

THE KANSAS FARMER

ESTABLISHED, 1863.

TOPEKA, KANSAS, JULY 7, 1880.

VOL. XVIII, NO. 27.

THE KANSAS FARMER.

E. E. EWING, Editor and Proprietor,
Topeka, Kansas.

Weather Laws.—No. 7.

REVOLVING STORMS.—(Continued.)

A NEW HYPOTHESIS.

The hypothesis I propose to offer to account for revolving storms, is, as it will be here stated, substantially new. It is proper to state, however, that Professor Ferrel has suggested the same forces as the cause, and demonstrated that these forces would produce the rotation of the air mass and the progressive translation of its center in lines closely corresponding to those it is found revolving storms pursue. My hypothesis is:

1. Revolving storms are mere eddying whirls in one of the great air currents flowing between equator and pole, and from pole to equator.

2. These whirls, while floating in the main with the current, are driven poleward by the centrifugal force of the earth's rotation applied continuously as a force of impact upon the equatorial side.

3. The motion of rotation is produced by the difference in the centrifugal velocity of the equatorial side of the buoyant mass of air and the polar side.

4. The buoyancy of the revolving air mass may be caused by heat, moisture, electrical repulsion, or all of them cooperating.

5. That when a mass of air rises to the top of the incumbent strata by eruption rather than by diffusion, such a mass becomes, to all intents and purposes, "A fluid mass of matter withdrawn from the action of gravity" as fully as the oil globules in Professor Plateau's beautiful experiments. (See Smithsonian Reports, 1863-64-65-66).

6. Being withdrawn from the action of gravity, the ascending column is free to be acted upon by molecular attraction and the force of terrestrial rotation (i. e., the earth's centrifugal force).

7. Calling the eastward velocity of the equatorial side of an ascending air mass, "a," and the eastward velocity of the polar side "b," then do we know that because the diameter of the circle nearer the pole is smaller than the diameter of the circle nearer the equator, that the equatorial side of the air mass or cloud is at the instant of ascension, being hurled eastward through space at a greater rate than the polar side. Hence "a" is greater than "b," and the equatorial side of the cloud or air mass moves eastward with a velocity equal to a-b.

This force is applied, of course, upon the equatorial side, and is constant, wherefore there is produced accelerated motion. But the cohesive force of the buoyant air mass, or vapor mass, tends to draw it into a globular shape about a center, and the centrifugal force being applied to the circumference produces rotation about the vertical axis.

The rotation begins slowly when the figure is that of an upright cylinder. But the velocity of rotation being greatest where the gravity is least, and this being at the top of the cylinder, the top rapidly expands while the base of the cylinder is contracted, assuming the figure of an inverted cone, or the "funnel shape" so often spoken of in rotary storms. The rotary force about this vertical axis is greatest at the top of the ascending column. It tends always to expand into a ring with an open space in the center. (See Fig. 3, Smithsonian Report for 1863, page 216). But this open space cannot become a vacuum and the result is an uprush of air to supply the place of that added to the expanding ring. The uprushing air is again "a fluid mass of matter withdrawn from the action of gravity," and becomes subject to the same forces, and becomes a part of the widely expanding ring. The phenomena is then, from that point on, an automatic self-feeding machine, with cumulative forces made up by changing the direction of a portion of the earth's force of rotation.

Every phase and feature of the revolving storm, whether upon the earth or upon the sun, can be explained by this hypothesis.

The uniform course of rotation in each hemisphere; the fact of opposite courses in the two polar hemispheres; the course of the storm centers, the whirlwind, water-spout, sand-storm, hail-storm, rain-storm, tornado with or without a funnel, the hurricane, cyclone, and great typhoons, and the gentle, rotary breezes which blow about the center of the great air-whirl when the force of rotation has about expended itself and left merely a high barometer at the

outer edge of the ring, and a feeble, low barometer under the center of the once terrible annulus, mark different stages of development modified by the difference in the materials found for being drawn into the vortex.

This hypothesis offers a rational explanation of the skipping or bounding of the funnel point. The rotary disk at the top of the atmosphere is lifted by aerial waves, and the funnel point is lifted with it, and here rides in the air, and there strikes the earth, twisting and wrenching off trees, tearing down houses, and destroying life.

The question of whether the revolving mass can or cannot form a funnel, depends upon the size of the ring relative to the elevation of it above the earth's surface. Hence the storm may have a funnel in a valley and this may be truncated in crossing ridges, and reformed in the next valley. Again, the storm which bounds may (as has happened as often as it has happened the other way) smite the hills and leave the lowlands untouched.

By this hypothesis it will be seen that every storm has its moment of greatest, overturning, resultant force of the wind. This is neither when the storm-whirl is in its infancy, nor yet when it is in its old age, but is rather at that moment when the combined upward rush and whirling velocity is greatest. It is easily shown that this cannot be when the ring is a thousand miles in diameter, for then the vertical thickness of the air-whirl extends from the top to the bottom of the atmosphere, and great lifting power is precluded, and the result is merely a center of low pressure about which the air flows in isobars of increasing depth. It is also easily shown that this cannot be at the moment of forming the air-whirl. In its inception the rotation is slow, and the upward rush of air consequent is not great. But in a certain middle part of the career of such an air-whirl the velocity of rotation becomes great—the ring is then most rapidly expanding; then the air beneath it is also given its greatest rotary motion, and the suction from above is then greatest. This represents the tornado and hurricane stage of such a storm.

Many of the whirlwinds never expand into tornadoes or waterspouts. Many waterspouts and tornadoes are broken in pieces before attaining the age of the hurricane, and many hurricanes never expand into the dignity of the cyclones or typhoons. The causes which break these whirls to pieces are doubtless chiefly interference, surface obstruction and watery vapor. Sometimes the air-whirl parts and dies into two storms, and these occasionally also suffer bisection. How and why this occurs will appear by examining Fig. 8 of Plateau's experiments. (Smithsonian Report for 1863, page 223).

On this hypothesis if the paths of the great aerial currents underwent periodic or seasonal displacements, eddies and whirls which take place within them would be displaced into the new paths also, and regions near the upper and lower limit in the latitude of each current, would undergo periodic variation in the relative frequency and intensity of this class of phenomena.

During the winter these storm centers traverse the plains in much lower latitudes than in the summer, and in the summer the storm tracks reach their northern limit. As I stated in the introductory to these papers, whatever may be predicated of the summer months, may generally be asserted to be true of the hot periods of secular time, and whatever is true of the winter months is also true of cool periods in secular time. Therefore if this doctrine is true then must the storm tracks shift northward in hot years and southward in cool ones. There is a possible exception to this so far as the meteorology of the plains are concerned, and I watch with interest the storm record and rain record of Kansas, for this year and next, to determine the point.

I have pointed out that the effect of an increase in solar energy would be to shift the thermal equator northward, and to cause this displacement to take place more upon a continent than upon an ocean. The limits of this displacement I have not attempted to define, and it is possible that upon the plains the center of summer's heat may be found so far north as to bring the trade winds across the Gulf of Mexico by a nearly due west line, and cause them to be turned upward along the foot of the Rocky Mountains by the combined influence of the barrier and the heated suction of the arid plains. Such an arrangement would cause the present drought to break first where it first began, and the waters thus distributed along the foot of the Rocky Mountains would become the principal feeder for the water

supply of the eastern plains for a brief period.

We have a means of knowing whether this takes place or not, in the observations of our streams. If the streams heading near the base of the mountains rise in flood of considerable duration in August and September, while the streams in eastern Kansas run low, then shall we know that the water is coming in at the "back door." But if, on the other hand, the streams of the eastern plains catch the rise now booming in the upper Mississippi, and the rise proceeds westward, then shall we know that the water supply is returning by the "front door." In the former case western Kansas will have heavy rains while the plains are still highly heated, and the clouds will rise on east winds and clear off with west winds. In the latter case the clouds will rise on south winds and clear off with north winds.

In our wet years the storm centers pass south of us, and in our dry years they pass to the north of us, and we are in their average track in the average year.

When the storm track passes south of us, the wind changes from south to southeast, then east, and clears off east of north. When it passes north of us then the wind changes from south to west, and west to northwest in clearing off.

When the shift is by the eastward, in a majority of our storms we have from average to wet years, and when the shift is the other way, we have from average years to extreme droughts. Storm centers passing to the south of us bring us warm winds that have traversed the Gulf of Mexico or the wet regions lying south of the storm track.

Storm centers which pass north of us also pass west of us, (excepting a few which leap the Rocky Mountains,) and by observing the course of the whirl it will be seen that the wind which strikes us has first swept the land west of us—and this though the wind sets our wind-vanes due south or southwest.

This is obviously true of all our whirling storms and rotary winds, and the tendency of the day is to make nearly all of our weather phenomena depend upon circular movements of local winds, and these to depend upon the movements of the great air currents which appear also to flow either in vertical or horizontal circles and ellipses.

In the hypothesis proposed to account for revolving storms, the cause of the uprising of an initial mass of vapor or warm air is the only part offering any difficulties. It is at present difficult to understand why there are not more of these revolving storms, if there should be any. It is difficult to understand why all such storms are not attended at some part of their course by a destructive vortex.

C. W. JOHNSON.

Something About Corn.

Corn is King. Of all the crops of the United States it is the most valuable. Hence anything about corn will be of interest to a large majority of farmers.

Corn requires a comparatively large amount of nitrogen. One hundred bushels contain 128 pounds of nitrogen. The same amount of oats 92 pounds, and of wheat 170 pounds. These figures include both grain and straw. As only about one-third the number of bushels of wheat as of corn grow on an acre, a crop of corn takes twice as much nitrogen as a crop of wheat. But corn, like clover, possesses the peculiar ability to derive nitrogen from the soil. Ninety per cent. of this is returned when the corn is fed on the ground, therefore it would take an almost infinite number of years for corn to exhaust the soil if it was fed on the ground. Excuse so many italics but that is the great point. Raise all the corn you can if, as in Illinois, it pays better than any other crop, but feed it on the soil. Corn as a crop has been badly maligned. Fed to the stock on the farm and it is less exhausting than either oats or wheat. Another advantage of feeding your corn on the premises is that you save much in freight.

Although corn obtains nitrogen not only from the air but from the soil, you may increase the yield by supplying it with free nitrogen, and the easiest way to do this is by plowing under green clover. Every corn farmer knows that "clover sod is mighty good for corn," although he might not be able to give the scientific reason therefor. The reason is, first, that clover holds in its structure large quantities of nitrogen. If we take an acre of red clover, one of rye, one of oats, one of peas and one of barley, taking the stubble and roots to the depth of ten inches, we will find that the peas will contain two and one-half as much, the wheat and oats about ten per cent. more, the rye three times as much and the clover nine times as much nitro-

gen as the barley. This shows what a large amount of nitrogen clover holds in its roots and stems. When we plow clover under and plant to corn, this nitrogen is furnished to the corn; and it should be remembered that it is furnished gradually just as fermentation and decomposition frees it, saving a supply for earing time when the success of the crop most requires it.

