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THE KANSAS FARMER.

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Topeka, Kansas.

Weather Laws.—No. 2.

If we examine the table of observations of the weather as published by Blodgett and by the Smithsonian Institution, we will find that there is great difference in the range of meteorological phenomena when places are compared. Some places, as Charleston, South Carolina, New Bedford, Massachusetts, Baltimore, and others on the seashore, have very little range. The temperature marches quite evenly through its annual range from highest to lowest temperature, and from lowest to highest again.

The rainfall, also, is quite evenly distributed, and the range from the greatest to the least annual rainfall is small. From any section upon the seashore the irregularities in precipitation and temperature increase as we proceed inland, along the same climatic belt, or zone. From Philadelphia to Fort Kearney there is a progressive increase in irregularity or range in weather changes. The annual average temperature increases, and the annual average precipitation decreases. The number of rainy days in the year declines with the result of course of lengthening out the average interval between rains, and with an increasing tendency always toward periodic droughts and floods, and also towards periodic winters of extreme severity and others of extreme mildness.

Is there any reason why these periodic extremes cannot be anticipated with as high a percentage of accuracy as is now attained by the signal service officers with respect to the movements of diurnal changes? There is certainly nothing so difficult in the problem as to make it wholly beyond the limits of the knowable, as was gravely pronounced by a writer in the *Industrialist*, last autumn.

To determine the law of recurrence of these periodic extremes, I have resorted to the following methods: I take the Leavenworth tables of precipitation, and try, successively, intervals of two, three, four, five, and six years. But none of these appear to be sufficiently regular, though there never occur three consecutive cold winters or very wet years. Next this plan is resorted to: The annual average is compared with the annual total for each year, and the difference denoted by a plus or minus sign, as the case may be, and we get the following: 1837x6.71, 1838—5.46, 1839x1.58, 1840x0.40, 1841—5.81, 1842—5.45, 1843—15.80, 1844x16.38, 1845x2.82, 1846—7.99, 1847—10.71, 1848x6.25, 1849x11.11, 1850—4.57, 1851x6.07, 1852x4.79, 1853—6.54, 1854—7.34, 1855—4.57, 1856x10.98, 1857—0.03, 1858x27.91, 1859x7.10, 1860—12.36, 1861—4.47, 1862—2.24, 1863—0.12, 1864—15.81, 1865x19.14, 1866x17.67, 1867—2.42, 1868x1.44, 1869x3.57, 1870x11.44, 1871x15.10, 1872x19.87, 1873x0.42, 1874—6.87, 1875—(2.87?) 1876x12.74, 1877x20.23, 1878x(0.49?) 1879x9.81. [In the above x is used for the plus sign.]

In the above, 1875 and 1878, as given, are defective. The Fourth Annual Report of the Kansas State Board of Agriculture, I suppose contains the rest of 1874, from where the 3d left off, and the year 1875 in full, but not having access to this report, I can only give the sum as observed at Lawrence. For 1878 there is missing November and December, which I suppose will come out in the Second Biennial Report. 1879 is taken from the Fourth Quarterly Report. The other annual measurements are taken from the Third Annual Report, page 95, most of the missing months being supplied by taking the mean of several contiguous stations, except when the table for Leavenworth city, or the table for Atchison, can be used, as and for the observations at the Fort. The average of 31.74 is used instead of 34.55, because the latter is clearly erroneous, at least as to 10 inches reported in January, 1871, where the rainfall is given at 11.25.

The largest run of unbroken signs was from 1868 to 1873, being six years above the average. This group begins with 1868, at 1.44 above and comes down to .42 above in 1873. The next longest run of unbroken signs is the five years from 1860 to 1864, both inclusive, in which the annual deficiency for the whole time was 35 inches, an average of 7 inches per year. The average excess during the period from 1868 to 1873, was 8½ inches. For six years the rainfall was below the average, from 1838 to 1843, except that in 1839 and 1840 there was a little more than the average rainfall (x1.98). Counting the whole as one group, the deficit was 30.54. 1844 and 1845 were above

the average, and the excess 19.20. 1846 and 1847 were below the average, and the deficit was 18.70. 1848 and 1849 were above the average and the excess was 17.56. Then we have a single dry year, 1850, which was only 14.57, and then 1851 and 1852, above the average by 10.86. Then follows a group of three dry years—1853, 1854 and 1855, and the total deficit was 18.75, or 6.25 per annum. 1856, '57, '58 and '59 constitute a group of wet years. 1857 being only .03 less than average, may be regarded as erroneous or purely local. The excess during the four years was 45.96 inches. Then came the group of five dry years. So far as the Leavenworth tables show, there is almost a straight succession of ten wet years, 1867 being a little short, and certain "hot winds" have made the year memorable in Kansas meteorology. But a better grouping is to place 1867, '68 and '69 into a group of average years, followed by four which at Leavenworth had a great excess of 45.32 inches, ending abruptly in 1873. It should also be observed that 1873 being average, may also be reckoned as the beginning of the dry-trio. In 1878 the rainfall was down to average again. Casting up we find 1876-77-78-79, years above the average, and the total excess is 43.27 inches for all these years. For this to continue would be to raise the average annual precipitation much above any of our observed averages, and make Kansas the most humid country in the same latitude on the continent. How is this excess to be cancelled? One year cannot do it.

Our largest deficit is only 15.81, and two such would barely reduce the precipitation to average. It can be done by a long series of gradual declines, or by a few (say about five), with an average annual deficit of 8 inches.

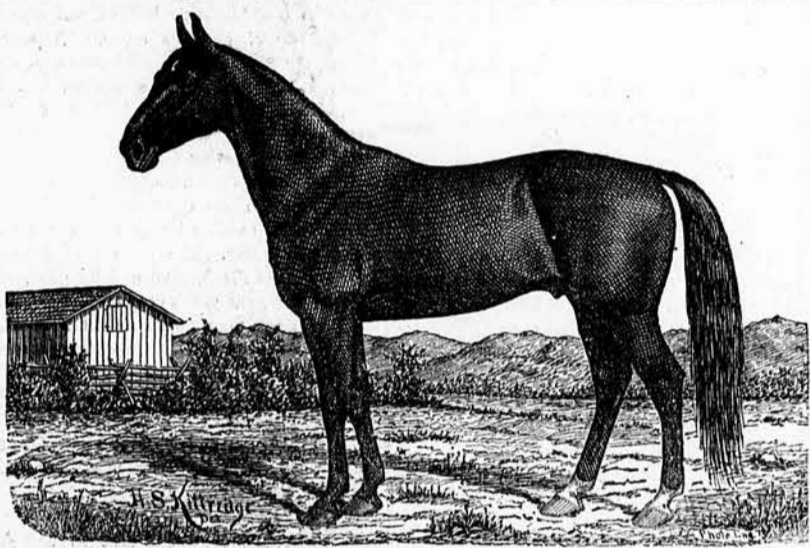
Observing that there is some tendency to form groups of years of about five years, let it also be observed that there is very nearly ten years, or twenty years, from minimum to minimum and from maximum to maximum. I do not mean by this that nothing is skipped in such an interval, but that at an interval of 19 to 21 years we drop on a curve of the same kind. The interval appears to be nearly twenty years, and it is sometimes lengthened so that its maximum effect falls on the 21st summer, and then again by being shortened a little it falls on the 19th summer.

Some other points may be noted: 1st, No very dry year immediately succeeds a very wet year; 2d, No year in "0" has been a very wet year.

In the Leavenworth observations 1870 appears to be an exception, but a look at the rainfall west of Leavenworth, shows that the year for four-fifths of Kansas was dry. Concerning the interval of less length than ten years, it is difficult to say whether the ten years should be broken up into two periods of five years each, one drier than the other and a little shorter; or to break this period into one of four years and one of six years, or whether again to divide the ten years into three parts, that is two trios and a group of four. I have, for reasons hereafter to be explained, settled on 19.87 as the true period with two maxima and two minima, thus dividing the period into quarters, nearly five years in length, alternately prolonged and shortened.

