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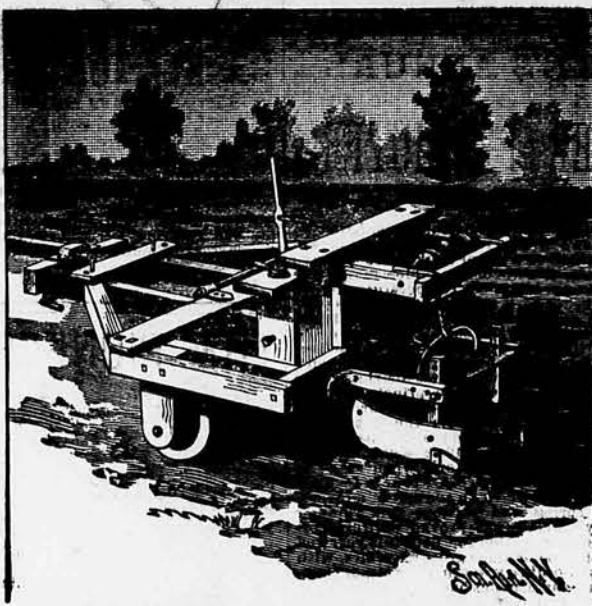
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The Western School Journal,
TOPEKA, KANSAS.

OFFICE STATE SUPT. OF PUBLIC INSTRUCTION,
TOPEKA, KAS., January 16, 1889.

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Very respectfully yours, **GEO. W. WINANS,**
State Supt. Public Instruction.

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TABLE OF CONTENTS.

PAGE 3—AGRICULTURAL MATTERS.—Product and Prices of Wheat. Two Kinds of Farming. The New Flax Machine.
 PAGE 4—THE STOCK INTEREST.—The Production of Lean Meat in Mature Animals. Feeding Pigs—108 Pounds at 100 Days of Age.
 PAGE 5—IN THE DAIRY.—The Constitution of Milk, and Some of the Conditions Which Affect the Separation of Cream (concluded).
 PAGE 6—CORRESPONDENCE.—The Money Question—No. 1. County Agricultural Societies—A Complaint. From Sherman County.
 PAGE 7—Farmers' Alliance Notes. Patents. Gossip About Stock. Publishers' Paragraphs. Topeka Weather Report.
 PAGE 8—THE HOME CIRCLE.—God Within the Shadow. poem. The Women of Burmah. Teach Your Boys.
 PAGE 9—THE YOUNG FOLKS.—A Sweet Home. poem. State Nomenclature. The Swift Flight of Wild Ducks. Habits of Ostriches.
 PAGE 10—EDITORIAL.—Let Air Into the Soil. Potatoes as a Field Crop.
 PAGE 11—EDITORIAL.—Raising and Storing Water. Value of a Small Farm. Work in the Apple Orchard.
 PAGE 12—HORTICULTURE.—Hints on Transplanting. Senator Ingalls on Grass. Hints to Tree-Planters. The Culture of Petunias.
 PAGE 13—THE POULTRY YARD.—Poultry a Special Product. Packing Eggs to Ship for Hatching.
 PAGE 14—Book Notices. Weather-Crop Bulletin. Inquiries Answered. Meats for the Farmer's Family. New Advertisements.
 PAGE 15—THE VETERINARIAN.—Reclaiming the Arid Region. The Markets.
 PAGE 16—THE BEE.—Bees Gathering Honey and Pollen.

Agricultural Matters.

PRODUCT AND PRICES OF WHEAT.

In view of expected good crops in Kansas this year the following figures will be interesting to our readers. They are taken from a report submitted some months ago by Statistician Dodge, of the Department of Agriculture at Washington:

Prof. J. R. Dodge sends us the following: Country prices of wheat in the earlier days of the republic, in years of abundance were very low. Before the era of railroads a local surplus was comparatively unsalable, and therefore held at very low rates. In the memory of men of middle age, 30 to 40 cents per bushel, in localities having a surplus, were common prices. At the sea ports, and in all the cities of the coast region, prices were higher by reason of cost of transportation. Hence comparative export prices of earlier and recent years fail to give an accurate idea of average farm prices, and utterly fail to show the cheapness of interior wheat in primitive days. The cost of shipment, as is well known, has been greatly reduced within twenty years, with the effect of increasing prices relatively in the West, reducing the difference between farm and seaboard values. This is shown even by a comparison of export value with December prices, general and local, in years separated by scarcely more than a decade of time, as follows:

	1875.	1887.	Reduction.
Average export value	\$1.124	\$.89	\$.234
Average farm value, United States.....	1.00	.681	.319
No. 2, spring, Chicago. 99@1.04	75% 78%	.25	
Average farm value, New York.....	1.31	.82	.49
Average farm value, Ohio.....	1.09	.75	.34
Average farm value, Illinois.....	.91	.70	.21
Average farm value, Nebraska.....	.64	.53	.11

The reduction in Nebraska farm prices in twelve years, from 64 to 53 cents, is, therefore, 12 cents less than the reduction in seaboard prices, from \$1.124 to 89 cents. There has been a great leveling up of the Western values, which has made it possible to export wheat at the low prices rendered necessary by foreign competition. The difference is, of course, the result of cheaper transportation.

The reduction in the average national farm value in twelve years shows the real average decline, as it represents the whole country, the South and West, as

well as New York city, Chicago, and the Northwest, the centers of commercial wheat. In this connection the great reduction in New York State is noticeable, the average farm price in 1875 being higher than the seaboard price, from local scarcity and necessity of shipment from Buffalo or New York for country distribution, which is now less expensive.

So much is necessary before giving the average export price for a long period, to avoid the error of assuming that these prices show absolutely the average farm prices. In the following table, which gives these seaboard values of all exports for seventy years, and we can see the farm values plus transportation and commissions to shipping ports. The average for 1885 was the lowest in forty years, a period covering more than 90 per cent. of all the national exports of wheat—a period in which 2,458,485,199 bushels (to June 30, 1888), have been exported. The lowest export rate since the war with Great Britain was 67 cents in 1827. From 1820 to 1822, inclusive, the average was lower than in 1885. The interior prices were scarcely half of the export values in these earlier periods:

EXPORT PRICE OF WHEAT PER BUSHEL FROM 1818 TO 1887.

Year.	Price.	Year.	Price.	Year.	Price.	Year.	Price.	Year.	Price.
1818	\$2.00	1832	\$1.06	1846	\$1.04	1860	\$.91	1874	\$1.438
1819	1.25	1833	1.07	1847	1.27	1861	1.226	1875	1.124
1820	.75	1834	1.07	1848	1.14	1862	1.144	1876	1.242
1821	.81	1835	1.06	1849	1.14	1863	1.237	1877	1.169
1822	.70	1836	1.07	1850	1.00	1864	1.237	1878	1.338
1823	1.32	1837	1.06	1851	1.12	1865	1.406	1879	1.088
1824	1.02	1838	1.06	1852	1.12	1866	1.273	1880	1.243
1825	1.03	1839	1.06	1853	1.12	1867	1.273	1881	1.113
1826	.86	1840	1.06	1854	1.12	1868	1.273	1882	1.127
1827	.67	1841	1.06	1855	1.12	1869	1.273	1883	1.066
1828	.86	1842	1.06	1856	1.12	1870	1.273	1884	1.066
1829	1.06	1843	1.06	1857	1.12	1871	1.273	1885	.687
1830	1.06	1844	1.06	1858	1.12	1872	1.273	1886	.681
1831	1.00	1845	1.06	1859	1.12	1873	1.273	1887	.681

The decline in average farm value has been very great since 1881, as follows, the average being that of all the States and Territories on the 1st of December of each year:

Years.	Prices.
1881.....	\$1.193
1882.....	.882
1883.....	.91
1884.....	.645
1885.....	.771
1886.....	.687
1887.....	.681

Thus a decline of 46 per cent., from \$1.193 to .645, occurred in three years, from the high values of a year of great scarcity; i. e., a year in which the product was less than 100,000,000 bushels in excess of the home consumption. Comparatively good crops throughout the world have aided in this reduction, which has remained for three years nearly on the same level.

In connection with these home prices it is desirable to consider average prices of wheat in primary markets of some of the principal countries of Europe. The point which attracts instant attention is the recent decline in prices, which has been quite remarkable, though not uniform in all countries. It has been found practicable to make this comparison only with a few countries which keep records of prices of home-grown wheat, as follows:

YEAR.	Great Britain.	France.	Germany.	Austria.	United States.
1881.....	\$1.38	\$1.52	\$1.43	\$1.24	\$1.193
1882.....	1.37	1.46	1.32	1.01	.882
1883.....	1.26	1.30	1.21	1.06	.910
1884.....	1.08	1.21	1.05	.98	.645
1885.....	1.00	1.14	1.04	.82	.771
1886.....	.94	1.15	.98	.84	.687
1887.....	.99	.....	1.07	.....	.681

Prices are thus lowest in the United States in 1881, and in every year since, and highest in France each year. The reason for the low prices of the United States is found in the surplus of 11,000,000 acres grown for foreign consumption. The low prices are made by the grain-growers themselves. Austria has also a small surplus, and relatively low prices. Great Britain stands next in the order of price; a great demand tends to higher prices, while extraordinary facilities for collecting grain from all the granaries of the world, without customs duty, give a medium position to the price of wheat. Germany and France represent high prices, because neither has a surplus, and neither has usually a large deficit, while in both home prices are sustained by customs duties.

Two Kinds of Farming.

Every once in a while I hear that "the farms of the United States don't pay 8 per cent. on the capital invested in them." They don't, eh? And yet the farmers go right on raising and educating large families, and about three-fourths of the useful and honorable places in the land are filled by them. The percentage of business failures is less in this than in any other business engaged in which is begun with as little capital, for not far from nine-tenths of the successful farmers of to-day began life with only their labor to back them. I do not say that all farming is profitable, for there is such waste and such absence of business management on many farms that profit is impossible. In almost any other business a few years of such carelessness would land the man in the poor-house. On the other hand, there are farmers who make money right along through good and poor years, because they follow an intelligent plan and guard against waste. Often to these farmers the year of short crops brings the greatest profit, for this peculiar condition of soil and good cultivation gives them fair crops when their neighbors make a failure, and the shortage of crops enhances prices. Some men have studied their farms, found what they are best adapted to, and have adhered to that line of farming. These men know little of hard times.

The greatest impediments to success, it seems to me, are, first, a lack of wisdom in choosing the crop or product to devote the farm to; second, a lack of persistency in following up and improving the line of product chosen, and third, a wastefulness which has become chronic, so that in almost every department the profits leak away. I have passed hundreds of farms on which (in February) the corn fodder still stood in the fields, and the cattle were fed on the ground with it, with only the shelter of a wood lot. On most of these farms, only from twelve to twenty cattle were kept to the hundred acres, and yet often the farms were overstocked, and hay must be bought in March or the stock turned to pasture long before the fields were in fit condition. On the other hand, there were farmers attending the institute who were carrying over forty head of cattle to each hundred acres, and yet stated that their farms were not nearly stocked to their full capacity. They talked of a cow to the acre as

within easy reach, so far as the rough feed goes. Mind you, there was no feeding in the fence corners for their herds. The hay and fodder for their stock was all secured in the barn, and was either made into silage or run through a cutter and mixed with the ground grain feed. Thus cattle were not turned out to shiver in the winds and storms of winter, and to waste the manure along the runs and in the wood lots. They were kept in warm stables with water-tight manure ditches to save the liquid and solid droppings. Their milk was set by the most approved plan in water-sealed cans, the cream churned without dash or paddles and made into granular butter, which was sent to special customers at 40 cents per pound the year through. These men made no complaint of hard times. On most of the farms which I have seen the milk is set in open crocks, the cream churned in old-fashioned churns and the product sold at the grocery or to the hucksters at an average of 16 cents a pound, all it is worth.

To make farming profitable, there must be not only labor but thought. To the careful, thoughtful man, farming becomes a profound science, while in the hands of most men it is a simple art. To the former, nature unlocks her secrets and pours her treasures into his lap. She crowns his fields with verdure, covers his hills with flocks and herds, loads his table with dainties, and enlarges his vision until he looks from nature to nature's God. To such a man the farm offers an opportunity to educate hand, heart, and head; and there can be found among our successful farmers as intelligent men and women as in the learned professions. But to the man content to drudge along in the old ruts, who learns nothing, and does not even practice half he knows, there is no uplifting tendency in farm life.—Waldo F. Brown, in Philadelphia Press.

The New Flax Machine.

Respecting the new flax working machine referred to in Washington dispatches recently, the Agricultural Department says it is in receipt of so many inquiries about it as to indicate that the raising and manufacture of flax can be made a great national industry. A letter was received from a manufacturer in the Northwest who has invested nearly \$200,000 in the business of flax-making which has produced a deep impression at the Department. He says he has made two trips to France and Belgium, and has seen the operations of the machines referred to in the original letters, and he confirms all that is claimed. He further agrees with the original writer that the country is on the verge of a great revolution in the production and manufacture of flax. Considerable interest is shown in the correspondence in the success, and the experiment of growing flax more abundantly as a solution of the difficulties and burdens which it is said are forced upon the farmers of the Northwest by the twine trust. The letter says that the price of twine has been increased by the trust until it costs the farmer a bushel of oats for every pound of twine, and they are clamoring for relief. In Michigan the Legislature appointed a committee to investigate and report on the expedience of introducing a manufacture of twine in the prisons as a means of relief, but their inquiry developed the fact, Prof. Willet says, that the corner of the trust extended to the raw material itself, and the Department is considering in connection with the flax question the whole subject of the growth of fibrous plants, ramie, hemp and jute.

The Stock Interest.

THOROUGHbred STOCK SALES.

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

OCTOBER 5—John Lewis, Short-horns, Miami, Mo.
OCTOBER 9—John Lewis, Poland-Chinas, Miami, Mo.

THE PRODUCTION OF LEAN MEAT IN MATURE ANIMALS.

(Bulletin 5 of the New York Experiment Station.)

It has been pretty conclusively shown in experiments by Henry Sanborn, and at this Station, that the relation between the lean and fat in the carcass of young animals can be varied in quite wide limits by varying the relation between the nitrogenous and carbonaceous matters in the ration fed. But it has been stoutly maintained that, in the mature animal or the animal whose muscles have once been formed, it is practically impossible to increase, either relatively or absolutely, the amount of muscle or lean meat. It was to throw some light on this question that the experiment recorded below was determined upon.

At the outset numerous difficulties confronted us, chief among them being the necessity of relying wholly on comparison between individuals, for the composition of an animal's body manifestly cannot be determined at two different periods of its life.

Another obstacle in work of this kind is the difficulty of completely separating the fat and lean of the carcass by mechanical means, particularly when there is any considerable amount of what may be termed "intermuscular fat" and connective tissue.

After a careful consideration of all the difficulties involved, it was finally determined to make a preliminary trial upon the following basis: Two mature animals in poor condition, as nearly alike as may be, and if possible of near blood relationship, to be selected. One of these to be slaughtered, the carcass rendered and the nitrogenous matter and fat determined in the products by chemical analysis. The other to be fed with a ration calculated to produce muscle or lean meat for a sufficient length of time and then treated as the first.

After some search, two animals fairly satisfactory were secured in two grade Yorkshire sows, 3 and 4 years old, one the mother of the other. The younger we shall designate No. 1, the other No. 2. They were very thin in flesh, as each had run on pasture and suckled a litter of pigs during the summer.

For two reasons we determined to slaughter No. 1, and feed No. 2. First, No. 1 had apparently a little more fat. Second, No. 2 from her greater age would be less likely to form muscle or lean meat as a result of the feeding.

Accordingly, September 22, 1888, No. 1 was slaughtered, and the following data secured:

Live weight.....	207	lbs.
Dressed weight including kidneys.....	131	"
Bones.....	13	"
Total nitrogenous matter.....	18.10	"
Total fat.....	16.70	"
Per cent. protein matter in carcass.....	13.82	"
Per cent. fat in carcass.....	12.75	"

At the time that No. 1 was killed, No. 2 weighed 240 pounds. We then commenced to feed her a ration of four pounds of wheat bran, two pounds of cottonseed meal, and two pounds of shelled corn per day. After a few days feeding she refused to take a ration so rich in nitrogenous matter, and the cottonseed meal was lessened. She would hardly take any for a time, but gradually she was induced to eat one-half a pound per day.

The amounts of the various fodders

consumed in the course of the experiment is given in the table below:

	Wheat bran, lbs.	Cotton- seed meal, lbs.	Corn, lbs.
Sept. (from 22d) and Oct. 69.	30.75	64.	34.
November.....	72.	15.	64.
December.....	77.5	15.5	62.
January.....	77.5	15.5	62.
February (to 15th).....	81.25	6.25	25.
Total food consumed.....	327.25	83.	247.

The composition of the ration varied somewhat during the course of the experiment from the fact that we were not able to get the hog to take as much of the cottonseed meal as we desired.

The experiment continued without any accident for 143 days, or until February 12, 1889, at which time the animal was slaughtered and the following data secured. For convenience of comparison we repeat the data already secured from No. 1:

	Hog slaughtered before feeding, No. 1.	Hog slaughtered after feeding, No. 2.
Live weight.....	207	296
Dressed weight including kidneys.....	131	211
Bones.....	13	16.63
Total nitrogenous matter, pounds.....	18.10	59.09
Total fat, pounds.....	16.70	48.29
Per cent. protein in carcass.....	13.82	28
Per cent. fat in carcass.....	12.75	23.89
Per cent. dressed to live weight.....	63.29	71.28

As has been stated, the hog that was slaughtered before feeding was evidently in slightly better condition. We may be fairly certain that the one slaughtered before feeding, or No. 1, was at least not richer in nitrogenous matters than the one fed, or No. 2. We will therefore assume that the two hogs were of the same composition at the time the first one was slaughtered. On this assumption the composition before and after feeding of the hog fed, and the gain or loss of the various constituents, are shown in the following table:

	HOG NO. 2.	Assumed composition before feeding on basis of analysis of No. 1.	Composition after feeding as found by analysis.	Gain or loss in pounds.
Live weight.....	240	206	296	+56
Dressed weight.....	151.9	131	211	+59.1
Bones.....	16.63	13	16.63	+3.63
Protein matter.....	20.99	18.10	59.09	+38.1
Fat.....	19.37	16.70	48.29	+32.92
Water and ash (by diff.).....	94.91	86.99	86.99	+7.92

The table shows a marked increase of the nitrogenous matter over the fat and a considerable falling off of water as a result of the feeding. This experiment was in every sense preliminary, and of course the data are insufficient to furnish positive proof as to the questions asked, still all the indications are that a mature animal can be readily made to increase in muscle or lean flesh. This is apparent to the eye in comparing the photo-engravings of sections of the hog No. 2 and sections of hogs of about the same weight, fattened in the ordinary manner, as found in the Ithaca markets.

The upper section in each plate is from hog No. 2, the middle and lower sections are from carcasses selected in the Ithaca market; both of them of about the same weight as our hog No. 2, and both considerably younger. They were fattened by farmers in the neighborhood, in the usual way, largely on corn. The reader will notice the remarkable proportion of lean to fat in the carcass of hog No. 2.

We had carried on an entirely parallel experiment with mature grade Merino ewes, except that an additional lot was added that were fed a strongly carbonaceous ration; unfortunately an accident occurred during the rendering of the carcasses and all comparative results by analysis were lost. In so far as the results could be judged by the eye they were in accordance with those obtained from the carcass of the hog.—I. P. Roberts.

Feeding Pigs—108 Pounds at 100 Days of Age.

EDITOR KANSAS FARMER:—February 1, the Berkshire sow Duchess of St. Bridge farrowed a litter of pigs got by that broad-backed, splendid hammed, short-legged boar, Dauntless. Ten days previous to farrowing the sow was put into a pen eight feet square with an opening on the south into another pen of some size. The north pen was covered with cane on three sides and over the top sufficiently to keep out the cold as much as possible as well as to turn water. For a few days before farrowing and a few days after, the sow was fed on dishwater and bran; the feed was then changed to oats and corn chop and bran. At the age of two weeks, the pigs were taught to drink milk, and to eat whole oats fed dry; afterwards they were fed equal parts of oats and corn (ground) and bran, with a handful of oil meal at a feed, made slop by using skimmed milk and water about equal parts. The sow was liberally fed, but never enough to leave any feed in the trough. The pigs were never full fed until eighty days old. From the age of four weeks to nine weeks they were fed sparingly to guard against overloading the digestive organs. They had the run of an orchard which was sowed early in oats, making green feed early in April. The pigs were weaned at the age of seventy-seven days, and at the age of eighty days two of them weighed seventy-eight pounds each. At the age of ninety days the same pigs weighed ninety-one and one-half pounds and ninety-three and one-half pounds respectively. This shows an average gain during this period of fourteen and one-half pounds in ten days, almost a pound and a half per day. At the age of one hundred days the two pigs weighed one hundred and six pounds and one hundred and eight pounds, respectively, and four of the litter averaged one hundred and seven pounds.

I am of the opinion that these pigs would have reached heavier weights had they been fed for fat. They are designed for breeders, and for this purpose they were fed lightly on corn, and given unlimited exercise. Corn will be held from them during the summer, while they are fed for bone and muscle (not fat).

I desire to say to the "experts" that these pigs score away up in "points," and to the old "fogies" these same pigs are from a line of prize-winning ancestors that were fed for show under a system of feeding and proper exercise which worked on the flesh without injuring the breeding qualities.

GEO. W. BERRY.

Berryton, Shawnee Co., Kas.

A writer advises wool-growers to use the full-weight wool sack made of twelve-ounce burlaps, and says that in buying light-weight sacks made of ten-ounce burlaps they lose half a pound of wool on every sack when the wool is sold. The four-pound sack is unnecessarily heavy, is not as nice and clean in appearance, and is more expensive, for which the shipper gets no return.