The second reason why clover is good for corn is that corn is a tropical plant flourishing best at a high temperature. The fermentation of the clover underneath furnishes and produces this heat first at the roots of the corn where "it will do the most good."

It should not be forgotten that the presence of the clover in the soil helps it mechanically. Another great advantage of clover as a fertilizer is that its roots penetrate to a great depth. Clover roots have been followed to a depth of seven feet. These roots bring up to the surface available and valuable plant food which would else be forever hid in those inaccessible depths.

Taking into consideration these facts it is not to be wondered at that the farmer who raises clover upon which to sow his corn, and which he feeds his clover-sod corn in the fall and winter. Herein lies the great secret of the eternal fertility of the soil even on a corn farm. A clover field is a hog's paradise in summer. On those sunny slopes of honey-sweet red clover a hog will grunt his stomach's satisfaction all day and thank the blessed fate that permitted him to enjoy what is, to him, nature's sweetest blessing.

Running over the field the manure is distributed just where the elements of fertility are taken away while the clover that the hogs do not eat is trampled down to become incorporated in the soil. The hogs will keep fat all summer on the clover alone and in the fall will be ready to eat prodigious quantities of clover sod corn and fatten as hogs never fattened before.

On account of the great depth to which the roots of the clover penetrate it is well suited to withstand drought. Hence it will be a valuable crop for "drouthy Kansas." It may be said that Kansas is a new state and Kansas farmers need not trouble about renovating worn out land. This is true. But Kansas farmers must be careful or they will have such land on their hands before they know it. No matter how new or how rich your land it will always pay you to maintain that fertility by every reasonable means.

Rye is a good manurial agent in the fertilization of corn ground. But if the season is a dry one, look out. I have known farmers to plow under a heavy crop of rye in the spring, plant to corn, and because the season was dry, raise no corn. The rye underneath would keep the ground loose and ventilated and consequently increase the deleterious effects of the drought. This same objection applies to stable manure. Besides the greater part of the valuable elements of the manure are absorbed in the growth of the stalk leaving very little for the ear. As a result you will have plenty of fodder but little corn. Do not apply stable manure to your corn. Save it for wheat. Above all do not apply manure to the hill. It is all bosh and foolishness. It starts the corn to grow in the spring perhaps, but that is all and does not pay for the bother.

I have got into trouble in some of the eastern journals by advocating shallow plowing for corn. You will always find plenty who, like Poor Richard, are ready to counsel

"Plow deep while sluggards sleep
And you will have corn to sell and keep."

Yet I am still in favor of shallow plowing for corn now and all the time. I am not going into a discussion of the matter for I should fail to convince you perhaps if you are a believer in deep plowing and have all my trouble for nothing; but I shall give you a couple of reasons for my belief of and practice of shallow plowing. For be it understood that I am a practical farmer and when I talk of plowing for corn know just what I am talking about.

First, corn is a shallow feeder. You have but to examine it to convince you that this is so. You will find nearly all the roots near the surface. A few it is true penetrate to a considerable depth but these imbibe water almost entirely. Corn being a shallow feeder it will be good policy to keep the elements of plant food near the surface. For this reason I would not plow more than four or five inches deep for corn.

Second, as I have before remarked corn is a tropical plant flourishing best at a temperature of 90 or 95 degrees. Hence the roots stay within a few inches of the surface where it is warmest in summer.

I do not think that the farmers of Kansas will make the mistake that many farmers have made that of raising corn exclusively. This has been too much the case in Illinois. But the soil of Kansas is so well suited to so many other crops, especially wheat, that the farmers of Kansas can always easily practice a judicious rotation of crops.

I had intended to say something in this article of the planting, cultivation and feeding of corn, but it is too long already and I must make it into a future one. JOHN M. STAHL.
Camp Point, Ill.

Timber and Rainfall.

I come now to speak of what I conceive to be the best means to be employed for the purpose of influencing the rainfall of the country. After a somewhat careful examination of the subject, I am convinced that extensive tree planting is the most successful as well as the best paying method that can be adopted for this purpose.

I have before stated that during dry times the atmosphere frequently becomes charged with moisture almost to saturation and yet without producing rain. There are two methods, as stated, by which it may be raised to super-saturation: One is to add to its vapor by local evaporation, and the other to reduce the temperature till the same end is reached. Living forest trees affect the humidity in both these ways. The winds that sweep over the plains, where no grasses or belts of timber exist to interfere, flow directly on the surface, absorbing and carrying away both the surface moisture and the radiant heat, thus keeping up the temperature to such a degree that condensation cannot possibly take place.

The presence of timber belts checks these driving winds and deflects them upwards into a higher and colder region where their temperature is reduced, by which they are brought near to the point of saturation. That this is the effect of the elevation of the atmosphere to a higher altitude is proven by the influence of mountain ranges on the rainfall of adjacent countries. Wherever the vapor laden winds from the ocean have to pass over a chain of mountains where they are forced to a considerable altitude, the moisture they contain is condensed and falls in copious showers on the windward slope of the chain, while the winds descending on the other side become dry and thirsty, producing a desert condition. Timber belts have a tendency to produce a like effect, on a smaller scale, of course, in lifting the currents of air and producing rain.

But this is not the only way in which trees influence the rainfall. The roots of trees are constantly imbibing water from the soil, whence it is carried by the circulation of the sap to the leaves, where it is exhaled in the form of invisible vapor to the air. The amount of water thus exhaled from vegetation is very large. A good sized tree has been known to thus give off several barrels of water in twenty-four hours. The amount exhaled by an extensive forest is immense, and can but have an important influence on the humidity of the atmosphere.

This exhalation added to an atmosphere already approaching saturation, will frequently eventuate in super-saturation and the precipitation of rain.

In the conversion of the water of the plant into vapor, a large amount of heat is absorbed and rendered latent, so that it is a cooling process, reducing the temperature at the same time that it increases the humidity of the air, thus operating in two ways to bring about the desired result—a fall of rain.

Again rainfall is largely influenced by electricity. Just how this force is brought to bear to produce the condensation of vapor into raindrops, I do not now stop to inquire. Trees have a wonderful power as generators and conductors of electricity, and through this agency exert a strong influence over the production of rain.

Now if the above reasonings are correct—and I certainly think they are, it follows that the extensive planting of forest trees has an important effect on the rainfall of a country previously destitute of timber, while, on the other hand, the general denudation of a timber country of its forests, is generally followed by an important diminution of the rainfall of that region. I shall not enter, in this place, on the proof of these statements though there is abundance of it at hand. It is sufficient here to state the fact that the growing of trees has an ameliorating effect on the climate, not only in its humidity but also in regard to its temperature, which is greatly modified as to its extremes of both heat and cold. When we consider that to these benefits are to be added those that are to be derived from timber belts in breaking the force of the wind, and from the growth of timber for use in the arts, we see the importance of every man, who owns land in this climate, engaging at once in planting timber belts wherever they may be needed for these purposes. L. J. TEMPLIN.

Farm Stock.**The Angus Cattle.**

The *American Cultivator* gives a fine cut of a pair of these cattle which seem to be gaining in favor in this country and a sketch of the breed in its native country of Scotland.

The Angus breed of cattle is derived from the less elevated parts of the counties of Forfar and Kincardine, Scotland. Forfarshire was once known as Angus. This breed of cattle may be regarded as one of the races which are intermediate between the mountains and the richer plains. The older breed of this district was horned, but with a tendency to produce hornless animals, and those who undertook the improvement of the breed bred off the horns; that is, they selected the hornless ones to breed from.

About the commencement of the present, or the latter part of the last century, the agriculture of this part of Scotland began a course of rapid improvement, and with it the improvement of these cattle. This breed has a certain resemblance to the Galloway, and a mixture of blood at some period no doubt has taken place, but they are less compact in form and longer in their limbs than the true Galloways, and have not the depth of rib which the latter breed exhibits.

They are driven from their native counties into Yorkshire, Norfolk and Leicester, where they are fattened and then find their way to the Smithfield market, where their beef is considered among the best. One most excellent quality of this breed is their peculiar quietness and docility. They are very easily managed, few losses are incurred from their injuring one another in their stalls, and the power of disposing of a greater number in the same space which the former varieties would occupy, and their extremely quiet disposition, render them well adapted to stall feeding, and cause them to lay on fat rapidly.

Forfarshire is a famous turnip county, and there the cattle are kept in straw yards during six months of the year, receiving turnips with their fodder every day in summer. It is recorded of one of the oxen, when slaughtered, that he yielded 240 pounds of rough tallow. The record of one heifer gives her weight, dead, at 2000 pounds. The bone of her fore leg has been preserved, and was not thicker than that of a red deer. When killed her brisket was only eight inches from the ground, and her inside fat was equal to four-fourth her weight. Mr. McCombie of Tillyfour was a breeder and feeder of this kind of cattle, and a short time before his death he exhibited before the queen 400 head of this breed.

The color of the Angus cattle is mostly black, with a few white spots, and sometimes brindled and dark red. At three years of age they will make from 850 to 900 pounds dead weight. Their meat is finely mottled, which renders it a great favorite in the Smithfield market. Being smaller than the Short-horns they will gain in weight, where the large animals would scarcely hold their own. They have been imported into this country to some extent, and are everywhere favorably spoken of. They would make a class of beef for which there is a great demand, their meat being so well mottled, and their tallow being more internal than external.

Mr. Joseph H. Rea, of Carroll County, Mo., purchased a lot of these cattle of Mr. Grant of the Victoria farm near Ellis in this state, who says:

"So far as I have experimented with them, I can say that they have made a very favorable impression on me, though I have not tested them sufficiently to give a decided opinion yet in regard to all their merits. I hope to learn more as I continue to feed them. They fatten very easily, and will make good selling cattle when ready for market. However, they will not be as large as the Durhams of the same age, so I am undecided as to which would be the most profitable to raise in this state, the Polled Angus or the Durhams. With plenty of corn and tame grass, the Durhams will be very hard to beat in size and capacity to take on flesh, which makes them profitable to raise and feed for beef. On the other hand the Polled Angus cattle will out-sell them on the beef markets, and they are much more pleasant to handle on a farm. Having no horns, they do not endanger the lives of other stock by doing with them, they can be turned to straw and hay stacks and your stacks will not be horned down. You can turn them in your orchard or a lawn where there are small trees and they will not twist them down, as horned cattle do. When it comes to shipping there are no horns to get hung in the slats of the cars or under the other cattle, and in consequence pull them down and endanger their lives by being tramped under foot. I believe them to be a very hardy and shifty kind of cattle, that will likely stand the cold better than some other kinds, consequently well suited for the grazing territories of the west. I would advise western men who have Texas cows to try Polled Angus males, and by so doing get rid of the long horns, as they are undoubtedly a nuisance, and should be abated."