If we suppose there exists a periodic change in the amount of heat emitted by the sun, we can readily see that an emission which is maximum in summer, would produce quite different effects from a disturbance that was maximum when the sun is in the other hemisphere. Suppose, for instance, that in lat. 40° north, the period of greatest drought were coincident with the period of greatest solar intensity, then, manifestly, if this maximum of solar emission occurred when the sun was near its northern solstice, an effect would be produced on the precipitation in lat. 40° north quite different from that which would be produced in the same latitude by an augmentation of solar energy when the sun is near his winter solstice. If we also suppose that the sun increases its energy during a number of years, but that his periods do not correspond precisely with our tropical year, then the period of recurrence in our weather would be a little longer or shorter than any whole number of years, and the years of recurrence would advance or recede accordingly. Take, for example, my period of 19.87 years, as the nearest approach to an exact period yet proposed, there is lacking .13 of a year to make it correspond with twenty tropical years, and in eight cycles, or in 158.96 the proportion would fall back equal to the difference between eight times 20.17 and eight times 19.87. In eighty years the difference amounts to a half year, and in forty years to nearly three months, falling back that much.

Of the table let us further note that between



"VICTOR KNIGHT."

The above cut represents this fine young horse the property of Powell Brothers, of Shadland Stock Farm, located at Springboro, Pa. Victor Knight was sired by the famous horse Satellite, is finely bred, and of wonderful natural speed. Barring accident, we will all hear of this colt again, says "Ladoc," the founder of the Clays, and second dam by Abdallah, the sire of Rysdyk's Hambletonian, making him inbred to old Abdallah.

1837 and 1838, the rainfall curve passed below the line of average. Between 1847 and 1848 it passed up above it; in 1857 it was at mean; in 1867 it passed below again, and between 1877 and 1878 it came down to average again. In 1840 a dry spell began and in 1850 we were again below the line, and again in 1860 and again in 1870, (except on the Missouri river), and we are certainly on the decline now, with little prospect of rising above the line either this year or next.

A similar line of depressions can be traced for the years in 1833-34. 1833-4 can be shown to have been dry in Illinois and Missouri. 1843, as appears, was one of the driest years in the tables. The center of a depression occurred in 1854. In Kansas and east of Leavenworth it was exceedingly dry, while at Ft. Kearney the rainfall was average.

In 1864 the dry series which began with 1860 ended. Again in 1873-74 a shorter depression came around, and the three-year depression about 1854, is due in 1894, while the series which began in 1840 and closed in 1843, should be ushered in "about now." People lived through from 1860 to the end of 1864, in Kansas, and had war on hand also, and an unbroken sod, and but little surplus. For the older half of the state, such a scientific provision should excite in no intelligent mind any grave alarm, but a general bracing for the shock, as a man would at sea when the barometer denoted "storm." Upon the law of probabilities, most obviously, we are, in obedience to a law of natural compensation, to enter upon a series of years when the annual precipitation is either to run to its lowest limit for a short time, or below with varying average for a number of years. The wise man will set his sails for a storm, but only the fool will desert his ship upon a warning signal of danger.

In the western half of the state where the climate has been the least modified by settlement, it is possible that in some districts calling for aid may be heard among those gushing souls who esteem it folly to believe that there is now, ever has been, or ever will be, a dry country in their midst, or that the "American Desert" was ever anything more than a trapper's myth. The years 1880 and 1881, appear to be good years to hold enough grain for bread, even though it should finally have to be burned.

C. W. JOHNSON.
Hiawatha, Brown Co., Kansas.

Weather Report for April, 1880.

[From observations taken at Lawrence, by Prof. F. H. Snow, of the Kansas State University.]

The sky was clearer, the air drier, and the wind higher than in any previous April of our thirteen years' record. The temperature exceeded the average, while the rainfall was but little more than half the April mean. The violent wind and low barometer of the 18th are worthy of special note. Notwithstanding the rain deficiency, the grain fields and fruit orchards at the close of the month, give promise of abundant crops.

Mean temperature 56.92 deg., which is 3.42 deg. above the average April temperature of the twelve preceding years. Maximum, 93 deg., on the 23d; minimum, 31 deg., on the

7th; monthly range, 62 deg. Mean temperature at 7 a. m., 50.23 deg.; at 2 p. m., 67.68 deg.; at 9 p. m., 54.87 deg. There were four light frosts, none of which were injurious.

Rainfall, 1.75 inches, which is 1.54 inches below the April average. Rain fell on six days. There was no snow. There were four thunder showers. Hail-stones of a large size accompanied the rain of the 2d. There was a small amount of hail during the violent gale of the 18th.

Mean cloudiness, 34.56 per cent. of the sky, the month being 15.06 per cent. clearer than the average. Number of clear days, 17; (entirely clear, 9); half-clear, 10; cloudy, 3; (entirely cloudy, 1). Mean cloudiness at 7 a. m., 36 per cent.; at 2 p. m., 43 per cent.; at 9 p. m., 24.67 per cent.

Wind: s. w., 27 times; n. w., 21 times; n. e., 11 times; s. e., 9 times; n. e., 7 times; s. e., 4 times; e., 5 times; w., 6 times. The entire distance traveled by the wind was 16,700 miles, which exceeds any previous monthly total upon our record. This gives a mean daily velocity of 557 miles and a mean hourly velocity of 23.20 miles. The highest velocity was 80 miles an hour, from 3.30 to 3.45 a. m., on the 18th. This is the highest velocity ever recorded at this station. By this wind buildings in exposed places were unroofed, and much damage was done to fences and sidewalks.

Mean barometer, 29.029 in.; at 7 a. m., 20.053 in.; at 2 p. m., 29.007 in.; at 9 p. m., 29.023 in.; maximum, 29.550 in. on the 7th; minimum, 28.303 in. on the 18th.

Relative humidity: Mean for month, 53.4; greatest, 96.4; least, 11.8. There was no fog.

Jewell County.

This county is in the northern tier of counties, and is the seventh from the Missouri river, and is about 170 miles by rail from Topeka, and probably twenty-five miles less by a direct route.

We notice that correspondents of eastern Kansas write as though this part of the state was almost worthless. Their ideas on this subject remind me of the old lady I met with in the eastern part of the state. Having told her where I lived and how far west it was, she remarked with a good deal of earnestness, "Why, that's away out on the edge of the American Desert."

Those who think this county is lacking more than her older and eastern sisters, should come and see our beautiful prairies and timber-fringed streams, and better still, see the evidences of prosperity in the improvement that is everywhere to be seen—the work of a few years. The writer homesteaded in this county nine years ago last January, when a few hundred inhabitants was the extent of population, with a few board shanties, sod-houses and "dug-outs," and perhaps a hundred acres of cultivated land. The nearest railroad station was seventy-five miles, and the nearest grist-mill twenty-five miles. Now we have a population of over 14,000, with 149,403 acres in cultivation. To our personal knowledge, there has been but one failure of corn in the past nine years—that of 1874—the grasshopper year. Last season was hardly an average year, yet the

Kansas Board of Agriculture, in reporting the condition of crops by counties last September, placed Jewell ahead of Leavenworth and several other eastern counties. We also refer to the fact that while Jewell gained 2,773 inhabitants, Johnson county lost 2,127 (in 1879).

We do not wish to undervalue the advantages of our sister counties, but we claim some honor in the progress and greatness of our adopted state, and only desire to have our part fairly represented. That eastern Kansas possesses some advantages over us we are willing to admit. In the matter of timber, fruit-growing and nearness to market, we surrender. In the matter of health, beautiful country and amount of tillable land to the area, we think we have the precedence. But we hope the time will come when the wealth and fertility of Kansas will be the pride of all her citizens.

We have experienced the "rain of dust" spoken of by correspondents elsewhere, and today we enjoy(?) another unwelcome but persistent visitor.

Your correspondent from Abilene seemed to think that prairie fires accounted for the fertility of the soil. This is certainly a peculiar view. Does he suppose that the ashes of dead grass (which are generally blown into the ravines by the winds) equal to the fertilizing effect of a heavy growth of grass allowed to decompose on the land? The prevalence of prairie fires in the past has kept the timber belt narrowed down to the margin of water courses, and reduced the supply of timber beyond calculation. A growth of grass allowed to remain on land assists greatly in keeping the moisture.

W. S. THOMPSON.

Oma, Kansas, April 20th.

A Suggestion.

