Business Practice with Eastern Colleges through U. S. Mail the crowning feature.
☞ The Commercial leads, others follow.

CONSUMPTION
SURELY CURED.
To THE EDITOR—Please inform your readers that I have a positive remedy for the above named disease. By its timely use thousands of hopeless cases have been permanently cured. I shall be glad to send two bottles of my remedy free to any of your readers who have consumption if they will send me their express and post office address. Respectfully, T. A. Slocum, M.C., No. 183 Pearl Street, New York.

Lost Energy,

Fickle appetite, tired feeling, stomach sickness and weakness can be promptly remedied by using

Dr. J. H. McLean's Strengthening Cordial AND Blood Purifier.

It strengthens and builds up the enfeebled system, creates a good appetite and promotes digestion, clears the complexion and restores the body to perfect health.

Sold by all Druggists at $1.00 per bottle.

THE DR. J. H. McLEAN MEDICINE CO., ST. LOUIS, MO.

KANSAS FARMER.

ESTABLISHED IN 1863.

Published every Wednesday by the

KANSAS FARMER COMPANY.

OFFICE:

No. 116 West Sixth Avenue.

SUBSCRIPTION PRICE: ONE DOLLAR A YEAR.

☞An extra copy free fifty-two weeks for a club of six, at $1.00 each.

Address KANSAS FARMER CO., Topeka, Kansas.

ADVERTISING RATES.

Display advertising, 15 cents per line, agate, (fourteen lines to the inch).

Special reading notices, 25 cents per line.

Business cards or miscellaneous advertisements will be received from reliable advertisers at the rate of $5 00 per line for one year.

Annual cards in the **Breeders' Directory**, consisting of four lines or less, for $15.00 per year, including a copy of KANSAS FARMER free.

Electros must have metal base.

Objectionable advertisements or orders from unreliable advertisers, when such is known to be the case, will not be accepted at any price.

To insure prompt publication of an advertisement, send cash with the order; however, monthly or quarterly payments may be arranged by parties who are well known to the publishers, or when acceptable references are given.

☞All advertising intended for the current week should reach this office not later than Monday.

Every advertiser will receive a copy of the paper free during the publication of the advertisement.

Address all orders—

KANSAS FARMER CO., Topeka, Kas.

Kansas was thirty-four years old as a State yesterday, January 29.

We want our readers to secure for us thousands of new subscribers for the KANSAS FARMER and we will pay well for such work. If you will get up a list, write this office for liberal terms.

The cheapest and best way to break up monotony and to make life and home enjoyable is to provide plenty of good reading. Take the county paper; take a State political paper; take the KANSAS FARMER; take a good monthly magazine—take these, if no more.

If our readers, who will renew their subscription to KANSAS FARMER soon, will turn to our issue of January 23 and examine our premium offer of *Ladies' Home Companion* and cook book in connection with KANSAS FARMER, they may find something to their advantage. Read the whole offer carefully and follow directions.

Many of our subscribers desire a daily newspaper. In renewing your subscription it is well to note the fact that we can furnish you a year's subscription to KANSAS FARMER and daily Kansas City *Star* for $4. Or, KANSAS FARMER and daily Leavenworth *Times* for $3. The amount for both papers to be sent to this office.

President Cleveland, on last Monday, sent a message to Congress, in which he urges the authorization of $500,000,000 in 3 per cent. government fifty-year bonds, payable principal and interest in gold, the retirement of the greenbacks, and that customs duties be made payable in gold only. A provision is recommended that national banks may issue bills to the full amount of bonds owned.

The advantage of asking through the KANSAS FARMER for practical information is not often more promptly exemplified than in the matter of J. S. Good's inquiry as to actual experiences in the prevention of the growth of horns on calves. Many object to the practice of cutting off the horns, and certainly to prevent their growth is less expensive and is not open to objection on humanitarian grounds. In the proper department of this paper will be found the answers of some practical farmers who have found an application of caustic potash to the embryo horn all that is necessary. Other replies have been received since these answers were made up. They almost uniformly recommend the same remedy applied in essentially the same manner. One writer moistens the young horns with water and rubs them with the caustic instead of moistening the caustic. The advantage of this plan is that the caustic is in this way moistened only so far as used. It is important to keep the caustic dry, otherwise it will soften and waste. It is also dangerous to handle when wet for it is the strongest lye.

FEDERATION OF FARMERS.

A new farmers' organization, called the Federation of Farmers, was brought into existence at Chicago on January 16, 1895. Representatives of several States are reported to have been present. The objects of the organization are set forth in section 1 of article 2 of the constitution, as follows:

"The objects shall be to build up farmers' organizations by extending existing orders and establishing new ones; to bring all farmers' organizations into active co-operation in promoting their common good; to furnish a means of communication between organizations and between isolated farmers; to bring farmers into closer relation with the national and State departments of agriculture and the experiment stations; to provide for a farmers' reading course of study; to provide for the distribution of literature which will lead to a better citizenship, to a more profound and practical knowledge of agriculture and a more thorough understanding of the questions relating to government, legislation, the laws of trade and relation of agriculture to other pursuits; to test the practicability of direct legislation on the 'referendum' plan by submitting all questions of general interest to a vote of all members of the federation; and to promote such other objects as the federation may deem best accomplished by a general co-operative movement."

Sections 2 and 3 provide that the business and transactions of the federation shall not be secret; but persons not members may be excluded from executive sessions, and that the federation shall be non-sectarian and non-partisan.

Just what is the long-felt want which this new candidate for farmers' favor is expected to fill is not explained. The objects as set out in the constitution are commendable. Whether the fledgling will develop sufficient vitality to become an important movement depends upon the organizing ability and energy of those who manage it. So far as we are advised this federation has not yet reached Kansas.

EDITORS VISIT THE UNIVERSITY.

The Kansas Editorial Association met in annual session, in Topeka, last week. Matters of interest to editors and publishers, particularly those connected with the country weeklies, were considered. The meeting terminated with an excursion to Lawrence, which included visits to the Indian school and to the State University. These institutions were examined as thoroughly as the limited time would admit. A lunch was served at the Indian school at about 11 o'clock and an elaborate banquet was spread at the University at 4. The former is an industrial school for the children of the red man, and is supported by the national government, which appropriates $165 per year per student to cover all expenses of maintenance and instruction. This institution is one of great interest and affords an opportunity for observation on the effect of the effort to impart by education and Christian influences, to the children of savages, the civilization which their instructors have been many centuries in acquiring.

At the University, on the other hand, the most advanced means and methods of education are placed at the disposal of the sons and daughters of people of the highest civilization. The Kansas University is a grand institution. The visitor is impressed with the idea that if there be "ruts of the schools" the University has not found them. The "atmosphere" of the University seems to be one of inspiration to the best effort and of confidence in achievement. The Chancellor is an inveterate worker and is constantly receiving most generous plaudits from the world of science. He has no reason to fear that any of his co-workers will outshine him in achievements, and his generous nature impresses them with the belief that should they surpass him he would rejoice more than anybody. This spirit of generosity is a great stimulant to activity and confidence and it seems to pervade the University, so that from the Chancellor to the newest assistant, and from the senior to the freshman, everybody expects everybody else to do remarkably well and grows confident of his own ability to hold an honorable place among honored men and women.

The University has grown greatly during the last few years. Elegant buildings have been added; the faculty has been enlarged, apparatus and appliances have been increased, and the number of students has grown. Appropriations are made to it because of its vigor and progressiveness, as well as on account of its good work. More appropriations are asked and yet more will be asked in the future. It is not at all improbable that this institution will expand to the dimensions and ascend to the fame of the great universities of the world.

MR. HILTON'S ADDRESS.

It has seldom been the good fortune of an agricultural journal to lay before its readers so valuable a paper as that on "Evaporation and Storage of Soil Moisture," by H. R Hilton, presented in this number of the KANSAS FARMER. The facts therein set forth and the incontestable reasoning on the premises, may safely be taken as guides in the domain to which they belong. Mr. Hilton is an inveterate experimenter, as well as a careful reader, and knows from laboratory experiments more than perhaps any other man in the State of the deportment of soils towards moisture.

He needed not to show that a perfectly dry soil will not support plant growth. But it has not been generally known that the addition of a quantity of water equal to 10 per cent. of its volume is only sufficient to bring the moisture up to the point of sustaining vegetation. When the average soil has absorbed water equal to 25 per cent. of its volume it is quite moist and in condition to promote to a high degree the growth of crops.

These figures furnish the basis for some estimates as to the quantity of water which will be required to irrigate the average soil, assuming that the application of water has been deferred until the soil has become so dry that the crops have stopped growing, or contains water to the extent of only 10 per cent. of its volume. It has been shown by the work of the Utah Experiment Station that irrigation should moisten the soil to a depth of eighteen inches. Now, if the soil should contain 25 per cent. of water and does contain only 10 per cent., it is manifest that 15 per cent. must be added. Now, 15 per cent. of the eighteen inches to which the soil should be moistened is two and seven-tenths inches. It is thought by irrigators that they apply more than two and seven-tenth inches at each irrigation, and not unlikely they do apply three or four, or even as much as six inches. More than the two and seven-tenth inches theoretically necessary, must, undoubtedly, be used, for there is always much loss from evaporation from the surface before the moisture can pass through the soil to the required depth. From Mr. Hilton's showing, however, it seems probable, in view of the rapidity with which most of our Kansas soils transmit water, that an allowance of three-tenths of an inch for evaporation and other losses may be sufficient, so that for a single irrigation three inches of water should be sufficient to properly moisten the soil to a depth of twelve to eighteen inches.

Where the water is to be pumped, the power required to lift it is an important matter. One acre of water three inches deep contains 10,890 cubic feet, or 81,700 gallons, weighing about 680,000 pounds, or 340 tons. To raise this amount of water in one hour requires a little over one-third of a horse-power for each foot of the lift. If the lift is twenty feet, about seven horse-power actual work will be required. Or since an allowance of about 50 per cent. for losses of power in the machinery must be made, it is safe to say that to put three inches of water on one acre of land in one hour will require a motive power of, say, fourteen horse-power. The water supply needed for irrigating on this scale must be not less than 81,675 gallons per hour or 1,361 gallons per minute.

Mr. Hilton's address points out very clearly both the importance of decreasing the wasteful evaporation of water from the soil and the means by which it may be accomplished. His recommendations are in accord with the practice of many of our most successful farmers, who will be no less enthusiastic for their methods on account of Mr. Hilton't showing that they are in harmony with scientific principles.

Program of Farmers' Institute.

To be held in Oak Grange hall, Mission township, February 6 and 7, 1895, commencing Wednesday evening, February 6, at 7:30 o'clock:

WEDNESDAY EVENING.

"How to Make Money in the Dairy Business." Peter Heil.

"Economy of Feeding Farm Stock," P. J. Spreng.

"Farmers' Mutual Fire Insurance Company," J. B. Sims.

"What the Grange Seeks to Do for the Farmer," H. H. Wallace.

"How to Make the Farm Pay," George Anderson.

THURSDAY MORNING.

"Give the Boys and Girls a Chance," W. H. Wright.

"Impressions of Scotland and Its People," John MacDonald.

"The Dairy Cow—Past and Future," A. E. Jones.

"Why I Like Farming," Mayor Harrison.

"Poultry-Raising and its Resources," D. A. Wise.

THURSDAY AFTERNOON.

"Cheese-Making," Frank Trauber.

"Farming—Its Sunshine and Shadow," Mrs. Kittie McCracken.

"Subsoiling," Scott Kelsey.

"The Farmer—Past and Future," Bradford Miller.

"Why Should the Farmer be in Debt?" N. Anderson.

THURSDAY EVENING.

"Water in the Soil; How Wasted; How Saved." Prof. H. R Hilton.

"How to Prune a Young Orchard," Elias Howe.

"Gumption," Prof. Walters, of the State Agricultural college.

"Strawberries," Mr. Sears, of Manhattan.

A limited discussion will be allowed on all questions presented. The members of the faculty of the State Agricultural college are expected to be present during the entire session of the institute.

Intermediate entertainments will be given by Hughes Brothers, juvenile banjoists.

Ladies are cordially invited to be present and participate in the exercises of each session. Basket dinner at noon on Thursday.

A. H. BUCKMAN, President. I. N. WITT, Secretary.

Farmers' Institutes.

Institutes will be held at the places and dates as stated below and the Agricultural college will be represented at these institutes by the members of the faculty named:

Russell, Russell county, February 7 and 8, Mrs. Kedzie and Prof. Mason.

Peabody, Marion county, February 14 and 15, Professors Popenoe and Walters.