Short-Horn Breeding.

Under the head of "Suggestions to Short-horn Breeders," a correspondent of the *National Live-Stock Journal* has the following to say, which is endorsed by the editor of the *Journal*:

"Having recently engaged in the breeding of Short-horns, I attended one of the so-called fine-stock sales recently held in the west, for the purpose of seeing and learning what I could. Some things appeared to me a little out

of level, square, or plumb. In my early manhood I attended the state fairs of Ohio, about the years 1853 to 1855, and saw what were then regarded as Short-horns by such breeders as the Renicks, Vances, Hadleys, Dr. Watts, Sullivan, and others I might name. In my opinion they were real Short-horns, grand and stylish rams mainly, and a few whites and reds. I fail to see them now, or their equal. Individually the breeders have bred to paper so fine that we to-day have only a small, delicate animal in their stead, many pale red or red and white spotted, and some looking as if they had a dip of the little Jersey—ashy red. If this is improving the breed, then I do not want any of it in mine.

"Wishing to post myself on pedigrees, I would take a sale catalogue and go to a breeder and ask him about the pedigrees of certain animals. The answer would often be, 'Oh, that's not much better than a grade, yet recorded in the American Herd Book.' Well, I thought so myself. I thought many were far from being as good as some grade steers I have seen, and I must say many new beginners felt disappointed and disgusted to see so little real good stock on sale.

"I may not understand the wants of farmers just engaging in fine stock-raising, but, if I do, I am sure those so-called fine-stock sales will some of these days find themselves without bidders. I frequently hear the remark that 'I cannot buy anything on sale here.' My neighbors would laugh at me if I took such stock home. I will say that there were a few young things on sale handsome enough, but they lacked size, and, I think, constitution. For one, I say let there be better stock on sale. This scraping the fig-ends of all creation together to make a sale out of, won't do. Better make steers out of many bulls and spay the delicate heifers and turn them to beef, than to have them used as breeders. Many of the e offered are a disgrace to the name of Short-horns, and not worthy the name of grades. So things appear to a

NEW BEGINNER.

The Sheep Owner's Opportunity.

The paramount consideration, with the average flock owner, is to realize the greatest profit from his investment of capital and subsequent care and attention. To the question, *How is this most certainly to be secured?* The *Journal* has often answered, and now reiterates, get the best stock within your reach; so breed and feed these as to secure the highest development, create and preserve for your flock and its products such a reputation as will insure a ready market at good relative prices; try very few experiments; stay on solid ground, even though the flashes of profit promised by a deviation, or the shadows of temporary disappointment, may invite you to walk in new fields. No matter what the blood, or how nearly perfect the animals may be, intelligence, liberality, and kindness on the part of the shepherd will make them better; and with such improvement will come additional profit—profit through increased weight of fleece; profit through heavier and better developed carcasses; profit through a heavier percentage of lambs, and their speedy and more perfect development; profit by reason of securing outside prices and ready sale for whatever is placed on the market, because of its superior quality; and, finally, the advantage of freedom from the many hardships and annoyances inseparable from attendance upon unthrifty or otherwise undesirable animals.

Though every flock owner cannot have the best sheep, there is encouragement in the fact that no one is so circumstanced that he cannot with certainty and comparative rapidity advance the excellence of such as he may possess. Animals of great excellence, representing all varieties or all breeds, can be had at prices within the reach of every breeder. Feed is plenty, labor is cheap, information upon any point of doubt can be had for the asking, prices are good, and demand active—in short, the opportunity and incentive for a general advance all along the line of those engaged in sheep husbandry are at hand, and those who do not intend to avail themselves thereof had better stand aside, for there are unmistakable signs of a forward movement.—*National Live-Stock Journal*.

Foot-Disease in a Cow.

The common disease in cows and sheep which appears by watery blisters on the feet and between the claws of the hoof, followed by raw spots which are difficult to heal, is known as apthous fever. Sometimes it is accompanied by similar blisters on the lips and tongue, when it is called "foot and mouth disease." It is a fever, or blood disease, and is contagious and troublesome, but not serious, and easily submits to treatment as follows: Give one pound of salts, and when that has operated, give one ounce of hyposulphite of soda daily; wash the sore spots with water and soap, and dress them with an ointment made as follows, viz: Melt four ounces of lard and one ounce of spermaceti together, add one ounce of acetate of copper (verdigris) and stir thoroughly, and while still fluid add one ounce of turpentine and stir until cold. Keep for use. This ointment is excellent for any raw sores or galls, and may be usefully kept in any stable.—*American Dairyman*.

Poultry.**Care of Turkeys.**

The following "turkey talk" by Fanny Field contains all the advice necessary for an amateur turkey raiser:

There is no doubt but that the chief cause of the mortality among young turkeys is their ex-

posure to wet before they are fully feathered. The ordinary turkey raiser trusts a good deal to the instinct of the mother turkey, and the mother turkey if left to herself squats down just where night happens to overtake her; gets up early in the morning and wanders around in the wet grass in search of food, and as a natural consequence more than half of her brood die of chills and cramps before they are a month old, and more than likely the other half is gobbled up by some four footed prowler. Dew is about as fatal as poison to young turkeys before they are fully feathered, and if you expect to raise your turkeys, and make the rearing of them profitable, you must keep them out of the grass when it is wet with dew until they are about two months old.

I have a large, well lighted, gravel floored shed, where I can confine my young turkeys in the morning, until the sun has dried the dew off the grass, and on rainy days they are kept in the shed all day. The mother hens are confined in slat coops placed along the rear of the shed. Where one raises turkeys in large numbers I think some such arrangement would pay, but the ordinary farmer, who only raises a few dozen for market each year, would not care to go to the expense of putting up such a building, and for their benefit I will describe a pen that I have found very useful: For a family of a dozen or so of young turkeys, we make a square pen by placing boards sixteen inches wide and six feet long on edge and fastening them in position. At one side is a large, slant-roofed, tight coop, the front of which opens into the pen. There is no floor in this coop, but as it is perfectly tight, except the augur holes for ventilation, and we always set it in a dry spot where the rain cannot wash under it, and move the coop and pen often, the young turkeys are always dry and comfortable.

But where the ground is damp and the rain would be likely to wash under the coop there should be a board floor covered with gravel, which should be cleared out and renewed often. For a few days after the pouls are hatched, whether you raise them with a hen mother or a turkey mother, they must be confined to this coop and pen. Then if all appear strong and well and the weather favorable, open the pen and give the young liberty after the sun has completely dried the dew off the grass. Should a sudden shower come up while our young turkeys are out in the fields you must turn out and drive them to the coops. If any are chilled take them to the house, dry and warm them thoroughly, give them a good feed, with plenty of ginger or red pepper in it, and then return to the mother hen. See that your turkeys come home every night. At first, if you raise them with a turkey mother, you will have to hunt them up and drive them home, but if you feed regularly every morning and always at night, they will soon learn to come home as regularly for their supper as the cows.

After they are fully feathered, and have thrown out the red on their heads, which usually occurs at about three months, young turkeys are hardy, and may be allowed unlimited range at all times; and from this time on as long as the supply of insects lasts, they will thrive on two meals a day. Keep your turkeys growing right straight from the shell, and you will find that it will pay when pay-day comes. Some farmers, as soon as their young turkeys are feathered, turn them out to get their living the best way they can until a few weeks before Thanksgiving; then they stuff them for a few weeks, and wonder why they do not equal in weight those of their neighbor who has kept his turkeys growing all the time from the day they were hatched. While insect forage is abundant turkeys will pick up the greater part of their living for three or four months, and in such localities it will do to turn them out after they are three months old without any break-fast, but I think they should always have a handful of grain at night, even if they come home with full crops.

Points in Poultry.

At a late meeting of the Lancaster, Penn., Agricultural and Horticultural Society, Dr. C. A. Greene read the following essay upon the subject of poultry raising:

For forty years, with occasional interruptions, it has been my fortune, as boy and man, to care for poultry, and some experience I have gathered during these years, I propose now to make public for all who are interested in the matter, and for convenience sake I will arrange the facts under different heads.

Hens, if properly kept, are a source of profit and comfort to the owner.

The eggs can be increased in size and richness by proper feeding of the fowls.

They require a variety of food, and get excessively tired of one kind.

The egg contains almost all the constituents of the human body, and hence the hen must have a variety of food to construct it.

The hens cease laying when improperly fed, or when in a diseased condition.

They require a warm, clean, properly ventilated house for winter months.

If by neglect vermin infest the bird roosts and house they should at once be removed, as they are deleterious to the health of these friends of man.

The dropping of the hens should be occasionally removed. They should not be allowed to accumulate. The floors should be covered with loam or sand.

Only a small quantity at a time, it should be supplied abundantly, and kept clean and fresh. As they require and must have carbonate and phosphate of lime for their shells, it must be given them in unstinted quantities, and in the most convenient manner for them to pick

and swallow into their crops. These requirements will be found in old plastering, broken oyster-shells, and best of all in fresh bones, with some of the gristle and meat attached. It should be cut up on a log with a hatchet every day; the strife made by the fowls to get at it when offered to them, will plainly prove to you that they like and need it. The instincts of the hen in summer, with a proper range, will teach it what and where to collect the variety of food required. In winter, when housed, man must supply it to them.

As hens have no teeth, and drop their food into their crops unmasticated, in order to digest it, they must have access to stones and gravel, which being swallowed, take the place of teeth in their stomachs, hence they must have a liberal supply of gravel.

The application of sulphur sprinkled upon the fowls, while roosting or asleep, with a pepper-box, will destroy vermin. Coal-oil applied to their roosts in small quantities, will also kill parasites. Two or three drops of whale oil, dropped occasionally on the back of a hen or any other bird, will kill lice.

The nests must occasionally be renewed and kept clean. Straw is better than hay. Tobacco stems covered with straw is an excellent prevention of insect breeding, especially when they are sitting.

When clucking and not needed for mothers, the quickest way to stop their chicken-raising desire is to put them in boxes or cages without anything to lay upon except the boards.

A few fowls in separate pens more profitable and more easily kept healthy than in large numbers.

They require and must have in winter green food, such as grass, turnips, beets, or cabbage leaves.

Corn and wheat middlings, corn unground, oats, bread, and other slops from the house, should all be fed, changing as often as twice a week.

Hens should be killed when three years old, as they lay less eggs every year after the third, and they less easily become diseased, and are not so good eating when older.

French poultry fanciers feed fowls designed for market with barley and steamed yellow carrots. This feed is remarkable for its rapid fattening qualities.