So many farmers have no special aim in their breeding, and raise horses wholly without discrimination. This of course might answer if reproduction were the object, without any attention to be paid to the production of the most salable and profitable animals; but when the farmer wishes to make the business of horse-breeding profitable, something else is necessary. In the first place the choice of the mare must be made with special reference to the kind of a horse that is desired to be raised. Here is exactly where so many farmers make their mistake; they think any

scrub mare good enough to breed, and so raise from their old, lame, ring-boned, spavined mares miserable, scrawny scrub colts with all the ills of their dams bred into their bone and system, to crop out at the first opportunity. Then, having chosen a good mare, of undoubted breeding, of good bone and substance, choose a sire of equal merit, or superior if possible, and so as to correct as far as possible the faults of the dam in the offspring, and improve upon her good points. Have an aim in this copulation and do not deviate from it, and it is much more likely that a fine colt will be the result.

Any one, says an exchange, who has been on the city horse car must have noticed that the horses stop and start by the sound of the bell pulled by the conductor, without a word from the driver. This is of course an acquired habit, but quickly learned by a new horse when hitched up with an old one that knows the signals. These horses when too much worn for the hard pavement work, are usually sold to farmers at a low price. The Philadelphia Times gives an instance where a citizen visited a relative on the farm who had just bought a span of these horses. He hitched them to a plow, but no amount of coaxing or scolding would start them. The citizen got a small bell from a boy's bicycle, and attached it to the plow handles. On giving this a ring the team at once started off at a good speed. When he wanted them to stop another ring of the bell brought them quickly to a dead halt. This simple device answered every purpose of a whip, and "get up" or "whoa," thereafter."

Speaking of sheep-killing dogs, a writer in the National Stockman says: I have had many sheep destroyed by dogs, covering a period of thirty years or more; I say destroyed, for they did not kill all, but caused the death of many they did not touch. How? By frightening them. A sheep is very nervous and can be scared to death very easily, especially if fat. Any person who handles sheep knows how hard a sheep's heart will beat when chased by dogs. Heavy sheep often drop dead without a mark on them. Dogs kill sheep to satisfy hunger, but one sheep would do that. The taste of blood and excitement keep them at it long after hunger is satisfied. The one-half of all the killing done on my farm was by hounds; the other half by all sorts of curs. An expert dog will always catch by the throat close to the jaw. I have seen scores of sheep killed, and not a mouthful eaten. Two dogs will kill from one to fifty sheep in one night.

There is unlimited room for improvement of our flocks; and no one can doubt, in comparing the general average of the sheep of the country with that of a few flocks scattered over the hills and plains of the different States, that the general average of the flocks in fleece might be almost doubled with proper care.

A Tremendous Sensation

would have been created one hundred years ago by the sight of one of our modern express trains whizzing along at the rate of sixty miles an hour. Just think how our grandfathers would have stared at such a spectacle! It takes a good deal to astonish people now-a-days, but some of the marvelous cures of consumption, wrought by Dr. Pierce's Golden Medical Discovery, have created wide-spread amazement. Consumption is at last acknowledged curable. The "Golden Medical Discovery" is the only known remedy for it. If taken at the right time—which, bear in mind, is not when the lungs are nearly gone—it will go right to the seat of the disease and accomplish its work as nothing else in the world can.

In the Dairy.

THE CONSTITUTION OF MILK,

And Some of the Conditions Which Affect the Separation of Cream.

Extracts from Bulletin No. 18 of the Wisconsin Experiment Station, prepared by Prof. S. M. Babcock.

(Continued from last week.)

PRACTICAL DEDUCTIONS.

In the handling of milk in the dairy, advantage may be taken of these properties in several ways.

First.—The milk should be disturbed as little as possible before it is set; and should be strained directly into the creaming vessel, immediately after milking. It is bad policy to strain milk into a large can and dip the milk into other vessels for creaming as the agitation and exposure to air occasioned by such practice promotes the clotting of the fibrin and prevents a thorough separation of the cream.

Second.—The material of which the creaming vessel is made should have a smooth surface and it should be a good conductor of heat. These conditions are best fulfilled by metal vessels, and practically tin is the best material to use as it is cheap, easily cleaned, and not liable to rust. Neither wood, earthen nor glass vessels are to be recommended as they are all poor conductors of heat. Wooden vessels are difficult to clean and glass or earthen vessels are easily broken, and the surface of wooden vessels is particularly favorable to the formation of fibrin clots. In comparative tests no vessels have given so good results as those made from tin. Were it not for the danger of corrosion with copper this should be the best material from which to make creaming vessels as it is a better conductor of heat than any other common metal.

A tin vessel that is immersed in ice water quickly cools the milk that is in immediate contact with it to a point where coagulation of fibrin does not readily take place, and as the formation of clots begins at the sides of the vessel the coagulation is to a large extent prevented. In general, it is the clots which are in contact with and adhering to the sides of the vessel which are most detrimental, as clots which are not attached are mostly carried to the surface by the fat which is entangled in them. This explains why a large can that cools off slowly will cream as well or even better than a small can that is rapidly cooled, as in such the sides may be kept cool enough to prevent changes in the fibrin, while the mass of the milk is still moderately warm and offers the best physical conditions for the separation of the cream.

Third.—The creaming vessel should have such a shape that the surface which is in contact with the milk shall be as small as possible in proportion to the amount of milk; this condition would be best fulfilled by a spherical vessel, but a vessel of this form would be inconvenient in practice and will not be considered. The next best form is cylindrical; in such a vessel the ratio of surface to volume will diminish as the size of the cylinder increases and so far as this one factor is concerned the larger the cylinder the better, but there are practical considerations which limit the size of the creaming vessel. In the first place its depth should be such as will permit the creaming to take place in a reasonable time. It is desirable in most dairies that the creaming be completed between milkings or in ten or twelve hours so that the same cans may be used at the next milking. It has been found in practice that this may be accomplished, under favorable conditions with a depth of twenty inches,

and this depth should not be much exceeded. The diameter of the can may depend upon the number of milkers; it should not be so great as to prevent its being quickly filled, but providing this can be done the larger the can the better. Where there are a number of milkers large cans may be used; but where there are only one or two milkers small cans should be chosen. In any case it is not well to have a can so large that it cannot be conveniently handled.

Fourth.—The coagulation of fibrin may be prevented by chemicals, and creaming promoted in this way, but on account of the special training in the use of chemicals required by such methods they are not to be recommended in general practice, and are only considered here because they throw some light upon the effect of fibrin in the creaming of milk. Of the chemicals which may be employed to prevent changes in fibrin many are excluded from use in milk, as they cause the precipitation of the casein, but dilute solutions of the caustic alkalies do not have this effect and may be employed for the purpose. Dr. Clausnizer has proposed the use of soda in the creaming of milk and presented figures derived from experiments made on a working scale that are most satisfactory, the yield of butter being about 10 per cent. greater than from the same amount of milk set in deep cans; at the same time the expense was considerably less as no ice was required. The only objection found by him was that the skim-milk was not suitable for cheese.

Numerous tests made at this Station by adding about 1-10 per cent. of caustic soda to the milk and setting it in a warm place for twelve hours, show that such milk creams very rapidly and efficiently, the skim-milk containing on the average less than .2 per cent. of fat, while milk to which nothing was added gave skim-milk that contained from .5 to 1 per cent. of fat. In general the alkaline milks gave only about one-third as much fat in the skim-milk as did the others. Moreover, the fat recovered in the butter was greater where the alkali was used than where it was not.

As the viscosity of the milk serum was greatly increased by the alkali, the best explanation of the thorough creaming is that the alkali prevented the clotting of the fibrin. That it had this effect is shown by a microscopical examination of the alkaline milk, as the globules of such milk are more evenly distributed and not grouped as in the natural milk.

DEEP AND SHALLOW SETTING.

It will be inferred from what has been said that of all practical methods for setting milk, those which use deep vessels with ice should be most favorable to the separation of cream, and this has been confirmed by nearly all comparative tests.

Shallow setting furnishes a large surface exposure of the milk to the air and to the bottom and sides of the vessel, conditions which are very favorable to the coagulation of fibrin, and which would be expected to give a slow and imperfect creaming. In reality this is the case as milk set in this manner is not usually skimmed until after thirty-six hours. By this time some acid is developed which tends to neutralize the effect of the fibrin clots so that a fair degree of creaming is obtained, not, however, as good as may be obtained by ice setting in ten hours, if the most favorable conditions are obtained.

There is a very general opinion that cold materially interferes with the separation of cream when shallow-setting is used. This is a mistake; cold favors the separation of cream more in shallow pans than in deep pans, as the

former presents more surface to the milk than the latter, and are therefore more conducive to the clotting of the fibrin. There is, however, a practical disadvantage in the use of cold-setting when shallow pans are used, as cold-setting always gives a thin cream with little more consistency than the milk itself, and such cream cannot be removed from shallow vessels without being more or less mixed with the skim-milk. In a tall, narrow vessel this difficulty is not met with, as the skim-milk may be drawn from the bottom without disturbing the cream enough to effect the results. If a method could be devised for removing thin cream from shallow pans without mingling with it the skim-milk a better creaming should result from the use of ice with such vessels than is obtained in any other way, as the fat globules have but a short distance to rise.

In order to obtain a cream that has sufficient consistency to be wholly removed from shallow vessels it is necessary to give as long a time as possible to the creaming. In practice milk is usually left until it has a slight acidity before skimming; but even then, when the milk is left in a warm room the amount of fat left in the skim-milk is usually greater than with cold-setting, after only twelve hours.

The fibrin clots are considerably heavier than water and of course, as the globules are entangled in them, act to some extent as an impediment to creaming, but owing to the small amount of fibrin found in normal milk this in itself is not a very important factor; indirectly, however, these clots have a decided influence as they entangle not only the fat but nearly all the solid and gelatinous matters in the milk, which are either carried into the cream with the fat, or, if the solid portions are too heavy, the fat is prevented from rising to the surface at all.

Investigations have shown that the serum of cream contains a larger proportion of solid matter than the serum of milk from which it is derived. The difference is principally caused by evaporation of water from the surface during the creaming, but even when this is prevented there is a slight increase of solid matter in the cream serum. In a paper read before the Society for the Promotion of Agricultural Science, at Cleveland, I have attributed this increase to the clots of fibrin which accumulate in the cream, but the small amount of this is insufficient in itself to perceptibly increase the weight of the cream solids, the solid matter however which may be accumulated by the fibrin clots would account for all of the difference.

CENTRIFUGAL CREAMING.

In centrifugal creaming the effective difference in the weight of the cream and other constituents of the milk is greatly increased, so that the disadvantages arising from the coagulation of fibrin are mostly avoided, as the fibrin is to a great extent separated from the cream and accumulates with the dirt and other solid matter of the milk, upon the drum of the centrifugal. As has been already stated this slimy matter gives strong reactions for fibrin.

For milk that has been transported, or that for any reason must stand for a considerable time between the milking and the setting, the centrifugal furnishes the only practical means known of obtaining an efficient creaming, and in any case, where the number of cows will warrant the outlay, it is the best method to use. By it from 5 to 15 per cent. more butter will usually be obtained than by other methods. That is, the cream which is required to make 100 pounds of butter when creamed in the usual manner would make from 105

to 115 pounds if creamed with a centrifugal.

AERATION OF MILK FOR CREAMING.

The thorough aeration of milk immediately after milking has been frequently recommended for preservation of the milk and for the removal of animal odors. This practice may be efficient for that purpose, but it operates against the creaming. If, however, milk is to be sold for domestic purposes or used in the manufacture of cheese the practice is advisable, as it serves to delay the separation of the cream.

The influence of fibrin does not end when the creaming is completed, but appears to be one of the chief factors which affect the churning of the cream. As has been shown, most of the coagulated fibrin accumulates in the cream where it incloses in its clots a large proportion of the fat globules; these clots have practically the same effect as would a true membrane covering the globules, and must be removed before the globules can unite in the form of butter. This is accomplished during the ripening of the cream, the slight acid which is formed acting as a solvent for them. This action of the acid appears to be the cause of the better yield of butter from ripened cream, as the addition of acid to sweet cream before churning will give as much butter as if the cream were ripened in the natural way.

It was the intention, when this bulletin was commenced, to consider fully the question of the ripening of cream and the churning, but it is already so long that this must be postponed for the present; it will, however, supply a subject for a future bulletin.

The investigations given in the preceding pages lead naturally to the following

CONCLUSIONS.

First.—That milk when fresh is a perfect emulsion, the fat globules being free and without an envelope.

Second.—That the chief differences in the composition of normal milks are due to variations in the amount of fat, the remainder of the milk, known as the milk serum, being quite uniform in composition in all milks. The variation in the amount of serum solids in milk from the same cow is rarely more than 1 per cent., in milk from different cows of the same breed is usually less than 1 per cent., and in milk from cows of different breeds not more than 2 1/2 per cent. This holds true even when the fat varies as much as 7 or 8 per cent.

Third.—That milk contains a principle analogous to, or identical with blood fibrin which is capable of spontaneous coagulation, the clots of which entangle the fat globules and to a considerable extent prevent an efficient creaming.

Fourth.—That the most efficient creaming is obtained when conditions are supplied which retard or prevent the coagulation of fibrin. This may, in practice, be best accomplished by setting the milk directly after milking in cold water (ice water is best), the creaming vessel to be of bright tin or other metal that can easily be kept clean.

Fifth.—When the milk is transported or when for any reason the setting must be delayed, no method of creaming gives as satisfactory results as the centrifugal.

Slight derangements of the stomach and bowels may often be corrected by taking only one of Ayer's Pills. Through not having the Pills at hand, your disorder increases, and a regular fit of sickness follows. "For the want of a nail, the shoe was lost," etc.

A Swiss has invented a musical box which imitates the human voice and also the trill of birds.

Correspondence.

The Money Question--No. 1.

[The following communication has been on file some time. It came when we were crowded with matter which was pressing. This was good enough to keep, and it will receive more attention now probably than it would have received then. The subject discussed is an important one. It would require as many bushels of wheat or corn this year, 1889, to pay what the American people still owe on their national debt as it would have required in 1866 to pay the whole 2,700,000,000 then due, and land does not produce more or better now than it did then. This simple fact shows that wheat and gold do not bear the same relations to each other that they did twenty-three years ago, and that the farmer is being worsened in the change.—EDITOR KANSAS FARMER.]

EDITOR KANSAS FARMER:—High rates of interest and business depression seem to receive considerable attention through your columns. We believe the initial, the fundamental, the underlying cause of our troubles is money. To understand the causes of the depression it is necessary to have a clear and distinct idea of money, what it is, its relation to business and society.

There is no question of greater importance to the people, and it is discussed more and seems to be less understood than any which concerns us. It seems to have been the aim and object of many writers to dumbfound their readers upon this subject, at least that is what they have accomplished. If the people would use a little common sense, the mysteries of the financial question would disappear. "Money is the great instrument of association, the very fibre of social organism, the vitalizing force of industry, the protoplasm of civilization, and as essential to its existence as oxygen is to animal life."

Thomas Paine, in the *Crisis*, comparing the advantages the Colonies had over England, said: "America began the war without any debt upon her, and in order to carry it on, she neither raised money by taxes, nor borrowed it upon interest, but created it. That is the kind of a government to adhere to—a creating government. Now, no government has ever created gold or silver, neither paper, nickel or copper, but governments have and do create money. Then what is it? It is a creation of law; nothing more nor nothing less. Aristotle says: "Money is a measure of value, a medium of exchange, a creation of law, it is an invention of man, not a product of nature." Prof. Cernuschi says: "Money is a value created by law to be a scale of valuation and a valid tender for payments." Judge Martin says: "Money is made and unmade by law."

Now, let us examine the law and see if it agrees with these writers. The first coinage act by this government was in 1792. The gold dollar under that act contained 27 grains and 11-twelfths fine; in 1834 the gold dollar was made to contain 25 and 8-tenths grains 9 tenths fine. The difference in a gold eagle was 66 cents, yet before the law they were equal. The British sovereign in 1792 was made worth \$4.56 and 56-hundredths, and the law in 1834 made it worth \$4.86 and 56-hundredths, a difference of 30 cents, yet each sovereign contained the same amount of gold. From 1792 to 1857 gold and silver coins of European, Mexican, Central and South American nations were under our laws full legal tender in the United States at values fixed by law. In 1857 all foreign coins were demonetized. Under the laws of 1792 and 1837 the fractional silver was made to correspond with the dollar, but the law of 1853 made it 7 per cent. light, and legal tender for only \$5. The law of 1873 created the trade dollar of 420 grains and made it to correspond with 385.4 grains in fractional silver and was made a legal tender for \$5. This law also demonetized the standard silver dollar, and in 1876 the trade dollar was demonetized.

The copper cent of 1792 contained 260 grains, and the cent of 1864 contains 48 grains. The difference in a dollar is 21,200 grains, yet before the law they were equal. Law not only makes the money but it regulates the value of bullion as well. The law of 1792 made 1 pound of gold to equal 15 pounds of silver. In England 1 pound of gold was equal to 15½ pounds of silver, so so by trading their silver for our gold they made one-half pound of silver on each pound of gold. To prevent this, in 1834 1 pound of gold was made to equal 16 pounds of silver.

When trade commenced with China 1 pound of gold was equal to 5 pounds of silver there, so by taking our silver and trading it for their gold there was a big profit, but they soon found out the object of the exchange, and then they made 1 pound of gold equal to 15½ pounds of silver. Now, if there is a hard moneyite that does not believe law makes money, let him take a silver dollar and punch a hole in it, then look for the money; it was there before the hole was made, but where is it after the hole is made? Echo answers, where.

Money being made by law, the next conclusion is, that money has no intrinsic value. Do no understand me to say that gold and silver have no intrinsic value. Dr. Franklin said: "Gold and silver are not intrinsically of equal worth with iron." *North British Review* says: "Metallic money, whilst acting as coin money, is identical with paper money in respect to being destitute of intrinsic value." *Encyclopedia Britannica*: "The intrinsic-value idea of money has been abandoned by the best writers and thinkers." Chas. Moran says: "Coin, so long as it circulates for the purpose of buying and selling, loses its intrinsic value." Macleod says: "The simplest and most perfect form of a currency is that which represents nothing but transferable debt, and of which the material is of no intrinsic value." B. S. Heath says: "Money, in the strict sense of the term, does not possess intrinsic value." Amasa Walker: "So far as this function (of money) is concerned, it is of no consequence whether the article has value or not." This intrinsic-value idea of money put me in mind of the story they used to tell about going to mill in olden times. They tell us that in those days when they went to mill they carried the grist on a horse, and in order to balance the wheat on the horse they put a stone in one end of the sack. The stone sustained the same relation to the wheat that intrinsic value does to money, and the time is not far distant when those who adhere to that theory will occupy about the same position in the minds of the world as those people do now, who carried the stone to balance the wheat.

Money being a creation of law, and having no intrinsic value, our third conclusion is, that the value of money depends upon the amount in circulation; or, in other words, prices advance or recede in proportion to the increase or diminution of the volume of money. Senator Jones (Nevada) says: "The value of the unit of money, whatever may be its material, is governed absolutely and entirely by the number of units in circulation, neither changed nor affected in the slightest degree by the commodity qualities of the material upon which the stamp may be placed." Monetary Commission says: "Under firmly-established systems, the value of each unit of either metallic or fiat money depends absolutely upon the number of such units and the relation they bear to the services they are required to perform." Senator Stewart says: "If the people would use their ordinary common sense they would all understand that the value of money depends upon the quantity and not upon the material of which it is made." John Stewart Mill says: "If the whole volume of money in circulation was doubled, prices would double." David Richards says: "That commodity would rise and fall in price in proportion to the increase or diminution of money. I assume as a fact that is incontrovertable." Amasa Walkersays: "The general average of prices is determined by the quantity of currency in circulation, and prices advance or recede as this is increased or diminished. This is an economic law as certain as any law of nature." I believe I am safe in saying that no writer of reputation denies this conclusion, yet it does not seem to be so understood by the majority of people, and why is it that this principle or fact is not understood by the people?

Then, the idea that one dollar can redeem another dollar is absurd, and specie basis a delusion, a false pretense and a fraud.

If this letter finds its way into the columns of the KANSAS FARMER I will endeavor to write another soon and treat the effects of increasing or decreasing the volume of money, and hope to be able to show the principal cause of the depression and also to give the remedy.

GEO. T. BAILEY.

Harper, Harper Co., Kas.

County Agricultural Societies.—A Complaint.

EDITOR KANSAS FARMER:—Under the above title I see in your issue of the 16th of May, two articles, one on the 3d page and the other on the 6th page, calling attention to some matters of very great importance. One recommends that each county agricultural society send one delegate to each meeting of the State Board of Agriculture, the said delegate to act during the term of such meeting as a member of the same, and to receive mileage, etc., while attending the said meetings. Now, had the board recommended that none but actual tillers of the soil should be admitted to such membership, as is above referred to, some good might, and I have no doubt would, result therefrom. But in all cases where a majority of the officers and legal voters of these so-called county agricultural societies are professional horse-racers, gamblers, bootleg whiskey-men, dead beats and men who part their hair in the middle, they ought not to be considered any more eligible to a seat at these meetings than the prince of darkness is considered eligible to a seat in heaven. And in many cases our county societies, called agricultural societies, are not composed, operated and controlled by practical agricultural men. If they were, the bulk of the money paid at the gate for admission tickets by the tillers of the soil would not be paid to men who never put an agricultural implement to use, and never perform an hour's honest manual labor from the cradle to the grave. In short, the average county agricultural society in Kansas cannot be demonstrated to amount to anything more or less than a curse to the communities who tolerate and patronize them. They, in many cases, set bad examples before the young, and take the people's money without rendering them an equivalent for it, all of which is due to the one important fact that these societies, instead of being composed and conducted by practical farmers, are controlled by men who have no interest, either directly or indirectly, in this pursuit, further than to invent some means through which they can beat the people out of their money. Hence they are not proper bodies for the State Board of Agriculture to apply to for aid in the accumulation of information to be distributed among farmers.