I rise to offer a suggestion relative to the prevention of horse stealing. There are several plans before the public for assisting owners to recover stolen horses. I think it far better to prevent their being stolen. If it were the law that township clerks should provide themselves with stub books for the registration of horses, and every owner of a horse over one year old was required by law to appear before said clerk, sometime during a certain month and give in a description of all horse stock owned by him, taking a certificate for the same, I think horse stealing would soon become one of the lost arts in Kansas. I am not particular as to details, but it might be well for the legislature to provide that the books used should be uniform in size and get up, and to be furnished by the state printer to clerks at actual cost; also, that the fee for registration should be small, say five or ten cents.

If there is any merit in this idea, I hope some horse owner will make a motion to adopt, so as to bring the subject properly before the house for discussion. G. S. KNEELAND.
Keene, Kansas.

Our correspondent does not enlighten his audience why a thief would not steal the horse after it had been registered.—[ED.]

MERIDEN, Jefferson Co., April 27.—It is very seldom I see anything in the columns of the FARMER, from Jefferson county, and I don't understand it, for there are plenty of intelligent men and women here to write every week.

We have had very heavy winds for the last two weeks, but are having very fine weather now to make up for that. We are having a fine rain to-day, which is needed. The farmers are busy planting corn. Several have finished and now are doing nothing, and this doing-nothing business accounts for some of our farmers never having anything, for there is always something for the farmer to do. There is no excuse for any one who has nothing in this fertile country, for if they will plant, and tend their crops right, they are most sure to get pay for the extra work.

Wheat looks fine. If nothing happens, we will reap a bountiful harvest. Flax is all sowed, and some of the first sowing is coming nicely. A great many farms are being fenced this spring; fencing mostly with barbed wire, which is doing a great deal of damage to cattle and horses. I am one of those who think it should not be a lawful fence. There has been enough stock crippled and killed here to pay for lumber to fence twice the amount of ground. It is not up in that way is terrible to think of, and should not be tolerated.

There are being quite a number of young orchards put out here this spring. I notice there is not enough pains taken in setting trees. A very small hole is dug and the roots crammed in. Stock of all kinds doing well. Cattle range is getting scarce. Would like to hear from other parts of the county through the columns of your valuable paper. J. F. WHITE.

Farm Stock.

The Scrub Bull Nuisance.

The season of the year having arrived on a certain class of so-called farmers turn out to graze among the cattle of their neighbors...

With my intelligent fellow-citizens who find pleasure and profit in raising cattle for those branches of the trade, I have no quarrel...

I present herewith a copy of the law found in the statutes of Kansas intended for the protection of those who want to improve their stock...

The gentleman who steals our horse may not damage us near so much as the good neighbor who insists that he ought to be allowed to keep his Southdown bull on the range...

Farmers, especially Kansas farmers, if you will use the best bulls you are able to obtain, and see that no scrubs of your own, or your neighbors, are permitted to run at large...

The following is the law in force in Kansas since 1872. Chap. CXIV, Sec. 38, Revised Statutes.

F. D. COBURN.

How to Buy a Horse.

Look at him standing quietly in his stable, to see he has no trick like that of putting one hind foot over the other. In doing this he often cuts the fore part of his hind foot with the sharp calks of his shoe...

Now look at his eyes and make a motion with your hand towards them, as if you intended to strike. If he winks quickly, or draws the head back, the vision may be depended on generally as good...

any swellings, and especially for curbs and spavins. Now look at all the pastern joints and see if clear of cuts from interfering...

The feet are often passed over, but a thorough examination of these is of the utmost importance. They should be reasonably large, the hoofs clear and tough, free from cracks...

A pony-built horse is the best for working in harness, while a more rangy-bodied one, with longer legs, may be preferable for the saddle...

If the tail lifts hard and stiff, it is usually an evidence of a strong back and quarters. If it lifts quite limber and easily, the reverse is apt to be the case.

As to the age, this is readily told by the teeth till they are seven years old, unless they are "bishoped." It is usual for jockeys to call a horse eight when he is all the way from ten to twenty...

After all, there is a great risk in buying a horse, even from an owner who is truthful and honestly disposed to speak of his failings...

Live Stock Farming.

No interest connected with American agriculture, says the Germantown Telegraph, of late years attracted more notice than live stock farming. The interest embraces beehives, horses, sheep, swine, poultry...

The capacity of our country for the production of live stock is so vast that too much attention cannot be bestowed upon this business. Rightly understood, live stock farming is really one of the best resources for the support of a large population.

dustrics of great importance to a country like ours, such as the commerce in hides, wool, whips, boots and shoes, leather, etc.

Apiary.

Not Honey Enough.

"Too much honey" was the cry of only a few months ago; now it is the opposite of this! Then a bee-keeper wrote as follows: "I do not know but so much honey will be produced that it will not be worth raising."

The present advance in prices and the short crop will retard the consumption a trifle, but it will be of short duration. Not one in a hundred is now eating honey that will do so, within a few years. The price may be somewhat lower but the demand will be good...

The Importance of the Bee to the Ancients.

From an essay read before the Linnean Society of New York, by Wm. C. Wyckoff, in January last, we extract the following: "Of the insect tribes the most directly useful to man have been the producers of honey, silk and cochineal. The importance of the bee to the ancients will be realized when we consider that they had to rely on honey alone for the means of sweetening food."

Horticulture.

The Vergennes Grape.

This is a new variety of grape whose history and merits are revealed in the Rural New-Yorker, by Gen. W. H. Noble, of Bridgeport, Conn., who says:

"I have rejoiced with pride over the many new grapes which the Rural New-Yorker has recently so gracefully noticed. I offer to its readers another which I think the peer of any native seedling. It is the Vergennes grape. Its name comes from that of the town in Vermont, in one of whose gardens it first grew and bore."

"It is a Labrusca and claims all the hardiness and resistance to the ails and pests of the grape, which belong to that family. The vine is wonderfully vigorous. When one year old, it makes stout growths of five or six feet. Vines of two years stretch out to twelve and fifteen feet; then it ripens all its wood, and matures it; as it grows, into sound, rich, brownish-olive, short-jointed vines, ripened to the very tips of its late fall shoots."

"With anything like the pains which many devote to their grape crop, I think this grape in quality and quantity would keep its place on our table beside the apple; certainly with the last of the long-keeping pears. Its shrinkage has nothing of that wilting and flabby texture,

which besets so many fine grapes, like the Concord and Isabella, and even the Catawba and Diana, after a long tarry in the fruit room. Another excellence of this grape is its early maturity. The Vergennes ripens all its bunches evenly; no green grapes, or parts of bunches are seen in its fruitage, as in some other varieties of excellence. It is not subject to mildew, and therefore holding its leaf, matures its fruit and wood. All its products are ripe for the harvest together. When ripe, the Vergennes glories in a rich bloom. I have never seen a grape that in taste, maturity, so filled the eye with a sense and promise of a luscious fruit. This bloom it holds, like a tinted coating, till it shrinks to a raisin.

"The Vergennes boasts another quality long sought in our American grapes—an absence of what we call pulp and core. In this regard it is more like the European grape. It is a meaty grape, tender in flesh clear through. The fitness of the Vergennes for wine has been thoroughly tested. It makes a light-tinted, delicate liquor, with a rich and pleasant bouquet. I think it destined, in this quality, to excel any American grape. I have never seen any old wine made from it; it is too new a grape to have raised crops large enough to define and perfect the quality of its wine by age. In short, for hardiness, vigor of growth, large, bounteous frutage, a luscious fruit of the richest tint of blended pink and purple bloom, for its yield of wine with the most delicate aroma, for its early maturity of wood and fruit, for its long-keeping quality, lasting in excellence beside the apples on our tables, I think this the equal of any American grape yet grown. I say this with great tenderness towards all its native rivals."

Miscellaneous.

About Cane and Other Matters.

I do not agree with Brother Hawk in regard to different varieties of sugar cane. He says that the old Black Top and the Amber are so near alike that his neighbors could not tell the difference. Either Mr. Hawk or myself are very much mistaken about it. Last season I planted three varieties: the Indiana Black Top, the White Imphee, and Amber. The Amber seed came from Washington last spring, and proved to be a very small, slim stock, very rich in saccharine matter; while each of the other varieties was very large and did not make as much syrup by 20 per cent. But I could not see any difference in appearance or taste. I shall plant largely of Amber this year, and will try a little of other kinds also.