Apiary.**Aids and Helps to Bee-Keepers.**

At the outset I wish to state that I shall not, perhaps, present anything new to experienced bee-keepers, but simply hints and helps to beginners. I am almost constantly receiving letters from those who seek to know the best way to commence bee keeping. Many seem to think it a matter requiring much knowledge and instruction. One of the most frequent questions is: "Would you advise me to undertake it without previous study and some practical knowledge?" The answer to this is plain. If you wish to keep cows, you buy cows, and begin to learn to milk by milking them. If you wish to keep poultry, you buy as many fowls as you can afford, and having done this you are interested to know more about their proper care, and you read about them, watch them, and are a poultry keeper without more ado. I advise you to go about bee keeping in the same way. Buy a few stands, or even one, then get the theory from bee books and journals; watch your bees and continue the practice with the theory. There is nothing about the matter that is mysterious in a practical sense now, thanks to those who have practically investigated the "mysteries" for us.

If you can afford to spend the money and can get Italian bees in just the right hives, that is, of course, the easiest way. If not, buy just what you can get, and as soon as convenient, transfer the bees to good movable frame hives and then Italianize. Decide what hive you will adopt, and do not allow yourself to think it must necessarily be a "patented" hive. The best hives, and those most widely in use at the present by successful and scientific bee keepers, are covered by no patents, and can be manufactured at one dollar and a half each—or less. Always use good material, and knowing the dimensions of the hive you adopt, you can easily obtain widths and lengths that can be cut with little waste.

A word right here to my old, experienced brother bee keepers. You who have purchased hives, etc., let me offer you a money-saving hint. Obtain a good foot-power saw, manufacture your own hives and save 50 per cent. You can easily cut up material for twenty hives per day. With it you can manufacture everything needed, from a complete hive down to a "prize" dovetailed section box. The "Barnes" (Rockford, Ill.) combined saw is good for this purpose. I have found it of the greatest practical benefit, and I doubt if there is, or can be, a more useful article to the apiarist than a thoroughly good foot power saw. Beginners in bee keeping will find it a pleasure to make their own supplies, and will take pride in doing it well, and carefully.

That little "all" once in a savings bank, or the few dollars wisely laid away in the "ancestral stock" will come very handy by-and-by to purchase from your nearest supply dealer the honey and wax extractors, comb foundations, and other necessities for your apiary. One piece of advice I deem very necessary: Remember you cannot expect to begin where other people have arrived by years of practical labor and study. There is no "royal road" to success in this business, any more than in other branches of life. Perseverance, patience, and, withal, a little courage, are the requisites.

Skill will come in doing what is necessary, and in no other way.
J. G. BINGHAM.

Horticulture.**Electro-Horticulture.**

It has often been remarked by Arctic explorers that plants which require several months to ripen their fruit in temperate climates, complete the same round of budding, blooming and maturing in a few weeks under the continuous sunshine of the Arctic summer. A corresponding rapidity of growth is shown by annuals in sub-Arctic latitudes, 'as in northern Norway, where the summer sun, though never reaching a high altitude, yet remains above the horizon from sixteen to twenty hours a day.

A species of corn which flourishes in Canada failed to ripen in Kentucky, though the warm season there is some weeks longer than in Canada. The superior rapidity with which vegetation pushes forward during periods of full moon and light nights has also been widely noticed; these facts of general observation, with others of a more experimental character, going to show that many of the plants of our temperate climate thrive in proportion to the duration of the daily (direct or indirect) sunshine they enjoy, rather than according to the temperature of the air.

A curious confirmation and extension of these observations in regard to the influence of light upon vegetation is furnished by the recent experiments of Dr. C. W. Siemens, testing the influence of the electric light upon certain plants. These experiments were described by Siemens at a considerable length at a late meeting of the Royal Society in London. According to the report of the *London Times*, the method pursued by Dr. Siemens was to plant quick-growing seeds and plants, such as mustard, carrots, rutabagas, beans, cucumbers, and melons, in pots, dividing the pots into four groups, one of which was kept entirely in the dark, one was exposed to the influence of the electric light only, one to the influence of daylight only, and one to daylight and electric light in succession. The electric light was applied for six hours each evening—from 5 to 11—and the plants were then left in darkness during the remainder of the night. The general result was that the plants kept entirely in the dark soon died; those exposed to the electric light only or to daylight only thrived about equally, and those exposed to both day and electric light, thrived far better than either, the specimens of mustard and of carrots exhibited to the society showing this difference in a very remarkable way. Dr. Siemens considers himself as yet only on the threshold of the investigation, but thinks the experiments already made are sufficient to justify the following conclusions:

1. That electric light is efficacious in producing chlorophyll in the leaves of plants, and in promoting growth.
2. That an electric center of light equal to 1,400 candles placed at a distance of two meters from growing plants appeared to be equal in effect to average daylight at this season of the year; but that more economical effects can be obtained by more powerful light centers.
3. That the carbonic acid and nitrogenous compounds generated in diminutive quantities in the electric arc produce no sensible deleterious effects upon plants inclosed in the same space.
4. That plants do not appear to require a period of rest during the twenty-four hours of the day, but make increased and vigorous progress if subjected during daylight to sunlight and during the night to electric light.
5. That the radiation of heat from powerful electric arcs can be made available to counteract the effect of night frost, and is likely to promote the setting and ripening of fruit in the open air.
6. That while under the influence of electric light plants can sustain increased stove heat without collapsing, a circumstance favorable to forcing by electric light.
7. That the expense of electro-horticulture depends mainly upon the cost of mechanical energy, and is very moderate where natural sources of such energy, such as waterfalls, can be made available.

In the discussion which followed the reading of the paper it was pointed out that the evidence seemed to show the practical identity of solar and electric light with respect to their action on vegetation; and it was suggested that the method of subjecting plants to electric light might afford great facilities for the scientific investigation of the influence exerted by light, as compared with other agencies, in promoting the formation of the active principles or most valuable constituents of plants, such as the quinine of the cinchona bark, the gluten of wheat, etc. Before concluding his observations, Dr. Siemens placed a pot of budding tulips in the full brightness of an electric lamp in the meeting room, and in about forty minutes the buds had expanded into full bloom.

Nurserymen and horticulturists have remarked the rapid growth trees make in Kansas as compared with localities further east. The above experiments would seem to indicate that the main cause of this is the large percentage of cloudless weather, very clear atmosphere and bright moonlight, which are characteristic features of the country stretching east from the base of the Rocky Mountains, known as the plains.

Warm and airy stables, great cleanliness with the animal and her products, judicious feeding of cows, and feeding of pastures, are the indispensable means to supply milk in quality, quantity and soundness, capable of resisting decay.

Patrons of Husbandry.

NATIONAL GRANGE.—Master: J. J. Woodman, of Michigan; Secretary: Wm. M. Ireland, Washington, D. C.; Treasurer: F. M. McDowell, Wayne, N. Y.

EXECUTIVE COMMITTEE.—Henry James, of Indiana; D. Wyatt Allen, of South Carolina; W. G. Wayne, of New York.

KANSAS STATE GRANGE.—Master: Wm. Sims, Topeka, Shawnee county; Secretary: P. B. Maxson, Emporia, Lyon county; Treasurer: W. P. Popenoe, Topeka.

EXECUTIVE COMMITTEE.—W. H. Jones, Holton, Jackson county; Levi Dunham, Hartford, Lyon county; J. S. Payne, Cadmus, Linn county.

COUNTY DEPUTIES.—J. T. Stevens, Lawrence, Douglas county; T. B. Myers, Deary, Marshall county; E. R. Powell, Augusta, Butler county; C. F. Morse, Milo, Lincoln county; A. J. Pope, Wichita, Sedgewick county; A. P. Reardon, Jefferson Co., Post Office, Dimond, Leavenworth county; S. W. Day, Ottawa, Franklin county; G. A. Hovey, Belleville, Republic county; G. E. Barrett, Greenleaf, Washington county; W. V. Cane, Topeka, Shawnee county; J. McCombs, Holton, Jackson county; Charles Dickson, Clay county; A. J. Frank, Frank, Rush county; C. F. Morse, Milo, Lincoln county; J. S. Payne, Cadmus, Linn county; Charles Wyeth, Minneapolis, Ottawa county; F. M. Wierman, Milford, Morris county; John Andrews, Thurston, Atchison county; George P. Jackson, Fredonia, Wilson county; C. D. Spurgeon, Leroy, Coffey county; James W. Williams, Peabody, Marion county; R. T. Ewalt, Great Bend, Barton county; C. S. Worley, Eureka, Greenwood county; James McCormick, Burr Oak, Jewell county; L. M. Earnest, Garnett, Anderson county; D. P. Clark, Kirwin, Phillips county; George Fell, Larned, Pawnee county; A. Huff, Salt City, Sumner county; James Faulkner, Iola, Allen county; W. J. Ellis, Miami county; George Amy, Glendale, Bourbon county; W. D. Covington, Smith county; F. O. Kirwin, J. H. Chandler, Rice, Woodson county; E. F. Williams, Erie, Neosho county; J. O. Vanorsdel, Winfield, Cowley county; George W. Black, Olathe, Johnson county; W. J. Campbell, Red Stone, Cloud county; John H. Fair, Osage county; I. S. Fleck, Bunker Hill, Russell county; J. K. Miller, Sterling, Rice county; W. D. Ripplene, Severance, Bonifant county; Arthur Sharp, Girard, Crawford county; P. B. Maxson, Emporia, Lyon county; A. M. Switzer, Hutchinson, Reno county; S. N. Wood, Cottonwood Falls, Chase county; G. S. Kneeland, Keene, Wabasha county.

We solicit from Patrons, communications regarding the Order, Notices of New Elections, Feasts, Installations and a description of all subjects of general or special interest to Patrons.

A Grange Pic-Nic.

I have just returned from a trip through Miami and Linn counties. The wheat crop of these two counties is not up to the average owing to the fact that much of it was winter killed, and besides, later, those pestiferous little insects, the chintz bug, has materially injured it both in yield per acre as well as grade.

The corn crop is looking fair yet it is uneven on the fields, and on some farms very weedy. Besides there are hundreds of acres next to wheat fields dead and dry enough to burn—killed by the bugs.

Flax is looking well and will make a fair crop—not weedy.

The oats are short in straw but well filled and will yield splendidly unless the prairie pests destroy them.

I have no where in Kansas seen better timothy meadows than they have.

The Patrons of Linn county held a grand basket picnic in a beautiful grove a half mile from the young and prosperous city of Pleasanton. There were one thousand happy people present. Happy because they had an abundance of shade, cold water, ice, and stirring music by the Pleasanton band, and above all full baskets.

The exercises of the day began at 10 o'clock, a. m., by an address of welcome by the president of the day, Bro. Lattimer, who was followed by our worthy master, Simms, of the Kansas state grange, in a sharp, ringing address of over an hour's length. It has been my pleasure to listen to him on many former reunions, but never have I heard him express himself so forcibly yet so eloquently.