Clay Center, Clay county, February 15 and 16, Prof. Lantz and President Fairchild.

Haven, Reno county, February 21 and 22, Dr. Mayo and Mr. Burtis.

Cherryvale, Montgomery county, February 21 and 22, Professors Popenoe and Georgeson.

An immense irrigation reservoir is to be constructed in the Salt river valley, in Arizona. The distance around the proposed lake will be about 100 miles, and its average depth over 100 feet. It will catch enough water to fill it several times a year and will furnish enough to irrigate the entire valley below. The company which has undertaken this enterprise is incorporated with a capital of $6.000.000.

Every farmer in Kansas, and especially the breeders and stock-raisers, should have the greatest live stock journal in the world, the *Breeder's Gazette*, of Chicago, price $2 a year. We make a special offer of it and the KANSAS FARMER, both papers one year, for only $2. Subscribe now through this office.

Every farmer who desires to improve financially and in his vocation from this time on is cordially invited to subscribe for the old reliable KANSAS FARMER, a medium which will help do it.

GOSSIP ABOUT STOCK.

Read Leonard Heisel's stock sale advertisement in this paper.

D. P. Norton, of Council Grove, writes: "I have sold the Short-horn bull calf, Plumed Knight, 6 months old, to Mr. R. B. Shumway, Lyons, Kas., Treasurer of Rice county. He was sired by our great herd bull Imp. Bucaneer 106658, and we think him a "chip of the old block," and invite the stockmen of Rice county to call and inspect him after he is installed in his new quarters."

The reduction sale of Poland-China swine that will take place near Robinson, Brown county, Kansas, on the farm of the successful breeder, Mr. John A. Dowell, on Thursday, February 28, 1895, should be kept in mind by our readers. Consult his "ad" elsewhere in this issue and send for a copy of his sale catalogue. More complete details concerning the one hundred head of offerings will appear later on in the KANSAS FARMER.

DR. ORR'S BOOK.—Readers of the KANSAS FARMER will be pleased to know that arrangements have been made whereby they can obtain this concise and well nigh invaluable "Farmer's Ready Reference or Handbook of Diseases of Horses and Cattle" in combination with this paper at a slight saving in cost.

The separate prices of these are:

Dr. Orr's Book	$1.50
KANSAS FARMER, one year	1.00
Total	$2.50

Two dollars sent either to the Kansas Farmer Co., Topeka, or to Dr. S. C. Orr, Manhattan, will secure both, making a saving of 50 cents.

Next week, on Thursday, February 7, Mr. Wren's fourth semi-annual reduction sale of Poland-China swine will take place on his farm, near Marion, Marion county, Kansas. Our field man reports the herd in excellent health and condition and says that the visitor will not be disappointed in any of the seventy-two head that will go into the sale. The youngsters belonging to the July and August, 1894, farrows, with the yearlings and aged brooders, are just what every modern swine-grower likes to have. Good hotel and livery accommodations have been provided and the visitor who is a liberal buyer need not pay his railroad fare. The quality of the offerings is such that the sale ought to be liberally attended by the breeders of the West. Remember the date—Thursday, February 7.

Among others that come into our advertising columns this issue for the first time, is Bert Wise, Reserve, Brown county, Kansas. He has rapidly and very successfully, too, risen to the top of Poland-China success. He also breeds Holstein cattle and the best of Barred Plymouth chickens. Our field man reports his herd in the best of condition and a royally-bred lot of youngsters coming on for the spring trade. The visitor will find some of the best, both as to individuality and breeding, of any herd west of the Mississippi river. The herd, consisting of eighteen aged brooders and twenty-five gilts, are headed by noted Butler's Darkness 6846 S. and assisted by Ideal U. S. Nemo, that weighed 120 pounds when just 120 days old. His dam was the $275 sow, Lizer's Nemo, that was sired by the noted Black U. S. and out of Bess' Pride by King Butler. The youngster's sire was A A 2d, a grandson of old Black U. S. Mr. Wise, having had good results at certain lines of breeding, wisely concluded to secure some of the best at the fountian head, hence purchased Butler's Darkness for an even $200, and since his coming on the farm last fall feels that he is worth several hundred more than he paid for him. More will be given concerning the herd in the near future.

If the reader will carefully note the words "Eighty head of Poland-China Brood Sows," that it means something and that it is the first time in all Kansas Poland-China history when so large an aggregation has been offered at a public reduction sale. An acquaintance with the efforts of Dan W. Evans, of Fairview, Brown county, and J. A. Worley, another well-known Brown county, Kansas, breeder, whose farm lies near Sabetha, will at once establish the fact that every animal that will go into the sale on Thursday, February 14, will be just what it should be and up to the modern Poland China standard of swine ethics. Mr. Evans has been building for about nine years, right on his farm of 200 acres, one of the best herds in the West. He has always made it a rule to buy the best possible in the way of good boars, regardless of prices. The visitor will find that Swi Tecumseh 11929 S. and Billy Wilkes 9609 S. are both prize-winners and worthy the inspection of any high-toned hog man, either East or West. On the other hand, at Mr. Worley's, where Anxiety 20251 A. and Combination U. S. 13408 have the sway in the swine herd at Pleasant View stock farm, one begins to think that Brown county surely has the right to claim the championship as the strongest county in all Kansas for high-class pure-bred swine. The former clearance and reduction sales of both Mr. Evans and Mr. Worley are of themselves a sufficient guarantee to those that have attended them of the worth of their herds and their success as reliable breeders. The former sires that have been used in the herds were of the best, hence the breeding of the females is fully warranted to be the best, of which more may be learned on consulting the sale catalogue. The sale, following that at Horton, the day before, will give breeders and farmers an opportunity to attend both sales and out of the drafts from five herds can procure just such individuality and blood that he most desires. As Col. James W. Sparks, the very successful auctioneer, of Marshall, Mo., will do the honors of the block at both sales, good, warm comfortable quarters in which sales will be held, the best of hotel accommodations and a good prospective year ahead for porkers, there is no good reason why both sales should not be a success.

J. S Magers, proprietor of the Bourbon County herd of Berkshires, writes that Majestic Lad 32201, sired by Imp. Royal Hayter 30457 and out of Imp. Majestic 30459, has found his way back to his first Kansas home. Mr. Magers regretted having parted with him last spring when he sold him to Geo. W. Berry, of Berryton, and through that good fellowship that ought to abide among all professional swine-breeders, succeeded in getting him back again. Mr. Berry has six of his best harem queens safe in pig by him. There is perhaps no pig to-day on American soil with better blood or ancestry behind him than has Majestic Lad. Mr. Magers reports sales, as follows: A fine gilt to Mr. Berry; a boar to Prof. C. C. Georgeson, of the State Agricultural college, at Manhattan; one to T. A. Hubbard, of Rome, Sumner county, and one will go to O. P. Updegraff, of Riverside farm, North Topeka, in a few days. He says: "My herd is coming on in good shape, and since returning from the late meeting of the Kansas Swine Breeders, at Topeka, I think more than ever of the Berkshires, and my herd, especially."

Mr. L. N. Kennedy, of Nevada, Vernon county, Missouri, announces elsewhere in this issue of the FARMER that he will hold a reduction sale on Wednesday, February 27, 1895, at his farm, adjoining the city of Nevada, at which time he will offer about seventy-five head of Wilkes and Free Trade hogs, consisting of aged brood sows, twenty gilts and about the same number of young boars ready for service. Mr. Kennedy advertised a sale to take place the 18th of October last, and for four weeks preceding the date of sale sickness in his family kept him from fitting the herd as it then was, hence did not deem it advisable to let the sale go on at that time and it was called off. Since then the herd has had the attention necessary to fit it for the sales ring, and there being too many for the size of the place, Mr. Kennedy has concluded to reduce the herd to within the capacity of his farm. Hence he says that "they must go this time, subject to no restriction save the option of the bidder." They must be sold and if seen will be appreciated. The young stock is out of gilt-edged sows and were sired by General Wilkes 10513 S., Black Wilkes 10096 S., Columbus 9813 S. and Vernon Free Trade 12279 S. All females old enough to be bred will have been safe in pig to one of the aforementioned boars. The reader will find, on consulting Mr. Kennedy's catalogue, that he has a herd strongly Wilkes in its general make-up and of the best of breeding. Consult his advertisement elsewhere in this issue and write for a copy of his catalogue.

The tops selected from three herds, aggregating over 300 head of registered Poland-Chinas of the best and most fashionable families, ought to interest every breeder, corn and general hog-raiser in Kansas, Missouri and Nebraska. Such will be the combination reduction sale that will take place at Horton, Brown county, on Wednesday, February 13, 1895. The Winterscheidt Bros. have been engaged in general farming and breeding live stock for twenty-four years and ten years ago laid the foundation for their Poland-China herds, and have been very successful, both as breeders and feeders. About fifteen months ago they, in company with the well-known west Atchison county breeder, Mr. M. C. Vansell, of Muscotah purchased the tried and richly-bred boar, Admiral Chip 7919 S., paying $250 for him, topping the reduction sale of C. G. Sparks, whose sale last fall averaged higher than did any Missouri or Kansas sale for the year of 1894. This high-class boar is by Stem's Chip 4320 S., he by Stemwinder 1214 S., dam Admiral Maid (13513) by Admiral King 4662 S. His success in the three herds by select dams is most gratifying to their respective owners. On reference to their advertisement in this issue the reader will find further points pertaining to the sale offerings. Every one interested in swine husbandry, already knows or ought to know, Mr. M. C. Vansell, the veteran breeder of fifteen years actual experience in breeding Polands and Short-horn cattle. The visitor at the farm known as the Ashland stock farm, will find a grand flock of Barred Plymouth chickens that are under the immediate supervision of the "gude wife," Mrs. Myra A. Vansell. The swine herd will contribute twenty head to the sale on the 18th, five of which are safe in pig to Admiral Chip 7919 S., and the others, with a few exceptions, have been bred to Abbottsford 12951 S., he by Abbottsburn 29355 O. and out of Clarence 7th 52872 O. He traces to Tom Corwin 2d. His get on the farm prove his worth as a sire. A few were selected and bred to U. S. Wise, a son of the $275 sow, Lizer's Nemo. The reader will see that the sale will be a strong one and will be a success if blood and individuality coming from the three herds means anything to the professional breeder or money-making general hog-raiser.

The oldest breeder of registered Berkshires in Brown county, Kansas, Mr. J. W. Babbitt, takes his place this week among the prosperous breeders who are advertisers in the "old reliable" KANSAS FARMER. Our field man, Mr. Brush, reports a visit to his farm last week, and, among other things, states that he found a very acceptable herd of forty-five head of choicely-bred animals. Ten aged brood sows, seven of which have no superiors in the State of Kansas, taking the lot all through. They belong to the Lady Carlisle, Lady Marquis, Clinker Girl, Clover Blossom, Successful, Sallie V. and Queen of the West families. The herd is headed by Lord Majestic 34768 by an imported sire and out of an imported dam. He was bred by the celebrated Metcalf Bros., of New York State, and he is one of the improved type kind that overcomes all objections of the old Berkshire "kicker." His sire, Lord Windsor 30461, won first in class at the World's Fair, boar 1 year and under 2 standing in the following order above Royal Lee II. 30459, shown by Lovejoy, of Illinois; Victor 30288, shown by Gentry, of Missouri; Enterprise 27957, shown by Spicer, of Nebraska; Beauty's Duke 31129, shown by Gentry, and Sullivan's Choice 29681, shown by the Dorseys. His dam, Majestic 30459, won second in class, sow 2 years or over, standing next to Duchess 118th 28665, shown by Gentry. Both belonged to a herd (boar and three sows over 1 year) that was highly commended. The reader will at once see that his breeding is all right, of a high character, and the visitor to the farm will find him just as good as an individual. Among those in the herd under 1 year are six boars and twelve gilts sired by Model Duke II. 22467, also nine of fall of 1894 farrow, sired by Warwick Hope 31741 and out of Queen of the West X, she by Black Knight 29679 and out of Imp. Lady Titania. The visitor will find the individual make-up of this litter all good ones and the breeder or general hog-raiser desiring thrifty and well-bred Berkshires will find something to suit him among the strong array of youngsters. The day on which our field man made his visit at Mr. Babbitt's was a cold and stormy one and at the time of the morning feeding. Mr. Babbitt's method of preparing the ration was noted. He mixes his feed with warm water heated in a heater constructed as follows: A box or tank three and a half by four feet and two and a half feet deep, made of two-inch pine plank, water-tight and secured at each end by two half-inch iron rods. The heating apparatus is made of ordinary galvanized iron. It is of circular form, ten inches in diameter and four feet long. Six inches from the front end a flanged collar with a two-inch flange is rivited fast to the cylinder or heater and fastened with nails to the wood surrounding it on the inside, a space of about three-quarters of an inch being provided for between the outside of the cylinder and the wood wall to avoid taking fire when the heater is in use. The other end of the cylinder or heater is made closed, and two inches from the end is a five-inch pipe that goes up as a chimney. The door is made circular with a three-inch flange, and provided with a handle and shoved in place like the lid of an ordinary milk can. Just below the handle and center of this unhinged door is a small draft—circular hole two inches in diameter—that is covered with a three-inch circular piece of galvanized iron, which is hung on a single rivet and can be slipped back and forth to regulate the draft or shut off draft entirely. The cylinder or heater rests about three inches above the bottom of the tank. Just imagine two barrels of cold water in the tank; the fire is started, and in ten minutes water warm for mixing slop. The draft shut off in the morning insures fire for noon or evening, and the following morning a bed of coals ready for replenishing with wood fuel, and hot water in ten minutes for the piggy's warm ration. The iron part or heater costs about $6 and the tank $4 so the total expense is about $10. It excels the ordinary cooker, as it has no pipes to freeze up and burst and keeps always warm twenty-four hours. Every breeder recognizes that a chilling cold ration takes just so much vital force to bring the ration up to blood heat when taken into the stomach, then why not save that to the feeding and growing animal in cold weather. Mr. Babbitt has no patent on his device and cheerfully gives these details to his fellow breeders for their profit if they will but accept it and use it.