Referring to Mr. F. M. Wierman's article on page 6 of the issue above referred to, I will state that unless the matter printed at State expense, coming from the State Board of Agriculture, can be so distributed that at least 90 per cent. of it will reach practical farmers, it is not, nor can it be made appear as good policy to continue the existence of this board. As the law now provides for the distribution of these State documents, said to be for farmers, I feel confident that not more than 10 per cent. of it ever reaches this class of people, but is stored away in county offices, in the libraries of lawyers, to help show up a library, and there to remain unread and of course to result in no good of any one. One copy of each report of the society to be stored away in the County Clerk's office as a book of reference, is all that should find a place in any county seat of the State.

But you say, Mr. Editor, call the attention of the State Legislature to this matter, as you say, with Mr. Wierman, that it needs looking after. And your suggestion is a good one, but it does not cover as much ground as it ought to. Please tell the farmers to elect a legislature of representative men; let it be composed of 120 farmers, not paper-collar farmers, but actual tillers of the soil, out of 125 for the House, and thirty-nine farmers out of forty members to be chosen for the Senate. Then call attention to this matter and the \$100,000 or more that these farmers' documents cost the State every two years will be heard from. Trusts, cut-throat mortgages, extravagant and ruinous rates of interest on money, laws induced to burden themselves with railroad and other bonds, etc., will receive attention. Of course the farmers chosen must be reliable and intelligent men, and a new prosperity will come to the people of the State such as has never been witnessed in Kansas before. This change cannot be brought about by any other means than that of the farmers and others of the industrial classes taking hold of this matter in the manner here recommended. In short, that

class of people who would be cared for must care for themselves. This is an agricultural country, and if those engaged in this pursuit would prosper they must attend strictly to their own business and cease even to think of trusting to those outside of their pursuit to look after it properly for them. Neglecting to do this has in every age proved a failure, and the present can not be looked upon as any exception. Even your county officers as a rule are not representative men. They have their lobbyists around your legislature to see that county salaries (which in many cases are too high) are not reduced, but rather increased. Select men from among your own ranks, honest, capable, and worthy; quit electing the men who have been failures at even running a lemonade and peanut stand, and matters will change to your interest. And when this method has been inaugurated, stay by it and teach your children to do likewise when they shall take your places, and long will live our Republic. G. BOHIER.

Chase, Rice Co., Kas.

From Sherman County.

EDITOR KANSAS FARMER:—In your issue of May 16 Weather Crop Bulletin you report no rain of any account in north-western Kansas. I wish to inform you that is a mistake. We have had here in Sherman county an abundance of rain in the last two weeks, enough to wet the plowed ground to the depth of five feet, and that we have the best prospect for small grain that we ever had since this county has been settled. I have just returned from a trip twice across the State and can say that the crops in this county compare favorably with any in the State. S. B. PARKHURST.

Roller Cultivator.

On our first page will be found an illustration of a roller cultivator combination. This implement is specially constructed to work listed corn. It is constructed entirely on new scientific principles, and pronounced by those using it last season to have no equal for cultivation of plants growing in furrows or otherwise. It performs several services at one time passing over the field. It crushes all clods in bottom of furrow, sides of furrow and top of ridges, leveling ridges down one half, leaving the soil in the most favored condition to stand drouth. At the same time of rolling and leveling work, there are two thin blades of steel following close behind the furrow roller, shoving the finely-crushed soil up to the plants. These blades are adjustable, set wider or narrower to bring a proper amount of soil to plants so as not to cover them up. This implement works the young plants twice, and meantime lowers the ridges and raises the furrows so that the common cultivator finishes it nicely. The furrow roller is adjustable, fits any depth or width of furrow, or is entirely removed when the plants are too high. The rollers work independent of each other. It works equally well on a level surface, the furrow roller being slid up to the proper height merely to crush the clods, thereby giving the blades a chance to handle the fine soil.

This implement has a wider range of work on the farm than any other farm implement. The gardener has a fine clod-crusher, bed-maker and leveler. It can be quickly turned into a level-land roller. The driver can ride or walk. It will work from six to eight acres per day, is very light draft, a 10-year-old boy can handle it with all ease.

I desire to sell territory of this roller, either by State or the whole United States or to implement manufacturers. Address the patentee.

H. STAGGS.

Valencia, Shawnee Co., Kas.

Farm Loans.

Loans on farms in eastern Kansas, at moderate rate of interest, and no commission. Where title is perfect and security satisfactory no person has ever had to wait a day for money. Special low rates on large loans. Purchase money mortgages bought.

T. E. BOWMAN & Co.,
Jones Building, 116 West Sixth street,
Topeka, Kas.

Bates Short-horn Bulls.

Ten Bates and Bates-topped Short-horn bulls for sale. Ready for use and fit to head herds or go into the show-ring.

G. W. GLICK, Atchison, Kas.

Farmers' Alliance Notes.

The Brown county *World*: The farmers' alliance is a secret society—a lodge. The members are initiated by riding a goat which is hard to curry, and swearing eternal allegiance to work for each others best interests.

McPherson county members of the alliance propose to hold a big Fourth of July celebration at McPherson. The organization is quite strong in this county. When the county alliance was formed there were twenty-four organizations with a membership of over 700. The Secretary is S. Ruckman, McPherson.

A strong alliance has been formed in Brown county, at Hiawatha, consisting of the representative and influential farmers of that county. They propose to erect at once a manufactory for binding twine from flax straw. Flax is a successful crop in all parts of Kansas, and with sale for the straw as well as the seed, will make a profitable crop for farmers.

Horace Champton: The salt beds of Kansas are hundreds of miles long and several miles wide and a mile or so thick, and consist of pure rock salt, and all the trusts in the world will find it a bucker if they undertake to corner the market by buying up the brine of Michigan and New York. The collapse of the copper trust, which it is said cost one of the Rothschilds \$15,000,000, will be a bagatelle compared to the collapse of an American salt trust if they try to build one.

The active membership of the alliance is estimated at over 500,000 and growing more numerous daily. It is gratifying even in these busy times to know that they mean business and propose to help themselves in every legitimate way possible. The KANSAS FARMER has for years urged organization as the means, and always protested against farmers remaining passive and quietly submitting to matters which were oppressing them. It is better to act more and grumble less.

The district alliance meeting at Meriden, on Saturday, 25th May, was well attended by delegates from the counties of Shawnee, Jefferson, Jackson and Brown. One of the most important subjects considered was the establishment of an alliance exchange. The work of the preparation of a suitable plan is in the hands of a committee to report at the next meeting. The insurance committee will report at the same time. The next meeting is to be at Valley Falls on Saturday, June 8, at 10 a. m.

Mound City Torch of Liberty: We want to warn our farmer friends against certain fruit-tree vendors who are fleecing the people in different parts of the country by soliciting orders for trees and requiring the purchaser to sign an innocent-looking contract payable at certain points. The contracts are then transformed into large negotiable notes, the money secured on them, and the young man skips out. It is best to sign no papers, whatever, coming from traveling men whom you do not know.

W. P. Brush writes the *National Economist*, at Washington, D. C., about the Kansas Alliance and Co-operative Union as follows: The 1,500 members are working harmoniously and with the cultivated characteristics that emanate from all true alliance men and women. Since the establishing of business relations with each other and the saving of nearly one-third on everything that is bought and a greater part of the middleman's profits, the form and possibilities of the organization are rapidly spreading out all over the State to that extent that nearly one-half of the counties in the State are asking for information concerning the workings of the order. The prospect is bright and very encouraging. In the near future a strong and effective State organization will be completed. Kansas, humble though she yet is, sends fraternal greetings to all the sister alliance organizations throughout the land.

A. E. Dickinson, Meriden, Kansas, State Organizer, reports the following: A called meeting of the officers of the State farmers' alliance, C. U. A., was held at Wichita, on May 23 and 24. Nearly all responded and a good meeting was the result. Many important matters were brought up and disposed of. The time and place for the next meeting of the State alliance was changed to the

second Wednesday in August, 1899, at Newton. It is expected at that meeting to ratify the constitution of the new order—the Farmers' and Laborers' Union of America, to amend the State constitution, elect State officers, select delegates to attend the annual meeting of the National Alliance at St. Louis, and to transact such other business as may be proper. Several committees were appointed to report at the next meeting; one to submit a plan for a State exchange, another an insurance. A conference with the chairman of the Executive committee of the other farmers' alliances, resulted in the appointment of a like committee to meet a like committee from the other order for the good of the common cause. The alliances were recommended to study and discuss the plan of W. V. Marshall, Sante Fe, Kas., for breaking up monopolies. Arrangements were made for a more vigorous prosecution of the work of organization. An official report of the proceedings will probably be sent by the Secretary to the sub-alliances.

State Organizer Dickinson reports that the Hiawatha Farmers' Alliance was organized on Saturday, May 18, with a membership of eighty-nine. They are not women or children but men with hair on their faces. They mean business. They came from different parts of the county. They went home, and sub-alliances will spring up all over Brown county. They will soon have a county alliance and then a farmers' alliance exchange to sell and to buy commodities without the assistance of speculators. They will do their part towards breaking up trusts and pools. They are fine-looking men—good physiques, intelligent faces, well-balanced heads. We would like to see the wives and daughters of those men. They must be sensible as well as comely. They will join the alliance later and make the meetings more pleasant and profitable. How many counties in this State will let Brown county outdo them in this good work? How many counties will imitate so good an example? Let us hear from all. Let there be a move all along the line. We hope to see the farmers of the whole State work together as a unit for their own benefit and for the common good. List of officers of Hiawatha Farmer's Alliance: President, W. S. Hall, Vice President, S. Detwiler, Secretary, W. H. Heimleek, Treasurer, U. S. Brown, Chaplain, B. F. Pirch, Lecturer, J. S. Henny, Assistant Lecturer, C. A. Taylor, Doorkeeper, English, Assistant Doorkeeper, W. E. Hixon, Sergeant-at-arms, G. W. Brown, Business Agent, B. F. Partch. J. A. Jeffries was recommended to the State Board of Organizers for Organizer in Brown county. The meeting indicates that the farmers will be enthusiastic, harmonious and efficient in their work.

Patents.

The following list is reported through the official records for the week ending May 21, 1899, by Higdon & Higdon, Patent Lawyers, office rooms 55 and 56 Hall Building, Kansas City, Mo., and room 29 St. Cloud Building, Washington, D. C. By applying to them at either office a printed copy of any patent here named can be obtained for 25 cents.

MISSOURI.

Pneumatic railway—Meinolph Bodefeld, St. Louis.
Grate bar for furnaces—Etienne Boileau, St. Louis.
Grip slot closer for cable railways—Chas. Davis, Kansas City.
Car coupling—Henry P. Monday, Stoutland.
Sliding gate—Jacob P. Norlan, Kemker.
Dog attachment for hog cars—Robert J. Thompson, Grandin.
Coupling pole for lumber wagons—Benjamin R. Stogsdill, Carl Junction.

TRADE MARKS.

The word "Monipole"—James K. Brookmire, St. Louis.
The words "Locomotive Engineer Joyces' Pile Driver Salve" arranged about the cut or representation of a pile-driver—John F. Joyce, De Soto Mo.

KANSAS.

Planter—Albert Charles, Blue Mound.
Vehicle wheel—John O. Leck, Glen Elder.
Kitchen cabinet—Lu Houston, Shockey.
Latch—Frank F. Pierce, Clay Center.

NEBRASKA.

Transparency—Henry C. Rector, Lincoln.
Vegetable parer—Henry O. Thomas, Cheyenne county.

BEECHAM'S PILLS cure sick headache.

Gossip About Stock.

Robt. I. Lee, of Topeka, last week lost the valuable stallion, MacUllamore, valued at \$2,500.

An auction sale of trotting-bred stock will be held two miles south of Minneapolis, on Tuesday, June 4, by Chas. E. Waters, Proprietor of the Connecticut Western stock farm.

The horse sale of W. D. Paul, at Pauline, last week, considering the excellence of stock offered, went at low prices. The sales amounted to about \$2,000, ranging in price from \$80 to \$150.

The well-known Jersey cattle breeder, T. O. Murphy, Thayer, Kas., President of the Thayer Creamery, informs us that their creamery started up May 1, and that they now receive over 4,000 pounds of milk daily, and are making a choice article of butter. The farmers will try raising milk.

The Holstein-Friesian Association of America offer several hundred dollars in special premiums, first and second, to owners whose stock makes the best butter or milk record at any State fair. Particulars will be given to exhibitors by addressing the Secretary, Thomas B. Wales, Iowa City, Iowa.

U. P. Bennet & Son and W. A. Powell of Lees Summit, Mo., will hold an important sale of Short-horn cattle at Crete, Nebraska, on Saturday, June 1. We have no hesitation in recommending our readers in that part of Kas. and Neb. to attend that sale for it will consist of first-class cattle in every respect. It is in fact one of the best offerings ever made in that State.

W. B. Wilhelm & Co., St. Louis, write under date of May 22: "We are proud to inform you that our daily sales of Kansas wools are giving the growers and shippers of wool satisfaction, and our simple effective spot cash mode of doing business meets with their approval. We have letters today saying that the rain and cool weather have put the shearing back."

Brown county *World*: Col. W. S. White, the big cattle-raiser, of Sabetha, has failed. His debts amount to \$41,000. The Morrill & Jones bank holds \$5,000 of his secured paper. Many endorsers will lose and get little sympathy but all feel sorry for the white-haired old man who has lost his credit. It is a wonder how so keen a business man could get so tangled up. Fate plays all of us dirty tricks.

E. P. C. Webster, Marysville, the Kansas dehorner, reports that his business has been unusually successful, and that he was hardly able to keep up with the demand. He has still further improved his chute and making it suitable for both dehorning and branding. He makes a No. 4 chute, not portable, intended for permanent use on a ranch for branding and dehorning. By October next he will have a full line of his improved chutes, which will be duly illustrated in these columns.

In response to an inquiry from this office, D. W. Wilder, Superintendent of Insurance, gives us this important information: "There is no live stock insurance company in Kas. The companies that we had a few years ago were irresponsible. There is not a single successful live stock insurance company in the United States, and never has been—not one that you would patronize yourself or recommend to a friend. There are many worthless organizations that flood Kansas with their circulars, but they have no capital or character."

The *Mulvane Record* gives an elaborate record of the annual public sheep shearing of Reynolds & David, at Mulvane, held recently, in which some records are given which eclipse anything reported in the entire country, showing that Kansas leads the great States of Ohio, Michigan and Vermont. The ewe, Lady Huffman's fleece, aged 3 years, weighed thirty pounds, one year and three days' growth. The ram, R. Huffman's fleece weighed forty-six pounds. A yearling ram clipped a twenty-four and three-fourths pounds fleece. The flock's average on 400 sheep will be given as soon as shearing is finished.

Our new advertiser, W. G. Cavan, Alden, N. Y., writes: "I made one splendid improvement in February and have another on the way now that I am daily expecting which contains several of the best sows in England, including the champion imp.

Lady Dorchester, the heaviest and best show sow in England, last year winner of the "Silver Cup" over all breeds, ages and sexes in England last year. She will farrow 1st of June. There are other sows in the lot equal to her. These are all due to farrow 1st of June or already farrowed. Among those imported in February is the boar "Durham Salisbury," age 19 months, weight in ordinary flesh 739 pounds. He is a grand big one. Then I have among other specially good ones a boar of my own breeding, age 17 months, weight 679 pounds in working flesh, and at maturity will weigh 1,000 pounds. He is a monster. Also several sows weighing over 700 pounds apiece and with quality enough to please the most precise. The best lot of young pigs I ever saw on land and several fine show pigs of other ages for sale, cheap. I am reserving nothing this year for show.

Publishers' Paragraphs.

The Cherokee County Stock Association will hold a stock fair at Columbus, Kas., the second week in October. A. D. Wats, President, and L. M. Pickering, Secretary.

The Osage County Fair Association announce that their 13th annual fair will be held at Burlingame, September 10, 11, 12 and 13, 1899. Thos. Cain, President, and C. E. Filley, Secretary.

The wool adv. of A. J. Child & Co., of St. Louis, will interest many of our readers who wish to sell their wool in the best market. Mr. Child is well and favorably known at this office and deserves all the business he can get.

Every farmer who puts in corn with a lister will be interested in the illustration and notice of an improved roller cultivator in this issue of the paper. The inventor and patentee is a practical farmer of Valencia, Shawnee county, Kas., and has made a successful demonstration of his invention on his own farm.

We are glad to announce the "hog sanitarium" advertised by E. M. Crummer, Bellville, Kas., is giving such eminent satisfaction to his customers as well as to buyers of the stock self-fed by this device. We advise every reader interested in hog-raising to look up Mr. C.'s adv. and investigate this popular Kansas invention.

We desire to call the attention of correspondents and advertisers that the last hours for copy or advertisements intended for the current week, is Monday morning. It would be better to have the matter in by Saturday. We send the forms to press earlier in order to bind the paper and reach our most remote subscribers by Saturday of each week.

The publishers of this paper are grateful to have our readers send in new subscribers, but in doing so for one of the premiums offered, it is very important that you should name the premium you wish or it may be overlooked. See offer in another column—"Peffer's Tariff Manual," price 25 cents, will be sent to any one sending us one new subscriber and \$1.

We are in receipt of the catalogue of agricultural implements manufactured by the Keystone Manufacturing Co., Sterling, Ill. It contains a full line of improved and labor-saving machinery for the farm and suitable for every class of work in each season of the year. This catalogue should be in the hands of every farmer who has to buy machinery of any kind.

The dairy business is receiving quite an impetus this year, which, of course, we are glad to note. We trust our friends, however, will note this little warning, not to let your anxiety to secure an enterprise for your home town get the better of your judgement, and forget the necessary fact, that it must be run on business principles. The deal should be equitable for all parties. Do not let the parties putting in the plant have it all their own way. This applies especially to creameries or sugar factories.

Topeka Weather Report.

For week ending Saturday, May 20, 1899:

Date.	Thermometer.			Rainfall.
	Max.	Min.	Mean.	
May 19.....	77.6	51.9	.....	.05
" 20.....	72.7	50.4	.....	.01
" 21.....	76.5	48.0	.....	..
" 22.....	82.2	55.0	.....	..
" 23.....	89.0	57.2	.....	..
" 24.....	77.4	53.2	.....	.29
" 25.....	70.8	48.9	.....	..

Breed from none but pure rams, and as pure-bred ewes as possible.

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.

God Within the Shadow.

[The following familiar lines, written by James Russell Lowell about the beginning of the great civil war, are republished now in Pennsylvania by the Prohibitionists in the amendment campaign.]

Once to every man and nation comes the moment to decide
In the strife of Truth with Falsehood for the good or evil side;
Some great cause, God's new Messiah, offering each the bloom or blight,
Parts the goats upon the left hand, and the sheep upon the right,
And the choice goes on forever 'twixt the darkness and the light.

Hast thou chosen, O my people, on whose party thou shalt stand,
Ere the Doom from its worn sandals shakes the dust against our land?
Though the cause of evil prosper, yet 'tis Truth alone is strong,
And albeit she wander outcast now, I see around her throng
Troops of beautiful, tall angels, to enshroud her from all wrong.

Careless seems the great Avenger; history's pages but record
One death grapple in the darkness 'twixt old systems and the Word;
Truth forever on the scaffold, wrong forever on the throne,—
Yet that scaffold sways the future, and behind the dim unknown
Standeth God within the shadow, keeping watch above his own.

We see dimly in the Present what is small and what is great,
Slow of faith how weak an arm may turn the iron helm of fate.
But the soul is still oracular; amid the portents dire,
List the ominous stern whisper from the Delphic cave within,—
"They enslave their children's children who make compromise with sin."

Then to side with truth is noble when we share her wretched crust,
Ere her cause bring fame and profit, and 'tis prosperous to be just;
Then it is the grave man chooses while the coward stands aside,
Doubting in his abject spirit, till his Lord is crucified,
And the multitude make virtue of the faith they have denied.

For humanity sweeps onward; where to-day the martyr stands,
On the morrow crouches Judas with the silver in his hands;
For in front the cross stand ready and the crackling fagots burn,
While the hooting mob of yesterday in silent awe return,
To glean up the scattered ashes into History's golden urn.

New occasions teach new duties; Time makes ancient good uncouth;
They must upward still and onward who would keep abreast of truth.

THE WOMEN OF BURMAH.

RANGOON, BURMAH, March 5.—The women of Burmah are the most advanced women of the East. The Japanese wife is addressed as slave by her husband and she never appears to help him entertain his guests. The Korean madam has no right to go on the streets, except after dark, and the small-footed Chinese girl is the slave of her mother-in-law. She has no rights that her husband is bound to respect, and he can sell her when he is tired of her. The Siamese girl, though a step higher in the order of human rights, has to support the family, and she is, according to the law, the property of the king. The Malay woman is secluded in the harem of her husband, and the millions of women in India, Egypt and Turkey are never seen on the streets. The Burmese girls are the highest characters of the country, and their gay silks, bright eyes and graceful figures fill every place with color and beauty. They mix with the men and they have equal rights in property and social standing with their husbands. During the first years of the marriage the man must live with and help support his mother-in-law, and he is by no means the master of the house. The woman holds the purse. She is the business man of the family and though at times it is said that wife-beating takes place in Burmah, such instances are few and far between. I heard of one to-day in which a man enraged by a shrewish wife attempted to strike her. A crowd gathered around and she taunted him, saying, "beat me! beat me!" The man raised his stick and brought it down again and again within an inch of the woman's back, but did not dare to strike her.