And then followed the dinner—and such a dinner. Talk about a dinner at Delmonico's, at the Grand Central, or the Grand Pacific. I never enjoyed one half so much as I did this one furnished by the matrons of Linn county.

After dinner Col. Waugh, of Johnson county delivered an address occupying one hour, who was followed by H. C. Liverman of the Olathe Grange Star on the necessity of co-operation among Patrons. This address was listened to with lively interest by every one present. Bro. Liverman ought to lecture to every grange in this state, for he presents this subject in a clear and logical manner.

After short addresses by others, the meeting adjourned with much good feeling, satisfied that the interests of the Patrons of Husbandry had been materially advanced by this re-union.

G. W. Gordon, Kas.

The Pennsylvania System of Co-operation.

Patrons who have an interest in the business arm of the order will agree with us in the opinion that we cannot too often refer to the subject of co-operative purchases of domestic supplies and sales of farm produce. There is no difficulty in convincing those who attend their grange meetings regularly of the social and educational advantages of the grange; these stand out so prominently that "he who runs may read," and every observing patron will testify to the fact that farmers in the grange have, during the past six or eight years, advanced in knowledge and improved in their social relations to a much greater degree than those of their class who have held aloof from the order. These, we say, are undisputed facts, universally admitted, and if there were no other objects attainable in the grange than those above stated the larger portion of the present membership would cling to the organization on account of the pleasures to be derived from its educational and social features.

But there is another important and prominent feature in the farmers' organization which is equally necessary to its advancement and perpetuity. It is co-operation in business. We admit that wealthy land-owners, who have plenty of means outside of the income derived from farm products, need care but little whether they pay one profit or half a dozen on their domestic supplies, farm implements, etc.; but the great mass of the agricultural population

are comparatively poor, and have been kept so for generations by paying tribute, in the shape of profits, to all other classes, and by being compelled by taxation to pay more than two-thirds the expenses of local, state and national governments. This is the class of which the grange is largely composed, and it is for the benefit of this class that the business arm of the order is maintained. Yet, strange as it may appear, a large portion of the membership fail to make use of the means provided for their direct benefit. These are the patrons whom we desire to interest in this article. The reasons they usually give for not supporting and upholding the regular business houses of the order are so flimsy and unfounded that we will not take space to notice them at this time. We make the assertion, after considerable experience and careful investigation, that the business arrangements made by the present executive committee of the Pennsylvania state grange are superior to any ever heretofore adopted, either in this or any other state. The experience of the past two years has fully demonstrated this fact, and the patrons who have steadily availed themselves of our present purchasing system, with one accord, bear testimony to the truth of this assertion.—*Farmers Friend.*

Not At War.

The Patrons of Husbandry, as an organization of farmers and producers of the soil, are verily not at war with any people or class of people. Neither are they in love with political demagogues, who frown upon their inherent rights; with corruptionists, who hesitate not to swindle them of the taxes they pay for support of state and national governments; with monopolists, who would crush them to the earth with their rule or ruin principles; with middlemen, who are the stool-pigeons of the monopolists; with extortionists, who have neither conscience nor fear of the devil to do wrong; or with a great majority of the lawyers of to-day, who are the agents of the class just enumerated, and always lying in ambush to trick the unsuspecting farmers. With all of these the Patrons of Husbandry cannot claim fellowship.

Now to rid ourselves of the enemies of the Patron and farmer all it is essentially necessary to do is to deal directly, or more nearly so, with honest manufacturers, through our authorized grange agents, than we have in the past; and the more directly we deal, or require our home merchants to deal, the less necessity for middlemen, and the fewer of them there will be unless they manage to live on wind, and they do not have the appearance of being able to do so now, and remain as sleek and fat as they are. Likewise, if lawyers are too numerous, dis away with so much litigation, then the lawyers will be fewer in number, unless they are given more offices, and that remains with the farmers, for the farmers and all those who stand with them are in the majority in these United States if they will but unite their strength and independently resolve that they will no longer yield obedience to the cruel exactions of their would-be masters. We have heretofore had a great deal of talk upon these subjects, and some action. Now let us have more action; and such action as will tend to our mutual benefit in many more ways than one.—*Farmers Friend.*

Another Constricting Serpent.

The *Petroleum World*, published at Titusville, Pa., gives the following account of the Standard Oil Company's latest scheme:

During the past few months the Standard has had agents through the northwest buying lands, principally in Minnesota, for which in every instance cash has been paid. None but the best wheat lands are being taken. These purchases have already amounted to 40,000 acres in Minnesota alone. Two weeks ago a man was sent quietly from Pittsburg to superintend a large portion of this land. Of the 40,000 acres, 20,000 will be broken up and cultivated in wheat this year. Purchasing agents are still in the northwest, and the work of gobbling lands continues. This purchasing committee travels in a special car, and when they encounter a tract of land that suits them, it is at once absorbed. Much of this property is in the shape of land grants to railroads. It is the intention of the Standard to possess a million acres of the choicest wheat lands before another year. The chances are that they will have this enormous quantity inside of six months, as the work of buying is being carried on in the most princely manner. Whole townships and counties are passing in blocks into the hands of the Standard. It is said to be the most gigantic land speculation that any country has ever known, and yet so secretly has it been carried on that nobody outside the giant oil monopoly knew of it until 40,000 acres had been gobbled up.

These enormous purchases are being made from the profits of the Standard's oil business, a large percentage of which comes in the shape of rebates from railroads. None of the capital stock of the company is being tied up in this land grab.

Discussing the big speculation, a prominent railroad man says: "In this, railroad managers can see some of the results of permitting a corporation like the Standard Oil Company to exact drawbacks and rebates on shipments." Aside from rebates on freights, a large portion of the Standard's profits comes from their manipulation of the oil markets. These are but two of the sources whence the monopoly can draw for the capital they are now investing in these western lands. A corporation that can increase its assets to \$22,000,000 in ten years on a capital of \$100,000, control legislatures and the three great trunk lines of the country, is probably not pressed for funds.

The opinion obtains among those who are

cognizant of this move of the Standard, that the object is to get control of the wheat market as they now control the oil market. They will be large producers of wheat, and if necessary, large buyers as well. It is thought their power over the railroads, as shown in the transportation of oil, will enable the Standard to say to the world just how much it shall pay them for its daily bread.

At a late meeting of the New York Board of Trade, the committee on transportation made a strong report, charging corrupt practices upon the railroads in packing the New York legislature and even with sending delegates to the national conventions. It is said the whole railroad system is a plan "for the distribution of wealth and commerce to the many for the benefit of the few," and says: "Unless charges for transportation are based upon the cost of service, and regulated by law, the railroads are virtually owners of the country; indeed it is more advantageous to the railroad managers than if they had a proprietary interest in all property; for with charges for transportation based upon the principle of what the tariff will bear, and with the railroad managers sole judges of this question, they can tax all production and commerce to the extent of the entire profit without the trouble or responsibility of ownership."—*Grange Bulletin.*

The farmer knows as well as any one the real value of money, and is there any one better adapted to spend it economically than he? Growing out of these thoughts are questions which can be discussed with profit in our granges. The time spent there should not be entirely occupied in the lighter questions discussed in our social gatherings. Singing, recitations and the gossip of the day are all well in their place. They are a great relief to the monotony of the farmer's life, yet even these may be interspersed with subjects of a graver and more important bearing. At the same time the great idea of the universal brotherhood of man should never be lost sight of. The idea inculcated should not be that we are here for the purpose of preying one upon another, but our object should be to benefit each other as far as possible.

CENTRALIA, Nebraska Co., June 25.—Again the rain falls in gentle showers. It has been some time since we have had rains, and the surface of the ground was getting rather dry, especially that which has not been thoroughly cultivated. But we have needed rain more on account of the chinch-bugs, which are very bad in some localities, doing a great deal of damage to small grain. They made their appearance early this year, I suppose on account of so much dry weather. Fall wheat was out of their way, but they worked some on rye, and now they are taking the spring wheat. One piece of spring wheat in this neighborhood, which one week ago was as promising as I ever saw, is now all dead, except a small corner. The bugs are just beginning on mine, as I see by the white spots in it. If they will leave the corn, I will not complain, but I will hate to see that go. I think I have as fine a prospect for corn as I ever saw.

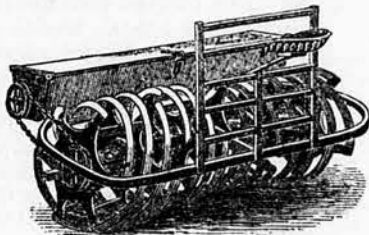
Stock is doing well; no disease from which it is suffering. Hay will be short, and as there is such a large amount of stock (5,873 horses, 35,251 neat cattle, 302 mules, and 882 sheep), for the size of the county, there will be a scarcity of hay.

A. L. SAMS.

Keep your bowels and kidneys in healthy state by the use of kidney wort.

Advertisements.

CHICAGO SCREW PULVERIZER.



Does Pulverization pay?

EL PASO, Ill., Nov. 25, 1879.—Have been using the Screw Pulverizer three seasons. This year have used it wholly—have not used a plow at all. Planted eighty five acres to corn, prepared and cultivated wholly with this machine, and nothing else. Produced over sixty bushels per acre. Matured ten days earlier, and averaged more than twenty bushels per acre more than adjoining fields, plowed and cultivated in the ordinary way. The less cost and more corn per acre would more than pay for machine complete on 45 acres.

E. S. FURMAN.

ABILENE, Kas., Nov. 10, 1879.—I seeded 3,400 acres of wheat with these machines this fall, and found they did the work well. The stand of wheat is now the best I have ever seen on new land. It will pulverize and seed the ground in better shape, and very much cheaper than it can be done by the old method of plowing—backsetting—drugging and drilling.

R. J. WEYMES, Trustee.

Send for Pamphlets, free, with Letters from over Sixty Men using the Machine, and Cuts showing the Knives in Cultivator Frames for Corn or Cotton.

Address the Manufacturers,
CHICAGO SCRAPER & DITCHER CO.
31 Metropolitan Block, Chicago.

KANSAS

Staats-Anzeiger.

The Largest German Paper in the State.
Devoted to the
Interests of the State of Kansas.

If you want to reach or communicate with the German speaking people of the state, advertise in or subscribe to, the STAATS-ANZEIGER.

PHIL. SCHMITZ, Publisher,
209 Kansas Avenue, Topeka.

Steers for Sale.

85 head of yearling Steers for sale by T. L. MIX, two miles south west of Neosho Falls, Woodson County, Kansas.



CHAMPION HAY GATHERER.