J. of Aurora, thinks they did a nice thing for their neighbor that had his team burn up. So they did. Eight or ten teams will do a good deal of plowing in a day; but one of my neighbors lost his team the same way, and we turned out thirteen teams strong, and did him a "right smart job."

It still continues very dry. The wheat that did not winter kill is about to be ruined by drouth. It begins to look pretty sick, and unless there should be a good rain very soon, it will not be worth cutting; and in fact some of my neighbors have plowed their wheat up and are planting the ground to corn. As for me I will wait a little.

I would say to D. S. A. in regard to the up land vs. sandy bottom land, that the sand land stands the drouth much better than any of the hard up land, in this county. There is plenty of moisture in the sandy land to bring corn up. But you may dig down a foot in the hard black land before you find any moisture.

I have seen quite a good many pieces in the FARMER about Spanish Chufas, but none of them give any idea of how many bushels can be raised from an acre, or how many it takes to plant an acre, nor how much they cost per pound, quart or bushel. Will some one tell all about them in the FARMER, as some of its readers would like to know.

I am not much of a farmer, having been in the business only two years. The first season I sowed ten acres of wheat, and harvested eight-een bushels. Last fall I sowed all of that, and the present prospects tell me that I will not have any more than I got from ten acres last year. The only good crop that I had last year was Egyptian corn. It turned out about 40 bushels per acre. I had a little corn as good as they commonly raise in Kansas, but no such corn as I have seen raised in Illinois, nor do I think we will ever see the day that we can grow as good a crop of corn, as they do in central Illinois. But when we talk about growing all kinds of stock, we can leave Illinois far in the background. GEO. H. BALLARD, Silvertown, Stafford Co., Kas.

Cane Growing and Manufacturing.

I. A. Hedges answers an anxious inquirer after truth in the new sugar interest through Coleman's Rural New-Yorker, as follows: The best time and manner of planting is: 1st. When the ground is warm; in order that germination may proceed at once, altho' this may be delayed as late as the middle of June. 2d. The method of planting it is best to use a drill—some wheat drills are well adapted to planting by taking up a portion of the hose or flukes, leaving the rows from 3 1/2 to 4 feet apart, with about three or four seeds to the foot, in the ground. If the ground is warm put the seed deep enough to reach the fresh earth. If the land can be rolled after planting it will improve the crop. Your land that has been in wheat, plowed deep and then leveled with a drag or sweep, will be in a good condition to raise a crop of cane. I will add that machine

planting has and ever will be superior to hand planting, as it puts the seed at a uniform depth and distributes the proper quantity, which is an important matter to have a uniform stand and come forward all together, and thus avoid later canes and tillers growing up that are later ripening and injurious to the quality of the syrup.

You ask if there has been success in sugar making? Not generally, very few have been prepared for it. Those that have been prepared with skill and means have generally succeeded.

The yield per acre might be stated at about 150 gallons of syrup and each gallon about 50 per cent. sugar, or from 650 to 750 pounds of sugar per acre. Some have reported higher from laboratory tests, which I consider as unreliable.

The cost of machinery to work 200 acres will be from \$2,500 to \$3,000 in approximate figures. This will be competent to work three acres per day. In regard to seed for planting it will require from three to four pounds per acre if planted in a profitable manner.

You ask my advice on the planting of 160 acres of cane. This would be a small crop in Louisiana. If you have the force and means at your command, it will pay you better than a crop of 50 acres. In syrup alone you may count on the cost per gallon not to exceed 8c after the cane is delivered at mill in the yard.

Water in Relation to Vegetation.

Water is not only the most important but also the most abundant ingredient in nearly all living vegetables. It is the constituent element of plants, except carbon, are carried into the plant from the soil. As these can enter the plant only in a state of solution it is absolutely essential that a plentiful supply of this substance be at hand to serve this purpose. The actual amount of water found in some of our common crops in a fresh state, may be seen by the following: Grass, .70; oats, .82; wheat, .77; rye, .70; red clover, .80. white clover, .81; potato, .75; artichoke, .80; beet, .88; turnip, .90; carrot, .86; cabbage, .88.

From this it is seen that from seven-tenths to nine-tenths of our crops, in their fresh state, are water. This water, holding in solution the various elements of plant food, is imbibed by the roots from the soil. It is quite doubtful whether plants are able to absorb moisture, at least in any quantity sufficient to affect their growth, through their leaves.

The roots of plants possess the power of imbibing water, holding in solution the various nutritious elements, and forcing it upward through the system of the plant. But it is not only as a means of conveying other material for the use of the plant that it contributes to its growth; its own substance is by some vital chemistry transformed into the organic matter of the plant itself. This will appear from a brief examination of some of the more important substances that enter into the composition of vegetables, among which starch, sugar, gum and mucilage may be mentioned. These are composed wholly of oxygen, hydrogen and carbon. The carbon, as stated above, is derived almost exclusively from the carbonic acid of the air by absorption through the leaves. As this gas is composed of carbon and oxygen, and the amount of oxygen exhaled by the leaves is not quite equal to that inhaled in the gas, it is thought that a small portion of it is assimilated by the plant. But the greater portion of this substance must be derived from some other source. The same is true of all the hydrogen of the plant. The following is a percentage of these ingredients in the various substances named—cellulose, starch, gum, and sugar, Carbon, 44.44; oxygen, 49.99; hydrogen, 6.17.

Now supposing the plant supplied with carbon from the air, let us inquire in reference to the source of supply of the other elements. Water is composed of oxygen 88.88, and hydrogen 11.11, or eight parts of the former to one of the latter. There always being an abundant supply of water present in the growing plant, it is easy to see the manner in which these substances may derive their elements from that liquid.

Besides the substances named above, there are many others that enter into the composition of plants, as vegetable albumen, casein, fibrin etc., that are composed of carbon, oxygen and hydrogen, in connection with nitrogen and a small portion of sulphur.

Water may, therefore, contribute to the formation of these substances by furnishing the oxygen and hydrogen that enters into their composition. From the above considerations it will be seen that water is essential to plants not only as a solvent of plant food and a vehicle for conveying it to the different parts of the plant, but also as a direct source of plant food itself. We learn also the reason for what every one knows to be a fact, that the presence of a plentiful supply of water is essential to the successful growth of plants. L. J. TEMPLEN.

FR. SCOTT, Bourbon Co., May 4.—We have very fine weather for corn and all kinds of small grain here. Corn is nearly all planted. Fruit prospects were never better. Wheat is worth \$1; corn, 28c; oats, 25c. Cattle are high, and but few changing hands, as farmers can afford to keep all their stock. We would like to hear how some of the farmers have succeeded in cultivating corn with smoothing-harrows. Artichokes are the coming hog food, and they grow very readily with me. They should be planted by themselves. Hope to raise four or five hundred bushels this year. E. T. PARKER.

Literary and Domestic

Requiescat.

ALFRED TENNYSON. Fair is her cottage in its place. Where yon broad water sweetly, smoothly glides. It sees itself from thatch to base. Dream in the sliding tides.

A Lamp Mat.

Demorest's Magazine gives a handsome design for a lamp mat. Cut a round piece of red cloth nine inches in diameter, then cut a hole in the center a trifle larger than the base of the lamp.

A Practical Sweetheart.

A nice young man employed in a cigar store on King street, Toronto, resolved, the other day, to present his intended with a nice pair of boots. He accordingly procured her measure and went into one of the fashionable stores on King street and purchased a \$2 pair of boots.

Senator Wade as a Husband.

Mr. Wade was always particular about money matters. He could not bear to owe any man a cent, and to feel that he was pecuniarily under the slightest obligations to any one annoyed him excessively.

An Easy Death.

Dr. Sam Johnson was a dear lover of tea, and drank it freely. On a certain occasion he chanced to be taking tea in company where was present a woman who not only held the fragrant herb in holy horror, but who believed it to be poison.

must be an easy death to die. Let me hope that your exit may be as vigorously healthful and as calmly placid! And he raised the cup to his lips. A physician who had been called to attend Fontenelle, found the great author sipping coffee.

Knick-Knacks.

It very frequently happens that the girl who has the most bang to her hair has the biggest holes in the heels of her stockings. Says Josh Billings: "If you kant trust a man entirely, let him skip; this trying to get an average on honesty alwuzz haz been a failure."