Publishers' Paragraphs.

One of the largest and most complete seed catalogues published is that of Currie Bros., Milwaukee, Wis. It is more than a catalogue; it is a horticultural guide which every reader of KANSAS FARMER should send for.

The "Wholesale Catalogue and Price List" of the Elgin nurseries, of Elgin, Ill., is especially valuable on account of its full directions as to "How to Grow Evergreens," and several other valuable papers by experts. Get one.

We have remaining on hand three "Mary Jane Dishwashers" of a large lot we took for premium purposes several months ago. The regular retail price of these dish-washing machines is $4.50. Any one sending to this office $3 may receive one of them and also have KANSAS FARMER one year. We can send to any one by express, charges to be paid on receipt of machine.

THE RIGHT WAY TO DO BUSINESS.—That handsome calendar which the Hartman Manufacturing Co., Chicago, have been selling for 8 cents has created such a demand for itself as to warrant a second edition, which considerably cheapens the cost. With characteristic fairness that company has reduced the price to 4 cents and all original (8 cent) purchasers will receive an additional calendar. We have seen the calendar and it is only fair to say that it is very handsome.

ONE THOUSAND CARLOADS OF SEWER PIPE.—We are advised that the Central Sewer Pipe Co., of Kansas City, Mo., of which Walter S. Dickey is President, has just closed a contract that will require the furnishing of 1,000 cars of sewer pipe, the largest single order ever placed in this country. The pipe goes to the city of San Antonio, Tex., and will be laid by J. B. Hindry, of Denver, Colo., who has the contract for the work. The sale was made by A. H. Dickey, representing the Central Sewer Pipe Co.

AN EGYPTIAN CURIOSITY.—In July, 1881, there were discovered in the ancient city of Thebes, the mummies of Egypt's mightiest Pharaohs, among them that of Rameses the Great. There were also found seals, coins, statuettes, preserved food, and a few rolls of papyrus, some of the latter being of great value, curiously bound together, and, notwithstanding the mould and mildew of ages upon them, as easily read as if written yesterday. A queer little book entitled, "A Night With Rameses II," has been executed so cleverly, that the oxidized seal, suggestive of mould, antique coloring, and partially decayed and ragged-edged papyrus carry at once to the mind the possession of a veritable relic from the dawn of civilization. Mailed to any address on receipt of 6 cents in stamps, by J. C. Ayer & Co., Lowell, Mass.

Our old readers are familiar with the advertisement of the Farmer Seed Co., formerly of Chicago. Last spring they removed their office and warehouse from there to their seed farms at Faribault, Minn., where they have been growing their seeds for years. A large new warehouse built there this spring, together with the facilities they have for growing all and the best kind of seeds for the field and farm, enables them to grow and supply the best Northern-grown seeds to our readers and fill all orders promptly. "We are seed-growers and farmers, not only dealers in seeds," is what they say in their catalogues. Every reader interested in the subject of permanent pastures and meadows should send for a copy of the catalogue or "Book on Permanent Pastures and Meadows," to the Farmer Seed Co., at Faribault, Minn., and it will be sent free to all farmers. Mention KANSAS FARMER.

Grass is King.

Grass rules. It is the most valuable crop of America. Worth more than either corn or wheat. Luxurious meadows are the farmer's delight. A positive way to get them, and the only one we know, is to sow Salzer's Extra Grass Mixtures. Many of our farmer readers praise them and say they get four to six tons of magnificent hay per acre from Salzer's seeds. Over 100 different kinds of grass, clover and fodder plant seeds are sold by Salzer.

If You Will Cut This Out and Send It with 7 cents postage, to the John A. Salzer Seed Company, La Crosse, Wis., you will get a sample of GRASS AND CLOVER MIXTURE and their mammoth seed catalogue free.

Forestry Notice.

Those wishing to receive a share of the free distribution of seedling forest trees by the State Forestry Department can make application at any time previous to March 1, 1895. The report of this department is now in the hands of the State Printer and will be furnished applicants as soon as printed. Owing to a lack of sufficient printing fund they may not be finished before the last of January. County papers please copy.

E. D. WHEELER,
Commissioner of Forestry.

Ogallah, Kas.

Horticulture.

An Artificial Forest in Kansas.

EDITOR KANSAS FARMER:—Farlington is famous for the large artificial forest of the Fort Scott & Memphis road. At the close of our Kansas State Horticultural Society meeting, Messrs. Wheeler (State Forestry Commissioner), Martin Allen, of Hays City, Robinson, of El Dorado, Diehl, of Olathe, and myself, concluded to visit this great enterprise. Farlington is seventeen miles south of Fort Scott. It is a small station of fifty inhabitants. It has a fine lake of water, well stocked with fish, and is getting to be famous for its fine black bass. On our arrival we were met by Mr. ———, who had been sent by the courtesy of the Fort Scott officials to convey us through their groves, which were located one-half mile west of the station. The land was originally a rolling prairie, well drained by ravines running through, and which have not been planted. All dry ground has been planted to forest trees.

It is now some twelve years since starting this enterprise, and how well, this plant of 1,200 acres attests. Mr. Douglass, the veteran horticulturist, of Winona, Wis., was called into requisition to plant and care for this splendid work. Varieties growing are catalpa, ash, walnut (black and white), cherry, bodark and chestnut.

The catalpa, and, in fact, all the trees, were planted four by four feet and cultivated the first few years, until able to care for themselves.

The tendency of the catalpa to straggle required some pruning, which was too long neglected to make symmetrical trees. The ash were very fine and straight, as were the walnut, cherry, bodark and chestnut. The latter was the least hardy of any seen.

Of all the trees I think the black walnut the most satisfactory. They seem to be slow growth at first, or until started, when they lead off grandly. I am sure I saw black walnuts eight inches in diameter and thirty to forty feet in height.

This forest was intended for cross-ties for railroad purposes, and I have no doubt that in ten years there will be an immense number of ties cut upon the property. I measured one tree that would make a tie of six inches diameter with a six-inch face.

Had this grove been planted six by six feet and cultivation continued, with sufficient pruning to induce upright growth, I have no doubt but the trees would be much improved in size, also in symmetry of growth. From my observation I think the black walnut the most valuable tree, with catalpa second, taking into account the value of the tree for all purposes. If wood is the purpose, the ash, I think, would stand first. The tendency to an upright growth is in their favor. Many were forty feet in height and as straight as an arrow. There were but few chestnut trees left. A few were splendid specimens.

The lesson to be learned by this enterprise should not be forgotten. There can be no doubt about the successful growing of forest trees as an investment. I believe the planting of black walnut a success; that in twenty-five years trees can be grown sufficiently large for saw-logs on our Kansas soil. It is a fact that our Kansas black walnut is of a finer quality than that grown elsewhere, and the young man who can afford to wait will find that an acre of black walnut will discount any crop grown upon the land during that time, with infinitely less work.

Rosedale, Kas. F. H.

Red Cedar.

EDITOR KANSAS FARMER:—Red cedar—leaves very small and numerous, closely allied, and of a dark green color in spring and summer, turn a dull brownish color after first spell of hard winter. A very common, and the best known evergreen in the West. The heart-wood is very valuable, but young trees are not worth much for their wood; only the older trees that have grown for fifty years or more are valuable. This tree grows in all parts of the United States except in southwest portion.

In Kansas we plant the tree only for ornamental purposes, and it is a grand tree, standing drought, cold, wet and dry weather. In planting I have found it a great help to cut a portion of the foliage off, as the roots are very small and limber, thereby not giving the tree much support until it becomes established. A large per cent. of cedars are lost when planted out. The most danger from loss comes from the wind blowing the tree first one way, then another, until an air-chamber has been formed around the trunk down to the roots, and from that cause the tree dies. After the tree has started to grow it is not much trouble, but should receive some attention during summer. Spade or hoe around the tree, then add old leaves or very well-rotted manure. You will find it a great help. Never let the grass grow up around the trunk, as it chokes the life and vitality from the tree. Trim the tree and trim often. Some people think it will kill an evergreen to trim, but this is a great mistake, for they look much better after trimming. May and November are the best months for using the knife on evergreens. If a cedar is allowed to grow it soon gets tall and rather ragged, making anything but a pretty tree.

Some people plant them for hedges. That is a mistake, as they will not make a nice fence. They are green on top, but the lower part is brown and bare. Do not plant them too close together or under the shade of a larger tree. A cedar looks fine singly, in rows, or in clumps, if not too close.

One word more. Always plant trees grown from Northern seed, as they are by far the best for Kansas. Southern trees will grow and thrive for a few years, when an extra cold winter will kill them, in many cases both root and branch. I have had trees from southern Illinois and Missouri, also from northern Illinois and Iowa. The last are by far the most satisfactory.

GEO. W. TINCHER.

Fruits and Trees at Utah Experiment Station.

We have received a copy of Bulletin No. 37 of the Utah Experiment Station. It treats on "Fruits and Fruit Trees; Ornamental, Forest and Shade Trees." Experiments with different varieties of peaches, apricots, cherries, plums, pears, apples, strawberries and grapes. It also contains a short chapter on "Orchard Culture," and one on "Ornamental, Forest and Shade Trees." The bulletin is summed up as follows:

1. Parker Earle, Sharpless and Thompson's No. 7 are recommended as promising strawberries.

2. The following varieties of grapes are recommended for trial: Concord, Delaware, Early Victor and Massasoit, the Early Victor being specially recommended for places subject to early freezes.

3. Only the peaches generally classed as early or mid-season should be planted in Cache county and localities with a similar climate.

4. Russian apricots are specially recommended where the larger kinds will not thrive on account of severe winters.

5. Sour cherries, such as Mt. Large and Early Richmond, should be planted where the sweet cherry does not thrive.

6. Sowing lucern, timothy or clover in a young orchard should be discouraged.

7. Poplar trees are shown to be the most promising for general forestry purposes.

8. The growing of some of the hardwood trees, such as black and white walnuts and ash, can probably be made profitable.

How Plant Onions?

EDITOR KANSAS FARMER:—I want some advice. I want to put out four or five acres of onions. I would like to learn through the KANSAS FARMER the best way to put them out, how much seed to the acre, what varieties, preparation of ground, how to put the seed in the ground, etc.

Perry, Okla. JOHN H. SNYDER.

Send for our latest premium and clubbing list.

Thayer's Berry Bulletin for February.

Every man, woman and child having a rod of ground, should grow strawberries. They may be produced on almost any soil, and a child may grow them. There is no fruit so delicious, none more productive, none more healthful, none so easily grown, none so cheaply grown and easily protected from the hot winds and drought of summer or the blizzard winters of the Northwest. It is the rich man's berry; it is the poor man's berry; it is everybody's berry, and should be as universally grown as wheat, corn or potatoes.

The same common sense that grows a good pig, a good cow, or a good crop of grain, will just as surely grow a good crop of strawberries. In fact, the process is about the same.

You cannot grow good pork from a weak, sickly pig, and you cannot grow good berries from a weak, sickly plant.