Saves expense of Winnowing and Shooking. This Rake gathers the hay perfectly clean from the swath from 400 to 700 pounds at a time and carries it to the stack. The Rake is then backed from under the hay. Will adjust itself to uneven ground. Has been thoroughly tested. Saves from 50 to 75 per cent over the common way. Prices \$25. Parties wishing to buy Rakes or the right to manufacture them can get terms by addressing S. B. GILLMAN, Salisbury, Mo.



A. PRESCOTT & CO.,

TOPEKA, KANSAS.

Have on hand

\$100,000 TO LOAN

In Shawnee and adjoining Counties on good Farm security

At 8 and 9 per cent.

Per Annum.

FRUIT DRYER & BAKING
OVER 11,000 IN USE
THE BEST IN THE MARKET
MADE ENTIRELY OF GALVANIZED IRON
AGENTS WANTED
ZIMMERMAN FRUIT DRYER CO.
Cincinnati, O.

ON 30 DAYS TRIAL
We send on 30 Days Trial our ELECTRO-VOLTAIC BELTS, BANDS, SUSPENSORIES, TRASSES, and other appliances, to those suffering from Nervous Debility, Weakness, or Lost Vitality from any cause; or to those afflicted with Rheumatism, Paralysis, Dyspepsia, Liver or Kidney troubles, etc., etc.; or Ruptures. Speedy cures guaranteed. Address VOLTAIC BELT CO., Marshall, Mich.

W. W. MANSPEAKER.

WHOLESALE AND RETAIL GROCER.
227 Kansas Avenue, Topeka,
The largest Grocery House in the State.

Goods Shipped to any Point.

We buy for Cash; buy in large quantities; own the block we occupy, and have no rents to pay, which enable us to sell goods

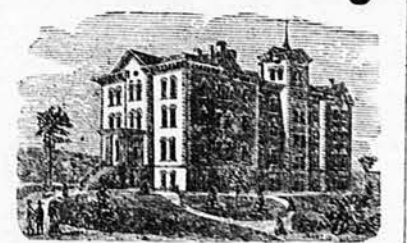
VERY CHEAP.

Farmers and Merchants in country and towns west of Topeka are invited to send for circulars and price list.



CURES WHEN ALL OTHER MEDICINES FAIL as it acts directly on the Kidneys, Liver, and Bowels, restoring them at once to healthy action. HUNT'S REMEDY is a safe and speedy cure and hundreds have testified to having been cured by it. When physicians and friends had given them up to die, do not delay, try at once HUNT'S REMEDY. Send for pamphlet to
W. L. CLARKE, Providence, R. I.
Prices, 75 cents and \$1.35. Largest size the cheapest. Ask your druggist for HUNT'S REMEDY. Take no other.

Washburn College



The Fall Term Opens on
Wednesday, Sept. 14, 1880.

Four courses of study optional:—Business, Scientific, Classical, Preparatory and Collegiate. Excellent rooms for young men in the College Hall at from 25 to 50 cents per week. Good table board at \$2.00 per week. The Hartford Cottage for young ladies is now completed. Rooms furnished for the most part at from 20 to 50 cents per week. The domestic arrangement is on the Mount Holyoke plan. Each young lady aids in household work to the extent of about an hour a day, under the personal supervision of the matron. In quality of instruction, in attractive and comfortable facilities for room and board at extremely low rates, and in increasing advantages of Library, Cabinet and Apparatus, the College now offers unusual inducements to youth of both sexes desirous of securing a thorough education. Address,
PETER MCVICAR, President,
Topeka, Kansas.

Brooders' Directory.

HALL BROS., Ann Arbor, Mich., make a specialty of breeding the choicest strains of Poland-Chickens, Suffolk, Essex and Berkshire Pigs. Present prices less than last card rates. Satisfaction guaranteed. A few splendid pigs, gilts and boars now ready.

JOSHUA FRY, Dover, Shawnee county, Kansas, is Breeder of the best strains of Imported English Berkshire Hogs. A choice lot of pigs from 2 to 8 months old for sale. Prices to suit the times. Correspondence solicited.

FOR SALE. Scotch and black & tan rat pups, \$10 each; shepherd pups, \$15 to \$25; also pointers and setters. These are in best prices. All imported stock. A. C. WADDELL, Topeka.

MILLER BROS., Junction City, Kansas. Breeders of Tross of the best and cheapest. Apple Trees and Hedge Plants a specialty. Address ROBT. WATSON, Lee's Summit, Jackson Co., Mo.

Nurserymen's Directory.

LEE'S SUMMIT AND BELTON NURSERIES, Fruit Trees of the best and cheapest. Apple Trees and Hedge Plants a specialty. Address ROBT. WATSON, Lee's Summit, Jackson Co., Mo.

MIAMI COUNTY NURSERIES. 11th year, large stock, good assortment; stock first class. Orange hedge plants and Apple trees at lowest rates by car load. Wholesale and retail price lists sent free on application. E. F. CADWALLADER, Louisville, Ky.

Dentist.

A. H. THOMPSON, D. D. S., Operative and Surgeon, Dentist, No. 129 Kansas Avenue, Topeka, Kansas.

JAMES A. BAYLES,

Loess Summit, Jackson County, Mo., Has the largest and best Nursery Establishment in the West. Correspondence promptly answered.

HOGS.



Southern Kansas Swine Farm.

THOROUGHbred POLAND-CHINAS and BERKSHIRE Pigs and Hogs for sale. The very best of each breed. Early maturity, large growth, and fine style are marked features of our hogs. Terms reasonable. Correspondence solicited.

RANDOLPH & RANDOLPH.

Emporia, Kansas

RIVERSIDE FARM HERD OF POLANDS.

Established in 1868.

I have in my herd the sow that took first money and sweepstakes, and the sow and boar under six months that took premium at Kansas City Exposition in 1875, and the sow, boar and litter that took first premium and sweepstakes over all at the meeting of the Lyon County Agricultural Society in 1879. These pigs are all of my own breeding, and are considered "top" and end nothing but first-class pigs. All stock sold, and shipped, as ordered on receipt of money.

D. V. KANPOLD, Emporia, Kas.

Shannon Hill Stock Farm

Thoroughbred Short-Horn Cattle and Berkshire Pigs, bred and raised for sale. Only first-class animals allowed to leave the farm. Address G. W. GLICK, Atchison, Kansas

THE POULTRY WORLD

(Monthly.) and

THE AMERICAN POULTRY YARD,

(Weekly). Both publications are exclusively devoted to Poultry. Published by H. H. STODDARD, Hartford, Conn. The Poultry World is sent post-paid for \$1.25 per year; the American Poultry Yard for \$1.50. Both papers for \$2.00. A series of 12 magnificent chromos, each representing a standard breed of fowls sent for 75 cents extra, to all subscribers of either publication.

ELITE CLASS POULTRY,
C. C. HUNTER, Emporia, Mo.
(NEAR SEDALIA.)
Breeder & Shipper.
EGGS FOR HATCHING
In Season.
Send for Illustrated Catalogue, Free.

Concordia CROWN Nursery

C. C. HUNTER, Proprietor, Florist, Seedsman and Market Gardener.

HOUSE PLANTS A SPECIALTY.
Corner 3d and State streets, Concordia, Cloud Co., Kas.

THE SORGO HANDBOOK

A Treatise on Sorgo and Imphee Cane, and the Minnesota Early Amber Sugar Cane. The EDITION FOR 1880 is now ready, and will be sent free on application. We can furnish FIRE CANES of the best variety.

BLUMYER MANUFACTURING CO.,

Cincinnati, O.
Sugar Cane Machinery, Steam Engines, Circular Saw Mills, Portable Grain Mills, Church and School Bells, &c.

Attention, Owners of Horses!

The Zinc Collar Pad

is the only permanent and reliable pad for sore-necked horses or mules that has ever been produced, and has been greatly improved since Jan. 1, 1880. The new pad, of proper sizes, with iron loops in top, can be buckled close at the top if desired. Being of smooth metal, they do not wear the mane, and always dispense, when needed, their medicinal virtues. There are over a million and a half of them in use. Pads made of other material can only temporarily have any curative properties whatever, and soon become worthless by abrasion in cleansing them. The Zinc Pads are sold by leading Saddlery Houses throughout the country, and harness makers generally. Ask your harness maker for them. Manufactured by ZINC COLLAR PAD CO., Buchanan, Mich.

BARNES' FOOT POWER MACHINE.

FIFTEEN

different machines with which Builders, Cabinet Makers, Wagon Makers, and Jobbers in Miscellaneous work can compete as to QUALITY and PRICE with steam power manufacturing; also, amateur's supplies, saw blades, designs for Wall Brackets and Builders' scroll work.

Machines Sent on Trial.

Send where you read this and send for catalogue and prices.
W. F. & J. BARNES,
Rockford, Winnebago Co., Ill.

THE KANSAS FARMER.

E. E. EWING, Editor and Proprietor,
Topeka, Kansas.

TERMS: CASH IN ADVANCE.

One Copy, Weekly, for one year, 1.50
One Copy, Weekly, for six months, 1.00
One Copy, Weekly, for three months, .50

The greatest care is used to prevent swindling humbugs securing space in these advertising columns. Advertisements of lotteries, whisky bitters, and quack doctors are not received. We accept advertisements only for cash, cannot give space and take pay in trade of any kind. This is business, and it is a just and equitable rule adhered to in the publication of THE FARMER.

TO SUBSCRIBERS.

Subscribers should very carefully notice the label stamped upon the margin of their papers. All those marked "28" expire with the next issue. The paper is at once discontinued at the expiration of the time paid for, and to avoid missing a number renewals should be made at once.

A PREMIUM OFFER.

The Farmer For 75 Cents.

The KANSAS FARMER will be furnished from the first of July till the end of the year 1880, to single subscribers for 75 cents, and every old subscriber forwarding a new name with the money will have his own subscription extended one month. Now, friends, let us see if the list of subscribers to the "Old Reliable" cannot be doubled by January 1st, 1881, so that we can start a boom for clubs with the New Year. Every farmer and grange patron should feel it a religious duty to assist the publications, which are enlisted in their cause, and fighting the gigantic usurpations and monopolies which are springing up on every hand. Postage stamps are convenient for small remittances.

They Know It All.

The greatest obstacle to the advance of agriculture and the lifting up of the mass of farmers is the monster delusion, "We know it all." This moral leprosy has impoverished millions of acres of the finest land, has produced millions on millions of profligate, scrub stock, and brought poverty, coarse fare and scanty schooling to tens of thousands of farmers and farmers' families. The majority of farmers, even in this day of light and progress, believe they have nothing to learn; that they understand, perfectly all about their business. Ask one of these know-alls if he takes an agricultural paper, No. He does not believe in book farming. He takes half a dozen other papers he will conspicuously tell you. Go over his list and you will find they are composed of story papers, mostly filled with imaginary love stories, and other sentimental moonshine, by very poor writers, with scarcely a useful thought or hint to be found in a number. The balance are most likely to be violent political party sheets, which thunder from frontispiece to finis about offices and office-holders, and doubled-eyed scoundrels in the opposition party. Probably not a single public question of importance will be discussed in the entire volume.