The business of Burmah is managed by

the women as much as is the business of France. This city of Rangoon has about 140,000 people and it is the center of trade of lower Burmah. Much of the native business is done in immense bazars, covering many acres. These bazars are roofed with heavy wood or iron to keep out the sun, and some of them cover several blocks. Their interiors are divided up into streets, which cut one another at right angles. These streets are walled with cases of goods of all kinds, which rise from the back of a ledge five feet wide and as high as a chair seat. Upon these ledges the bazar's sellers sit with their goods piled around and behind them, and in these bazars the Burmese women compete with merchants from all over the East. They are as sharp at a bargain as the Parsee merchants and the turbaned Mohammedans who have stalls adjacent to them, and the Burmese manufactures of all kinds are sold by them. Without education in arithmetic and without knowing how to read and write they can count profit and loss like so many lightning calculators. I bought some silk of one of them to-day. The price first asked was three times what I finally gave, and the girl who sold me made, I doubt not, 25 per cent. profit.

She was a typical Burmese beauty, and she sat with her legs crossed flat on the straw mat of her booth, with shelves of silk behind her and with gay-colored clothes on the floor all around her. In her mouth was a Burmese cigar, at least a foot long and a full inch in thickness. She offered me a whiff when I looked at her goods, but upon my refusing she handed the cigar over to her sister and attended to business. Pulling down one piece of bright silk after another, she spread them out on the mat before me and chatted and laughed while she sold. Girls mature here at 13 and 14, and this bazar daisy was perhaps 16 years old. She was as straight as a post and as plump as a partridge, and her rich Burmese dress was well fitted to show out her beauties. The Burmese women are clad in two garments. One of these is a jacket of silk or cotton which reaches to the hips, and the other is the tamahn. This is a wide strip of bright silk, about five feet square, which is wrapped around the waist and the limbs and fastened with a twist at the front. It has the effect of a light American pullback without the bustle, put on without underskirts. The opening of the skirt is at the front, but the women walk with a throwing out of the bare heels, which prevents the folds opening to an immodest degree. The wealthier ladies wear these dresses so long that they trail upon the ground. The colors are those of the ralaow, and the most delicate of yellows, of pinks and of blues are used. My fair merchant wore a skirt of bright green and gold, and her silk vest was a rich cream yellow. She had several strands of pearls about her olive-brown neck and her ears had great buttons in them of clusters of diamonds, each as large as cuff buttons. She had bracelets on her arms and there was a gold ring on one of her toes, and in her hair was a bunch of bright artificial flowers. She was, I judge, five feet high. Her eyes were large, soft and brown, and above these were daintily-arched but not heavy brows. She had a wealth of rich, glossy, black hair rolled up in a pyramidal crown on the very top of her head and this was fastened by a silver comb which rested on the scalp at the basement of the pyramid. She was a fair type of a thousand pretty Burmese girls, whom I have seen here during the past week, and her costume was that of the country.

The fashions do not change in Burmah, and it ought not to take a Burmese lady long to make her toilet. This tamahn is worn by all classes and in all parts of Burmah. The village girls and the women of Mandalay do not use the silk vest, and in its stead they have a strip of cloth which is wound tightly around the bust under the arms, leaving the neck and the shoulders bare, in much the same way as the women of Siam. There is a scarf which is sometimes thrown over one shoulder, and this falling under the other arm is caught and is so arranged that it can cover both shoulders if the girl would desire it. One meets many women, however, who do not use this scarf, and the ordinary dress of the village belle is about as décolleté as that of our fashionable society ladies. The village

girls wear as bright colors as do the ladies of the better classes, but their tamahns are of cotton. They are in plaid patterns, and are fastened with a simple knot at the waist.

All Burmese women wear ear plugs. These are costly as the purse of the woman can purchase and they are like no ear-rings you will find in America. The lobes of their ears have holes in them, each of which is from a half inch to an inch in diameter, and I have seen such holes through which a man's thumb could be thrust and not bruise the skin. In some cases women carry these big Burmese cigars in their ears, and I saw a woman's ear yesterday in which there were gold rings which would have made good-sized napkin rings. It seems incredible that the flesh can stretch as it does, but some of the poorer women's ears are so enlarged by this process that the string of flesh which hangs down in the place of the lobe is almost as large as the ear itself. The high caste lady has a hole in her ear about as big around as her index finger, and the ear plugs, which are about a half inch long, are often tipped with clusters of diamonds. They are sometimes of gold, and in the cases of less well-to-do people are plugs of solid amber. The poorest women wear plugs of glass of bright green or yellow. The gold rings are often hoops of gold of about the same shape and size of an open-ended 'himbile.

The Burmese marriage is a very simple affair. It consists ordinarily of the eating rice together in the presence of friends and of saying that the two propose to live together as man and wife. The matches are sometimes made by the parents and sometimes by professional match-makers. The most common method, however, is by the young people fixing the arrangement for themselves and carrying on their billing and cooing the same as we do at home. The Burmese groom furnishes the wedding breakfast and he carries it to the house of the bride. After the marriage, rice is thrown after the couple as they go to the bridal chamber and they are expected to pass seven days in seclusion, though this is not common. The newly-married pair live with the bride's parents for several years at least, and in case that one of these parents dies, the other becomes an inmate of the family for lifetime. It is presumptuous for a young man to set up housekeeping immediately after marriage, and he is supposed to work for a certain time for his wife.

Polygamy is permitted in Burmah and King Thebaw had fifty-three wives. Most of the Burmese, however, have but one wife at a time, and to have more is not respectable. The favorite time for marrying is in April and May, and most of the Burmese are married before they are 20.

Burmese women are treated well in the family, and they are the equals of the men in family affairs. They have their say in all business matters, and the only place where their inferiority is noticeable is in religion. The Burmese are Buddhists, and a Buddhist woman has no chance to go to heaven, save by her soul at death passing into the body of a man. If she is wonderfully pious during this life such a transmigration may take place, and I note that the chief worshippers at the pagodas here are women. Buddhist teachers put woman much lower in the scale of morality than man, and they maintain that the sins of one woman are equal to the sins of 3,000 of the worst men that ever lived.

The Burmese woman has few of the troubles and pleasures of a New England housewife. All of her cooking is done out-of-doors at this time of the year and her range never gets out of order. She builds her fire on the ground and her cooking utensils consist of two or three earthen pots. These and a jar of water with a cocoanut ladle make up her kitchen furniture, and our Burmese housewife is not troubled with table-spreading nor dish-washing. She is never worried about her flour nor her baking powder. The Burmese use neither knives nor forks. Their staple food is rice and a huge platter of this is cooked for the family and placed upon the floor. In addition there is a bowl of curry, a kind of soup, gravy-like mixture, which is seasoned with fish and pepper, and which is very hot. The family squat around the rice dish and each has his own little bowl for curry and a larger one for rice. Everyone helps him-

Common Sense

In the treatment of slight ailments would save a vast amount of sickness and misery. One of Ayer's Pills, taken after dinner, will assist Digestion; taken at night, will relieve Constipation; taken at any time, will correct irregularities of the Stomach and Bowels, stimulate the Liver, and cure Sick Headache. Ayer's Pills, as all know who use them, are a mild cathartic, pleasant to take, and always prompt and satisfactory in their results.

"I can recommend Ayer's Pills above all others, having long proved their value as a

Cathartic

for myself and family."—J. T. Hess, Leithsville, Pa.

"Ayer's Pills have been in use in my family upwards of twenty years, and have completely verified all that is claimed for them."—Thomas F. Adams, San Diego, Texas.

"I have used Ayer's Pills in my family for seven or eight years. Whenever I have an attack of headache, to which I am very subject, I take a dose of Ayer's Pills and am always promptly relieved. I find them equally beneficial in colds; and, in my family, they are used for bilious complaints and other disturbances with such good effect that we rarely, if ever, have to call a physician."—H. Voulliemé, Hotel Voulliemé, Saratoga Springs, N. Y.

Ayer's Pills,

PREPARED BY

Dr. J. C. Ayer & Co., Lowell, Mass.
Sold by all Dealers in Medicine.

self, putting his fingers into the platter and taking as much as he can squeeze up in his hands. The food is conveyed from the bowl to the mouth with the hand, and at the close of the meal everyone is expected to wash his own dishes. No drinking is done during the meal, and at the end each goes to the water jar and rinses out his mouth. I have seen many families at meals and in no case have I seen chop-sticks or knives and forks. The Burmese dinner is thus a perpetual picnic.

Living as they do, the Burmese cannot have much of a home life. The houses of the great majority are more like tents than anything else. They are made of plaited bamboo walls thatched with palm leaves, which are pinned to rafters the size of fishing poles. The most of the houses are of one story, and this is built upon piles so high above the ground that you can walk under the floor without stooping. Under the house the live stock of the family is kept, and there is sometimes a work-room inside this lower foundation. The house has no furniture in an American sense; the family sleep upon mats and they keep their heads off the floor by resting them upon bamboo pillows. Still they are wonderfully civilized, considering their surroundings. They are the kindest and most manly people I have met since leaving Japan, and their women are bright, intelligent, and in the case of the younger ones, beautiful.—Frank G. Carpenter, in *Kansas City Journal*.

Teach Your Boys.

Teach them to respect their elders and themselves.

Teach them that a true lady may be found in calico as frequently as in velvet.

Teach them that to wear patched clothes is no disgrace, but to wear a black eye is.

Teach them that one good, honest trade, well mastered, is worth a dozen beggarly "professions."

Teach them that, as they expect to be men some day, they cannot too soon begin to protect the weak ones.

Teach them that a common school education with common sense, is better than a college education without it.

Teach them by your own example that smoking in moderation, though the least of vices to which men are heirs, is disgusting to others, and hurtful to themselves.

Teach them that by indulging their depraved appetites in the worst forms of dissipation, they are not fitting themselves to become the husbands of pure girls.—Selected.

Veni, Vidi, Vici! This is true of Hall's Hair Renewer, for it is the great conqueror of gray or faded hair, making it look the same even color of youth.

The Young Folks.

A Sweet Home.

Like the magical city of old,
'Twas built in a single night;
For the builder was busy and bold,
And worked with all her might.
She worked as fast as she ever could,
But she used not brick, nor stone, nor wood,
From the base to the topmost dome;
She used not wood, nor stone, nor brick,
But the floor was warm and the walls were thick:
O what a queer little home!

She entered her own estate
With no regard for the laws;
She made herself a gate;
Her teeth were the knives and saws.
Right in my way her dwelling stood;
It was not built upon clay or mud,
Nor on rock, nor sand, nor loam;
It was not built upon earth at all,
But she made it within a crystal wall—
A quaint and curious home.

In the light of the morning sun
The work of the night I see;
For now the building is done,
But the builder, where is she?
I found her not, but I know her name—
'Tis Mistress Mouse, that meddling dame
Who loveth by night to roam,
Into my pantry she gnawed a hole,
And built her house in a sugar bowl;
Ah, what a sweet, sweet home!

When, with sounds of smothered thunder,
On some night of rain,
Lake and river break asunder
Winter's weakened chain,
Down the wild March flood shall bear them
To the sawmill's wheel,
Or where steam, the slave, shall tear them
With his teeth of steel.

—Whittier.

STATE NOMENCLATURE.

Arkansas—The name is of Indian origin, but has no known meaning. In 1881 the Legislature declared the pronunciation to be Ar-kan-saw.

Alabama—Takes its name from its principal river, and is supposed to mean "Here we rest," which words are the motto of the State. The name was first given to the river by the French in the form of "Allabamon," from the name of the Muscogee tribe that lived upon the banks.

California—This name as first applied, between 1535 and 1539, to a portion of Lower California, was derived from an old printed romance, the one which Mr. Edward Everett Hale rediscovered in 1862, and from which he drew this now accepted conclusion.

Colorado—Past participle of the Spanish *Colorar*, to color. So called probably from its tinted peaks, or from its vegetation, rich in many colored flowers.

Connecticut—Takes its name from its principal river, an Indian word meaning "long river."

Delaware—Takes its name from the river and bay, named after Lord De la Warr, one of the early Governors of Virginia and an ancestor of Lord Sackville, late British Minister at Washington.

Florida—This name was given to a larger territory than the present State by Ponce de Leon in 1572, from the Spanish name of Easter Sunday, Pascua Florida (flowery pasture), the day upon which it was discovered.

Georgia—Named as a colony in honor of George II.

Illinois—Derives its name from its principal river, which is named from the Indian tribe of the Illini, supposed to mean "superior men."

Indiana—Called from the word Indian.

Iowa—Named from its principal river; the meaning of the Indian word is variously stated to be "the beautiful land," "the sleepy ones," "this is the place."

Kansas—Named after the river; the word in the Indian tongue means "smoky water."

Kentucky—Derived from the Indian tongue, and means "dark and bloody ground," alluding to the many battles of the Indian tribes.

Louisiana—Named after Louis XIV. of France, in 1644, by its discoverer, La Salle.

Maine—After a district in France.

Maryland—After Henrietta Maria, wife of Charles I.

Massachusetts—An Indian chief's name.

Michigan—Named after the lake; the word is Indian, and means "great lake."

Minnesota—Named from the river. In Indian the word means "sky-tinted water."

Mississippi—Indian "father of waters."

Missouri—Named after the river, and meaning in Indian "muddy water."

Nebraska—Name is of Indian origin, and

is supposed to mean "shallow water."

Nevada—Name is of Spanish origin, and means "snow covered."

New Hampshire—For Hampshire county in England.

New Jersey—Named after the Island of Jersey.

New York—In honor of the Duke of York.

North Carolina, South Carolina—These two States are named after King Charles (Carolus) II.

Ohio—Named from the river. The word in Indian means "beautiful river."

Oregon—Of Spanish origin, means "wild thyme."

Pennsylvania—Named by William Penn, and means "the woody country of Penn."

Rhode Island—This State perhaps was named after the Rhoades family, one of whom, Zachary Rhoades, was commissioner for Providence in 1658.

Tennessee—In Indian it means "spoon shaped." The State is named from the river.

Texas—How and when Texas received its name has been a subject of much controversy. Some assert that it is so called because the original inhabitants had roofs over their dwellings, which in the Spanish language are called *tejas* or *texas*.

Vermont—In French means "green mountains."

Virginia, West Virginia—Named in honor of Elizabeth, the "Virgin Queen."

Wisconsin—Named after the principal river, which in Indian is said to mean "wild rushing river."

The Swift Flight of Wild Ducks.

While a reporter talked to a prominent member of the Wawaset Gun Club yesterday, the conversation turned on the speed of wild ducks, a subject in which the gunners of this city seem particularly interested, and one on which there is some diversity of opinion. The member said:

"I have held my watch on several kinds of ducks and geese, but the main part of what I am going to tell you comes from several old hunters who have favored me with their experience, and one of these old-timers in a letter says: 'I can tell you just about the sixty-third part of a dot how much space any one of them can go over in an hour. There is not a railroad train that can hold a candle to one side of the slowest duck that flies.'

"The canvas-back can distance the whole duck family, if it lays itself out to do it. When this duck is taking things easy, enjoying a little run around the block as it were, it goes through the air at the rate of about eighty miles an hour. If it has business somewhere and got to get there it puts two miles back of it every minute, and does it easily. If you don't believe this just fire square at the leader in a string of canvas-backs that are out on a business cruise some time. Duck shot travels pretty fast, but if you happen to hit one, you see if it is not the fifth or sixth one back of the drake or leader. A drake does not always lead, but it generally does if there is one in the flock; if there are more they will seldom take the lead. If you wish to bring down the leader you must aim at a space of at least eight feet ahead of him, and if he falls you will find him a long distance, probably two or three squares, off.

"The mallard is a slow one; it is all he can do to make a mile a minute, but he can do it if he wants to. His regular rate is about forty-five miles per hour.

"The black duck is a slow coach. He is about as good as the mallard and the pintail widgeon and wood duck cannot do much better. The red-head can go easily and make ninety miles an hour as long as he likes, all day if necessary. The blue-winged teal and its beautiful cousin, the green-winged teal can fly side by side for a hundred miles in an hour and take it easy.

"The gadwall, you see him here very seldom, though well known further west on the Alleghany river and at Kishamock, though looking like the mallard is a smarter duck and harder to shoot. It can make ninety miles in an hour and not try hard.

"Maybe you think a goose can't fly. Why, it can double the speed of the fastest trains on any of our railroads. Of course I mean a wild goose. Well, it has a big corporation, but it can get from feeding ground to feeding ground so suddenly that it fools our best wing shots.

"If you see a flock of honkers moving

along so high up that they seem to be scraping the sky with their backs, you would not think that they are making close on a hundred miles an hour, but they are. The wild goose is not much on foot, but it means business every time.

"The broad-bill goose comes next to the canvas-back duck in speed. Put the two together and in an hour the broad-bill would not be more than ten miles behind.

"This information has been derived from experience and correspondence with life-long gunners, and any gunner will tell you what I have said hits the mark very close."—*Wilmington News*.

Habits of Ostriches

"I am agreeably surprised," said a Cape Town ostrich farmer, stopping at the Palace hotel, bound on a tour of the world, to a Call representative, "to learn that ostrich farming has been successfully undertaken in California. From all I can learn the Anaheim race is doing very well, indeed. In the Cape Colony we find that the ostriches must have a soil well impregnated with natural salts, that is, salts of potash and soda. Our breeding birds are fed upon mealies, barley and lucerne, as they are kept in an enclosed paddock because of their fierceness. Young birds thrive on almost any kind of meal and finely chopped prickly pear. They also require a supply of silicates, nitrates and ground bones, and, in case of tapeworm, which is very common, the oil of male fern, which affords prompt relief."

"What method of hatching do you employ?"

"I suppose you think we allow our birds to deposit their eggs in the sand and leave them to the tender mercy of the sun, but that sort of thing stopped when the Dutch Boers began to domesticate the ostrich. Experience has proven that it pays better to let them hatch their eggs. A pair of breeding birds will sell readily for \$1,500 of your money, and a male frequently pairs with two females. When it is seen that the female lays from nine to fifteen eggs in each nest, and hatches them in forty days, such a price is not exorbitant. Both birds sit on the eggs, the male longer than the female, and as soon as the chicks are a few weeks old the female lays again, thus hatching several broods in a year. Of course these birds are never plucked, and when infested with vermin are liberally sprinkled (from a safe distance) with wood ashes."

"How do you manage what you call stock birds?"

"These we brand on the fleshy part of the thigh and hire Kaffir boys to herd on the plain, or else keep them in barbed wire inclosures. Ostriches, like cattle, are liable to stampede, but the funniest thing they do is to waltz."

"How, pray, is that done?"

"The leader of the herd, generally an old male ostrich, evidently thinks that his followers should have some diversion on a long march from one pasture to another, so he begins by slowly but gracefully turning round and round. In five minutes the whole flock is doing the same, and it is quite a sight; their long plumes waving in the wind until they conclude to quit and go on their way. Music, of course, has nothing to do with their dancing."

"How soon do you pluck your birds?"

"When they are ten months old, then every seven months after. The first yield is nearly worthless, being what we call chicken pens, and the other feathers are not prime until the bird is two years old. The method of plucking determines the value of the feathers."

"How do you manage without getting hurt?"

"In the western district of Cape Colony, of which Outshoorn is the capital, the feathers are literally wrenched out in handfuls, which causes intense pain and profuse bleeding. A pillow-slip is drawn over their head, which Kaffir boys hold in place on each side, while three or four others pull out the feathers from the wings and tails, with the downy feathers around the breast. The poor birds are so astonished that they meekly submit, and if they get a look at their tormentors, it is only a second's work to put one of their sharp hoofs quite through the abdomen with one of their vicious forward kicks. A most judicious system is pursued inland from Port Eliza-



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beth. Instead of wrenching the feathers out by sheer force they are snipped within an inch of the body by means of a small pair of pliers. The ends of the quills drop out in a few weeks, and though it is a matter of longer handling, it has the advantage of producing finer quills in all after-growths. A thick, strong quill not only adds to the weight of the feather, but detaches from its pole and graceful curve, and that is a point an expert feather-buyer always looks at."—*San Francisco Call*.

"The peerless empire of form and color is found in Colorado," says a great artist. So are there many other wonderful effects. There is that grand triumph of engineering skill, the Bow-Knot Loop, famed all over the world; the pretty town of Graymont nestled against the base of Gray's Peak, the giant prince of the range; sunrise on Gray's Peak—a sight once witnessed never to be forgotten; Idaho Springs the beautiful, a restful spot blessed with the healing waters for all who come, within two hours ride of young levithian Denver; the storied gold camp of Georgetown perched in the upper air of the mountains, ever fresh and cool and clear—these are a few of the delightful spots in the "American Alps" reached by the Colorado Central Division of the Union Pacific railway in Colorado.

A resident of Camden, N. J., has a greenhouse fitted up on the third floor of his house, warmed from the furnace in the cellar; the ordinary house roof is replaced by an iron frame supporting large panes of glass. In this greenhouse was raised tomatoes and radishes during the winter, and cabbage and other plants started for the open ground in spring. Some space is also devoted to the growing of flowers.

Savages expect to imbibe bravery by drinking the blood of their brave enemies. A more enlightened method of vitalizing the blood is by taking Ayer's Sarsaparilla. It braces up the nerves and gives strength and fortitude to endure the trials of life.

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The new creamery at Medicine Lodge is reported favorably.