Always get the best, whether pig or plant. The soil is a storehouse for plant food. It is the most convenient place for keeping raw material to be converted into agricultural and horticultural products as needed. It is a bank of deposit for fertility. All may do business at this bank, but the inner doors are many, the locks formed by nature's own cunning hand, and one must work the combination well to succeed best.

Berry plants are huge feeders and hard drinkers; they require the atmosphere above and the soil beneath to sustain them. Every little fibrous root is a suction-pipe, pumping up food and moisture from below. Neither are they particular what they feed on. When well prepared for their use, they will take all refuse, all drippings and droppings. In fact, anything and everything, from kitchen slops to a dead dog, work them up into the choicest table dainties and never tell from whence they get their sunset tints or their delicate flavors.

To grow animals or crops of any kind with most profit they should have all the good, well-prepared food they can utilize. This, to the fruit-grower, means rich soil, well prepared, and always in good condition.

It is imperative that all poor plants be discarded. Weak plants cannot produce vigorous growth or fine fruit.

Practice careful selection, keep only the best, produce only the best, grade up with care.

Each year should show improvement in grower, in soil, in plant, and in product.

Interesting circulars sent to farmers. Send name to Bureau of Immigration, Spokane, Wash.

Homes for the Homeless.

The opening of two Indian reservations in northeastern Utah to settlers opens up over three and one-half million acres of fine agricultural and stock-raising land for home-seekers.

The Uintah and Uncompahgre reservations are reached by the only direct route, the Union Pacific system, via Echo and Park City. E. L. LOMAX, G. P. & T. A., U. P. system, Omaha, Neb.

When the Kicks Come In

Is not the title of a new song, nor does it refer to the backward action of that much-maligned animal, the mule.

It is a phrase used by the inhabitants of Oklahoma to designate the approaching opening of the fruitful acres of the Kickapoo Indian reservation.

If you wish to find out all about the Kickapoo lands, as well as those belonging to the Wichita and Comanche tribes—where cotton, wheat and fruits will pay handsomely—ask G. T. Nicholson, G. P. A., Santa Fe Route, Topeka, Kas., for a free copy of Oklahoma folder.

UR invited to send for my latest price list of small fruits. Half million strawberry plants, 800,000 Progress, Kansas and Queen of West raspberry plants. B. F. Smith, Box 6, Lawrence, Kas Mention this paper.

A. H. GRIESA, Prop'r Kansas Home Nurseries, Lawrence, Kas., grows trees for commercial and family orchards—the *Kansas Raspberry*, Blackberries, standard and new Strawberries—also shade and evergreen trees adapted to the West.

Something New in Musk-melons

The White Persian, the largest and best flavored on earth. Nothing better to be desired. Write for prices and particulars to Larkin Commission Co., Wichita, Kas. Mention FARMER.

APPLE TREES. Large stock of commercial sorts, with grape vines and a general nursery stock. Price list free. KELSEY NURSERY CO., St. Joseph, Mo.

STRAW BERRY PLANTS. RASPBERRY, BLACKBERRY and all kinds of small fruit plants at lowest prices. 1,000,000 plants for spring trade of 1895. 100 varieties. Largest growers in the West. Cat. free Address F. W. DIXON, Netawaka, Kansas.

Mount Hope Nurseries.

27th year. Have for sale a complete assortment of fruit trees, especially of the leading commercial sorts. Also making a specialty of *extra hardy peaches*. Crosby, Bokara, etc., 28 deg. *below zero* and a crop. For circulars and prices address the proprietors.

A. C. GREISA & BRO. Lawrence, Kas.

ESTABLISHED IN 1873.

WILLIS NURSERIES.

Contain a general assortment of choice fruit trees and other nursery stock, which we offer for sale in lots to suit. Our prices are low—stock and packing the very best. Write for free catalogue and always mention name of this paper. A special lot of choice well-grown two-year-old apple trees for sale.

Address A. WILLIS, Ottawa, Kansas.

BONNER SPRINGS NURSERIES

We shall offer in the spring, 1895, at surprisingly low prices, a large stock of apple trees—mostly Gano, Ben Davis and Jonathan—*the apples*. Also small fruits of all kinds. Greenhouse bedding plants and bulbs for spring planting; asparagus, evergreens and a general collection of nursery stock, all being of the leading and most popular kinds.

Address H. H. KERN, Manager, Bonner Springs, Kas.

Lee's Summit Star Nurseries.

ESTABLISHED IN 1869.

Choice fruit and ornamental trees, including small fruits, evergreens, roses and shrubbery. A specialty of supplying trees for commercial orchards. Also shade trees. Plant while you can get the best trees at the lowest prices. Send for catalogue. Address (mentioning this paper)

M. BUTTERFIELD, - Lee's Summit, Mo.

$17 SPRAY PUMP $5.50 EXPRESS PAID, for

Will spray a 10 acre orchard per day. Endorsed by the leading Entomologists of the U. S. 60,000 in use. *Satisfaction guaranteed or money refunded.* Illustrated catalogue on Spraying free. Rapid sellers. Our agents are making from $5 to $20 per day. Mention this paper. Address P. C. LEWIS MFG. CO., Box 76. Catskill, N. Y.

STAHL'S EXCELSIOR

Spraying Outfits kill insects, prevent leaf blight and wormy fruit. Insure a heavy yield of all fruit and vegetable crops. Thousands in use. Send 6 cts. for catal'g and full treatise on spraying. *Circulars free.* Address

WILLIAM STAHL, QUINCY, ILL.

THE BINGAMAN PRUNER

The best Pruner ever made. Will cut any limb not exceeding 1½ inches in diameter. One man can do more work with it than five men can with any other. Agents wanted in every State in the Union. Address—

ORCHARD PRUNER CO., Ottawa, Kansas.

ASPINWALL POTATO-PLANTER

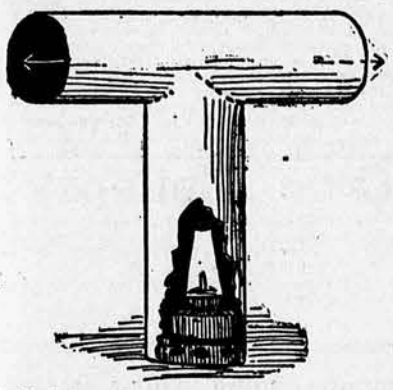
We manufacture the celebrated Aspinwall Potato Planter, Aspinwall Potato Cutter, Aspinwall Paris Green Sprinkler, etc. Every machine warranted. These machines greatly reduce the cost of raising potatoes. Send for Free Illustrated Catalogue.

ASPINWALL MANUFACTURING CO., 40 Sabin St., Jackson, Mich.

The Poultry Yard

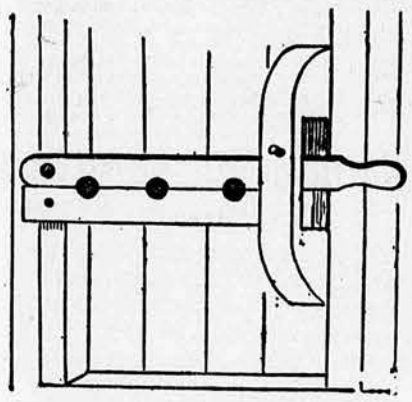
Winter Conveniences.

The cut shown herewith we copy from the Farm and Fireside. It represents a homemade heater for use in a poultry house in extremely cold weather. Such a heater will keep the temperature of a well made house of moderate size above the frost line, and this is all that is required of it. It may be made of two joints of stove pipe



riveted together, the larger the pipe the better. The best plan is to have a tinsmith make the whole heater of sheet iron, each piece about eight inches in diameter and twenty inches long. The lamp must have a tin chimney with a mica window in it. Suspend the heater by wire from the roof and put a wire netting screen around the whole to prevent interference on the part of the fowls. Be sure to give the lamp ventilation by raising the heater a few inches above the floor or cutting holes in the lower end of the upright pipe.

The next device illustrated here, a



neat model of which was sent us by a Chester county (Pa.) subscriber, is intended for a cabbage holder, but may be used for holding any vegetable or article that the poultry keeper wishes to keep off of the floor and give the birds a good opportunity to peck at. In houses where the studs are not boarded or plastered the two jaws of the holder may be fastened to them, but where the walls are smooth, blocks must first be nailed to the walls in order to give a few inches of space back of the jaws or clamp.

Eggs in Cold Weather.

The art of feeding may well be applied to poultry in winter, if eggs are expected. We said the "art" of feeding, for feeding is quite an art, and has science to keep it company. What do we feed to secure? Eggs, and in so doing we must look into the egg. We see it well filled with rich, nutritious substances, and a variety. Then we must adapt the food to the egg. If the hen is kept warm and comfortable, the food required to provide her with animal heat will be correspondingly lessened. Knowing that the food should not contain an excess of the carbonaceous or heat producing elements, we look to those substances which furnish the albumen. All foods contain these, but they vary in proportions.

When the farmer throws down corn and feeds his hens liberally he may secure but a few eggs, as he is then feeding for the market and not for eggs. A fat hen will not lay, and is as unprofitable as a fat sow for breeding. What the hens mostly need is nitrogenous matter, for they can, if fed any grain at all, easily provide the yolk, lime, phosphoric acid, etc., but the large amount of albumen in an egg calls for more nitrogenous food than is usually allowed. Some, improperly, ascribe the failure to secure eggs to a lack of green food. While some kind of bulky food (such as clover hay chopped fine, and scalded, as well as cooked potatoes and turnips) is excellent, yet the desideratum is animal food, and if less grain be fed, and more meat, either raw or cooked, there will be more eggs.

Milk and curds are also suitable, but meat is better than anything else. As a pound of meat daily will be sufficient for a dozen hens, and almost any kind of meat will do, the expense is a small matter, compared to the high prices obtained for eggs in winter. It is not necessary to feed grain more than once a day. A morning meal of scalded, chopped hay, with some kind of animal food and wheat at night will give more eggs, if the henhouse is kept warm, than any other method, and it will be cheaper than feeding three times a day on grain. A pan of warm water in the morning should always be allowed.—Farm and Home.

Wind-breaks for Poultry.

On windy days the hens will resort to any kind of shelter or break that protects them from the winds. As they prefer to be in the open air as much as possible, the necessity for some kind of shelter often arises. It need not be a covered shed, as clear, sunny weather induces the fowls to forage, and they prefer to be in the sunlight. All they need is a close fence or wall. This should prompt those who contemplate making poultry yards to have the lower part of the fence, to the height of about two feet from the ground, close, so that the hens may be protected from the direct action of strong winds. If they are exposed to the full force of the wind, even when the weather is not very cold, the result will be catarrh, and eventually roup.—Prairie Farmer.

An Economical Incubator.

An incubator, both cheap and accurate in its work, can be constructed by taking a shallow box large enough to hold several dozen eggs. Fill the bottom neatly with clean, fresh horse manure and over this place several inches of road dust. The eggs can be put in separate rows and two or three layers of blankets placed over them. The eggs are carefully turned by hand each day and moistened in lukewarm water. After the chicks hatch out the blanket is raised several inches above the dust and the little chicks permitted to run, scratch and be fed and kept comfortable until ready to remove to coops.—Farm and Home.

Poultry Notes.

EMPTYING water vessels at night saves labor in the morning.

THE snow may break down your roof. Better shovel some of it off.

TO DIVIDE the labor and income of the poultry yard with the children will teach them valuable lessons in business.

FOWLS should have something to pick at and scratch over as soon as they come off the roost in the morning. The exercise will sharpen their appetites for the full morning meal.

HOW DO you like to have the melting snow dripping down in front of the chicken house in the yard? We always build houses that pitch to the rear and carry off all drainage that way. Are we right?

PORK and beef scraps are often wasted by being fed too liberally to the poultry; thus fed they are an injury rather than a benefit. Boiled and made into a mush with vegetables and meal they are very useful to induce early laying when judiciously fed.—Farm Journal.

Beware of Ointments for Catarrh that Contain Mercury,

as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is ten-fold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, Ohio, contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally and is made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

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Agents wanted for Gearhart's Family Knitter. For particulars address J. E. Gearhart, Clearfield, Pa.

In the Dairy.

Conducted by A. E. JONES, of Oakland Dairy Farm. Address all communications Topeka, Kas.

The Butter Cow is the Cheese Cow.