What a Single Cent Did.

A singular financial transaction occurred in an office a day or two since. By some means or other it happened that the office boy owed one of the clerks three cents, the clerk owed the cashier two cents, and the cashier owed the office boy two cents.

Whipped Cream.

A very delicate whipped cream can be made as follows: Put a pint of fresh cream in a bowl; add to it four tablespoonfuls of powdered sugar, ten drops each of lemon, vanilla and bitter almond essence, and whip it with an egg beater or cream whip until the surface is covered with a thick froth; then let it rest for one minute, remove the froth with a skimmer and put it in a colander set over a dish; again whip the cream until the froth rises and remove it as before, placing it in the colander; continue to repeat this process until no more froth will rise, when use the cream.

Russian Tea.

Tea should never be boiled, because boiling extracts its tannic acid, thus making it both bitter and unwholesome; but the water with which it is made should always be boiling hot—not water which has been boiling for a long time and sending off some of its valuable elements in the steam, but fresh water brought to the boiling point and used at once.

Chocolate Layer Cake.

Two cups of sugar, one cup of butter, three cups of flour, five eggs, one cup of milk, one teaspoonful of soda; take nearly a cup of grated chocolate; sweeten to taste; add milk enough to moisten—about half a cupful; flavor with vanilla and spread between the layers; ice.

Women in Russia.

In the diverse conceptions of woman's claims and functions encountered up and down the scale of ranks in Russia, we have the most decisive proof of the duel between the crust of refinement and the culture superposed by Catherine II. and the organic structure of old Muscovy. As regards the high society of St. Petersburg, or even the middle grades of the nobility, or of civil and military functionaries throughout the country, it is certain that the ladies are at least equal, perhaps superior, in breeding and education, to the men.

his music. If cloudy, rainy seasons he plays sombre music in minor chords, and when the sun shines and the birds sing, he indulges in waltzes and light music. Sometimes he will hammer away for hours, producing the most horrible discord imaginable. Suddenly a change comes over him, and he indulges in magnificent bursts of harmony, taken from the best productions of the masters. Since his childhood he has been an idiot, and he played nearly as well at the age of seven as he does now; but now his repertoire is much larger, as he can play anything he has ever heard. He now plays about 7,000 pieces, and picks up new ones everywhere. It is a curious fact that he will not play Sunday-school music if he can help it, having a great dislike for it.

A Word to Farmer Boys.

Spring is here once more, and, with it, the merry birds. It is a known fact, to almost every one, that their place of abode is in the woods. And how they serve to cheer up all nature! Just take a stroll in the woods, some pleasant sunny evening, when the thermometer stands at, or above, the figure 50°; take a seat under the shade of a tree, and listen to the shrill, sweet, clear notes as they are poured out from the little warblers' throats. Again, just make some kind of a hideous noise, and frighten them away beyond hearing. How dull the scene! The very atmosphere seems to change; and your feeling (that was so buoyant such a short while ago) seems to forsake you entirely. Just think of it! This much change in yourself, in a healthy state! Then how must it be with an invalid! Just let a sick person's bed be placed by a window which is shaded by flowers, and let the cool, fragrant air float in. How much will the feeling of that invalid be changed! But let there be a merry, free warbler outside, and how much it will add. Then, boys, never molest the birds, nor break up their nests, for your mother may yet be sick, your sister may yet be sick, or your brother may yet be sick, and, as the birds are such a consolation to the sick, I give you these few words of advice—harm not the innocent birds.—Fruit Farm.

The ballot box is the place to right our wrongs. Put honest, clear-headed farmers in office, then you can expect the interest of the farmer to be regarded and the rights of those not farmers respected and protected. Then peace and prosperity will crown us as a nation.

Advertisements.

In answering an advertisement found in these columns, our readers will confer on us a favor by stating that they saw the advertisement in the Kansas Farmer.

A Very Valuable STOCK FARM.

We have for sale a piece of land, seven miles from Kinsley, Kansas, one mile from R. R. Depot, near Nettleton, which is improved by an elegant two-story house with stone basement, with piazzas on three sides; a fine barn 30x40 feet, two wells and wind mills, tight board corrals, with ample free range and running water. This place is in all respects very desirable for cattle or sheep. 400 head of cattle were held on the place last season, wintering well without other feed than Buffalo grass. This property is offered for \$5,500 and is a bargain for any one proposing to go into the stock business, with either sheep or cattle. Address Proprietor of KANSAS FARMER.

Cheese Factory For Sale Cheap

We have for sale very cheap and all in splendid condition a patent Coll Heater, three hundred gallon vat, Curd Drain and Scales, Six Screw Press and Hoops, Milk weigh can and Scales, Force pump and hose, wiley pump all complete with necessary fixtures and fittings. Address: FORT SCOTT FOUNDRY, Fort Scott, Kansas.

George Achelis, West Chester, Pa.

Sells Crab Apple Trees and other Fruit trees; Evergreens and other ornamental trees; Shrubs, Vines, etc. Prices reasonable. Correspondence solicited.

D. C. BRYANT, M. D., Surgeon and Oculist

Having had several years experience in an extensive private practice, and having spent the past year in the large hospitals of New York and London, making diseases of the eye and surgical diseases a special study, am prepared to treat such cases, as may come under my care, according to the best and most approved methods. Cross Eyes straightened. Cataracts removed. Near and Far Sight, and Astigmatism corrected with proper glasses, etc., etc. Office 228 Kansas Avenue, over Geo. B. Palmer's. Residence, 378 Harrison street. Office hours, 9 to 12 A. M., 2 to 4 P. M.

DO NOT FAIL to send for our Price List for 1906. Free to any address upon application. Contains descriptions of everything required for the home, and with over 1,200 illustrations. We sell all goods at wholesale prices in quantities to suit the purchaser. The only institution in America who make this their special business. Address: MONTGOMERY WARD & CO., 227 & 249 Washab Ave., Chicago, Ill.

WANTED. To contract for 600 Ewes, two years old, seven eighths Merino, to be delivered at Kinsley, Edwards county, Kansas, between September 15th and October 1st, 1906. JAMES HOLLINGSWORTH, 210, LaSalle street, Chicago, Ill. The Boss Puzzle. The Game of 15. The New Solitaire. The Game of 16. The Gem Puzzle. The Game of 17. The Gem Puzzle. Price 15 cents. Ivory Card Co., Box 778, Worcester, Mass.

- 62 Golden Chromo, Crystal, Rose, Damsak, Merry, Ac. Name in gold and jet tints. Winslow & Co., N.Y. Outfit free. Address H. HALLETT & Co., Portland, Me. \$66 a week in your own town. Terms add \$5 outfit free. Address H. HALLETT & Co., Portland, Me. \$77 a Month and expenses guaranteed to Agt. Outfit free. Shaw & Co., Augusta, Maine. 50 Pin-a-4, Chromo, Lily, Lace, Marble, etc., Cards, in case, 10c. GLOBE CARD Co., Northford, Ct. 50 Perfumed cards, best assortment ever offered, 10c. Agts Outfit, 10c. CONN CARD Co., Northford, Ct. 50 Chromo, Glimo, Scroll, Wealth and Lace cards, 10c. Try us. CHARMO CARD Co., Northford, Ct. 18 Elite, Gold Bow, Bevel Edge cards 25c. or 20 Chinese Chromo, 10c. J. B. HUSTED, Nassau, N. Y. 50 Motto, Gold, Floral, Scroll, Snowflake cards, 10c. Agts Samples, 10c. Stevens Bros., Northford, Ct. \$5 to \$20 per day at home. Samples worth \$5 free. Stinson & Co., Portland, Me. ILLUSTRATED AUTOGRAPH ALBUM, gilt covers, 48 pages, 10c. Illustrated with birds, scrolls, etc., in colors, and 12 Select Quotations, 15c. Agents' outfit for cards, (over 60 samples), 10c. Davids & Co., Northford, Ct. 50 Chromo, Toilette Shell, Cupid, Motto, Floral cards, 10c; outfit 10c. Hall Bros., Northford, Ct. 25 Lovely Chromo Cards, name on 15 cents. Try them G. BRUEN, 145 Richard St., New Orleans, La. \$72 A WEEK, \$12 a day at home easily made. Costly outfit free. TRU & Co., Augusta, Me. 20 Gold and Silver Chromo Cards, with name, 10c. post paid. G. I. REED & Co., Nassau, N. Y. 50 Gold Chromo, Toilette Shell, Marble and Bow CARDS, 10c. SEAVY BROS., Northford, Ct. \$55.66 Agents Profit per Week. Will prove it or forfeit \$500. 24. Outfit Free. E. G. RIDGWAY & Co., 210 LaSalle St., N. Y.