The first annual report of Kansas Experiment Station is published. In it Prof. Shelton, the director, summarizes the work of the Station, showing, indeed, a great deal of work done on the college farm before the "Station" was established under or on suggestion of act of Congress. By courtesy of the Director the KANSAS FARMER has been enabled to inform its readers from time of the work of the Station. This annual report is in good form for presentation, and we suggest that every one of our readers obtain one, and lay it away, for every year another, and still more important one, will follow. Address Prof. E. M. Shelton, Director Kansas Experiment Station, Manhattan, Kas.

Kansas Chautauqua Assembly.

The fifth session of the Kansas Chautauqua Assembly will be held at Oakland Park, Topeka, Kansas, June 25-July 4, 1889, inclusive. One of the handsomest amphitheatres in the West is in course of erection; other buildings are going up, also a large boarding hall, with bakery, etc., attached; two two-story lunch houses have been finished. The grove is large, and the accommodations to handle large crowds of people are ample. The following workers have been engaged: Bishops John H. Vincent and W. X. Ninds; Drs. Hurlbut, New York; Lorimer, Chicago; Young and Miller, Kansas City; McIntyre, Chicago; McGlish, Illinois; De Motte, Illinois; Gobin, President Baker University; McVicar, President Washburn college; Professors Hill, Emporia; Davidson, Cincinnati; Beal (Elocutionist); Cronce, Carthage, Mo.; Preyer, Baldwin; Quayle, Baldwin; Mrs. S. J. De Motte, Illinois. The following departments have been provided for: Senior and junior normal, Greek, elocution, music and primary. The following special days will be observed: C. L. S. C. Recognition day, June 27; Oxford League day, June 29; Children's day, July 2; Independence day, July 4. Special programs for each of these days. A grand camp fire is arranged for. Hot coffee, hard tack, etc. Send for program to L. A. Rudisill, Secretary, Topeka, Kansas. Reduced rates on all railroads.

LET AIR INTO THE SOIL.

Farmers ought to understand soil conditions. They do know a great many facts that persons engaged in other vocations do not know, but there are reasons for what we see and the reasons many of us do not stop to think about. These reasons are the important matter. For example: Every farmer knows that a beaten road over the best soil will prevent the growth of vegetation; he knows also, that in a dry time the road is hard almost as stone and dry as tinder, while the loose, cultivated soil alongside is soft and moist immediately below the surface. He knows, too, that in a dry season ground that was plowed shallow, or ground while lies a thin layer on solid rock, dries out much sooner than deeper soil that was deeper plowed. But many farmers could not assign the reason why these facts exist.

Every old citizen of Kansas who is at all familiar with the history of Topeka, the capital city, remembers the cottonwood tree growing in the middle of the sidewalk on Kansas avenue between Fifth and Sixth streets. It was once a telegraph pole, put into the ground green from the stump, and it took root and grew into a beautiful tree. It was protected against harm by city ordinance. Two years ago the avenue was paved with asphaltum and the sidewalk, also, was paved with material impervious to air and water. The cottonwood tree is dead. Neither air nor water could get to the roots.

Discussing this subject, Prof. Goff, of the New York Experiment Station, calls attention to some facts which demonstrate its importance. In the Mediterranean regions the steep mountain slopes and hillsides are terraced for the culture of oranges, lemons and olives, and these terraces are held in place by rough stone walls, laid up without mortar or cement. Behind these loose walls, trees, shrubs and vines are grown with the greatest success, as they have been for centuries. A wealthy English gentleman, who spends his winters at Mentone, on the shores of the great sub-tropical sea named above, thought to improve upon the customs of the country by building his terrace walls of stone laid in cement. But, to his surprise, his trees made a feeble, sickly growth, and bore miserable crops, while those of his poor peasant neighbors, growing behind dry and often dilapidated walls, were models of health and productiveness. The removal of some of these walls brought to light a most important fact in agriculture—the necessity of soil aeration to the healthful growth of roots. The rear side of the loose and dry rubble walls was completely closed with a mat of finely interlaced root fibres from the fruit trees growing on the terraces. This mat followed down the walls, clear to the base, and extended to a considerable distance, horizontally, in both directions. Thus a large surface was exposed to the beneficial influence of the atmosphere. Behind the cemented walls, however, no such root development was found. The rootlets spread out somewhat beneath the surface of the narrow terrace, but failed to follow the walls downward. The cemented walls had shut out the oxygen, and there was no encouragement for root growth. The trees were restricted in their nutrition, and a depauperate growth was the result.

The Professor gives his own personal observations as follows: "In my experience in washing out roots of various plants at our New York State Experiment Station, I have been often struck with the fact that the roots of crops spread out over the surface of the layer

of soil that lies just beneath the plow line, as upon a table. The roots are almost exclusively in the lower three inches of the soil moved by the plow. The loose surface layer of soil corresponds to the dry rubble wall. Beneath it is the mat of roots. Every florist finds the mat of roots always close to the inner wall of the pots. If he uses a glazed pot the plants do not prosper, the roots being deprived of the influence of oxygen. They are in the same condition as were the gentleman's trees growing behind the cemented walls. The moral is obvious. We must keep the surface soil loose. We are admonished to do this in order to prevent evaporation, but this is but half of the argument, as the illustrations to hand so clearly show. Nature in some mysterious way provides for her own aeration. Go into the woods where the soil supports a vigorous vegetation and take up a spadeful of earth. It will be found fully as porous as the most thoroughly cultivated field. The sod ground along an old fence, though not disturbed by the plow for half a century, is always porous and friable. But in cultivated fields, where we disturb natural processes, the soil becomes compacted, unless kept loose by tillage. How then can we expect a good crop from a baked soil, or a good yield of fruits from trees in land packed into a hardpan by cattle or swine? The same truth is illustrated in cities, where shade trees refuse to grow along paved streets."

Potatoes as a Field Crop.

Kansas farmers do not give enough attention to the raising of potatoes. It is not inspiring to go up and down the streets of a Kansas town and see potatoes on sale that were grown in another State. Kansas is as well adapted to the growth of potatoes as any other state; this we know because we have raised potatoes in five different States, Indiana, Missouri, Tennessee and Kansas, and the Kansas article was as good as any of them. Methods of preparing soil and of the culture are about the same in this state as others, for the potatoes growing is much the same in all sections. The looseness of our surface soil and the almost continuous atmospheric movement here render necessary greater care than in places where the air is more still and the atmosphere damper. Deep plowing, thorough pulverization of the soil, deep planting, clean and shallow cultivation are necessary, and on good land that kind of cultivation will insure good potatoes and plenty of them almost every year in every part of Kansas.

Among our old clippings we find an excellent article taken from the *Farmer's Review* last summer, prepared by Waldo F. Brown, an intelligent and successful farmer of Ohio. He was discussing potatoes as a field crop, where a large acreage is devoted to potatoes. We give his own words: "First, the farmer who grows potatoes as a field crop should confine himself to a very few varieties, and such as are popular in the market. I grew nine hundred bushels of potatoes one year, and as I had planted ten different kinds I could only load a car with mixed potatoes, and they will never bring so high a price or sell as readily as a carload uniform in color or appearance. Second, begin the cultivation of your potatoes as soon as possible, and let it be constant and thorough until the vines fall. This will be but a few weeks, and the more work they get during this period the more vigorous will the growth be. Even if after they fall, weeds start, run through them once in a row with a double-shovel plow, and with hoes clean out the rows; even if it adds nothing to the yield of

the crop, the ease with which you can dig in clean land, and the prevention of any seed ripening will be worth two dollars an acre, and usually it will not cost more than half this to clean out the weeds, but I am sure the potatoes will be more abundant and larger if the land is kept clean until the crop matures. Third, the man with a large crop of potatoes ought to sell the larger part of his crop as he digs them, and should have his arrangements all made for handling, so as to save as much labor as possible. It is easy to add five cents or more per bushel to the cost of potatoes by want of skill in handling them. In the first place assort as you pick up, and do not try to smuggle in a few small or cut potatoes. It will pay to make the potatoes intended for sale first-class. The quickest and easiest way to handle potatoes is in sacks. Scatter the sacks along behind the digger so thickly that you will always find one handy when you wish to empty. Use small baskets or wooden buckets to pick up in so that you can hold the sack and pour the potatoes in without help. Do not put more than a bushel in a sack, for to handle them rapidly they must be light, and you do not want to stop to tie the sacks. Two men will load a wagon in five minutes with the potatoes in sacks that do not need to be tied, and they will unload it almost as quickly. As you pick up the merchantable potatoes throw the small ones in piles. You can throw three rows in one, and ahead and back ten feet, and this will save a great deal of time and stooping, when you come to gather them up. If the crop must be stored for a few weeks be sure and put them on a floor, so they can be shoveled up when they must be re-handled. If you have room in the barn where you can be sure they will not get hay or straw among them it will answer, but it will not cost much to put up a shanty with a board floor at the side of the field. In handling potatoes use a 14-inch coal shovel rather than a scoop, as it is not likely to cut them, and holds so many that they can be handled rapidly. Be sure and have help to keep close to your digger in taking up the potatoes. Thousands of bushels are lost every year by either allowing them to lie in the sun until they heat through, which causes them to rot when bulked, or by being caught by a frost when more are dug than can be picked up by night. It is wise to take no risks but keep the picking up and the digging close partners. I always select my seed at digging time. I go over the piles of small potatoes and as we do not assort close, I can always find plenty of nice smooth tubers about the size of an egg, and these are put away and labelled so there will be no guess work as to variety when spring comes. I dig by horse power, using a two-horse steel digger which can be bought for \$15, and with which an acre can be dug in less than two hours. If the land is free from weeds you will get the potatoes nearly as clean as if dug by hand and at considerable less cost. We run over the field both ways with a harrow after the potatoes are picked up, which brings to the surface any that have been missed, and also prepares the land for wheat, for I usually follow potatoes with wheat. In digging by horse power we dig alternate rows, and after the potatoes are up dig the remainder, as with the rows three feet apart if you dig all as you go you will cover up some of the potatoes that are dug in digging the adjoining row. I would advise that half the crop at least be sold in the fall, whether the price is high or low, and whenever you can get 40 to 50 cents per bushel I would sell all that can be spared. My own experience in holding for a spring market leads me to give this advice."

RAISING AND STORING WATER.

The storage of water is among the living problems. A few weeks ago we gave a few figures showing the capacity of cisterns, ponds and reservoirs of certain dimensions. A few days ago Mr. W. F. Brown, of Pratt county, published a suggestive article on the same subject in the *Topeka Capital*. It is of sufficient importance and merit to copy here. We have not verified his figures, giving them just as they appeared in the paper above mentioned:

I have been noting with no small amount of interest the discussion that has been going on for some time in our State in reference to the question of moisture economy on our Western plains. Dr. Parsons, of Wamego, advocates the theory of trying to induce the general government to appropriate money with which to pay the farmers for building or constructing reservoirs at least one to each section from one-half to two acres in extent. He also with several others urges the farmers wherever it is practicable to dam up the mouths of gullies and ravines, and by this means stop the waste of the surplus waters.

These theories do very well as far as they go, but they fall far short of meeting the needs of our State in general were they fully carried out. For to begin with, the entire western portion of the State has an unlimited amount of the surface reservoirs already prepared and a large portion of our country has no ravines to dam up or if we have ravines we have nothing to dam them up with, our country being destitute (or almost so) of both timber and stone.

What we need is more water to put into these basins, and the man that solves this enigma will have conferred a blessing upon his brother farmers of the great plains indeed.

I have been a resident of this (Pratt) county for eleven years, and I have noted that we invariably have a good crop year whenever our wallows are well filled up in the spring, but for the last three years our wallows have been almost constantly dry except at short intervals, although they are, I am happy to say, well filled up at present, and I would call attention to the fact that we have no drainage whatever.

I believe there is a way to mitigate if not entirely eradicate this rule. We have an inexhaustible supply of water beneath us. All we need is some way to bring it to the surface; and we have further an unlimited amount of power in the winds that sweep over our plains, therefore we have only to furnish some means by which we can utilize this pond and raise this much needed commodity to the surface, and we have this means at hand in the wind mill and suction pump. In our immediate vicinity the gravel in which an inexhaustible supply of water lies is found at a depth ranging from thirty to sixty-five feet, and a vast extent of country to the east, north and west is the same, or if anything shallower, while south of us the average depth is considerably more. With an ordinary wind a good mill and pump will throw at least ten barrels of water per hour, or a total of 7,920 gallons per day of twenty-four hours. One gallon of water contains 231 cubic inches; an acre of ground contains about 6,290,064 square inches of surface, therefore it would take that amount of cubic inches of water to cover it to the depth of one inch, or 27,230 gallons of water will cover one acre to the depth of one inch. A mill at this rate will throw 237,690 gallons in thirty days, and this amount of water will cover one acre to the depth of nine inches and a small portion over. There are 720 sections of land in our county, and at an average cost of \$100

per mill and well it would cost \$72,000 to put one on each section in our county, and 720 mills running at their full capacity of 7,920 gallons per day would bring to the surface the immense amount of 5,702,400 gallons of water which would cover a little over 209 acres to the depth of one inch.

Now these mills in each township could be put into the hands of the township board for good keeping, and they could be vested with power to place these mills upon the lands of such persons as would agree to or rather who would enter into a contract with the township to take care of the mill and keep it in repair for a stated length of time for its use. And there are hundreds of men in western Kansas who would be glad of such an opportunity.

These mills could be kept going during the fall, winter and spring months when the evaporation is at its minimum extent, and by this means a vast store of water could be brought to the surface for future use. And, moreover, this arrangement would be a boon to thousands upon our extreme western borders where the wells are very deep and the people unable to put up these conveniences, and in many places unable to even dig wells upon their own lands.

I believe this plan is entirely feasible and as we have no streams to clean out nor big bridges to build, no custom houses to erect, in fact, since we want nothing that we have not got or cannot get except rain as we want it, I believe we have a full right to call upon our general government for a share of the large surplus now lying idle in the Treasury to be used in trying to overcome this single hindrance to our complete happiness.

Or if the general and State governments can not be induced to move in this matter I believe our laws should be so modified as to permit the people to procure the means of carrying out this project if they so desire it.

Two years ago our township voted \$16,000 to a prospective railroad that was never built. Six thousand dollars would give \$100 per section, which could be proportioned out *pro rata* to all who would agree to erect mills and construct reservoirs, and who would agree to keep their mills running during times of drouth.

In conclusion, will say that I have submitted this paper to our Township Farmers' Institute, and it meets its approval; in fact, I have not spoken to a single farmer on this subject who has not considered it entirely feasible.

Value of Small Farms.

To a Western farmer whose fields contain forty to a hundred acres and who wastes more stuff than would maintain half a dozen small families that turn everything to account, it is almost beyond comprehension how valuable a small piece of land may be made by careful tillage. Prof. Krapotkine, of Atlanta, Ga., who has made a careful study of agriculture in France, some time ago gave a few facts to the *Constitution* concerning small farms in that country. He gave a number of instances in the country districts around Paris, where comparatively ignorant farmers have made small market gardens enormously productive. One farm is mentioned by him of two and seven-tenths acres which produces annually 125 tons of market vegetables of all kinds. The owner of this farm by building walls to protect his land from cold winds, by whitening the walls to secure all possible radiated heat, and by the constant and judicious use of fertilizers has his little farm in a productive condition from the 1st of January to the last of December. By simple

and inexpensive means he has practically located his farm in the tropics.

A French gardener does not care what kind of soil he starts with. He would be satisfied with an asphalt pavement, because he makes his soil, and so much of it that he has to sell it to keep his place from being gradually raised above the level of the surrounding country. When a farmer once understands the laws of chemistry he has no difficulty in making soil that contains all the materials needed for plant life.

Prof. Krapotkine speaks of one gardener who has covered half an acre with a glass roof, and run steam pipes supplied by a small boiler under the ground sheltered by this covering. The result has been that he has cut every day for ten months from 1,000 to 1,200 large bunches of asparagus, a product which under ordinary conditions would require sixty acres of land. But this result has been surpassed by an English farmer, who has made a one-acre mushroom farm yield him an annual income of \$5,000.

Under the French method of culture it would be possible to make one square mile support 1,000 human beings. On such a scale of productive capacity this country would support a population of 3,000,000,000. Even when we knock off a fair percentage for mistakes, exaggerations and unfavorable conditions, it will be seen that we are in no danger of having an overcrowded population for many centuries to come. There is no reason why our Eastern farmers should go West for more elbow room. Their great drawback is not the want of more land; it is the possession of too much land.

In some localities in Switzerland the traveler on the plains or in the valleys looks up to a towering precipice 2,000 feet above his head. When he laboriously climbs to the summit, expecting to find nothing but a bare rock, he sees before him the smiling expanse of productive fields, with pretty cottages dotting the landscape. The peasant proprietors started with only the naked rock under them. They carried the rich soil of the valleys in baskets on their heads up the steep mountain side, and went to work with a will until they transformed their sterile patches into blooming gardens.

The success of European farmers with all the forces of nature against them should be an inspiring lesson to our tillers of the soil. The American small farmer has only to unite brain work with hand work to make himself independent and comfortable if not rich. But without this union of the brain and hand there can be no great and permanent success.

Work in the Apple Orchard.

Mr. N. P. Deming, one of the ablest and most successful orchardists of Kansas, read a paper a few days ago before the Douglas County Historical Society, entitled, "The old man among the apple trees." It contains several important suggestions which orchardists ought to have as soon as possible. Here it is:

Clover should not be sown in the orchard for the following reasons:

1. Clover makes growth the same time the trees, therefore it absorbs the necessary moisture.
2. The round headed borer finds a good place to hide and deposit its egg on account of the shade.
3. The tree hopper, another injurious pest, delights in the clover. It lays its eggs in the limb or the tree, causing them to become rough and retarding their growth, especially when the tree is young.
4. The hand-maid moth, one colony of which will strip the leaves as if by

magic, finds a mellow soil to go into winter quarters, to come out the next year.

I know whereof I speak on the above subject, for my own orchard has suffered from the above reasons.

The old borer is transforming into a beetle state, being two weeks earlier than usual. There are two distinct borer hunters; one works horizontal, the other in a perpendicular form. Both should be protected. I am now plowing my orchard. I give the trees a good wash of strong lye before putting the soil back. The sooner we come to our father's method the better our orchards will be. This I used under my father's instructions forty-eight years ago. It was good then, and is good now.

My next work will be spraying for the colding moth. Formula: Seventy or eighty gallons to one pound of London purple. This is done with a barrel and force pump in a wagon, two persons being needed to apply the mixture. It should be done when the apples are about the size of a Concord grape, or before they turn downward. No stock should be allowed to run in the orchard until heavy rains have washed the poison into the ground.

Clean cultivation is the best remedy for the root plant louse. First cultivate about the time the trees are making their growth, or in the fore part of May, keeping this up till about the first of August. Then the scythe should be used to keep the weeds down.

In calling on one of my neighbors I found that they were worried about their plums being stung by the plumb gouser and the curculio. They had sweetened water hung among the trees. They were filled with only green flies and moths. We spread a sheet down and jarred the trees, and the result was we captured one hundred and thirteen, being, I think, about one-half. The crop could have been saved had the trees been jarred and smoked with coal tar about ten days before, but now it is too late, as most of the plums are stung.

I feel as if I should like to quit the horticultural work because it is getting burdensome and I wish to leave it in younger hands. You have had my experience and I hope you will profit by my mistakes and knowing the remedy. So I bid the society good cheer, and may it prosper.

The Medicine Lodge people claim their new sugar factory will be the largest in the world. The water for the factory is to be supplied by an artificial lake which will cover more than seven acres of ground, and the average depth of the water will be about six feet—in the center over ten feet. The water will not be a stagnant pond, but will be supplied and discharged at the rate of 2,250 cubic feet per minute. The supply is derived from a flowing stream of soft water by way of a canal three miles and a half long. This was built by the city, last year.

The next semi-annual meeting of the Missouri State Horticultural Society will be held at Brookfield, Linn county, on the 4th, 5th and 6th days of June. Secretary Goodman urges a good attendance. A strawberry and cut flower show is wanted—to be made up of specimens brought by members and visitors.

We have received a pamphlet copy of Prof. Shelton's report in pig feeding on the college farm last winter. It is published in the April report of the State Board of Agriculture.

Mutton can be raised cheaper than any other meat, because the wool can be made to almost, if not altogether, pay the expenses of its production.

Horticulture.

Hints on Transplanting.

Ellwanger & Barry, in their catalogue, say that for fruit trees the soil should be dry, either natural or made so by thorough drainage, as they will not live or thrive on a soil constantly saturated with stagnant moisture. It should also be well prepared by twice plowing, at least, beforehand, using the subsoil plow after the common one at the second plowing. On new, fresh lands manuring will be unnecessary; but on lands exhausted by cropping, fertilizers must be applied, either by turning in heavy crops of clover, or well-decomposed manure or compost.

To insure a good growth of fruit trees land should be in as good condition as for a crop of wheat, corn or potatoes.

Standard orchard trees as sent from the nursery, vary from five to seven feet in height, with naked stems or trunks, and a number of branches at the top forming a head. These branches should be all cut back to within three or four buds of their base. This lessens the demand upon the roots and enables the remaining buds to push with vigor. Cut off smoothly all bruised or broken roots up to the sound wood. In case of older trees of extra size, the pruning must be in proportion; as a general thing it will be safe to shorten all the previous years' shoots to three or four buds at their base, and where the branches are very numerous some may be cut out entirely.

Dwarf or pyramidal trees, on the quince stock, if of two or three years' growth, with a number of side branches, will require to be pruned with a two-fold object in view, viz.: the growth of the tree and the desired form. The branches must be cut into the form of a pyramid by shortening the lower ones, say one-half, those above them shorter, and the upper ones around the leading shoots to within two or three shoots of their base. The leader itself must be shortened back one-half or more. When trees have been dried or injured much by exposure, the pruning must be closer than if in good order.