An old-time notion still prevails, to some extent, that some cows are better for cheese and some for butter. For several years, however, dairy authorities have taught that the best butter cow is also the best cheese cow. This fact was proved conclusively by the dairy tests at the Columbian exposition. The reason is that by modern methods of cheese-making there is no loss of milk-fat; it is all (but a small fraction) saved and carried into the cheese. The greater the proportion of fat in the milk (and then in the cheese), the less milk necessary to make a pound of cheese and the better the quality of the latter.

The subject was admirably illustrated by a contribution from the Wisconsin dairy school, at Madison, sent by Prof. Henry to the joint exhibit of the agricultural colleges and experimental stations at the exposition. The dairy students took six lots of milk, each weighing 300 pounds and varying in the percentage of fat contained, and made a cheese from each lot. These six cheeses were exhibited side by side with striking and conclusive effect. Turned on edge they looked something like this:

The numbers indicate the per cent. of fat in the milk used; 0 means that all the fat had been extracted with the separator. In the other cases the fat was practically all secured and the cheese increased in thickness and weight accordingly. The last cheese was almost twice as thick as the first one. Rejecting the ounces, which vary with the stage of curing, cheese No. 0 weighed seventeen pounds; cheese No. 5 weighed thirty-two pounds, and the others ranged between. Before being cut and tested it was plain that the one with the most milk-fat was the best cheese.

Milk should never be skimmed wholly or partially to make cheese. Full-cream cheese is the best and most profitable. Rich cheese requires rich milk. The milk that will make the most butter will also make the most cheese and the best cheese. The best butter cow is the best cheese cow.—*Farm Journal.*

The Effect of Sound Dairy Education.

Dr. Cyrus Edson, Health Commissioner of New York city, reports that the quality of the milk shipped to that market has greatly improved in the last ten years. This is due to a rigorous system of city inspection, which has taught the milk dealers that it is very unsafe business to water their milk. He reports also that there has been a great progress among the dairy farmers in the way of more intelligent methods in the handling of their cows. They begin to see the money value there is to them in an intelligent study of the question. What does it mean to be a dairyman? Dr. Edson thinks that the milk-condensing factories, with their rigid rules, have taught the farmers how to care for milk. There may be something in this, but the reason is hardly large enough, for it would require a condensing factory to every community of milk-shippers. In our opinion, the real reason for the improvement of the farmer is that he has been bestowing more thought upon his business. He has been opening his mind to dairy knowledge; has been reading more, thinking more, and as a consequence what he does is better done. The effect has paid the farmers very well in cash, for it has increased the consumption of milk in the city enormously. Just in proportion as we make good food, pure food, honest food, will we increase its consumption. No one but a blind farmer would produce poor milk, for the result will be, in the end, the discouragement of the consumer, and the farmer cannot afford that. It will prove a happy, prosperous day when all the adulterators of food are driven out of their devilish business and every farmer, as a food-producer, is made intelligent and skillful in the production of that food.

The wants of the seventy millions of American people constitute the market of the farmer, and he is the only rightful producer of food for that market. When he adulterates his product, either purposely or through carelessness, or does not set his face like a flint against all food adulterators, he advertises to the world that he is an unfit man for his place, and has not the brain and courage sufficient to stand up for the safety and prosperity of his own business.—*Hoard's Dairyman.*

The Dairy Center.

It is said that Elgin, Ill., is the dairy center of the universe. The total product of the territory represented at Elgin and on the Elgin Board of Trade for the year 1893 was 30,986,525 pounds of butter, for which $8,056,496.60 cash was received, and 6,361,793 pounds of cheese, valued at $572,561 37. The average price for 1893 of butter was 26 cents, and of cheese, 9 cents. The total production of this dairy district for twenty-two years has been 213,404,101 pounds of butter, and 130,365,445 pounds of cheese. The cash transactions for this period have reached the sum of $64,567,594. The average price of butter for twenty-two years has been 28⅞ cents, and of cheese 8¼ cents. There are 358 factories represented on the Elgin board. This does not include the millions of gallons of milk sold in the district.

The Inspector of Milk, in Boston, reports an improvement in the quality of milk furnished the people of that city. This improvement has grown out of a vigilant enforcement of the inspection laws. Thirteen samples of milk were examined. As a result of 587 complaints carried for determination to the courts, 518 convictions were secured and fines amounting to $15,374 paid. The fines more than defrayed the expenses of inspection. This Boston experience shows that the way to get good milk is to insist upon it.

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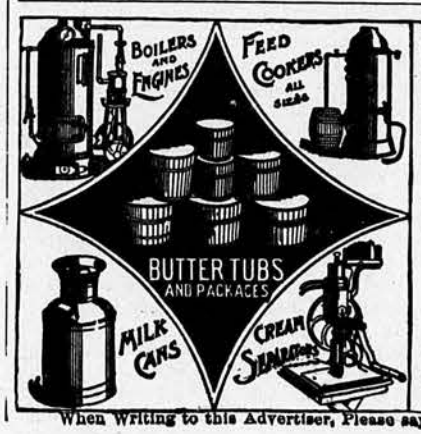

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Brain Surgery.

For marvelous things shall yet be told,
When you and I are grown gray and old,
And still more marvelous things be seen
When the sod above us is growing green;
And things that now are in no man's thought
Shall hold the world when our works are naught.

Truly, a day shall bring forth wonders, and a night shall hold more than our brightest dream.

A few years ago that wonderful world that is hidden away within that bone-walled cavity of the human skull was, to a large extent, a *terra incognito*. Almost as much so as the regions of the north and south poles, or the interior of the earth. We knew, indeed, that the calvarium or skull enclosed a soft, pulpy mass of white and gray matter, about as soft as a glass of jelly, or a plate of butter in hot weather. We knew that it was held together and in place by a tough, glistening wrapper or investing membrane, which even the ancients had named the *dura mater*, supposing it to be the strong mother membrane that gave origin to all the other membranes in the body. It was known, also, that some relatively very large blood channels existed in and about the brain, which, when wounded, gave rise to fatal hemorrhage in most cases. Later, it came to be known that the bursting of a blood vessel within or upon the brain often caused that fatal disease known as apoplexy. From the frequent fatalities in cases of brain injury, men concluded that such injuries were without remedy, that neither science nor skill could do aught to avert a fatal termination in case of brain injury which destroyed the integrity of a blood vessel. But from year to year and decade to decade the skill and daring of the surgeon, like the skill and daring of the intrepid geographical explorer, led to one incursion after another within the unknown regions of the planet called man. These surgical incursions grew more bold and frequent, and our intrepid explorers made more minute maps and charts of the various regions of the body explored by them, as did Hall and Kane and Stanley and Livingstone in arctic and equatoral regions of the globe.

Within a generation Dr. McDowell, of Kentucky, and Mr. Lawson Tait, of England, instituted as marvelous an exploration of the abdominal cavity as Livingstone and Stanley did in the territory of the Congo Free State. Baron Larry, the French Surgeon General, having, in an emergency, tied a string around a bleeding artery and found it to control hemorrhage most admirably of all the known means of arresting the life current in a deadly flow, paved the way to far more daring ventures in surgery.

When it finally came to be known that the abdomen could be opened and closed almost with impunity; that bowels and bladder could be, like an old garment, ripped and stitched almost to suit the fancy of the tissue tailor, the surgeon; that fragments and sections could be cut out and thrown away and the remainder closed up, like a file of soldiers after a cannon ball had torn thorough their ranks, then men grew bolder from experience and ambition and courageously set about exploring the cranial cavity. Victor Horsley, of London; Keene, of Philadelphia; Bilroth, of Vienna, and, a little later, many others, have achieved wonderful victories over disease and impending death in and upon the brain.

The surgeon who sits down now by the side of a patient with a bullet through his bowels and waits for nature to save him, or the man to die, is counted a criminal, and the day is fast approaching when the same thing will be true of a patient with a bullet in his brain. The plain and imperative duty now is to open the abdomen without delay, find the rents in intestine and mesentery along the bullet's track and close them up, stop all hemorrhage by ready means and save the patient. And to a considerable extent that is true, also, of brain injuries.

Many a man is saved by prompt and skillful brain surgery after an accident. Many an epileptic is restored to health and happiness by an operation on the brain or its investments.

The study of what is called cerebral localization has now reached that degree of certainty that experts can tell, almost to a dot, just what spot of the brain is affected by a growing tumor, or a blood clot from a ruptured vessel, or a splinter of bone. By long and careful study on the brains of dogs, guineapigs and monkeys, surgeons have learned many of the secrets of nervous reflexes. They have, under chloroform, opened untold skulls at all possible points, and applied the galvanic current to all the surface centers and convolutions of the brain, by which the finger, the hand, the toe, the foot, the leg, or arm, the eye, the mouth, the face and all the machinery of motion have been made to respond to its stimulation and give back its characteristic motion. So that we now know that an injury or irritant at this or that part of the brain will always produce disturbance or action of some part of the body. It may be one finger, a toe, an eye or a section of the face. It may be some internal organ. But every part of the body has its brain center and cries out through pain or motion or paralysis, when that center is invaded. And probably, if we could touch it with exquisite gentleness, it might cry out with rapture instead of pain.

The most frequent outcry of brain compression or profound irritation is a spasmodic action of some distant member of the body, some portion of the extremeties. When a finger or hand or arm is found to clutch repeatedly in nervous spasms, repeating the same action over and over, the astute surgeon is very frequently able to locate the trouble in some convolution of the brain, and by removing a disc or button of the skull the size of half a dollar, or larger, he can generally find the cause of the trouble. It may be a blood clot, a tumor, an abscess, or a spicula of bone broken loose from the inner table of the skull by a blow or a fall and left pressing against the brain or its membranes. The removal of the offending thing, whatever it may be will generally cure the spasms, or paralysis or pain.

A very ingenious contrivance has been recently invented called the telephonic probe, by which the exact location of a bullet in the brain can be determined. It can be passed down the track of the bullet or if that is too devious, it can be gently thrust through the pulp of the brain, and when it touches the bullet, that fact is instantly telephoned to the waiting ear of the operator. And by touching a spring in the apparatus the bullet is clutched by grappling-hooks concealed in the extremity of the probe, and quickly extracted.

The wonders of brain surgery would already make a large and most interesting volume, which to most people would read like a romance. But with the steady tramp! tramp! tramp! of a veteran army going down to battle, the surgeons of the world are steadily marching on to more splendid and glorious victories than ever Hannibal or Cæsar, Napoleon or Wellington achieved on more gory fields.

Chicago Market Review.

Under date January 26, our Chicago correspondents, Martin, Horn & Young, report receipts of stock as follows for the week: 49 068 cattle, 1,805 calves, 126,396 hogs, 56.401 sheep.

The market this week has not afforded any encouragement to sellers. In fact, with the exception of a little flurry on Monday morning, when good kinds of steers and cow stock were in good demand at some advance over last week's closing prices, the general tone of the trade has been dull and prices gradually weakening. This kind of a market, with receipts running as light as they have been, is not a condition that was reasonable to expect, and has been fully as disappointing to commission men as to the shipper. On account of extreme scarcity of ripe steers, all weights have sold nearly as well as at any time since Christmas, but the bulk of the supply has been of common to medium quality, and prices at which it would sell have been sagging each day and are now 15 to 25 cents lower than last week. After so long a run of light receipts, beef channels must be getting pretty well cleared, and with a continuation of moderate supplies it is reasonable to expect a better market on all kinds of beef cattle. The stocker and feeder market is in bad shape; thin stockers are not wanted at any price. We quote: Good full fed 1,200 to 1.400-pound steers, $4.25 to $5; fair steers, 1,200 to 1.450 pounds, $3 50 to $4.50; feeding steers, 950 to 1,150 pounds, $3.15 to $3.65; stockers, 600 to 800 pounds, $2 to $3; fair to good cows and heifers, $2.40 to $3.35; canners, $1.25 to $2; choice to extra beeves, $5 50 to $5.75.

The supply of hogs this week will fall about 95,000 short of the number arrived last week. Naturally we should have had a strong market, but with Eastern demand very light, provision market demoralized and packers acting bearish, the selling interest has fared poorly. The market opened weak on Monday, has not shown any material strength at any time since, excepting to-day (Saturday), when, with 7.000 receipts, market was quoted a shade higher. The quality coming has been poor, running largely to light-weights, and this has been a bear influence with prices. During the week many droves of packers have been bought on a basis of $4 to $4.20, weighing around 250 pounds. We quote: Good to prime heavy and butcher weights, $4.35 to $4.45; poor to choice mixed, $4 to $4.35; bulk, $4.15 to $4 30; light, $3.85 to $4.15; bulk of fair to good bacon hogs, $4 to $4.15.