5000 Bushels seed potatoes. Orders booked now. Lending varieties and valuable new kinds both sweet and Irish. Directions for making FIRE HOT BEDS in free catalogue. E. TAYLOR, Farmington, Kas.

CHEAPEST BIBLES Ever furnished Agents. FORBES & McMAHON, CASH TERMS and LARGE QUANTITIES. CINCINNATI, O. AGENTS WANTED Everywhere. To sell the best Family Knitting Machine ever invented. Will knit a pair of stockings, with HEEL and TOE complete, in 20 minutes. It will also knit a great variety of fancy work for which there is always a ready market. Send for circular and terms to The Twombly Knitting Machine Co., 469 Washington St. Boston, Mass.

AGENTS WANTED for the richly illustrated and fully complete and authentic history of the GREAT ARROUND THE WORLD. It describes Royal Palaces, Rare Curiosities, Wealth and wonders of the Indies, China, Japan, etc. A million people want it. This is the best chance of your life to make money. Write for terms to agents. Send for circulars and extra terms to agents. Address NATIONAL PUBLISHING CO., St. Louis, Mo.

RYKES' BEARD ELIXIR. An English Veterinary Surgeon and Chemist, now traveling in this country, says that most of the Horse and Cattle Powders sold here are worthless trash. He says that Sheridan's Condition Powders are absolutely pure and immensely valuable. Nothing on earth will make hens lay like Sheridan's Condition Powders. Do not be deceived by cheap imitations. Send for circulars and extra terms to agents. Address: I. S. JOHNSON & Co., Bangor, Me.

MAKE HENS LAY.

Mound City Poultry Yards, Mound City, Kas. Breeder and shipper of pure bred Light Brahmas, Plymouth Rocks and Brown Leghorns. Am now booking orders for eggs as follows: Light Brahmas, \$2.00; Plymouth Rocks, \$2.00; Brown Leghorns, \$1.50 for 15 eggs. Checks for sale after July 4th. Address: S. L. IVES.

KANSAS LANDS

The ATCHISON, TOPEKA and SANTA FE R. R. CO. HAVE NOW FOR SALE TWO MILLION ACRES of Choice Farming and Grazing Lands, specially adapted to the Wheat Growing, Stock Raising, and Dairying, located in the Cottonwood Valley of the world, free from extremes of heat and cold; short winters, pure water, rich soil; in SOUTHWEST KANSAS. FOR FULL PARTICULARS, ADDRESS A. S. JOHNSON, Land Commissioner A. T. & S. F. R. Co., Topeka, Kansas.

JONES OF BINGHAMTON

Though Iron has doubled, still sells 5-Ton Wagon Scales \$60. All iron and steel. He pays the freight, sells on trial. No money asked till tested. Send for free book. Address: JONES OF BINGHAMTON, Binghamton, N. Y.

Shannon Hill Stock Farm. Thoroughbred Short-Horn Cattle and Berkshire Pigs, bred and for sale. Only first-class animals allowed to leave the farm. Address: G. W. GLISS, Atchison, Kansas.

GRAPE VINES. Largest stock in America. Prices extra-ordinarily low. Also Trees, Small Fruits, Strawberries, Ac. Price and Descriptive List Free. T. S. HUBBARD, Fredonia, N. Y.

THE STRAY LIST.

Strays for the week ending May 12. Cowley county - J. S. Hunt, clerk. PONY - Taken up April 12, 1880, by J. W. Dolgram, Richard tp, one bright bay mare pony, 3 years old, about 15 hands high, branded U S on left shoulder, small white spot in forehead and white hind feet, valued at \$30.

Franklin county - A. H. Sellers, clerk. HORSE - Taken up by L. W. Moore, March 17, 1880, Lane Twp, Pottawatomie tp, one sorrel horse, 7 years old, both hind feet white, 15 hands high, valued at \$50.

Morris county - A. Moser, Jr., clerk. HORSE - Taken up by Mrs. Gideon Curney, April 6, 1880, Warren tp, one black horse about 10 years old, 14 hands high, all in each ear, valued at \$15.

Strays for the week ending May 5. Bourbon County - L. B. Welch, Clerk. MARE - Taken up April 8, 1880, by Stephen D. Newell, of Drywood tp, one gray mare supposed to be four years old, about 16 hands high, valued at \$60.

Chautauque County - C. M. Knapp, Clerk. PONY - Taken up by Gottlieb R. Ahrburg, Center tp, Mar 22, 1880, one black horse pony, black mane and tail, white spot on left side, black on fore knees, black on hind fetlocks and upwards, shod on fore feet, white stripes in forehead, ten years old, valued at \$20.

Elk county - Geo. Thompson, clerk. PONY - Taken up April 3, 1880, by T. C. Dunn, Longton tp, one pony mare, 13 hands high, iron grey, saddle and harness marks, branded on left hip HB, valued at \$25.

Russell county - C. M. Harsbarger, clerk. MULE - Taken up April 12, 1880, by Joseph S. Ulah, Russell tp, one dark roan horse mule, blind in left eye, has sores on front legs as if from wearing hobble, about four years old, valued at \$60.

SUGAR CANE SEED! For different latitudes. Choice varieties. Early Amber and Honduras, 50 lbs or more 15c; less than 50 lbs, 20c; 2 1/2 lbs. by mail, \$1.00. Special rates on large lots. Also my book (by mail) on Sugar making, \$1.00. CANE MILLS and SUGAR MAKERS' SUPPLIES.

Minnesota Early Amber Cane Seed. The best and earliest of all canes. Warranted pure. Sent to any part of the United States, postage paid at 50 cents per pound, 2 1/2 lbs. \$1.00.

Sweet Potato Plants for Sale. I am prepared to furnish Sweet Potato plants for sale in large or small quantities at low rates. I have a bed of 150 bushels of seed. I am the head, and have been in the business of growing and shipping five years.

Plants, Plants. A very large amount of Sweet Potato Plants. Grown in the open air. Variety, EARLY RED BERBUDAS, but mostly YELLOW HANGEMOND, the standard. Also Cabbage and Tomato Plants sold at very low prices.

PLANTS and FLOWER SEEDS. Grown in your own state, acclimated to Western climate. Large stock and in fine condition. In growing the same we use more glass than any other establishment west of St. Louis, and defy honest competition.

I never had the Hog Cholera. Because my master planted some of T. R. & A.'s ARTICHOKES. \$3.00 per Hbl., \$1.25 per Bu., 50c per Pk. Packages included, cash in order. Buy only the genuine Jerusalem Artichokes of TRUMBULL, REYNOLDS & ALLEN, Seedmen, Kansas City, Mo.

Sweet Potato Plants. Unlimited supply. 7 Best Varieties, boxed and sent to your nearest express office at \$2.00 per 1,000. Special rates on large lots. Send for list.

Land! Land! Land! HOMES FOR THE PEOPLE 350,000 ACRES - IN - Bourbon, Crawford & Cherokee CO'S, KANSAS.

Still owned and offered for sale by the MISSOURI RIVER, FORT SCOTT AND GULF RAILROAD COMPANY. On Credit, running through ten years, at seven per cent. annual interest. 20 PER CENT DISCOUNT FOR CASH IN FULL AT DATE OF PURCHASE.

Carbolic Sheep Dip.

This dip kills Ticks, Lice and all parasites that infect sheep, prevents scratching and greatly improves the quality of the wool. One gallon of the dip properly diluted with water will be sufficient to dip one hundred sheep, so that the cost of dipping is a mere trifle, and sheep owners will find that they are amply repaid by improved health of their flocks.