Yearling trees upon quince stock intended for pyramids may have a few side branches, the smallest of which should be cut clean away, reserving only the strongest and the best placed. In other respects they should be pruned as directed for trees of two years' growth. Those having no side branches should be cut back so far as to insure the production of a tier of branches within twelve inches of the ground. A strong yearling, four to six feet, may be cut back about half, and the weaker ones more than that. It is better to cut too low than not low enough, for if the first tier of branches be not low enough the pyramidal form cannot afterwards be perfected.

Senator Ingalls on Grass.

Next in importance to the Divine profusion of water, light, and air, those three physical facts which render existence possible, may be reckoned the universal beneficence of grass. Lying in the sunshine among buttercups and dandelions of May, scarcely higher in intelligence than minute tenants of that mimic wilderness, our earliest recollections are of grass; and when the fitful fever is ended, and the foolish wrangle of the market and forum is closed, grass heals over the scar which our descent into the bosom of the earth made, and the carpet of the infant becomes the blanket of the dead.

Grass is the forgiveness of nature—her constant benediction. Fields trampled with battle, saturated with

blood, torn with the ruts of cannon, grow green again with grass, and carnage is forgotten. Streets abandoned by traffic become grass-grown like rural lanes and are obliterated. Forests decay, harvests perish, flowers vanish, but grass is immortal; beleaguered by sullen hosts of winter, it withdraws into the impregnable fortress of its subterranean vitality, and emerges upon the first solicitation of spring. Sown by the winds, by wandering birds, propagated the subtle horticulture of the elements which are its ministers and servants, it softens the rude outline of the world. It invades the solitudes of deserts, climbs the inaccessible slopes and forbidding pinnacles of mountains, modifies climates, and determines the history, character, and destiny of nations. Unobtrusive and patient, it has immortal vigor and aggression. Banished from the thoroughfare and field, it bides its time to return, and when vigilance is relaxed, or the dynasty has perished, it silently resumes the throne from which it has been expelled, but which it never abdicates. It bears no blazonry of bloom to charm the senses with fragrance or splendor, but its homely hue is more enchanting than the lily or the rose. It yields no fruit in earth or air, yet, should its harvest fail for a single year, famine would depopulate the world.

Hints to Tree-Planters.

In selecting trees and shrubs to beautify our homes, it should be done in accordance with the size of the grounds and surrounding conditions. If the grounds are small, trees that grow to a large size should be avoided, and it is always well to look at a tree; not as it stands in the nursery, but as it will be in years to come, when it has attained its natural growth, and to plant with this in view, especially when setting those we intend for permanent trees; for a single tree that has had room to develop itself symmetrically is by far more beautiful to the eye, than two or three which have been crowded together, so that none can grow into its natural shape. Trees should not be set so near to buildings, that when they become large, their branches will reach to or over them, and those that grow to be of the size of elms or maples should not be planted within thirty or forty feet of a building if they are to remain permanently; planting others nearer to furnish shade quickly, cutting these away as they become too large.

In traveling through different parts of the State a close observer cannot fail to notice that the tree most planted along the streets, in yards, and upon the lawn, is the soft maple. The tree grows very rapidly and furnishes shade in a short time, but in a country subject to high winds or sleet it will never give the satisfaction after it has reached any considerable size that the sugar or hard maple will give, as its wood is not strong or elastic and during high winds or heavy sleet its branches are badly broken. If sugar maples are planted for the permanent trees and soft maples are set between to furnish shade quickly and then cut away when the sugar maples need the room, the effort in years to come will be much more satisfactory than where only soft maple is planted.

The Cut-Leaved Weeping birch is a tree worthy of a place on any and every lawn and in every yard of any considerable size in the State, as it grows to be one of the most handsome and neat-looking trees that can be produced in this latitude; it is hardy and can withstand dry weather.

Of evergreens the pines, such as the Austrian, Scotch, and white, will perhaps give the best satisfaction, as they

are hardy and can withstand drouth better than most of the evergreens as their roots go deep into the soil.

The Norway spruce is another tree worthy of general planting. Of the smaller evergreens the dwarf arbutus as a class are, when well grown, very beautiful, whether planted in clumps together or singly. Evergreens to show to the best advantage, must be given plenty of room, and should hold their branches to the ground, for when these are cut away the beauty of the evergreen is destroyed.

Of shrubs there are many varieties sufficiently hardy to stand the sudden changes of this climate, nearly all of which are, when well grown, very beautiful, such as the spireas, deutzias, forsythias, lilacs, hydranges, etc. These to produce the best effect should be planted in groups.

Among the running vines the honeysuckles (of which the evergreen will probably give the best satisfaction), clematis, trumpet flower, and wisterias are most desirable.—J. W. Clark, in *Rural World*.

The Culture of Petunias.

Few, if any, plants are more deservedly popular than the petunia for bedding purposes, greenhouse or window culture. They bloom in the greatest profusion during the whole year, when surrounded by the proper conditions, namely, plenty of fresh air, a rich, moist soil, and a shady situation. A high temperature is not required to develop their perfections.

The plant is not easily injured by light frosts, or even moderate freezing. This enables amateurs to winter them where the facilities for keeping tender plants are limited to a pit or family room. The florists now offer a much greater variety of these lovely flowers than formerly. The tall-growing sorts may be trained or staked up to the height of ten feet. Cultivated in this way they afford a good screen for unsightly places, and bloom much more profusely than if allowed to stray and tangle over the ground, besides looking much neater. In the Middle States may be found many blotched and striped flowers, as well as solid colors, running from dark velvety maroon through all the shades of crimson, rose, pink, flesh color, lilac and white, emitting a delicious fragrance when the sun is low and the due on them. This fragrance is not perceptible during the heat of the day.

The new fancy Hybrids or large flowering section produce magnificent flowers, twice the size of the old sorts, in crimsons, maroon, rose and white, blotched, striped, bordered and veined in the most exquisite manner. Many of them have large throats of a bright yellow color. The large flowering varieties all require to be trained to stakes or trellises, but do not grow so tall as the first named. The large, double-flowering, fringed strain are probably the most wonderfully developed flowers, considering their antecedents, in existence. They are so easily grown as to be within the reach of all flower-lovers, and pretty enough to ornament the collections of the most fastidious.

Of the dwarf Inimitable there are both single and double-flowering varieties. The colors are cherry with a white center, solid cherry and pure white. They grow only six or eight inches high, are formed like a little tree, and bloom profusely. All petunia seed should be sown early, in very rich, light soil. Much heat is not required for their germination. When the leaves of the plant are about an inch long, they should be transplanted to where they are wanted, kept clear of weeds, and the earth well stirred about the roots.

If the season is dry, water frequently. An abundance of bloom the first season will reward the care given them.

On the approach of cold weather they may be taken up, and the tall-growing varieties cut back to the proper height for potting. For this a six or eight-inch pot or box may be used for a good-sized plant. Strict attention must be given to proper drainage. If the plant is potted sufficiently early for the roots to become established before cold weather sets in, the blooms will soon appear, and gladden a family room by their presence all winter if properly cared for.

For pot culture nothing can surpass the neatness and beauty of the dwarf sorts. All petunias grow readily from cuttings, and plants obtained in this way will bear flowers like those of the parent plant, but those grown from seed rarely reproduce the same kind of flowers. Double flowers are produced by artificial fecundation.—Mrs. J. T. P., in *American Cultivator*.

The cauliflower ought to be grown wherever it will grow. It is a relishable plant. To do its best it requires a very rich, deep soil, and one on which nothing like cabbage or turnips have been grown. It is not always possible, however, to have perfect conditions, and not necessary to produce middling results. The preparation of the soil and the cultivation are similar to those common for cabbage culture. The plants should be set ordinarily in rows thirty inches apart and eighteen inches apart in the rows, that is for the early dwarf varieties. It is always desirable to plant just as early as possible, for the plant does not stand drouth very well. Indeed, the heat and drouth in some sections make it very difficult to grow cauliflower successfully. The seed may be sown in the hot bed. There is not much cauliflower seed produced in this country, and it is not advisable to attempt to produce it. Our summers are too hot for the production of seed. Most of the seed comes from Europe. If set very early, however, some of the seed may mature.

When trees are set in land too rocky or steep to cultivate they should be dug around, and the land enriched to give a good start; in such land straight rows are, from the nature of the land, impracticable, but the trees can be set where there are spots of deep soil among the rock.

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The Poultry Yard.

Poultry a Special Product.

Continuing the subject of poultry as a special product of the farm, I will give some details of management. I would not attempt to keep a large number of fowls in one yard or building, and I would not erect costly buildings. I would build houses about eight by twenty feet, six feet high in the rear and enough higher in the front to give a good slope to the roof; and as you would want all the light and sunshine you could get in winter I would have them face south.

If I wanted to keep 200 hens I would make four of these houses not less than twenty feet apart, and colonize fifty hens in each. I would have a small yard attached to each building, made of galvanized woven wire with two-inch meshes, as this will keep out foxes and other wild animals that prey on the chickens. This fence can be bought in five-foot widths for about 75 cents per rod. These yards may be small, less than one-fourth acre each, for I would not keep the fowls confined, but allow them to range over the farm most of the time; but a small yard would be necessary to enable you to control them when you so desired. The houses would be cheap, as a good gravel floor would be all needed, except under the roosts, where you ought to have boards so as to save the manure. The posts should be four inches square, the plates and nail ties two inches, and there should be two large windows on the south, coming nearly to the ground, so as to enable the fowls to enjoy sunshine in winter. Two men will build one of these houses in about a day and a half, and the material will cost less than \$20 in most localities.

In addition to these houses and yards there should be a yard for raising young chickens, which should be located on dry ground, and should be protected on the north and west from the wind. This yard should contain coops for hens, and feeding coops for young chicks which the mother cannot enter, and a rat-proof house for the young chicks arranged with low roosts. I would make all roosts movable, so they could be lifted out or put back quickly when you wish to clean the house; filthy houses breed lice, and lice are the cause of most poultry diseases.

I would not pay any fancy prices for fowls to start with, but buy in the market the best I could get, and then if I wished to go into the business of raising thoroughbred fowls, get a few settings of eggs and raise enough to start one colony, and if you wish to change to thoroughbred fowls entirely this colony would furnish all the eggs the second year that we would need for setting; after that you could raise thoroughbred fowls with no extra expense except to change cocks. In my own experience in the poultry business I found the profits more than doubled by the keeping of pure-bred fowls, as we could sell quite a large per cent. both of eggs and fowls at from four to eight times the price of common fowls.

In selecting your breed you will be governed largely by your market and what you propose to do. If eggs are to be made a specialty you should get some of the non-sitting breeds like the Leg-horn, and you must raise early spring pullets so they will begin laying in the early autumn and give you high-priced eggs. If you have a market for broilers at a high price you want a quick-maturing breed that feathers young and will attain a good weight in early spring, and there is probably no better breed than the Plymouth Rock for this

purpose. For winter-laying you must be prepared to give a variety of food; hens shut up, and with but little exercise, and fed on corn, will get fat and stop laying. Small potatoes, cabbage, apples, oats and bran should form a large part of their winter diet, and in addition, they should be furnished some animal food. The lawn grass should be dried and saved or green clover cured and put away, and some of this run through a cutting-box, and hot water poured over it to soften it and fed to them.

After careful watching of the experiments of several of my neighbors I am a convert to the use of the incubator. All the fowls now on my farm were hatched in an incubator, and I have never had more healthy or profitable fowls. The incubator was made by a carpenter, and his first use of it gave him seventy chicks to one hundred eggs, and after he got it fairly under way it required no attention, except to draw off a gallon or two of water twice a day and substitute hot water.

I do not deem it necessary to go more into detail, nor do I wish to. It is impossible, in these brief articles, to do more than to show that a certain thing can be done, and give some hints as to how; the details must be learned by experience. What I do wish to do, is to show that by care and labor and the adoption of business methods, poultry-growing may be made profitable on farms not well adapted to the plow, and that where these qualities are found there is money in it.—Waldo F. Brown, in *National Stockman*.

Packing Eggs to Ship for Hatching.

When we consider the remarkable nature of the egg, its delicacy and its frailty, and remember it is the object on which wholly depends perpetuity of the species which produced it, we are often led to exclaim, How wonderful! When we further consider how delicate the germ of life hidden within it, which, protected as it is by the surrounding fluid and the shell, is still in imminent peril from outside influence, we understand how necessary that it be carefully guarded if we propose to continue its development, or rather cause it to be hatched. Therefore, to successfully carry eggs for hatching long distances, great care in packing is required.

In the first place, it is best for a very successful hatch to select eggs that have not been laid over a week or ten days, though older ones will sometimes hatch. I have never ascertained by experiment the average length of time that an egg continues fertile under favorable circumstances, but do positively know that fresh eggs hatch best. Eggs should not be exposed to excessive cold or heat, but kept dry and moderately cool until set.

To send eggs by express light wooden boxes are far better than the baskets which are sometimes used, as the inflexible sides protect the eggs from outside pressure.

I will therefore describe my method of making boxes, as the kind I use have proved very efficient. I use basswood lumber three-fourths inches in thickness, and six to eight inches wide, and form a rectangular box differing in size according to the number of eggs to be packed. The convenient size for one setting is six inches deep, six inches wide and thirteen inches long. An excellent top and bottom are made from the thin elm cheese-box siding which is very strong and light. It may be purchased from any cheese-box manufacturer at small cost. The box may be put together with small nails, care being taken to make it strong. But the cover must be fastened down with screws to avoid jarring the eggs after they are

packed. Bore two holes with bradawl in each side of the box, two or three inches from the ends, and three-fourths inches from top. Insert in these a wire bail for each end of box, putting the ends of wire through the hole from outside in and bending up close to side of box inside. Let these bails be long enough to meet above the box, so that when tied together the box may be handled by them. This will avoid much shaking and rough use that a box not so provided would be apt to encounter.

When the box is completed put in some dry packing, as planer shavings, fine cut hay or excelsior, to the depth of perhaps one inch. Then wrap each egg separately with paper, pressing the latter around the egg irregularly till a ball is formed three or four inches in diameter. Lay a smooth paper over the packing and place the wrapped eggs closely together in the box, and fill to top with the same packing as used in the bottom. Tie the handles together and fasten on shipping tag plainly directed, taking care to state conspicuously on box that it contains "Eggs for Hatching."

It is, of course, very well known that one breeder advocates one method while another claims some different way to be best, and some patent arrangements are largely used. Still, while I do not contend that my way is best, I know there can be no better. Bearing in mind that the purchaser invests his money solely to get choice eggs and have them arrive in a perfect and hatchable condition, it is readily seen that he neither cares to pay for a fancy box or extra express for unnecessary weight. Hence strength, lightness and secure packing are most important. The method described combines all these. It is precisely the manner in which I shipped dozens upon dozens last year to all parts of the United States and Canada, receiving often reports of full hatch, and in the whole season only four eggs were reported broken, these in a single box showing that some very unusual calamity must have befallen it. I am using the same method this year, and expect in a few days to send a large shipment to Nebraska. Shall pack them in this way in full confidence that the buyers will get good hatches from the eggs I send.—George H. Northup, in *American Cultivator*.

Labor is the most costly of all products, and this fact is recognized in the relative value of the various kinds of farm stock. The horse can give us only labor, and yet the horse sells high above the best of other domestic animals, and for several times as much as their average. The cow which furnishes milk for the same number of years that

a gelding will furnish service, and which will in the meantime present her owner with a calf every year, and turn over her carcass for beef in the end, may not and generally does not command more than one-half as much in market as the gelding does which in all these years yields nothing but labor. And, besides, as both are ordinarily kept, the sustenance of the gelding is much more expensive. Except she be used for breeding fine stock, the best cow in the country will not command as much on sale as a good specimen of the despised mule. Labor is not only the most valuable of all products, but its value is the most difficult of all values to adjust, from which it happens that service animals vary more in price than any other kind of stock. Those who have never thought of these things will find them a most interesting study.—*Ex.*

"Give Him \$2, and Let Him Guess."

We once heard a man complain of feeling badly, and wondered what ailed him. A humorous friend said, "Give a doctor \$2, and let him guess." It was a cutting satire on some doctors, who don't always guess right. You need not guess what ails you when your food don't digest, when your bowels and stomach are inactive, and when your head aches every day, and you are languid and easily fatigued. You are bilious, and Dr. Pierce's Pleasant Purgative Pellets will bring you out all right. Small, sugar-coated, easy to take. Of druggists.

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Book Notices.

HARPER'S.—*Harper's Magazine*, in its June number, pays a graceful compliment to the men who, in recent years, have borne a large share in sustaining the reputation of its pages for artistic excellence. It publishes an essay by Henry James reviewing the work in black and white of F. D. Millet, Edwin A. Abbey, Alfred Parsons, George H. Boughton, George du Maurier, and C. S. Reinhart. Accompanying the article are portraits of these artists, and several views of Broadway, the old English village "in a hollow of the green hills in Worcestershire," where Mr. Abbey and Mr. Parsons have made their home. As if to confirm Mr. James's appreciative criticism, this number contains a full-page drawing by Mr. du Maurier, one of Wordsworth's sonnets illustrated by Mr. Parsons, and Præd's quaint poem, "Quince," illustrated with nine drawings by Mr. Abbey.

THE FORUM.—This excellent monthly, published in New York city, is a powerful agent in diffusing political thought among the people. Its contributors are statesmen and thinkers who discuss matters of public concern from the standpoint of fact and with the skill of persons actually engaged in work out of which their discussions rise. The *Forum* is an aid of great value to all students of public affairs. It comes at \$5 a year, or 50 cents a number. In the *Forum* for June, Senator Edmunds discusses the decay of political morals indicated by the increasing purchase of voters. He estimates the amount of money spent during the last campaign at \$5,000,000, and in his criticism he spares no section of the country and neither party. Among the remedies that he points out are better registration laws, restriction of immigration and of naturalization, and the compulsory publication of election expenses. Another political article in this number is "The Drift Toward Annexation," by W. Blackburn Harte, an editorial writer for the *Toronto Mail*. He maintains not only that commercial union and thereafter political union of the United States and Canada are inevitable, but also that they are desirable for Canada; and that the Canadian politicians of all parties know this, unwilling as some of them are to confess it. He points out also what he conceives to be the absurdity of Canada's continuing the colonial relation to Great Britain. The essay is a frank analysis of Canadian politics from a very liberal point of view. Besides these there are seven other articles, "The Moloch of Monopoly" being one of the strongest.

THE BIBLE AND LAND.—We called attention to this book last fall, and on a second examination it is thought another notice may be more satisfactory to the reader. It is an argument based on the proposition that God, primarily, owns all land because he created it; he may and does give it to whomsoever he chooses and for whatsoever purpose, with or without conditions, as he chooses, subject to limitations or not, as to him appears just and good; that nations, governments and rulers are agencies used by him in the transfer of land—in short, the Bible doctrine of land and rulers. The object of the author is to show that a land tax is just, that it is the only just, and therefore the only proper tax, that land is the only thing which ought to be taxed, and a land tax properly adjusted is altogether righteous and will raise sufficient revenue without oppression of one class or release of another—that a land tax will reach all classes of the people, and will relieve communities of the unjustness, the defects, the partialities of the present system. The author does not propose the confiscation of land; he believes in the ownership of land as of other property, he would only require that owners of land pay the taxes assessed against according to its value without regard to improvements. The subject is presented in a new, clear and strong light. Admitting his premises (and who is ready to dispute them?) the author's conclusion follows logically. When reading this meaty little book, one finds his early training in the way, but the more it is read, and the more the matter is studied, the more reasonable the argument appears. The book was written by Rev. James B. Converse, of Morristown, Tenn. It is a small book of 241 pages, with an appendix of ten pages, chiefly references to authorities. The book is published and sold by the author, but we do not know its

price. To any student of the tax question, "The Bible and Land" will afford much assistance.

SHORT-HAND WRITING.—Some weeks ago we referred to a new system of short-hand and promised to examine it and report. We have examined it and are pleased. The difficulty with all the old systems is, that vowels and consonants are disconnected, so that whenever a vowel is to be inserted the pen or pencil must be raised from the paper, and this must be done for every vowel used. On that account, in reporting, vowels are seldom used, consonants only indicating the words. This renders the writing deficient for persons other than the writer to read, because so many words with the same consonant outline are pronounced differently and have different meanings. For example, the consonant *d* is the only consonant used in *do, die, dye, day, doe* and *dough*. Standing alone, without context and without vowel sign, the letter would be meaningless and therefore valueless. There are two new systems of phonography which obviate this difficulty, one of which we are now examining and will refer to after the examination is completed. The Acme system, first above referred to, is the invention of F. J. Mulvey, whose school is at 921 F. St., N. W., Washington, D. C. It is simple, easily learned, has few exceptions and not a very long list of word signs. If plainly written it can be read by persons other than the writer as readily as one person reads the long-hand writing of another. Like other systems of phonography, it is written by sound, every character representing a sound. Whether this system is equal to the vowelless outlines in the matter of speed we are not prepared to state, though the inventor claims that it is; but it is so great an improvement in every other way that we do not hesitate to advise an examination of the Acme system by persons wishing to study and learn phonographic short-hand writing before adopting any of the old systems. Mr. Mulvey teaches his system by mail to persons residing anywhere. By addressing him at the address above given, he will respond, giving particulars.

Weather-Crop Bulletin

of the Kansas Weather service, in co-operation with the United States Signal Service, for the week ending Saturday, May 25, 1899:

Precipitation.—The average rainfall for the State this week was one inch and eleven-hundredths (1.11). The heaviest occurred in Johnson, Wyandotte and southern part of Leavenworth, next in Miami and Linn, and the next heaviest in Rawlins, Decatur and Sheridan. The least occurred in Sumner, Harper and the extreme southwest counties. Fall on the 23d in many counties, being very heavy in Rawlins, Decatur, Coffey, Johnson and Wyandotte.