The supply of sheep this week was not as heavy as that of last. The demand has been good and the general tendency of prices has been to strength. The outlook for the sheep trade seems to be more favorable than for some time past. From all reports the number of fed is considerably less than usual at this season of the year and export trade is good. We quote: Prime heavy native wethers around $4; good to choice mixed ewes and wethers, $3.65 to $3.85; medium to good sheep, $2.85 to $3.50; culls, $1.50 to $2.50; choice lambs, $4.40 to $4.65; medium to good $3.85 to $4.35; common, $3 to $3.75.

An improved feeling in all quarters was noticeable at the opening of the Saturday markets on 'change. Grain and products started at a fair advance over night. Strong and higher cables helped the grain and very light hogs and natural reaction helped the others. Wheat sold 54¼c on the early bulge, but went back to low point 53⅛c, May contracts. Corn gained ⅜c at 45⅞c but quickly dropped back to 45½c. Oats did the same thing. Pork was up 12½c at first at $10.80, but went off to $10.60; lard and ribs acting the same. Receipts for the day were: Wheat 43 cars, corn 168. oats 107. Closing quotations: May wheat 53c, compared with 53¾c seller last night and 57¾c a week ago; prices away below all records. Corn, May sold 45⅞c on the opening bulge, weakened with wheat at 45⅜c to 45⅛c, and held 45⅛ to 45⅝c, closing ⅛c lower at 45⅜c for May. May oats opened 29⅞c, broke to 29½c and recovered to 29⅝c, closing 29⅛. May pork closed $10 65. May lard closing $6.72½. May ribs $5.55.

Horse Markets Reviewed.

KANSAS CITY.

W. S. Tough & Son, Managers of the Kansas City Stock Yards Co.'s horse and mule department, report the market during the past week as having had a decided setback. Prices on all classes were from $10 to $15 lower. There was a little more than the ordinary run of horses, with quite a number of buyers, but buyers were very slow in taking hold. They say it is impossible for them to ship on the present basis of values and get their money back. There are buyers here for nice actors and coach horses. This class has not suffered any. There was quite a number of Southern dealers, but as cotton and other products of the South are so low they are compelled to buy the cheapest animal that is offered. From present indications next week will be a little better, as advices show that there will be quite a number of buyers from all sections on the market.

The mule market took somewhat of a tumble. Prices were from $5 to $7.50 lower. Quite a number changing hands, but there is very little encouragement for feeders to hold for a raise in prices. The demand is mostly for fourteen and one-half to fifteen-hand mules with quality and finish. Rough, thin and old mules are slow sale at any price. There was no stock left over in first hands.

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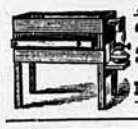
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Arkansas City, Kas.

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812 Kansas Ave., Topeka, Kas.
Send for Catalogue if interested.

The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the KANSAS FARMER. Give age, color and sex of animal, stating symptoms accurately, of how long standing, and what treatment, if any, has been resorted to. All replies through this column are free. Sometimes parties write us requesting a reply by mail, and then it ceases to be a public benefit. Such requests must be accompanied by a fee of one dollar. In order to receive a prompt reply, all letters for this department should be addressed direct to our Veterinary Editor, DR. S. C. ORR, Manhattan, Kas.

CURE FOR GARGET.—J. L. F., of Thayer, Kas., says that a piece of poke root the size of the little finger, cut up in his cow's feed for three days, cured her of garget after the veterinarian's remedy had failed.

Poke root (*Phytolacca decandra*) is an old remedy for garget and sometimes seems to have a good effect, but it is no nearer a "sure cure" than many other remedies. Where a case is obstinate and several different remedies are given, one after another, the last one given generally gets the credit for either curing or killing.

STIFLED.—We have a four-year-old filly that, about two weeks ago, came out of the stable with one of her hind legs protruding backward as far as it could get. After moving a few steps it suddenly seemed as well as ever. The same thing has happened twice since. There seems to be something wrong with her stifle. N. S.

Walnut, Kas.

Answer.—There is a dislocation of the patella, or cap of the stifle, which returns suddenly to its place, then the animal goes all right. Mix together equal parts of sweet oil, turpentine and aqua ammonia and apply to the inner part of the stifle joint twice a day, rubbing it in well with the hand, till the skin becomes tender, then let it alone for a week, when the liniment should be repeated. The mare should be turned out every day for exercise, but should not be worked until the ligaments of the joint have had time to grow strong.

SICK STEER.—I have a sick steer, 2 years old. I first noticed him standing around, and not eating, about two weeks ago. I was feeding shocked corn with a little prairie hay. I have offered him bran, oats, corn and green rye pasture but the only thing he will take is salt and water; he is scouring very badly and getting quite weak. Can you tell me what to do? A. B.

Thurman, Kas.

Answer.—From your description of the case we are inclined to think your steer will be beyond the help of medicine ere you read this, but, if not, give him a quart of raw linseed oil first, then give him two tablespoonfuls of the following powder in feed three times a day: Bicarbonate of soda, powdered charcoal and powdered gentian root, of each equal parts, mixed. Feed him whatever he will eat best.

HORSES DYING—SMUT.—My horses have been running in a stalk field with access to plenty of good wheat straw; were turned out to water at a tank, generally in the evening, but never stabled. Two colts, running with their dams, died and were not missed for several days. They might not have had plenty of water, as the mares were a little wild. Next, a horse, 3 years old, was all right on Tuesday but was found dead on Thursday. On Friday we found a mare, same age, that had gone through the fence and was picking at a shock of fodder. We drove her to the barn and then saw that she was nearly blind. We gave her a dose of salts, then followed that with lard. She was first sleepy, then got wild. Next day we bled her, then she got stupid until next day, when she began to eat a little, but did not have good use of her jaws. We then gave her a dose of raw linseed oil, and from that time on she grew worse, wanted to go all the time, and would sometimes fall down, then we shot her. We have a good many horses and would like to know if we dare to let them run on the stalks half a day at a time. Will smut in stalks poison horses? J. A. C.

Lawndale, Kas.

Answer.—As you have only given the symptoms of the last animal which died we cannot say whether the others died from the same cause or not; but we must say that you are not looking after them very closely when one can be dead several days before it is missed. The last one had some derangement of the digestive organs, caused by poor feed, and it seemed about to recover until you gave it the dose of oil. There was no impropriety in the oil as a medicine, but some of it may have accidentally gone down on the lungs. Corn stalks, such as most of last year's crop, are lacking in nutrition, and, when dry, are indigestible, causing severe gastric derangement and impaction, which sometimes affects the brain, sympathetically, producing delirium. The preventive remedy is more nutritious diet. Give sufficient grain every day to supply the nutrition that the fodder lacks, and see that the animals have a supply of salt, and have fresh water every day. Smut (ergot) of corn, as it is found on the stalks after drying in winter, is generally inert. Its only danger is in its indigestibility.

MARKET REPORTS.

Kansas City Live Stock.

KANSAS CITY, Jan. 28.—Cattle—Receipts since Saturday, 4,143; calves, 99; shipped Saturday, 1,892; calves, 123. The market for steers and cows was active and steady to strong, though it closed weak; Texas cows, feeders, calves and bulls steady; Texas steers opened 10c higher and closed dull and weak. The following are representative sales:

DRESSED BEEF AND EXPORT STEERS.

24	1,372	$4.60	17	1,233	$4.60
19	1,374	4.35	21	1,311	4.25
13	1,341	4.25	31	1,214	4.20
11	1,286	4.20	2	1,360	4.15
23	1,184	4.15	103	1,020	4.10
82	1,268	3.95	2	1,385	4.00

COWS AND HEIFERS.

86 Angus	1,053	$3.45	1	1,520	$3.45
20	1,065	3.30	2	1,435	3.30
1	9 0	3.25	1	1,160	3.00
30	901	2.95	2	945	2.85
29	882	2.85	1	1,260	2.80
1	1,190	2.80	4	1,287	2.65
2	990	2.60	5	792	2.50
2	395	2.50	16	910	2.45
7	841	2.35	7	1,005	2.25
4	950	2.25	3	1,035	2.25

MEAL FED TEXAS STEERS.

100	1,276	$3.95	52	1,132	3.80
43	1,147	3.80	41	1,166	3.80
100	1,089	3.65	96	1,089	3.65
51	1,060	3.45	70	977	3.30

TEXAS AND INDIAN COWS.

60 meal	783	$2.65	28 meal	743	$2.65
27 gr	866	2.10	26 gr	739	2.10
32 gr	760	2.17½	89 gr	403	2.10
29 gr	829	2.17½			

STOCKERS AND FEEDERS.

29	874	$3.25	6	903	$3.00
10	574	2.70	4	817	2.50
2	595	2.15	1	600	2.25

Hogs—Receipts since Saturday, 5,280; shipped Saturday, 771. The market opened about 5c higher and lost the gain. The top was $4.20 and the bulk of sales were $3.90@4.05, against $4.25 for top and $3.85@4.05 for bulk Saturday. The following are representative sales:

56	306	$4.20	38	317	$4.15	66	319	$4.12½
80	267	4.12½	25	285	4.10	71	281	4.10
50	254	4.10	44	307	4.05	62	250	4.05
76	252	4.05	4	400	4.05	60	227	4.05
68	214	4.05	71	255	4.05	8	260	4.05
29	215	4.00	79	220	4.00	71	240	4.00
40	237	3.95	78	210	3.95	25	200	3.92½
87	206	3.90	58	206	3.90	9	240	3.90
70	216	3.90	28	287	3.85	5	230	3.82½
37	209	3.80	82	178	3.80	84	192	3.75
19	125	3.50	10	142	3.40	12	117	3.40
7	120	3.35	1	150	3.30			

Sheep—Receipts since Saturday, 2,456; shipped Saturday, 250. The demand was good. Many were western. There was one lot of very good cotton seed meal fed Texas muttons. The demand was strong; the market active and 10@20c higher. The following are representative sales:

150 mut	140	$3.85	8 mut	79	$3.50
50 lambs	67	3.50	50 lambs	94	3.80

Chicago Grain and Provisions.

Jan. 28.	Opened	High'st	Low'st	Closing
Wh't—Jan	50	50½	50	50½
May	53⅛	53⅝	52⅝	53½
July	54	54⅝	53⅝	54⅝
Corn—Jan	43	43	41⅞	41⅞
May	45½	45⅝	44¼	44⅝
July	45¼	45¾	44¼	44⅝
Oats—Jan	28¼	28¼	28¼	28¼
May	29⅝	29¾	29	29¼
July	29⅝	29⅝	29	29¼
Pork—Jan	10 32½	10 32½	10 32½	10 32½
May	10 75	10 75	10 57½	10 57½
Lard—Jan	6 57½	6 57½	6 52½	6 52½
May	6 75	6 75	6 70	6 70
Ribs—Jan	5 35	5 35	5 35	5 35
May	5 57½	5 60	5 52½	5 52½

Chicago Live Stock.

CHICAGO, Jan. 28.—Hogs—Receipts, 23,000; official Saturday, 7,078; shipments, 3,198; market firm and 5@10c higher; rather slow. Sales ranged at $3.95@4.35 for light; $4.05@4.50 for mixed; $4.10@4.60 for heavy; $4.10@4.25 for rough.

Cattle—Receipts, 11,000; official Saturday, 332; shipments Saturday, 1,172; market 5@10c higher.

Sheep—Receipts, 12,000; official Saturday, 1,589; shipments Saturday, 1,702; market generally 5@10c higher.

Kansas City Grain.

KANSAS CITY, Jan. 28.—Wheat by sample was held to-day at Saturday's prices, but there was little demand for it and bids as a rule were a little lower than on Saturday.

Receipts of wheat to-day, 12 cars; a year ago, 63 cars.

Car lots by sample on track, Kansas City, at the close were quoted nominally as follows: No. 2 hard, 51@52c; No. 3 hard, 50c; No. 4 hard, 49c; rejected, 48@49c; No. 2 red, 50@51c; No. 3 red, 49@50c; No. 4 red, 48c; rejected, 47c.

Corn sold slowly and in some cases was a little lower than on Saturday. Few samples were on sale.

Receipts of corn to-day, 7 cars; a year ago, 72 cars.

Sales by sample on track, Kansas City: No. 2 mixed corn, 3 cars 40½c, 3 cars 40c; No. 3 mixed, nominally, 40c; No. 4 mixed, nominally, 39c; No. 2 white, 5 cars 41c; No. 3 white, nominally, 40c.

Oats were firmly held, but there was not much demand for them.

Receipts of oats to-day, 6 cars; a year ago, 8 cars.