G. MALLINCKRODT & CO., St. Louis, Mo. Can be had through all commission houses. The Sheep's Life and Shepherd's Friend.

Deodorizer, Disinfectant, Antiseptic, Insecticide, and valuable Therapeutic agent. Little's soluble Phylite also Little's Chemical Fluid. The new sheep Dip is a sure cure for Scab, Mange and foot rot, kills lice, ticks, and improves the growth and quality of wool.

TOPEKA Carbonated Stone and Pipe Works. Manufacturers Wholesale and Retail Dealer in PAVEMENTS CEMENTS, LIME, PLASTER and HAIR.

M. A Spear, P.O. Box 170. Drain and Sewer Pipe, Well Tubing, and all kinds of Chimney Flues. Factory and Office on Kansas Ave, between 2nd and 3rd Streets.

PIANOS \$150 TO \$400. All strictly first-class. Sold at wholesale factory prices. Highest Honors at Centennial Exhibition, Mathiashek's Scale for Square Grand, First Prize in America.

KNOW THYSELF. THE untold miseries that result from indiscretion in early life may be alleviated and cured. Those who doubt this assertion should purchase the new medical work published by the PEABODY MEDICAL INSTITUTE, Boston.

HEAL THYSELF. The London Lancet says: "No person should be without this valuable book. The author is a noble benefactor. An illustrated sample sent to all on receipt of 6 cts. for postage."

HOPE FOR THE DEAF. Garmore's Artificial Ear Drums PERFECTLY RESTORE THE HEARING and perform the work of the Natural Drum. Always in position, but invisible to the eye.

WARNER'S SAFE REMEDIES. Warner's Safe Pills are an immediate relief for a Torpid Liver, and cure Constipation, Dyspepsia, Biliousness, Eruptions, Diarrhoea, Malaria, Fever and Ague, and are useful at times in nearly all diseases to cause a free and regular action of the Bowels.

THE SORGO HANDBOOK. A Treatise on Sorgo and Imphee Canes, and the Minnesota Early Amber Sugar Cane. The Edition for 1880 is now ready, and will be sent free on application. We can furnish PURE CANE SEED of the best variety.

SCOTCH COLLEYS. Shepherd Pups for sale, the get of imported Robbie Burns, and out of our imported Bitches, Bertha, Floy and Gypsy. Color black and tan, with little white.

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ON 30 DAYS TRIAL. We send on 30 Days Trial our ELEPHANT-VOLTAIC BELT, BARKS, Serruolites, Trusses, and other appliances, to those suffering from Nervous Debility, Weakness, or Lost Vitality from any cause.

WOOL-GROWERS. Can rely upon immunity from contagious disease in their flocks after LADD'S TOBACCO SHEEP WASH. GUARANTEED an immediate cure for scab and prevention of infection by that terror to flock-masters.

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PIANOS-ORGANS. CHEAPEST HOUSE IN AMERICA. 1st-class instruments, all new, for cash or installment warranted 6 years. Illustrated catalogues free.

NONPAREL FARM & FEED MILLS. The Cheapest and Best. Will Crush and Grind any thing. Illustrated catalogue FREE.

Attention, Owners of Horses! The Zinc Collar Pad is the only permanent and safe pad for sore-shod horses or mules that has ever been produced.

SEEDS AND PLANTS. Always on hand. Bouquets, Cut Flowers and Ornamental Work made up at short notice.

THORLEY FOOD. For Stock of all kinds, keeps Horses in perfect health. Patterns Stock nothing but milk in Cows, and DOES NOTHING.

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135 KANSAS AVENUE, TOPEKA, KANSAS. TERMS, STRICTLY CASH.

IMMENSE REDUCTIONS! PIANOS AND ORGANS AT WHOLESALE FACTORY PRICES. This magnificent Organ, the Paragon Style, No. 440, features 85 notes of reads, 13 stops, solid walnut case highly finished (74 inches high, \$85.00).

NICHOLS, SHEPARD & CO. Battle Creek, Mich. Established ORIGINAL AND ONLY GENUINE "VIBRATOR" Threshing Machinery and Portable and Traction Engines.

GILT-EDGE BUTTER MAKER. This powder maker "Gilt-Edge" Butter the year round. Com-mense and the Science of Chemistry applied to Butter-making.

ROOTS FOR CATTLE. STOCK-BREEDERS and DAIRYMEN will find it to their Advantage to grow MANGOLD WURZEL BEETS and CARROTS.

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Farm Letters.

KIRWIR, Phillips Co., April 26, (250 miles northwest from Topeka).—"When will it rain?" "Is it ever going to rain?" is the universal talk, now-a-days, here. We think it will rain sometime. We have lived through many times when it looked nearly as dubious as now, but somehow copious rains would always come in time to save our crops and gladden the hearts of the farmers and shorten up their faces, which get so elongated in their fears of the much-dreaded drouth, which is supposed to be a part and parcel of Kansas climate. In our nine years' experience in Kansas, we have seen no drouth so serious as we have at times in other states. It is crowding us a little closer, just at present, in this locality, than ever before. Though rains have fallen around us, we have had none since last November. As a consequence, the winter wheat is nearly "gone up." A few pieces of early-sown still carry the green, and with rain, soon, will make a fair crop. Spring wheat looks feeble, and unless it rains soon will go back. Farmers have kept on plowing old land that has been plowed deep before, but new land cannot be plowed with any success.

Wheat is worth \$1; corn, 30c; potatoes, \$1 to \$1.25.

I was probably as much amazed at your Abilene correspondent, as he was at your Wamego correspondent. The idea that the gentle zephyrs that have been transferring so much real estate of late, have much to do with ventilating the roots of growing crops, is really laughable.

I promised to say something in regard to the impropriety of going so far west while there are cheaper lands so much nearer the capital, and better too. There are thousands of acres of excellent land between Topeka and Burlington, for sale at five dollars per acre, a large portion of it. Some is higher—from eight to ten dollars per acre. There is a large amount of land in Wabaunsee county for sale at from three to ten dollars per acre, while here land is held at five to ten dollars per acre, and further down the Solomon lands are five to twelve dollars per acre, and some farms sell as high as twenty dollars per acre. No fences, sod houses, or dugouts, generally constitute the improvements, with those who want to sell. There are some fine farms with nice stone houses and pretty fair stables and a few trees, generally more cottonwood than fruit trees. The tree culture claims are generally a failure. One man will take a claim, break his five acres, and before the time to put out his trees, will sell to some other man, who perhaps may plow a little more and hold it a year or two and sell to some other man. And so it goes from one to another, no one holding long enough to be obliged to put out his trees. You can't see five timber claims improved between here and Topeka, 200 miles. I very much doubt whether the timber culture act is a benefit to the state. D. S. A.

SULPHUR SPRINGS, Cloud Co., April 24.—I have taken the FARMER since last December. I am better pleased with each succeeding number. I like the idea of sitting down and having a profitable chat with my brother farmers, though I may never see them. After reading one or two letters from one person we seem like old friends. Stoner's feed manger and shelter, Anderson's thatch roof, J. S. Hines' plan of laying hedge, are each worth more than twice the years' cost of the paper. Each of those gentlemen will please accept thanks and consider me under obligations for valued information. Also, W. H. Prouty on raising peanuts, as well as others too numerous to mention.

I have had six years experience in breaking and second breaking, or plowing the sod. After careful observation I will have my breaking done in May and June, and not more than two inches deep, or as shallow as a good sod can be turned and laid flat. Breaking may be done in July with good success if there are two or three good crops of old grass to burn, and turn the ashes under. Strike out what can be broke in two or three days and burn and break. Deep breaking furnishes no better rotted sod than shallow, and the soil below the sod pulverizes no better, as back-setting or crossing cannot be well done unless there is some new ground thrown upon it. It is much heavier work for a team to run a plow in plowing deep breaking than shallow with no better results.

Wheat is looking fine. Early sown (September) Red May never looked better in this neighborhood at this time of year. Odessa, or Grass Wheat, sown on old ground, suffered most; that sown on breaking done in May or June and back-set in September looks very well. Oats that were sown on corn ground and plowed in are looking fine. Spring wheat very small, some drilled in on fall plowing (in January) looks well. Farmers commenced planting corn in our vicinity on the 15th of this month; all the planters were going at their full capacity.

Stock of all kinds looking well. Steer calves in good demand at \$5 per head at five weeks old, in ordinary condition, and small at that. Many farmers are going into sheep and cattle raising.