Our know-all farmer's spare time has all been consumed in wading through this valueless, to him, stuff, and he rises from his perusal with the complacent air of satisfaction that he possesses a thorough knowledge of governmental affairs, and is ready to lose half a day at the busiest season to attend a party meeting or discuss "politics" with the "biggest man" in the county.

Now let us inquire what he knows about his own immediate business. He knows what he has learned by dint of practice from his boyhood. Commencing on his father's farm, with a small addition he has picked up from observation in his limited sphere, and gleaned from his neighbors and hired help. This is in nine out of ten cases the sum and substance of a life's acquisition in the department of knowledge, which above all, it is his interest to understand most thoroughly, and become familiar with every new discovery and principle in progressive farming. The very name of an agricultural paper curls his lip with contempt. He is planting crops, and breeding farm stock as the business of his life and the sole dependence for his daily bread, and yet scarcely reads a word relating to these great interests. He takes his grain to a city buyer who never turned a furrow in his life, and he tells our know-all farmer more about wheat than he ever knew before. A drover or cattle buyer stops at his pasture field or cattle yard, looks over his herd, and points out good and bad qualities in his stock that he has never discovered, and tells him more about stock and the stock business, than he has learned in twenty years, and yet he will continue to hug his delusion that agricultural and stock literature are great humbugs, that he can add nothing to his store of knowledge by reading journals which make a specialty of such subjects as he is depending on for his daily bread.

The active workers who are striving to advance agriculture by making it, if not less a business of manual labor, one of vastly greater enlightened mental labor than it has ever been, find this blind conceit so prevalent among farmers, that they have little or nothing to learn of their own vocation, one of the greatest obstacles to progress. This adamant barrier to be sure is slowly giving way, but its removal is as tedious and painful as blasting granite and tunneling mountains.

The active and persistent inventors of farm machinery and their ubiquitous agents have overcome the native repugnance to innovations of farmers, in the matter of improved machinery and implements for cultivating the soil, but it was a hard struggle. Hussey, the inventor of the reaping machine, had to endure the scoffs and sneers of the agricultural class for years before the reaper was introduced to the

harvest field. Now that this feature of progressive farming has conquered, the danger threatens, on account of the lack of a general knowledge of the true principle of a more advanced agriculture, to swamp the average farmer, with expense for costly tools. His father and grandfather knew as much about agriculture as the present satisfied heir, used economic implements best suited to the farming of their day. The son and grandson attempts to use implements of a more costly kind, and designed for a more enlightened system of agriculture, than the routine practice of his ancestors. The consequence is that his ancestors increased their worldly goods slowly but surely, while the farmer of to-day, who has not added to his grandfather's stock of agricultural knowledge, but has adopted the extravagance of modern living, and modern inventions in farm implements, finds himself in all probability gradually growing poorer.

The manufacturer keeps well posted in the new inventions and discoveries which effect his business and adapts his practice to the demands of the age in which he lives. The mechanic takes every advantage he can derive from labor saving machinery and the motive powers of steam, electricity, gas, water, etc. Steam, the telegraph, the telephone, the daily bulletin, the printer's types, are all made use of by the commercial classes to quicken thought, and acquire accurate information, while every man of them almost, studies the journal which makes a specialty of his particular business. All but the farmer he alone among this busy mass is found lagging behind, indifferent to the new truths that are being discovered in his line of business. Is it at all a matter of surprise to find that those engaged in other pursuits and callings look upon him as the ass of the social world, the patient beast created by Providence to bear the burthens which other members of the human family choose to lay upon his shoulders?

Saving Fruit.

We have frequently pointed out the profit that might be made on the fruit and vegetables which go to waste annually on many farms by the use of an evaporator. Evaporated fruit is taking the place of the old-fashioned sun and oven-dried article, and sells more readily and for double the price of the latter inferior product. In the article of sugar corn, which farmers, and especially the house-wife, wishes to preserve with all its richness and flavor of the "roasting ear" state, the evaporator is found to produce even a better article than canning, a process which cannot be accomplished by the skill and appliances in vogue on the farm. If canned corn is enjoyed it has to be purchased at a high price from the grocers. A farmer gives his success through the Ohio Farmer, in utilizing the fruit and vegetables which grew on his farm by the use of an evaporator, much of which would doubtless have been a total loss without the use of this modern machine. His experience may encourage others to pursue the same course and add to their income by saving much of what is now allowed to run to waste. He says:

"Four years ago last winter I procured a dryer, and have had it in use ever since, drying nearly all kinds of fruit, large and small, that are usually raised on a fruit farm; also pumpkins, sweet corn, and several garden vegetables, all of which retain their natural flavor so nearly that many persons eating them prepared for the table do not discover they are dried products until told. I have dried of apples each year from 800 to 3,000 pounds, and realized from eight to fourteen cents per pound in Philadelphia and Pittsburgh, while common fruit sold at the same time from one and one-half to three or four cents per pound. My dried peaches, pared, brought me twenty-five cents per pound readily, and last year thirty for my best. Raspberries I sold for from twenty-eight to thirty cents per pound, requiring a fraction over three quarts to make a pound of dried ones. I did not sell any pitted cherries last season, but did some unpitted at nine cents per pound. I can not tell how many cherries it will take to make one pound after drying. I am satisfied that if we can sell at home or anywhere else so they will net us five or six cents per quart we would not do better to dry them, though I think pitted cherries sold in our markets for about twenty-five cents per pound last season.

"When I can not get as much as forty cents per bushel for green apples I dry all I can and think it pays better. Peaches will net us at least \$1 per bushel green, when pared and dried; and from fifty to seventy-five cents per bushel to dry them without pitting. Since I have used this dryer the raspberries I have dried have netted me more than those I sold without drying. Last season I dried 1,500 pounds, and sold most of them at thirty cents per pound."

The Value of Science to Farming.

"The announcement was made a few days ago in Washington, that the cotton crop of the present year will be the largest ever known—fully 5,000,000 bales, worth \$300,000,000. It was also said that much of the increase was due to the operation of the entomological experts employed by the government in discovering means for checking the ravages of the cotton worm."

The above paragraph contains food for thought. By the investigation of entomologists a million or more bales of cotton has, in one year, been added to the cotton crop of the country. In every department of agriculture similar results may be achieved.

In order to reach results so desirable and profitable to farmers, the agricultural colleges throughout the country should be placed on a

working basis, the result of whose labors should be to teach such branches of science as can be applied directly to practical agriculture. Where they are in the hands of black letter classes, D. D.'s, L. L. D.'s etc., they should be rescued and placed on a practical, useful basis. The agricultural interest should move en masse on congress and the state legislatures, have experimental stations and small, experimental farms established in all parts of the country where the natural change of soil and climate demand a change in our routine practice, and be economically conducted, as in Germany, in order that every farmer may have the light of science to guide and assist him in his labors. This is the kind of government protection farmers need. Let them take a short cut and direct course to it by filling congress and their state legislatures with the wisest and most active practical farmers. Men of snap and business in their make-up are most needed in our law-making halls; men who are intent hurrying through with the most useful business of the session and then adjourning, and not the class who at present compose the bulk of our legislators, the hawks and birds of prey of society, who live on what they can capture and filch from the community. Our present condition of government is not unlike that which the frogs were visited with when they elected a stork for their king. We do not want either King Log or King Stork to shape and manage public affairs, but active, intelligent men selected from the ranks of productive industry.

Burning of a Printing Office.

The publishers of the *Southern Live-Stock Journal*, published at Starkville, Mississippi, met with a great misfortune, last month, in the total destruction of their office, including a new power press, by fire. We sympathize with the *Journal* in the loss and interruption to its business which is a consequent result; but the proprietors propose to push ahead and have the damage repaired as speedily as possible.

The *Live-Stock Journal* is doing a noble work for Mississippi, in battling against the usurpation of cotton and in favor of more live-stock and a diversified farming. By the best information we can gather, eastern Mississippi is an admirable grass and stock country, and the latter interest is making rapid progress under the impulse of a stock association whose membership has increased rapidly within a year.

No little of this better condition of things is due to the efforts of the *Southern Live-Stock Journal*. We hope its usefulness will not long be checked by the recent misfortune to its worthy publishers, and that Mississippi, under its enlightened teaching will be given over to the rule of farmers and stock-breeders in place of politicians and lawyers.

Eleventh Annual Fair of the Shawnee Agricultural Society.

The premium lists for the fair of this society are out, and copies can be obtained by application to the secretary, J. W. Campbell, Topeka, Kansas.

The exhibition will open on the Society's grounds, Topeka, October 5th, and continue four days. The premium list embraces a wide range of articles, and the premiums are liberal. Every inducement is given to insure a fine exhibition, and no pains will be spared by the officers and managers of the fair to make it a satisfactory and profitable success.

The Web-Worm.

This pest is doing much damage to garden and other crops in western and southwestern Kansas. The letters of our correspondents describe its ravages. The web-worm is comparatively a new insect enemy to the settlers of the western part of the state. It made its appearance in 1873, but it appears to have absented itself since then to the present season. The State Board of Agriculture has sent Prof. Poppe, Entomologist of the State Agricultural College, to examine and make a report of this insect for the Second Quarterly Report of the Board.

The Campaign Discussed.

We are in receipt of a 26-page pamphlet entitled "Constitutional Prohibition of the Liquor Traffic, Considered from a Moral, Legal and Financial Standpoint," by J. R. Detwiler, P. G. W. C. T., of the Good Templars of Kansas. Price: single copies, 10 cents; 12 copies, \$1; 100 copies \$6. Parties desiring an effective campaign document, will find this work adapted to their demands. Send for a specimen copy to the author at Osage Mission, Kansas.

County Clerks.

If there are any county clerks' offices in the state not supplied with a copy of the KANSAS FARMER, we will mail a free copy on receiving notice of the omission. The stray law provides that a copy of the KANSAS FARMER be kept on file in every county clerk's office in the state, for convenient reference for persons having lost stock by straying.

Our subscribers are requested to examine the slip attached to their paper and not allow their subscriptions to expire without renewing. Every subscriber to the FARMER could easily obtain the name of one or more neighbors to add to our subscription list. From the first of July till the first of January, 1881, we will furnish the FARMER to single subscribers for 75 cents, and every old subscriber furnishing us with a new name and enclosing that amount in postage stamps, will have his subscription extended one month.

W. W. Cole's Great Circus and Menagerie.

From the Dayton (Ohio) Journal, May 12th, 1880:

A BIG CIRCUS—OVER TWELVE THOUSAND PEOPLE ATTEND.