Sales by sample on track, Kansas City: No. 2 mixed oats, 2 cars 30c, 1 car 29¾c, 1 car 29½c; No. 3, nominally, 29c; No. 4, nominally, 28c; No. 2 white oats, nominally, 31@32c; No. 3 white, nominally, 31c.

Hay—Receipts, 33 cars; market dull, weak. Timothy, fancy, $10.00; choice, $9.00@9.50; No. 1, $8.00@8.50; clover mixed, $5.50@8.00; low grade, $3.00@7.50; fancy prairie, $8.00@8.50; choice, $7.00@7.50; No. 1, $6.00@6.50; No. 2, $4.50@5.00; packing hay, $3.50@4.50.

Kansas City Produce.

KANSAS CITY, Jan. 28.—Eggs—Receipts continue light; the market is again higher; strictly fresh, 17c.

Poultry—Receipts light; the market is active and firm: hens, 5½c; mixed springs, 6c; small, 6½c; roosters, 15c; dressed chickens, 6@7c. Turkeys, scarce, firm: old gobblers, 4½c; young, 5c; mixed, 5@5½c; hens, 5½@6c; dressed turkeys, 5½@7c. Ducks, firm, 6@7c. Geese, plentiful, dull, 5½c. Pigeons, dull, 75c per doz.

Butter—Receipts continue large and the market is weak; extra fancy separator, 20@21c; fancy, 18@19c; fair, 17c; dairy, fancy, 15c; fair, 12@13c; fancy roll, 12@13c; fair roll, 10@11c; packing, dull, 6@8c; old, 5c. Much good roll can only be sold to packers.

Fruit—Apples, scarce; the market is quiet and firm; standard packed ranged from $3.00@3.10 per bbl.; others, $2.50@3.00; fancy stand, $3.50@4.00; Jennetings, $2.00@2.50 per bbl. Lemons, weak; $3.00@4.25. Oranges, active, firm; Mexican, $2.50@2.75; Californias, seedlings, $2.60@2.75; navals, $2.90@3.00; Florida, $3.00; frosted, 50c@$2.00; tangarines, $2.25@2.50. Cranberries, firm; Cape Cod, $10.00@11.00 per bbl.; Jersey, $10.00@10.50.

Vegetables—Potatoes, receipts light; market quiet and barely steady; ordinary kinds, common, 45@55c per bu.; sweet potatoes, red, 15@20c; yellow, 25@30c; Utah and Colorado, choice, 55@60c per bu. Cabbage, plentiful, market firm; $1.25 per 100; Michigan, $25.00@30.00 per ton. Cauliflower, small, 45@50c; large, 75c per doz.

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

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WANTED—Millet, cane, Kaffir and Jerusalem corn. Send samples. Kansas City Grain and Seed Co.

IRRIGATION PUMPS.—For prices of irrigation pumps used by the editor of KANSAS FARMER write to Prescott & Co., Topeka, Kas.

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FARM LOANS—I have arrangements to negotiate loans with funds of a life company at a low rate of interest on long time. Correspondence solicited at 110 West Sixth Ave., Topeka, Kas. Milo Norton, Agent.

WANTED—Car-load of 1894 alfalfa, German millet, cane and Evergreen broomcorn seed. Address Geo. A. Arnold, Box 146, Kearney, Neb.

FOR ALFALFA SEED, DIRECT FROM THE grower, address E. G. Jones, Syracuse, Kas.

DETECTIVES—We want a reliable man in every locality to act as private detective under instructions. Experience not necessary. Send for particulars. American Detective Agency, Indianapolis, Ind.

CLOSING OUT—Entire stock of Hamburgs, incubators, brooders, bone-mill, clover-cutter, etc., on account of death of wife. J. P. Lucas, Topeka, Kas.

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TWO-CENT COLUMN—CONTINUED.

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For further particulars see card in
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MAMMOTH BRONZE TURKEYS—Large and fine. Toms, $2; hens, $1.50. J. R. Killough, Richmond, Kas.

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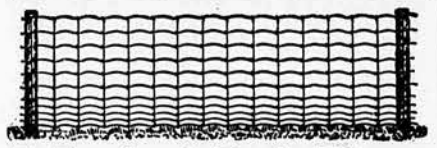

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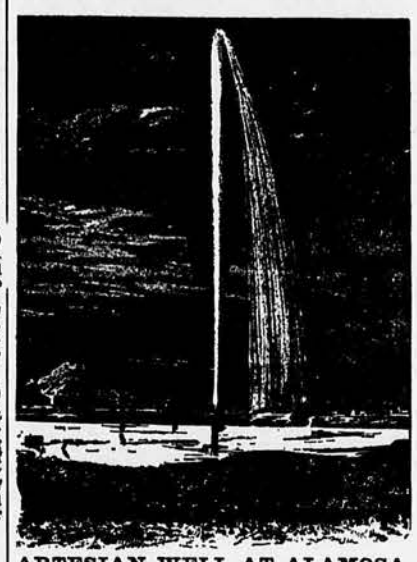

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CERTAINTY OF CROPS.
Large Yields of Wheat, Oats, Barley, Potatoes, Alfalfa, Peas, Etc.
ENORMOUS YIELDS OF VEGETABLES!
Good Home Markets, Owing to the Nearness to the Mining Camps.
ARTESIAN WATER EASILY OBTAINED.
For further description and prices of land address JOHN RICHEY, McPherson, Kas., SIMON MOTZ, Hays City, Kas., or S. M. SCOTT, Emporia, Kas., Agents for Colorado Land and Emigration Company.
These lands are located on the D. & R. G. railroad.
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—as well as fertile ground
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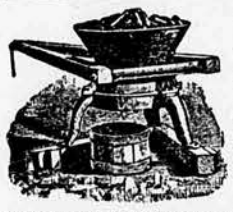

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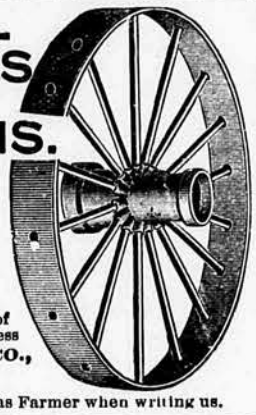

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FEEDING WHEAT INSTEAD OF CORN?
EXPECT TO MAKE A HATFUL OF MONEY?

We hope you will, and to help you do it we offer a friendly word of warning. Those who know, say wheat fed to farm animals acts as an astringent, and causes constipation; therefore something else must be combined with the wheat to overcome this difficulty. You cannot put on flesh and fat unless the digestive organs are in a healthy condition, so that the food can be easily and properly assimilated. This can be secured by feeding an article that is not only a natural food but also a regulator of the system. If you will feed OLD PROCESS GROUND LINSEED CAKE (OIL MEAL) you will find that your animals will eat more wheat, grow faster, take on flesh and fat faster, keep in good health, and put money in your pocket. Hog feeders particularly should give heed to these suggestions.

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The Kansas City Stock Yards

are the most complete and commodious in the West,

and second largest in the world! The entire railroad system of the West and Southwest centering at Kansas City has direct rail connection with these yards, with ample facilities for receiving and reshipping stock.

	Cattle and calves.	Hogs.	Sheep.	Horses and mules.	Cars.
Official Receipts, 1894	1,772,545	2,547,077	589,555	44,237	107,494
Slaughtered in Kansas City	959,646	2,050,784	387,570		
Sold to feeders	308,181	11,496	69,816		
Sold to shippers	409,965	468,616	45,730		
Total sold in Kansas City, 1894	1,677,792	2,530,896	503,116	28,903	

CHARGES: YARDAGE, Cattle, 25 cents per head; Hogs, 8 cents per head; Sheep, 5 cents per head. HAY, $1 per 100 lbs.; BRAN, $1 per 100 lbs.; CORN, $1 per bushel.

NO YARDAGE CHARGED UNLESS THE STOCK IS SOLD OR WEIGHED.

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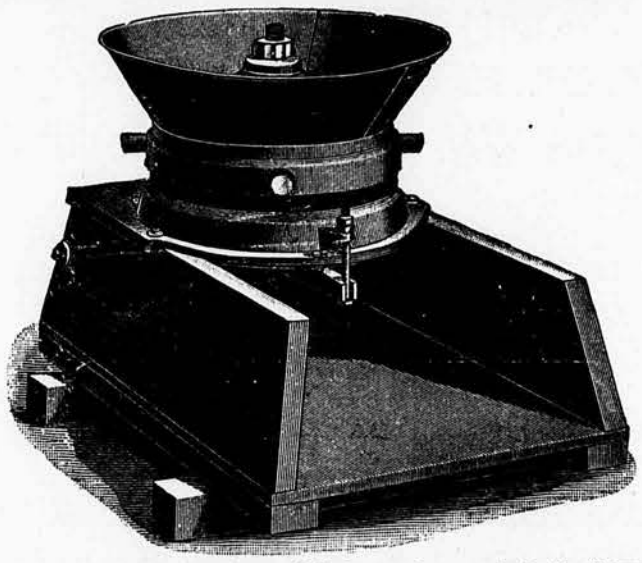
The "Eclipse" Sweep Feed Mill.

FURNISHED COMPLETE WITH SWEEP.



This mill grinds ear corn, new, dry or damp; shelled corn, alone or mixed with other grain for chop feed, wheat, oats, etc., and is so arranged that the interior parts of the mill revolve with the revolutions of the team and the power is applied directly to the grinding parts, thereby making the draft very light. The finest mill for the money on the market.

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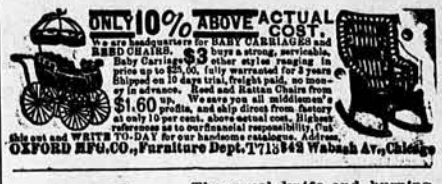

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Commencing Sunday, November 18, 1894, the MEMPHIS ROUTE, Kansas City, Fort Scott & Memphis Railroad, will inaugurate a through sleeping car line, Kansas City to Jacksonville, via Memphis, Birmingham, Atlanta and Macon, arriving at Jacksonville at 9:45 a. m., making close connections there for all points in South Florida. The cars in this line will be strictly first-class in all their appointments and will run every day in the week, leaving Kansas City at 10:30 a. m.

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LOW RATES TO ALL POINTS.

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BREEDERS' DIRECTORY.

(Continued from page 1.)

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25 highly-bred brood sows of best strains, headed by **Black Dandy** 8809 S., **Black Stop** 10550 S. and **Joker Wilkes** 12682 S. About **100** selected individuals sold this season. **25** youngsters coming on now for choice. Write or come and visit my herd.

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IRWIN & DUNCAN, Wichita, - Kansas, Sedgwick Co.

Breed and have for sale Bates and Bates-topped **Short-horns**—Waterloo, Kirklevington and other fashionable families. Also breed and have for sale the best thoroughbred **Poland-Chinas** that can be obtained. Write or come and see.

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200 head of Poland-Chinas, headed by LONGFELLOW 29985 O., who has the best Columbian record of any boar west of the Mississippi. **50** head of Poland-China gilts sired by Longfellow, bred to the following noted boars: J. H. Sanders, Jr., by J. H. Sanders 27219 O., dam Graceful F. 63408 O.; Hadley, Jr., sired by Hadley 27505 O., dam Samboline 8th 59952 O.; Sir Charles Corwin, by Latest Fashion 27396 O., dam Josie Wilkes 1st 69198 O. Combining the blood of Black U. S., Wilkes and Tecumseh, combining the leading and show combination and fashionable blood now sought for by breeders.

100 Berkshires, headed by the well-known boar, MAJOR LEE 31139. We have twenty-five gilts, bred from him, to General Lee, of Gentry breeding, and also to Royal Peerless the Great.

200 head of fashionably-bred Herefords.

Why not come to the fountain-head for a brood sow? Call on or address

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For fall fattening. Also your Nannies, Ewes and Gip Dogs, with **Howsley's Spaying Mixture.** Easily used, quick, absolutely certain and safe. Price, $3 per bottle; $2 half bottle. One bottle spays one hundred head. Write for testimonials and particulars.

THE HOWSLEY SPAYING CO., Kansas City, Mo., or New Orleans, La.

THE STRAY LIST.

FOR WEEK ENDING JAN. 16, 1895.

Bourbon county—G. H. Requa, clerk.

TWO HEIFERS AND BULL CALF—Taken up by J. J. Bollinger, in Scott tp., one red yearling heifer, one yellow brindled heifer, 1 year old, marked with cleft in right ear, and one black brindled bull calf; total value, $12.50.

FOR WEEK ENDING JAN. 23, 1895.

Labette county—J. F. Thompson, clerk.