Temperature and Sunshine.—In the central and western counties the temperature has ranged at and above the normal, reaching 100 deg. on the 23d and 24d in the southwest. In the eastern counties it has ranged below, the greatest deficiency occurring on the 20th and 24th. Over the State there has been a large per cent. of sunshine.

Results.—The seeming damage to wheat and oats by the severe winds of the 4th, 5th and 6th in Harvey and Butler is about all repaired by seasonable rains and generally favorable weather since. Over the State generally the crops are reported in flourishing condition. The very favorable weather of the past week has brought all vegetation well forward, except in the extreme west and southwest, in which sections rain is much needed. The heavy rains caused washouts on some of the railroads, delaying trains. In Johnson, near Morse, 1.25 inches of rain fell in ten minutes. In Clay, on the river bottoms, the waters remained for several days, thus necessitating a large amount of replanting. The hail storms cut much corn, bruised wheat badly in narrow belts and damaged gardens; in Coffey the hailstones measured from one to two inches in diameter. Chinch bugs are doing much damage in Woodson, while in Coffey and Lyon the rains have checked the young brood. In Nemaha cut worms are at work.

T. B. JENNINGS,
Signal Corps, Ass't Director.

The prosperity of any people is well indexed by the proportion of woolen goods they wear, and Americans are universally wearers of woolens.

Inquiries Answered.

CITY TAX.—A city may lay a tax on any trade, business or profession, provided, always, that the tax be uniform; that is, the same on all persons within the city engaged in that particular line of work. As to the amount of the tax, that is within the discretion of the Council, and the only relief against oppressive taxes lies in the selection of fair men in the Council.

ADULTERATION OF MILK.—Please publish in your next issue the law in regard to adulterating milk or cream, and whether there is any law to protect the factory where milk or cream is adulterated?

—The law against adulteration of milk for sale to customers in regular trade is strict. Whether it covers the case of milk furnished to a creamery is not so clear; but whether or not, the law of fraud applies, and persons guilty of this particular fraud may be dealt with harshly if prosecuted as he ought to be.

Meats for the Farmer's Family.

The price of butchers' meat varies little in our country towns, whether the butchers pay 3 or 5 cents a pound live weight for the cattle; and the farmer who depends on buying fresh meat for his family the year round has a bill to pay which requires the sale of several head of cattle to meet it. I have tried to reduce this account by making the farm produce as far as possible the meats used, and have succeeded to quite an extent in doing so. Another way to reduce the meat bills is to use less meat. By taking pains to have an abundant supply of fruit and vegetables, there are few persons but will be satisfied through the hot weather with a moderate allowance of meat. I think we do not use half the meat from April to October that we did in former years, and all the family and work hands express themselves well satisfied with the change. We have also learned to like pig pork. I do not think my family would eat fifty pounds in a year of such fat corn-fed pork as was always slaughtered by farmers years ago; but spring pigs that have been raised on grass, bran and oats, make delicate eating, and in October we begin to eat spring pig. A pig that will dress from sixty to seventy-five pounds can be easily disposed of by a family of half a dozen, as the hams can be put into sweet pickle and kept a while at that season of the year. These spring pigs, relieved by an occasional chicken and turkey, give small meat bills until winter sets in; and as soon as this happens, we are ready to butcher a yearling heifer which we have taken from grass and been feeding for the purpose. When slaughtered, we cut it ready for packing, and put into a cold room. If the winter proves cold, we have fresh beef for weeks; but if there comes a thaw so that there is danger that the meat will not keep, we put it in sweet pickle. This pickled beef, whether eaten warm or sliced cold, is excellent and we rarely tire of it. The last of December we kill pigs for the year's supply of lard and bacon. Instead of killing three or four 300-pound hogs excessively fat, as was the former custom, we kill twice the number of pigs that will weight 150 each net, and have been fed but a few weeks on corn. Instead of putting down a barrel of fat middlings as my father did, we fill a three-gallon stone jar, as the only use we make of pickled pork is to cook a small piece with vegetables to season them. Our pigs are all made into lard and sausage, except the hams and shoulders which are trimmed close and put into sweet pickle for six weeks and then cured with liquid extract of smoke. The sausage is put into cloth bags three inches in diameter, and all except what we shall use in two or three weeks is treated with the liquid smoke, which will keep it sweet and good until warm weather. The shoulders of these pigs are almost as lean and good as the hams. I like the new method of curing much better than smoking, as it does away with the risk of fire and thieves in the smoke-house, for the meat can be hung in a garret in the house and insects will not disturb it. To cure the meat, we sponge the liquid on it twice at an interval of a week, and it is well to make a third application of it after the weather gets hot in May or early June. We are just using the last of our hams at this date (August 1), and they have hung all summer in the woodhouse loft, with no canvassing or protection from flies or other

insects, and have kept perfectly. This is the second year we have cured our meat in this way, and it has given excellent satisfaction. When we add poultry and eggs to our bill of fare, it will be seen that our butcher's bill need not be large. I am rather shy of canned meats; they are cheap and palatable but not always safe. We find dried beef cooked a cheap and very palatable meat for a variety, and use it often for a breakfast dish in warm weather. To prepare it, put a tablespoonful of butter into the skillet, and when it is slightly scorched, add milk, flour and seasoning until you have a rich gravy; then stir the beef into it or pour the gravy over it in the dish. The beef should be cut very thin and partly shredded. I think a half pound of dried beef treated in this way is equal to nearly two pounds of steak. My receipt for sweet pickles for either hams or beef is one and a half pounds of salt and one pound of brown sugar to each gallon of water. Good sorghum or New Orleans molasses may be used in place of sugar, but the weight should be the same as that of the salt. The meat should be sprinkled or rubbed over with salt and allowed to lie a day or two, to extract the blood, before the pickle is applied. The pickle should be boiled and then allowed to cool before it is poured over the meat.—Waldo F. Brown, in *Country Gentleman*.

The *Farmers' Review* copies the foregoing letter and adds the following, which the *KANSAS FARMER* endorses heartily:

[We have one criticism to make on the above article. It ignores the sheep as a source of supply of meat for the farmer's table. The cost of keeping a small flock of mutton sheep or grades on a farm would be scarcely appreciable, while a fat lamb or mutton occasionally during the summer to take the place of a part of the hams, shoulders, sausage, etc., the product of the hog, would be an improvement upon the bill of fare. Mutton is one of the most wholesome and nutritious of meats, and is not appreciated at its full value in this country.—EDITOR.]

NEW ADVERTISEMENTS.

Babcock, M. S. Brood Mares to Exchange.
Child & Co., A. J. Wool Buyers.
Cavan, W. G. Large English Berkshire
Iverson, Blakeman & Co. Spencerian Pens.
Missouri Pacific R. R. Summer Resort of the
Staggs, H. Roller Cultivator.

California Excursions.

Are you going to California? If so, read the following, and find out how much it will cost you, and what you can get for your money: The *Santa Fe Route* runs weekly excursions (every Friday) from Kansas City and points west to San Francisco, Los Angeles, San Diego and other Pacific-Coast points. The ticket rates are the regular second-class rates—\$35—from the Missouri River the principal California points. Pullman Tourist Sleeping-Cars are furnished. These cars run through, without change, from Kansas City to destination. The charge for berths is remarkably low, being \$3.00 for a double berth from Kansas City to California. The Pullman Company furnish mattresses, bedding, curtains and all sleeping-car accessories, including the services of a porter with each car. The parties are personally conducted by experienced excursion managers, who give every attention to passengers, insuring their comfort and convenience. For more complete information regarding these excursions, rates, tickets, sleeping-car accommodations, dates, etc., address

GEO. T. NICHOLSON, G. P. & T. A.,
A. T. & S. F. R. R.,
Topeka, Kansas.

Summer Resorts of the Rockies.

All the summer resorts of Colorado, Utah and the Rocky Mountains, are reached in through Pullman Buffet sleeping cars from St. Louis and Kansas City, via Missouri Pacific Railway. "The Colorado Short Line" to Pueblo, Colorado Springs and Denver. Tourists' round-trip tickets at low rates are on sale at all principal coupon offices in the United States, good for six months to return. For beautifully-illustrated tourist guide of 140 pages, descriptive of the resorts, and further information, address H. C. Townsend, General Passenger & Ticket Agent, St. Louis, Mo.

The Veterinarian.

[This department of the KANSAS FARMER is in charge of Dr. F. H. Armstrong, V.S., Topeka, a graduate of Toronto Veterinary college, who will answer all inquiries addressed to the KANSAS FARMER concerning diseases or accidents to horses and cattle. For this there is no charge. Persons wishing to address him privately by mail on professional business will please enclose one dollar to insure attention. Address F. H. Armstrong, V.S., No. 114 Fifth St. West, Topeka, Kas.]

J. H. S., Wilcox, Kas.—Your colt is suffering from specific or periodic ophthalmia, which will sooner or later terminate in total blindness. He may be relieved by giving laxative, cooling diet, as bran mash, grass, etc. Keep in rather dark loose box and use ten or fifteen drops of the following lotion: Sulphate of atrophine, 8 grains; sulphate of zinc, 40 grains; soft water, 4 ounces. Mix.

W. W. M., Riley, Kas.—Inflammation of elbow joint. Keep colt in a box stall and apply hot fomentations two or three times a day. After each bathing use the following liniment: Proof spirits, 12 ounces; tincture capsicum, 1 ounce; tincture opium, 1 ounce; oil origanum, 1 ounce. Mix. After the swelling disappears apply the following blister: Cosmoline, 4 ounces; powdered cantharides, 4 drachms; binodide iodide mercury, 2 drachms; solid extract belladonna, 2 drachms. Mix. Clip hair off from the joint and apply with the hand. After twenty-four hours wash off and grease every day with fresh lard.

Reclaiming the Arid Region.

By the arid region of the United States is meant all that portion lying west of the 100th meridian except northern California, the western part of Oregon, and nearly all of Washington Territory. It is true that near the eastern border of this region, and lying within it, there is much land which, without irrigation, will yield moderate returns for cultivation; but such lands have a deficiency of moisture and may properly be called arid. The average annual rainfall for this vast region is about fifteen inches. Its whole extent is about 1,800,000 square miles. Much of it is too rugged and steep for cultivation, and there is a considerable area of elevated plains which could not be reached by any known artificial system of water supply. Still another portion consists of depressions in the surrounding plain from which the salts in the soil could not be washed by drainage. This would leave the total lands which could be used for agriculture, if supplied with abundant water, at nearly a million square miles, an area three or four times as great as all the lands now under cultivation in the United States.

When it is remembered that crops on irrigated lands are almost absolutely certain, it will be seen how valuable every square mile of these lands would eventually become if it could be reclaimed from its arid condition. The topographic conditions for irrigation are excellent; it is only the supply of water that is lacking.

Thus far the work of irrigation has been carried on by private effort and stock companies, aided by State enactments defining and limiting the rights and privileges of those who utilize the water. The total amount of land made subject to irrigation thus far is probably not over 10,000 square miles, and the conditions are now such that the extension of the system to new localities is comparatively slow.

The annual precipitation in the form of snow and rain is much the greatest in the mountain ranges, it being as much as 100 inches on the highest peaks. Much of this is lost by evaporation or goes to supply some subterranean reservoir. The remainder goes to feed the streams of the West. Some of the

streams have beds so low that their waters cannot be conveyed to the surrounding country. By far the greater part of the water flows away during a season when crops are not growing, and is thus lost. The plan of constructing surface reservoirs for the retention of the water until it is needed has often been suggested and its feasibility discussed, but the present Congress has given a practical direction to the discussion by legislation on the subject. The sundry civil appropriation bill, as it passed both Houses, has a provision for the expenditure of \$190,000 during the next fiscal year, in examining into the feasibility of the plan, finding out the extent to which reservoirs could be used, locating them, and for other purposes.

The work is to be carried on by the Geological Survey of the United States, under the direction of the Secretary of the Interior. Of course all this is preliminary, and commits the government to nothing in the way of further expenditure. The work already done by the Geological Survey is available to a great extent in preparing reports upon the subject to be investigated. Major Powell has already shown that the utmost that can ever be accomplished in reclaiming the arid lands by irrigation would probably not be above 200,000 square miles. But 200,000 square miles is a region more than two-thirds as great as the cultivated part of the United States. If all irrigated, it would add at least \$3,000,000,000 to the aggregate wealth of the nation.—Prof. Lantz.

Moran, the great artist, despaired when he saw the Great Shoshone Falls—it was so far beyond his pencil's cunning. So there are wonderful dreams of beauty in the tempestuous loveliness of the grand "American Alps" in Colorado, which are at once the aspiration and the despair of painter and poet. Splendid beyond comparison is the superb scenery along the South Park Division of the Union Pacific in Colorado.

Summer Tourist Rates.

Round-trip tickets, at reduced rates, are now on sale, via the Santa Fe Route, to Denver, Colorado Springs, Pueblo and Trinidad, Colorado and Las Vegas Hot Springs, New Mexico. Holders of tourist tickets can purchase, at reduced rates, round-trip tickets from junction points in Colorado to all mountain resorts reached by the Denver & Rio Grande, Colorado Midland and Union Pacific railways in Colorado. Tickets to Colorado are good going 30 days; returning, 5 days; final limit, October 31, 1899. Tickets to Las Vegas Hot Springs, N. M., are good going 30 days; returning, 30 days; final limit, 90 days from date of sale. Two daily trains, with through Pullman Sleepers, to above points. For rates, tickets and sleeping-car berths, call on nearest Santa Fe Route ticket agent.

GEO. T. NICHOLSON, G. P. & T. A.,
A. T. & S. F. R. R.,
Topeka, Kansas.

The "Eli" Once More.

The Burlington Route (Hannibal & St. Joseph R. R.) once more leads all its competitors, in restoring the fast train service between Kansas City and Chicago. The train so well known a year ago as the "Eli," and so deservedly popular with the traveling public, has once more been put on. It is a solid vestibule train with sleepers, free chair cars and coaches, and makes the through run between the two cities in about fourteen hours. Leaving Kansas City in the evening the passenger takes supper on the dining car and arrives in Chicago for breakfast, and vice versa on his return. This is a great saving of time, and the Burlington's action in restoring this service meets with the hearty approval of all business men and the public generally.

The Burlington's new St. Louis line increases in popularity every day, and now holds a high place in public favor. The Burlington runs on this line through Pullman Sleeping Cars of the latest improved design, and Reclining Chair Cars, seats in the latter being free of charge. We should also strongly advise any one going to Omaha, St. Paul, Minneapolis or the Northwest to take the daily forenoon train on the K. C. St. J. & C. B. R. R., which has a through Pullman Buffet Sleeping Car from Kansas City to St. Paul and Minneapolis and free Chair Car to Omaha, or take the evening train from Kansas City, which has a through Sleeper and Chair Car to Omaha.

All of the above trains are in every way models of comfort and convenience. A. C. DAWES,
General Pass. & Ticket Agent, St. Joseph, Mo.

THE MARKETS

(MAY 25.)

Chicago.

CATTLE—Receipts, 1,500; shipments, Market slow and weak. Beef, \$3 90a 40; steers, \$3 35a 40; stockers and feeders, \$2 75a 30; cows bulls and mixed, \$1 80a 30; Texas steers \$1 80a 30.

HOGS—Receipts, 11,000; shipments, 5,000; Mixed, \$4 40a 60; heavy, \$4 45a 60; light, \$4 45a 75; skips, \$3 50a 60.

SHEEP—Receipts, 1,500; shipments, Market steady. Natives, \$4 00a 50; western, shorn, \$3 50a 40; Texans, \$3 25a 30; lambs, \$4 50a 25.

St. Louis.

CATTLE—Receipts, 300; shipments, 600; Market steady. Choice heavy native steers, \$3 80a 40; fair to good, \$3 20a 40; stockers and feeders, fair to good, \$2 15a 30; rangers, corn-fed, \$2 70a 30; grass-fed, \$2 10a 30.

HOGS—Receipts, 2,100; shipments, 1,300. Market strong. Choice heavy and Butchers' selections, \$4 50a 60; packing, medium to prime, \$4 35a 50; light grades, ordinary to best, \$4 40a 50.

SHEEP—Receipts, 100; shipments, 1,000. Market steady. Fair to choice, \$3 00a 40.

Kansas City.

CATTLE—Steers, \$3 00a 35.
HOGS—Sales ranged \$4 20a 40.

St. Louis Wool Market.

KANSAS AND NEBRASKA—Medium, 22a 24c; coarse, 18a 30c; light fine, 20a 22c; heavy fine, 16a 18c; low and inferior, 15a 17c.

Boston Wool Market.

KANSAS AND NEBRASKA—LIGHT—Fine 18a 28c; fine medium, 20a 23c; medium, 22a 25c. Ordinary—Fine, 15a 17c; fine medium, 17a 19c; medium, 20a 22c.

TO MONTANA, OREGON AND WASHINGTON.

If you are going West, bear in mind the following facts: The Northern Pacific railroad owns and operates 987 miles, or 57 per cent. of the entire railroad mileage of Montana; spans the Territory with its main line from east to west; is the short line to Helena; the only Pullman and dining car line to Butte, and is the only line that reaches Miles City, Billings, Bozeman, Missoula, the Yellowstone National Park and, in fact, nine-tenths of the cities and points of interest in the Territory.

The Northern Pacific owns and operates 621 miles, or 52 per cent. of the railroad mileage of Washington, its main line extending from the Idaho line via Spokane Falls, Cheney, Sprague, Yakima and Ellensburg, through the center of the Territory to Tacoma and Seattle, and from Tacoma to Portland. No other transcontinental through rail line reaches any portion of Washington Territory. Ten days stop over privileges are given on Northern Pacific second-class tickets at Spokane Falls and all points west, thus affording intending settlers an excellent opportunity to see the entire Territory without incurring the expense of paying local fares from point to point.

The Northern Pacific is the shortest route from St. Paul to Tacoma by 207 miles; to Seattle by 177 miles, and to Portland by 324 miles—time correspondingly shorter, varying from one to two days, according to destination. No other line from St. Paul or Minneapolis runs through passenger cars of any kind into Idaho, Oregon or Washington. In addition to being the only rail line to Spokane Falls, Tacoma and Seattle, the Northern Pacific reaches all the principal points in northern Minnesota and Dakota, Montana, Idaho, Oregon and Washington. Bear in mind that the Northern Pacific and Shasta line is the famous scenic route to all points in California.

Send for illustrated pamphlets, maps and books giving you valuable information in reference to the country traversed by this great line from St. Paul, Minneapolis, Duluth and Ashland to Portland, Oregon, and Tacoma and Seattle, Washington Territory, and enclose stamps for the new 1899 Rand-McNally County Map of Washington Territory, printed in colors. Address your nearest ticket agent, or CHAS. S. FEE, General Passenger and Ticket Agent, St. Paul, Minn.

Europe is all very well, but don't you think it is only fair as an American to know your own country thoroughly? Try the "American Alps" on the South Park Division of the Union Pacific in Colorado this summer. There's nothing like them in Switzerland.

W. B. WILHELM & CO.,

WOOL

Commission Merchants.

WOOL HIDES, FURS, SHEEP PELTS, ETC.
CONSIGNMENTS SOLICITED.

W. B. WILHELM & CO., Formerly HAGEY & WILHELM, Wool Commission Merchants.
4 and 6 North Commercial St., ST. LOUIS, MO.

References:—Boatmen's Saving Bank, Dunn's Mercantile Agency, Bradstreet's Mercantile Agency.

IMPORTANT TO HORSE OWNERS



COMBAULD'S CAUSTIC BALSAM.

Prepared exclusively by J. E. COMBAULD, ex-Veterinary Surgeon to French Government Stud.

Supersedes all Caustery or Firing. Impossible to Produce any Scar or Blemish. For Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, all Skin Diseases or Parasites, Thrush, Diphtheria, Pinkeye, all Lamenesses from Sprain, Ringbone and other Bony Tumors. Removes all Bunches or Blemishes from Horses and Cattle.

A Safe, Speedy and Positive Cure.

It has been tried as a Human Remedy for Rheumatism, Sprains, &c., &c., with very satisfactory results.

WE GUARANTEE that one tablespoonful of Caustic Balsam will produce more actual results than a whole bottle of any liniment or spray cure mixture ever made.

Every bottle of COMBAULD'S CAUSTIC BALSAM 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, testimonials, &c. Address LAWRENCE, WILLIAMS & CO., Cleveland, O.

TAKE NOTICE!

When writing to advertisers always mention the KANSAS FARMER, stating when you saw their advertisement.

A. J. CHILD,

NO. 209 MARKET STREET,

ST. LOUIS, MO.

Pays particular and personal attention to the handling of

WOOL

Consignments solicited and highest market prices given. Prompt remittances made. Circulars, market reports and sacks furnished free. Twine, shears, rock salt and sheep dip supplied.

WOOL!

WESTERN WOOL COMMISSION CO.

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Consignments of Wool Solicited. Cash returns made within six days after receipt of wool. Liberal Advances made on Consignments. References: Dunn's and Bradstreet's Agencies and Local Banks. Send for Circular and Price Current.

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HAGEY BROTHERS,

Successors to HAGEY & WILHELM,

WOOL

Commission Merchants,

220 N. Commercial St., ST. LOUIS, MO.

General Agents for Cooper's Sheep Dip.

References:—Boatmen's Bank, Dunn's Mercantile Agency, Bradstreet's Mercantile Agency.

Full returns guaranteed inside of six days.

The Busy Bee.

Bees Gathering Honey and Pollen.

Mr. Chas. Dadant, in reply to an inquiry, writes as follows to the *American Bee Journal*:

Bees are attracted to the nectar by its odor, mainly. Then, after having unloaded their honey sacs in the hives, they use their eyes to find more quickly and more surely their way back to the spot where they had completed their last load, and continue, on the same kind of flowers, as long as they find something in them to take.