Wheat, 75c@95c; oats, 30c; corn, 18c; potatoes, 75c@1.00.

We have a fine rolling prairie well watered by running streams, and the best of soil. Only slight rains since November, and very little snow. Prairie grass good pasture for stock now and plows are turning up wet soil that will pack in the hand like clay. We have the best soil I ever saw to stand drouth, I was raised in Wisconsin, have seen something of northern Illinois, some of central Ohio, something of western Iowa, and also of eastern and central Texas, and northern Kansas can produce a fair crop when a like continuance of drouth in either of the above named localities would cause an entire failure.

Peach blossoms very scattering on the trees; crop will be very light. Success to the "Old Reliable." JULIUS B. NICKERSON.

AUGUSTA, April 19.—Mr. FARMER, I have a debt against you and your northern friends that you need never pay back unless you can haul or cart it back to me. I never, no, never, want it back with the breeze you got it. You cannot deny getting a great portion of my soil. And I firmly believe that you got my oats that were up nearly. I am not very confident, but I believe you got a part of my growing wheat. But I console myself this way about the wheat, you might as well have it as those bad smelling bugs. Now I am willing to compromise in this way. If you will come down here and wash the dirt and pick the straws and sticks out of the eyes of all my stock and my neighbor's I will release you. Law me, grandmother, did you ever see such a day as Sunday was? Did you Mr. Grasshopper? We are needing rain; wells are getting low.

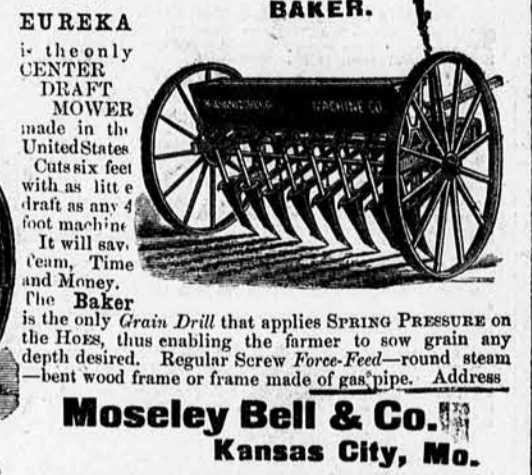
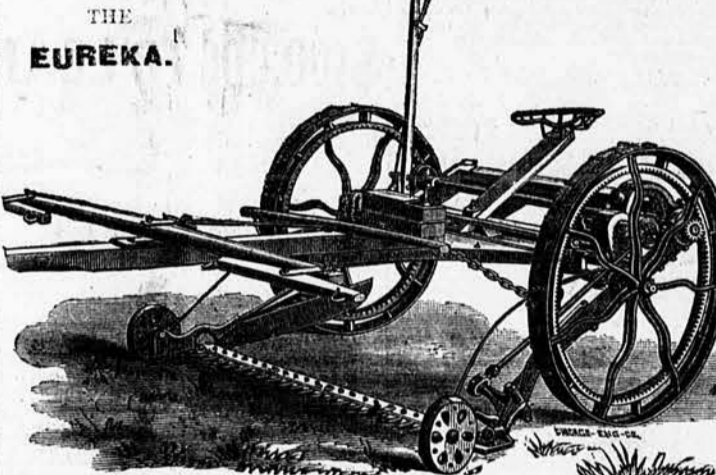
It is now lambing time with my sheep, and a good many of the lambs are stiff-necked and go about like they are hunting for something and cannot get their heads up to the teat. Some have large kernels under their necks. Please inform me if there is a cause.

Farmers are very busy planting corn; some are done. If it continues dry what a fine time for Mr. GRASSHOPPER.

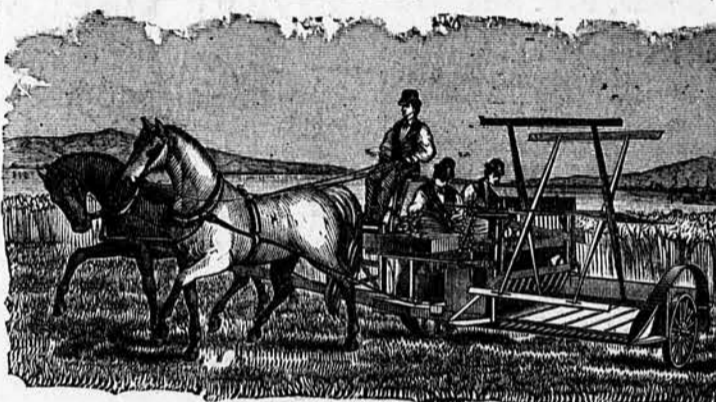
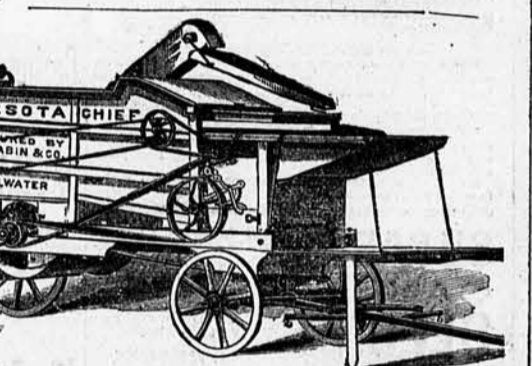
Mr. Colvin can tell you what is the matter with the lambs.—[Ed.]

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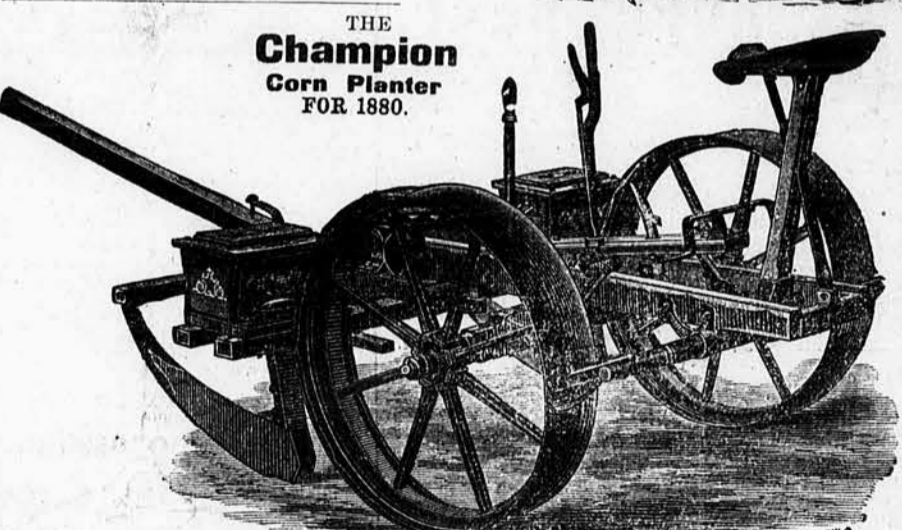
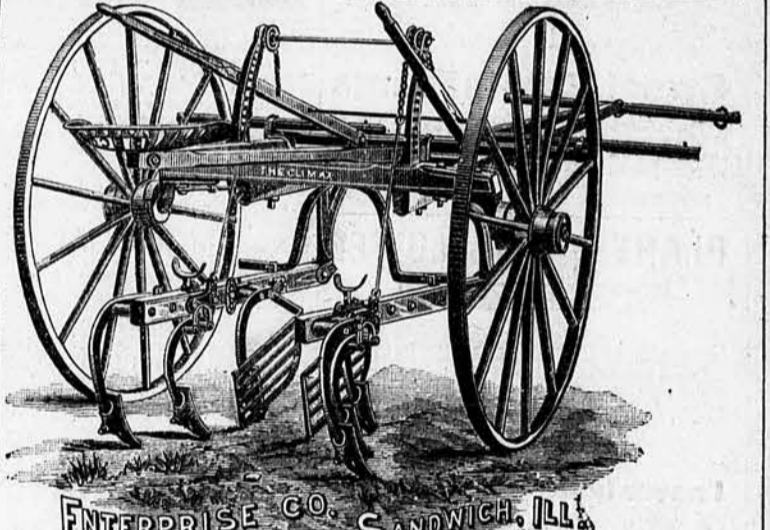


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