MULE—Taken up by A. D. Sanders, in Hackberry tp., December 13, 1894, one mule, fourteen hands high, brown, no marks; valued at $20.

Bourbon county—G. H. Requa, clerk.

HORSE, MARE AND COLT—Taken up by A. C. Fulton, Scott tp., January 11, 1895, one dapple iron-gray horse, sixteen hands high, about 6 years old; valued at $20. One dark brown mare, fifteen hands high, 7 or 8 years old, white hind feet; valued at $20. One sucking colt, nearly same color as above-described mare; valued at $3.

FOR WEEK ENDING JAN. 30, 1895.

Geary county—P. V. Trovinger, clerk.

COW AND HEIFER—Taken up by D. R. Grigg, in Smoky Hill tp., October 19, 1894, one red dehorned cow, about 2 years old, valued at $14; one red dehorned heifer, 1 year old, valued at $10.

Greenwood county—J. F. Hoffman, clerk.

STEER—Taken up by G. W. Holman, in Janesville tp., P. O. Hamilton, January 7, 1895, one black yearling steer, some white, very small crop off right ear; valued at $12.

Morris county—June Baxter, Jr., clerk.

HORSE—Taken up by Sam Anderson, in Valley tp., P. O. Dunlap, one bay horse, 10 years old, tip of right ear off, white spot in forehead; valued at $8.

Labette county—J. F. Thompson, clerk.

TWO MARES—Taken up by W. P. Fagan, in Richland tp., September 11, 1894, one roan mare, 6 years old, fourteen hands high, valued at $25; one bald-faced bay mare, 5 years old, fifteen and one-half hands high, valued at $25.

Montgomery county—John W. Glass, clerk.

HORSE AND TWO MARES—Taken up by P. M. Lee, in Cherokee tp., December 17, 1894, one light brown horse, 6 years old, three white feet, star in forehead; one brown mare, 8 or 9 years old; one bay mare, 3 years old.

5—Choice Cruickshank Bulls—5

We have or sale five choice Cruickshank bulls, 10 to 18 months old, suitable to use in any Short-horn herd. Prices low, quality good. Inquire of

W. A. HARRIS & SON, Linwood, Kas.

Irrigated Lands for Lease!

Several hundred acres of land, mostly among young orchards, located in Greenwood county, Kansas, for rent for the current year, with a full supply of water for irrigation, to be cultivated in garden crops such as will bear railroad transportation to market. These lands will be leased in such quantities as parties can properly cultivate, large or small. A portion is admirably adapted for celery growing, and all have been in cultivation and are in good shape. For full information apply to

S. A. Martin & Co., Agts., or Geo. M. Munger, Owner, } Eureka, Kas.

Farm for Sale---160 Acres!

FIRST-CLASS FARM AT A BARGAIN.

All good buildings. House with six rooms, with large cellar. Two barns, one of them entirely new and cost $1,200. Good bearing orchard of 150 apple trees and other fruit. Out buildings all in first-class condition. Two good, never-failing wells. One new windmill. Good fences of hedge, stone and wire on all sides of the farm, and also cross fences. Good shelter for stock on creek bottom.

I will sell this farm at less than cost. Write me for further particulars, or, better still, come and see the farm, which is near Carbondale and within a half mile of school house.

LEONARD HEISEL, Box 11, Carbondale, Kas.

FOR SALE!

FARMS WAY DOWN.

I have excellent farms in Rooks county, Kansas, for sale, way down below their value. Will sell on contract for one-tenth down and one-tenth yearly, or will give deed if one-fourth or more is paid down. Write for particulars and state how much you can pay down and how you want the balance of payments. I also have several unimproved farms in central Nebraska and one large body of over 7,000 acres. I have a finely improved ranch of 1,440 acres in Rooks county, Kas. Any or all of above will be sold very low, or might exchange part or all of it for good improved property in Chicago or vicinity. Address

B. J. KENDALL, 610 Masonic Temple, CHICAGO, ILL.

WANTED MILLET AND CANE **SEEDS** J. G. Peppard, 1400-2 Union Avenue, KANSAS CITY, MO.

KANSAS CITY GRAIN AND SEED CO.

offer large stocks Seed Corn, Cane Seed, Kaffir Corn, Millet, Spring Barley, Flax Seed, Seed Oats, Linseed Meal and Cake. Our Iowa Yellow Eureka, Iowa White Eureka, Illinois Imp. Golden Beauty, Iowa Early Dent, Ninety-day Corn, Imp. Ch. White Pearl, St. Charles White, selected, tipped, sacked, 10 oz., 3 bu. burlap sacks, even weight, $3 per sack. Special prices car lots. Special prices clubs. Finest seed corn offered; solid, full of oil and vitality; send 15c each for sample ears, postage prepaid, deducted from first order. Address Kansas City Grain and Seed Co., Kansas City, Mo., Buyers and Sellers of Grain and Seeds. *References:* This paper; Midland National Bank, Kansas City.

Combination Public Sale of Registered Poland-China Swine,

Wednesday, February 13, 1895, Horton, (Brown Co.) Kas.,

When we, the undersigned, will offer at Sprague's livery barn, in the city of Horton, at 1 p. m. sharp, a draft of about seventy-five head, selected from our three several herds aggregating over 300 head of pedigreed animals. Among the offerings will be eighteen tried brood sows, from 1 to 4 years old, most of them bred to the grandest individual and highest-priced boar in Kansas, Admiral Chip 7919; also forty-seven gilts and five summer boars. Two of the boars were sired by Admiral Chip; the one, Model Chip, is of April, 1894, farrow, and the other of June, 1894, farrow, and both are sure models. The sows and gilts are Tecumseh, Nonesuch, Comet Chip, Admiral Chip, Corwin, Success and others, and are bred to the following boars: Admiral Chip 7919, George Wilkes Jr. 11893, Corbett 11859, Abbottsford 12951, Admiral King 13293, Winterscheidt's Victor 13294 and U. S. Wise 13188. The last named boar is a son of the famous $275 sow, Lizer's Nemo.

Terms: Seven months' time will be given on bankable notes bearing 8 per cent. interest from date; 2 per cent off for cash. Parties from a distance please bring bank reference. Bids sent to COL. JAS. W SPARKS, MARSHALL, MO., will be placed at lowest figures.

Free hotel accommodations at Christ. Miller's for those that purchase. No postponement. Sale under cover. Send for catalogue to

WINTERSCHEIDT BROS., Horton, or M. C. VANSELL, Muscotah, Kas.

N. B.--I will also offer for sale at same time and place two fine Percheron stallions, both recorded in the French and American stud books. Both are colt getters and the sires of many fine colts in northeast Kansas. Terms: One year's time on approved security at 6 per cent.; 4 per cent. off for cash. Pedigrees furnished at time of sale. Will also offer one Hambletonian gelding coming 4 years old and two low-down, blocky geldings coming 5 years old.

COL. JAS. W. SPARKS, Auctioneer. HENRY SCHUETZ, Horton, Kas.

COMBINATION SALE!

Over Eighty Head of Poland-China Brood Sows,

bred to four royally-bred herd boars. Also a few choice SUMMER BOARS AND GILTS. From the herds of D. W. Evans and J. A. Worley. To be held at the farm of D. W. Evans, one-fourth mile west of

Fairview, Kas., Thursday, February 14, 1895.

Sale will be held in warm place, with seating capacity for all. This offering will consist of a few aged sows, the balance yearlings past and gilts that are richly bred in the most fashionable strains of the day, and are bred to the following royally-bred boars: Swift Tecumseh 11929, by the great prize winner, Lee's Tecumseh 11413; Billy Wilkes 9909 by George Wilkes; Anxiety 20251 A., by Tecumseh Butler 17949 A.; and Combination U. S. 13408, by Lord Fauntleroy 11314. Comment on their breeding lines is unnecessary, and they have all proven themselves grand sires in the breeding ring.

Free hotel accommodations at Fairview House. Lunch at noon. Sale at 12 m. sharp.

For further information in regard to the breeding of the herds and terms of sale, write to

D. W. EVANS, Fairview, Kas. or J. A. WORLEY, Sabetha, Kas.

COL. JAS. W. SPARKS, Auctioneer.

CLEARANCE SALE

OF

One Hundred Head of Pedigreed Poland-Chinas,

on Rosedale Stock Farm,

Robinson, Brown County, Kas., Thursday, February 28, 1895,

When I will offer at public auction **100** head, consisting of all ages, a major portion of which are sows bred to the great Onward Wilkes 8981 S., he by George Wilkes, the $75 sire; and the highly-bred boar, Black U. S. Wilkes, he by Guy Wilkes 2d and out of Black U. S. Blaine; also the fine young boar by General Wilkes and out of Agnes. About **80** sows and gilts that have been bred to these boars, about forty of which are 1 year old and over, and the balance of spring and summer 1894 farrow. Among the sows are Missouri Star 6th 18610 S., Queen of Rosedale 18611 S., Lady Gip 18612 S., Equal 18609 S., Black Daisy 26082 S., Kate Miller 26083 S., Sally 26084 S., Dowell's Choice 26085 S., and other good ones. Onward Wilkes 8981 S. will be in the sale. For further particulars write for catalogue. Sale will be under cover. The usual sale's-day lunch at 11 o'clock a. m.

JOHN A. DOWELL,

COL. F. M. WOODS, Auctioneer. Robinson, Brown Co., Kas.

WILKES AND FREE TRADE

Poland-Chinas for sale

AT PUBLIC AUCTION!

Nevada, Mo., Wednesday, February 27, 1895.

Sixty head of pure-bred boars and gilts, of spring, summer and fall farrow. Being short of pasture room I am obliged to reduce my breeding stock, so two of my best herd boars, Gen Wilkes 105 3 S. and George Free Trade 21053 A., and ten grand brood sows, go in this sale. All sows old enough to breed have been or will be bred for spring litters.

Everything offered goes, positively, without reserve.

Sale will take place at farm, two miles west of depot. Free transportation from depot to farm.

Terms: Sums of $20 or over, eight months' credit on bankable note at 8 per cent. interest, or 2 per cent. off for cash. Less than $20, cash.

Dinner at 12 o'clock. Sale begins at half past 12.

Send for catalogue. L. N. KENNEDY, Nevada, Mo.

GRAND PUBLIC SALE OF STOCK

at my farm, three and one-half miles northwest of

Carbondale, Friday, February 15, at 10 a. m.

I will sell at public auction, 40 head of imported horses and high-grade mares and colts. The horses are

Clydesdales, Belgians and German Coaches

These animals are all first-class and were prize-winners at the Kansas State fair. Horse breeders who desire to purchase good stock will surely get bargains at this sale. **All stock is recorded and pedigrees will be furnished.** These are no old, worn-out horses, but all are first-class and in prime condition.

Carbondale is fifteen miles south of Topeka, on the main line of the Santa Fe. Trains from the east arrive at 8 a. m. and 11:12 a. m. and about midnight; trains from the west arrive at 1:17 p. m., 8 p. m. and at 2:50 a. m. None of the stallions will be sold until after 2 o'clock, to enable purchasers who come from a distance on train to be present.

Terms of Sale: Twelve months without interest, with approved security. If not paid when due, interest at 10 per cent. from date of sale. Bidders from a distance are requested to furnish bank references.

J. W. SPARKS, Auctioneer. LEONARD HEISEL, Prop.

Don't forget the date--Friday, February 15, 1895.

Fourth Grand Semi-Annual Sale of Pedigreed Poland-China Swine,

At Marion, Marion County, Kansas, Thursday, February 7, 1895,

When a reduction draft of seventy-two head will be offered, without reserve or by-bid, to the highest bidder, consisting of about 30 bred sows and pigs of both sexes of summer and fall of 1894 farrow. The sows offered are by Sensation 25897, by One Price; El Capitan 10606, by Chief Tecumseh 2d; Young Model, by Admiral Chip; Longfellow 12173 and other high-class sires. The sow offerings have been bred to Wren's Medium 12587, by Happy Medium 8397 and to Corwin White Face 9924, a half brother to J. H. Sanders, that won first and sweepstakes at World's Fair. A major portion of the youngsters are by the line-bred Tecumseh boar, Royal Short Stop 10887, and by Kansas King 8911. Send for catalogue giving full and complete description. Terms: Nine months' credit with 10 per cent. from date; 5 per cent. off for cash.

Any buyer of $200 worth will be allowed a rebate of transportation round trip; for $100 worth transportation one way will be allowed.

COL. S. A. SAWYER, Auctioneer. W. H. WREN, Proprietor, Marion, Kas.