I have noticed the bees of a colony gathering a kind of honey, while the bees of another colony, placed near by, gathered at the same time, honey different in color and flavor.

I have seen Italian bees, exclusively, working on red clover; while black bees, exclusively so, worked on buckwheat.

Some of our colonies had dark honeydew in their hives, while others had only white cloverhoney; some had fruit juice, while others had dark honey from the fall blossoms.

As the same kinds of some flowers vary a little, bees are soon accustomed to visit their diversely-tinted varieties. For instance, a bee will go from a purely white head of clover to another which is rose colored; for there are hardly two plants of white clover whose flowers have exactly the same tint.

Having watched bees working on a patch of differently colored blue bottles, I saw one bee stick to the white variety and pass by the other colors without paying any attention to them; while another bee visited, one after another, the white, the blue, the purple, etc. I noticed the same when watching bees on the asters, the knot weeds, etc.

There is, consequently, no wonder to see bees visiting several kinds of apple trees during the same trip. This reminds me of something unusual that I noticed in France long ago. There was an apple tree loaded with apples, very similar to the kind known here as the "Bellflower." Some of the apples, instead of being entirely white, had ribs, like muskmellons, colored in gray. Not far from it was another tree of a variety known in France as "Gray ReINETTE." No doubt the bees of an apiary placed in the same orchard had brought the pollen of the gray apple to the flowers of the white, and the fecundation had not remained confined to the seed alone, but had extended through the pulp to the part of the skin corresponding to the heterogeneously-fecundated kernel.

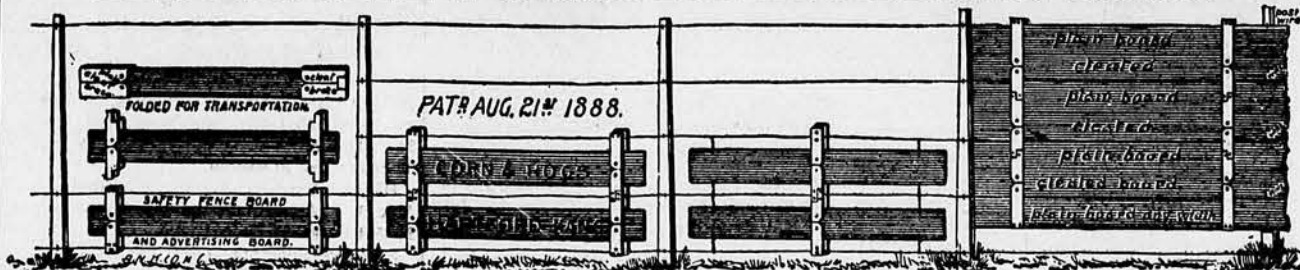
When the crop of honey is scarce, bees visit all kinds of nectar-yielding flowers, passing from one to another, without seeming to mind the difference. But we do not think that they act the same when they are in quest of pollen, if we notice the regular color of the lumps that they bring to the hives.

"They rested there—escaped awhile
From cares which wear the life away,
To eat the lotus of the Nile
And drink the poppies of Cathay."

And every American business man is beginning to find that his summer vacation is more and more of a necessity; the money-making machine won't stand the strain without an occasional rest. The "American Alps" of Colorado offer the highest conditions for perfect relaxation, pure vital air, comfortable hotels and the noblest scenery in the country, and may be reached on the South Park Division of the Union Pacific railway.

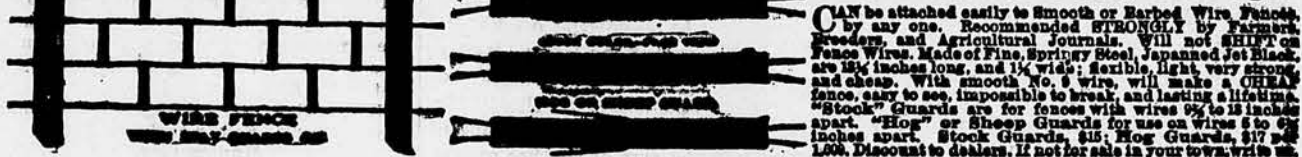
As a substitute for oats, the *Homestead* says a ration composed of six pounds of corn to one and a half or two pounds of bran and one of oil meal would produce most excellent results, but it cannot be produced for less than seventy cents per hundred pounds, while a ration of corn and oats, half and half, would cost about fifty cents.

HARDEN'S SAFETY FENCE AND ADVERTISING BOARD.



This engraving only shows part of its forms of application. A hatchet, saw, square, brace and bit, and wire nails only are needed in its construction. It is at once economical, complete, easily made, taken down and folded up, and can be put on fence again or stored away, being always ready for use. Circulars free. Agents wanted in every county in the United States. Send one dollar (\$1), with numbers of your land—section, township, range, etc., and receive deed to one farm right at once, and state if you want your township or county right. Address, with stamp for reply and terms, W. I. F. HARDEN, Box 1, Hartford, Kas.

STEEL STAY GUARDS FOR WIRE FENCES, MANUFACTURED BY THE WIRE FENCE IMPROVEMENT COMPANY, 325 Dearborn St., Chicago.



CAN be attached easily to Smooth or Barbed Wire Fences, by any one. Recommended STRONGLY by Farmers, Breeders, and Agricultural Journals. Will not SHOOT on Fence Wires. Made of Fine, Spring Steel, Japanned Jet Black, are 1 1/2 inches long, and 1/4 wide; flexible, light, very strong, and cheap. With smooth No. 8 wire, will make a GREAT fence, easy to see, impossible to break, and lasting a lifetime. "Stock" Guards are for fences with wires 12 to 18 inches apart. "Hog" or Sheep Guards for use on wires 6 to 12 inches apart. Stock Guards, \$15; Hog Guards, \$17 per 100. Discount to dealers. If not for sale in your town, write us.

Where the oats can be obtained of good quality this is the best feed for the money. The trouble is that in feeding oats that weigh from twenty to twenty-two pounds to the measured bushel it is hard to put any reliable estimate on their feeding value. A ration such as we have described, even at a cost of seventy cents cash outlay, is much better than attempting to raise pigs on corn alone.

"Had Been Worried Eighteen Years."

It should have read "married," but the proof-reader observed that it amounted to about the same thing, and so did not draw his blue pencil through the error. Unfortunately there was considerable truth in his observation. Thousands of husbands are constantly worried almost to despair by the ill health that afflicts their wives, and often robs life of comfort and happiness. There is but one safe and sure way to change all this for the better. The ladies should use Dr. Pierce's Favorite Prescription.

The splendor of the "American Alps" are beginning to be appreciated by our people, and a visit to Switzerland for gorgeous scenery is unnecessary. The picturesque mountain resorts on the South Park Division of the Union Pacific in Colorado are absolutely unrivalled on this continent.

ST. JACOBS OIL

For Strains, Injuries.
RECENT, PERFECT CURES.

Crippled. Streator, Ill., May 20, 1888.
Mr. M. SAOM, professional suit maker, in January, 1887, fractured his ankle and was crippled for two months on crutches; he used two bottles of St. Jacobs Oil and was permanently cured.
C. E. CHESWELL, Druggist.

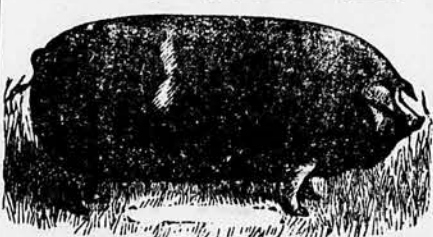
Crushed. Chandlerville, Ill., May 20, 1888.
About six months ago I was jammed between cars; in less than 24 days; suffered four months; used three bottles St. Jacobs Oil; was able to be about in one week.
J. J. ARNOLD.

Strained. Mt. Carmel, Ill., May 20, 1888.
Strained my back in February last; could not get round for two weeks without a cane; was cured in three days by St. Jacobs Oil.
J. F. WARNER.

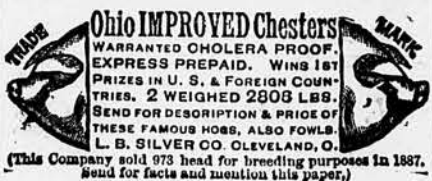
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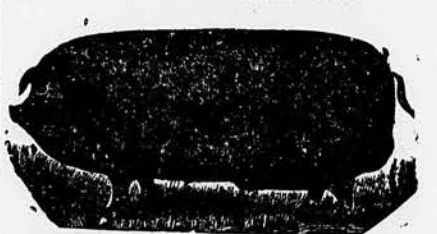
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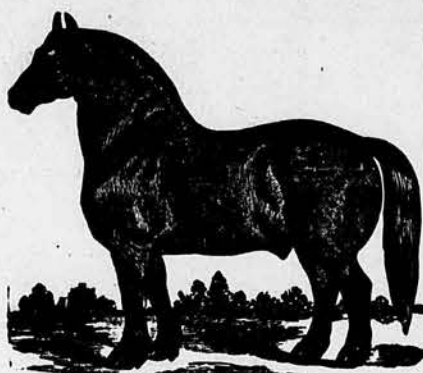
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THE STRAY LIST.

HOW TO POST A STRAY.

THE FEES, FINES AND PENALTIES FOR NOT POSTING.

BY AN ACT of the Legislature, approved February 27, 1884, section 1, when the appraised value of a stray or strays exceeds ten dollars, the County Clerk is required, within ten days after receiving a certified description and appraisement, to forward by mail, notice containing complete description of said strays, the day on which they were taken up, their appraised value, and the name and residence of the taker-up, to the KANSAS FARMER, together with the sum of fifty cents for each animal contained in said notice.

And such notice shall be published in the FARMER in three successive issues of the paper. It is made the duty of the proprietors of the KANSAS FARMER to send the paper, free of cost, to every County Clerk in the State, to be kept on file in his office for the inspection of all persons interested in strays. A penalty of from \$5.00 to \$50.00 is affixed to any failure of a Justice of the Peace, a County Clerk, or the proprietors of the FARMER for a violation of this law.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FOR WEEK ENDING MAY 16, 1889.

Greenwood county—J. W. Kenner, clerk.

PONY—Taken up by J. S. Masters, in Madison tp., May 3, 1889, one dun mare pony, white face, Mexican brand on left shoulder, X on right thigh and X on left hip; valued at \$25.

Sherman county—O. H. Smith, clerk.

MARE—Taken up by J. E. Erwin, in Iowa tp., April 11, 1889, one brown mare, 10 years old, left fore foot white, star in face, branded N on left shoulder.

COLT—Taken up by same, one bay mare colt, 1 year old, four white feet, star in forehead; value of both, \$40.

Shawnee county—D. N. Burdge, clerk.

HORSE—Taken up by A. M. Casperson, P. O. Tecumseh, April 27, 1889, one dark bay horse, 6 or 7 years old, five feet high, right fore and left hind foot white, white star in forehead, white spot on left eye, black mane and tail, slightly lame; valued at \$25.

Thomas county—James M. Summers, clerk.

MULE—Taken up by C. F. Hanscom, in Hale tp., April 10, 1889, one brown mule, fourteen hands high, small saddle mark on back; valued at \$30.

Montgomery county—G. W. Fulmer, clerk.

MARE—Taken up by John Blake, in Caney tp., May 1, 1889, one sorrel mare, 6 years old, white left hind foot, small ring on left shoulder, had a bell on when taken up; valued at \$18.

FOR WEEK ENDING MAY 23, 1889.

Miami county—H. A. Floyd, clerk.

FILLY—Taken up by P. L. Russell, in Middle Creek tp., P. O. Somerset, April 16, 1889, one bay filly, supposed to be 3 years old this spring, white spot in forehead, some warts on nose, about fifteen hands high, thin in flesh, no other marks or brands visible; when taken up had a wind-puff on right hind leg, but has disappeared; valued at \$40.

Cherokee county—J. C. Atkinson, clerk.

MARE—Taken up by Henry Sumpter, in Crawford tp., April 14, 1889, one brown or dark bay pony mare, four white feet, blaze face, two hands high, OO or figure 8 branded on left shoulder, thin in flesh.

Barton county—D. R. Jones, clerk.

MARE—Taken up by E. N. Ford, in Comanche tp., April 24, 1889, one brown mare, 7 years old, three white legs, blaze face, indistinguishable brand on left hip; valued at \$20.

HORSE—Taken up by same, one black horse, 1 year old; valued at \$12.

STALLION—Taken up by same, one roan 2-year-old stallion, had halter on; valued at \$18.

PONY—Taken up by T. M. Ullery, in Buffalo tp., April 19, 1889, one sorrel pony, 3 years old, four white feet, blaze face, branded A on left hind leg; valued at \$20.

PONY—Taken up by same, one roan mare pony, 3 years old, four white feet, blaze face, branded A on left fore leg; valued at \$20.

Republic county—H. O. Studley, clerk.

MARE—Taken up by Geo. W. Culver, in Grant tp.,

P. O. Wayne, April 25, 1889, one bay mare, 7 years old, no marks or brands; valued at \$50.

GELDING—Taken up by same, one bay gelding, 3 years old, no marks or brands; valued at \$40.

Jewell county—H. L. Browning, clerk.

MARE—Taken up by Charles F. Haggart, in Brown Creek tp., P. O. Mayview, May 2, 1889, one roan mare, weighs 750 lbs., no marks or brands; valued at \$20.

FOR WEEK ENDING MAY 30, 1889.

Butler county—T. O. Castle, clerk.

COW—Taken up by L. B. Maxwell, in El Dorado tp., P. O. El Dorado, one dehorned red cow, O on left hip, straight brand on left side of backbone, some white on upper side of udder; valued at \$22.

Rice county—Wm. Lowrey, clerk.

MARE—Taken up by F. A. Wright, in Eureka tp., May 1, 1889, one bay mare, H O on left hip and shoulder, had halter on and harness marks.

Ford county—S. Gallagher, Jr., clerk.

MARE—Taken up by R. C. Dewell, in Pleasant Valley tp., April 27, 1889, one sorrel mare, 3 or 4 years old, white spot on end of nose.

Greenwood county—J. W. Kenner, clerk.

GELDING—Taken up by L. H. Guy, in Bachelor tp., May 7, 1889, one three-year-old light gray gelding; valued at \$35.

Large English Berkshires

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to destroy injurious insects is recommended by all experienced Horticulturists and by this system only can perfect fruit be secured. For full directions and outfit for hand or horse power, address FIELD FORCE PUMP CO., Lockport, N. Y.

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E. W. ROSS & CO.,
MANUFACTURERS,
SPRINGFIELD, OHIO, U. S. A.

REPORT OF THE CONDITION OF

The Kansas National Bank,
OF TOPEKA,

At Topeka, in the State of Kansas, at close of business, May 13, 1889, [condensed]:

RESOURCES.

Loans and discounts.....	\$657,563.75
United States bonds and premiums.....	53,500.00
Real estate, furniture and fixtures.....	4,331.43
Current expense and taxes paid.....	7,556.81
Cash and exchange.....	120,504.75
Redemption fund with United States Treasurer (5 per cent of circulation).....	2,250.00
Total.....	\$855,806.24

LIABILITIES.

Capital stock paid in.....	\$500,000.00
Surplus fund.....	15,000.00
Undivided profits.....	22,281.97
National bank notes outstanding.....	48,900.00
Deposits.....	274,624.27
Total.....	\$855,806.24

STATE OF KANSAS, ss.

COUNTY OF SHAWNEE, ss.
I, R. M. Crane, Cashier of the above named bank, do solemnly swear that the above statement is true, to the best of my knowledge and belief.

R. M. CRANE, Cashier
Subscribed and sworn to before me this 13th day of May, 1889. J. E. ETHELL,
Notary Public.

Correct—Attest: J. B. BARTHOLOMEW,
L. L. TURNER,
SAM'L T. HOWE,
Directors.

Wanted
NEW SUBSCRIBERS

A Big Premium!

Given away to everybody who will send us only two new subscribers at \$1 each.

First—We will send Blake's Weather Tables and Predictions to any one sending us two new subscribers and \$2.

Second—We will mail the valuable dairy book, "A B C Butter-Making," to any one sending us two new subscribers and \$2; or

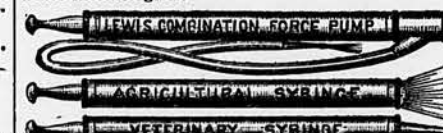
Third—We will send the Home Magazine, a splendid monthly ladies' home journal, one year, to any one sending us only two new subscribers and \$2.

These valuable premium offers are open to every reader of this paper. Send in the names, and mention which premium you wish. Address

KANSAS FARMER CO.,
Topeka, Kansas.

"FOR SPRAYING FRUIT TREES"

The Lewis Pump is the best. Will thoroughly spray a ten-acre orchard per day. Endorsed by the leading State entomologists.



It makes 3 complete polished brass machines (see cut). To introduce, I will send a sample pump, express paid, for \$5.50, and will also give a valuable illustrated book (just published) containing the latest and best receipts for destroying insects of all kinds, to each purchaser of a pump. The receipts alone are well worth \$5. Pump will throw water 50 to 60 feet. My agents are making \$10 to \$20 per day. They sell rapidly. Send for illustrated catalogue, price-list and terms. Goods guaranteed as represented, or money refunded. Address P. C. LEWIS, Lock Box W., Catskill, N. Y.

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Send 20 cts. for mailing catalogues with full particulars.


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Because of their DURABILITY, EASE of Operation, and Few and Short Stoppages (a machine runs nothing when the drill is idle).

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Which gives it its great value over all others.

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Lake and La Salle Streets,
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The Standard Machine.
Different sizes and prices. Illustrated Catalogue Free.
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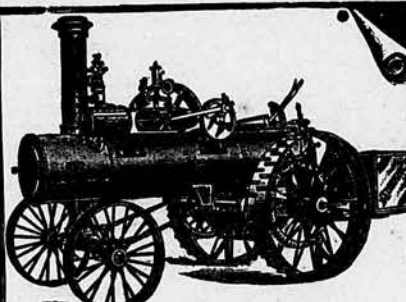
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Are the Best,
IN THE ESSENTIAL QUALITIES OF
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Point, and Workmanship.

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The Hog Sanitarium



[Patented Oct. 9, 1888, by a practical feeder.]

For Saving Feed and Work and Protecting Hogs from Disease.

A Granary and Automatic Feeder Combined, to be erected in the Feed Yard. Will store 900 bushels of corn; feed 150 head of hogs. Any farmer can build it.

For feeding laxative and nitrogenous food, such as Bran, Ground Eye, Ground Oil Cake, Shorts, etc., with Corn, shelled or ground, dry, and without waste; also for feeding salt at all times, thoroughly mixed through the feed. Warranted, when properly used, to save at least 20 per cent. of the feed as usually fed. Not by the direct saving alone, but mostly by reason of increased thrift and rapid and even fattening. Will require for construction about 2,000 feet of lumber and 8,000 shingles for feeder of regulation size. Can be built of less capacity and added to at any time to suit the farmer's needs.

The use of this feeder with a proper supply of nitrogenous and laxative food with corn, will in two weeks' time place the most unthrifty hogs in good condition, if not already infected with cholera. It is the greatest safeguard against cholera. Sanitarium hogs eat regularly and often; never overeat. No mud or filth to consume; all work and waste practically dispensed with.

The use of shelled corn or meal in the Sanitarium is not half the trouble it is to feed ear corn. Keeps the yard free from litter; gives all hogs in the yard the same chance to thrive, all having equal access to feeder. When you see your corn trampled in the mud and filth you feel like kicking yourself. When you witness hogs eating from the Sanitarium in a muddy time you smile; so do the hogs. You do not hesitate to provide for the comfort of other farm animals; why neglect the hog? He brings a quicker and better return for money invested than any other animal. Protect his health and feed him properly and he will be more remunerative to you. I furnish Permit with full instructions about building and operating Sanitarium on one quarter section or less tract of land, for \$10.00. To introduce it, I will furnish same to first applicant in a township for 25 cents (in stamps), which merely covers cost of papers, etc., and requires building to be erected within sixty days from date of permit. Applications can be made direct to me by mail, and in all cases must be accompanied with description of land on which you wish to build (section, town, range and quarter).

Above special proposition will be withdrawn July 1, 1889. Agents with good references wanted in every county—stockmen preferred.

Circulars on application.

Any party building the Sanitarium, or adopting or using any feature or plan of its construction without first obtaining a Permit or Farm Right, will be subject to prosecution for infringement, and will be proceeded against accordingly.

E. M. CRUMMER,
Patentee and Owner,
BELLEVILLE, KAS.

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\$25

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NOT EXCELLED BY ANY RAKE IN THE MARKET.

CLARK'S CUTAWAY HARROW



ENTIRELY NEW. 10,000 in ACTUAL USE.

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There are many troubled with too frequent evacuations of the bladder, often accompanied by a slight smarting or burning sensation, and weakening of the system in a manner the patient cannot account for. On examining the urinary deposits aropy sediment will often be found, and sometimes small particles of albumen will appear or the color be of a shaly, milky hue, again changing to a dark or torpid appearance. There are many men who die of this difficulty, ignorant of the cause, which is the second stage of seminal weakness. The doctor will guarantee a perfect cure in all such cases, and a healthy restoration of the genito-urinary organs. Consultation free. Send 2-cent stamp for "Young Man's Friend, or Guide to Wedlock."

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CONSIGN YOUR CATTLE, HOGS & SHEEP TO Larimer, Smith & Bridgeford.

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Kansas City Stock Yards, Kansas City, Kansas. Highest market prices realized and satisfaction guaranteed. Market reports furnished free to shippers and feeders. Correspondence solicited. Reference: The National Bank of Commerce, Kansas City.



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