No show of this kind has given more general satisfaction than Cole's circus that exhibited in the city yesterday. Monday night the weather had been of an unfavorable character, but it cleared up bright and smiling Tuesday morning, and people came in from all parts of the neighboring country to see the show. It had been well advertised and an expectant crowd awaited the approach of the street procession, thronging the sidewalks. In the afternoon the tent was crowded beyond expectation, all the seats were filled and took places on the grass. In the evening the rush was still greater, and all available standing room being occupied, numbers went away. In the two performances there were over 12,000 people in the tent.

The show was well worth the patronage. It was one of the best that has visited Dayton. The features were all of the best character. Their menagerie was well selected. Among the animals was one of the largest of elephants and the smallest of monkeys, a baby of five days; two sea elephants, and lions, and leopards fat and powerful as oxen ready for the market. In the ring the trained stallions elicited much admiration. The leaper Gardner leaped over six camels and three elephants. The second best leaper and the most graceful was Harry Long. He was received with loud applause, and his leaps showed him to be well trained; they were graceful and conducted with the ease of a bird on the wing. Miss Maggie Clair went through a remarkable performance with rings while suspended in mid-air. De Comas serial bicycle act was a pleasing novelty and the performing stallions were equally admirable. Mr. and Mrs. Bates, the giants, accompanied the circus, and proved themselves fully up to expectations, the greatest of men and women. In the evening the tent was lighted by a fine electric light.

This famous show will exhibit at Topeka on Monday, July 19th.

The Drive-Well Patents.

The following extract from the *Lansingburg Courier*, of New York, will be read with much satisfaction by parties who have drive-wells in Kansas and who are threatened with prosecution, for are already being prosecuted by the drive-well swindler patentees:

The actions by Wm. D. Andrews, G. H. Andrews, and Nelson W. Green, commenced in June, 1879, against a large number of our townsmen, in the United States Circuit Court for the Northern District of New York, have at last been brought to an issue which will prove interesting to our readers, if not the complainants, by moving the case of defendant Thomas Richardson, of this village.

Mr. Keach moved the case on the sixth day of this month, at the American House in this village, before Examiner William Lansing, of Albany. His first witness was Anson Atwood, of Dunnellen, N. Y., who testified in two and a half hours, and in thirty-seven questions to the driven well on Bull's Head fair grounds between Troy and Albany at the state fair in 1858. The complainants fished about for six and a half days and asked over 700 questions, only stopping at last from sheer exhaustion, not having been able to shake Mr. Atwood in the least, nor to develop any new facts.

The next witness (who is now under cross-examination) was Mr. James E. Kirwan, of Greenbush, N. Y. Mr. Keach asked Mr. Kirwan ninety-four questions in six and a half hours, proving plenty of wells constructed by him in Lake county, in 1848 and 1849, and fully corroborating Mr. Atwood as to the Albany state fair ground well. The cross-examination is now on its fourth day, and has not developed any new facts—except in one instance mentioned hereafter—because they have not in over two hundred questions touched upon a single subject pertinent to the case, nor relative to the issue.

They struck a vein accidentally, however, on Wednesday afternoon, and called out new matter not competent on direct examination on account of the pleading in the case, and by which they will be bound. It is as follows: He constructed a drive-well at the Catholic Orphan Asylum in Albany, near St. Mary's burying ground, April or May, 1861. Also one at Greenbush, Rens county, for a Mr. Staats, on grounds occupied by one Baldwin, corner of Columbus street and Broadway, in 1855, constructing several at or near Willis' Mills, Erie county, N. Y., some twenty miles from Buffalo, in 1851.

Now the importance of this testimony will be seen when it is known that Green did not apply for a patent until 1866, and that he swore on his examination in the Cameron case, and also in his interference with Mudge, that his first idea of a driven well did not take place until after September, 1861, and his first experiment (which in fact he did not make at all, nor was he present when it was done by Mudge, Carmichael, Robinson and Sugget, at Cortland, N. Y.), was in October, 1861. Mr. Keach has documentary evidence, the nature of which we have been permitted to examine, but withhold for prudential reasons—certified to by proper officers, which make it admissible, that will completely upset the theory of Mr. Green.

Mr. Green, as Mr. Keach asserts, cannot get on the witness stand to support his patent, or the rebuttal of what has been brought out on this trial.

The defendant will establish other wells, as

follows: One at Preble, Cortland Co., 1859, by Moses T. Taltman, who still has the pipe (recently pulled up) with which the well was constructed and the date cannot be upset, as he has recently found the receipts of the railroad company for the freight on such pipe and the pump which came with it from Syracuse, with the exact date. He will have the pipe present to introduce in evidence. A well was also driven, long before the war, at Brott's hotel in Waterford, two miles or less from this village, and can be proven by dozens of the best citizens there. And still another on the county fair grounds at Salem, N. Y., in 1858, proven by parties of the best of character, and who will swear positively as to dates, etc.

This case can be fought to the end or court of last resort, unless the complainants back out before it reaches there. And when such men as A. E. Powers, R. C. Haskell, David Judson, Fuller, Warren & Co., Alexander Gregory, of Albany, S. S. Parks, Thos. Mills, and other interested parties, put their shoulders to the wheel, it will move forward and not turn backward.

We shall keep the public posted hereafter as to the progress of this case.

More About Rainfall.

I have been very much interested in the articles by Mr. Johnson on "Weather Laws" and the discussions thereon.

It seems to be well settled that it takes water to make rain, and with this view one of our local newspapers, gave an editorial advocating the building of dams along our principal streams four or five miles apart. This seems to be akin to your own ideas when you call attention to the vast engineering capacity, and expense attending dam building for the purpose of promoting a rapid efflux of water.

Now my own idea is quite different, while we will not disagree upon the proposition that it is highly desirable to retain a portion of our rainfall or prevent its rapid flow out of the country.

Here in the eastern central part of western Kansas where the country is somewhat rolling aside from its eastern slope of six or seven feet to the mile the efflux is rapid, but becomes less so, as our land "is risen by the plough." Indeed, I doubt not that a well plowed old field will hold in reserve as much as a dam of one-tenth its area.

The buffalo wallows that appear everywhere on every acre of reasonably level land upon the plains, holding from one to two or three barrels of water each, become a leading factor in holding water for a few days, after being filled by heavy rains; we always have a humid and growing atmosphere when they are full.

Now let me improve upon this idea derived from our now extinct buffalo, and build dams of greater capacity than their wallows—but not the few and expensive ones anticipated by you and our local editor. Let us, in working our roads on every section line, where they should be, make a pile at each depression from one to four feet, according to the nature of the ground, and when necessary provide for drainage above this. This would make dams very numerous; they would appear along every section line, and no doubt the result would be for all ordinary dry seasons to lengthen out the periods of humidity, and growing weather, in other words, to largely increase the quantity and better distribute our rainfall.

The whole question of dams for this purpose (it seems to me) may be solved by a little discretion in working our common roads.

But in an exceptionally dry year, such as the present promises to be, when the whole country is dry from the crest of the Rocky Mountains eastward to the Atlantic coast—then like the "failure of all signs in a dry time"—our dams when located would themselves be dry.

Then is a good time to give our land a year of rest according to the custom of the ancient Jews, having first prepared for the emergency by laying up a store from the abundance of the past.

MARTIN ALLEN.

Hays City, Kan., June 6th.

Rice Corn.

ED. FARMER: I have received and planted a package of rice corn. Will you, or some of your readers, please say, through the FARMER, how I must proceed to remove the hull or shuck from the kernels after the corn is ripe? Plenty of rain but too late to save the wheat and oats. Chinch bugs are damaging corn.

A. C. HENSHAW.

Post Office Addresses.

When parties write to the FARMER on any subject whatever, they should give the county and post office both. Some of the new post offices are not put down in the post office directory, and when the county is not mentioned, the post office clerks do not know where to send papers or letters.

A Word of Good.

One of the most popular medicines now before the American public, is hop bitters. You see it everywhere. People take it with good effect. It builds them up. It is not as pleasant to the taste as some other bitters as it is not a whiskey drink. It is more like the old fashioned bittersweet tea that has done a world of good. If you don't feel just right try hop bitters.—*Nunda News*.

What Ails You?

It is a disordered liver giving you a yellow skin or custard bowels, which have resulted in distressing piles or do your kidneys refuse to perform their functions? If so your system will soon be clogged with poisons. Take a few doses of Kidney wort and you'll feel like a new man—nature will throw off every impediment and each organ will be ready for duty.

Literary and Domestic

Gentlemen Friends.

BY MARGARET B. HARVEY.

As regards this subject, we find two distinct schools of opinion. Carried to an extreme, one teaches that the desire of gaining the admiration of gentlemen should be the one end and aim of a young lady's existence. The other lifts its hands in holy horror at any but the most casual acquaintance with the opposite sex, and declares that friendship between man and woman is, in the nature of things, impossible.

Extremes, as we have been told over and over again, are to be avoided. But if I were compelled to choose between the two pointed out above, I unhesitatingly aver that I would prefer the first. There is more sense in it, for it recognizes the existence of that holy God-given instinct, which leads to beauty and love and happiness. No matter if it be recognized only in a blind, ignorant way—the recognition is the great fact. The other is a compound of prudery, self-conceit and unutterable coarseness; caviling at the way our Creator made us. No matter if it be veiled under the semblance of virtue—the evil lurks in it, nevertheless. The former says that men and women were intended to live together as members in one great family, the latter that men and women are bent on each other's destruction, and cannot be trusted together.

Emphatically I say it; I do believe in gentlemen friends. Not lovers, believe, though I believe in them, too—a friend may develop into a lover. Perhaps the good, old-fashioned, much abused word *beau* will do. I believe, then, in beaux, gentlemen with whom a girl can associate as freely as she would with her brothers, but who, being of no kin to her, strange to say, would more readily do her a favor, and who have not the vanity to suppose she is pining away for them.

Any girl who has missed companionship such as this, has missed one of the sweetest pleasures of youth. As well might a bud not blossom, a bird not sing.

Would nine girls out of ten take half the pains and pride that they do now, in their manners, dress, and accomplishments, if they thought no man would ever see them? I trow not. I wouldn't myself.

I know what one class of social reformers will say to all this. They will talk a great deal about "safety," and so forth, in which respect they are scarce one whit ahead of old conservatives, whose cry is "propriety," and the whole category, I assert just this. Young women of ordinary respectability, who associate with young men of about the same standing, are very much more likely to be pure in mind and heart than those who associate with young women alone. Girls, when they get together, at times, talk of things of which they would never dream, if in the society of gentlemen—and 'tis the same with men.

The conversation of men and women, when together, must necessarily be of matters of interest to both—and so they are gradually led away from thinking of themselves, and of petty, idle, doubtful concerns. Nothing, I believe, like this so effectually puts a restraint upon the tongues of both.

"Flirting." Well, that depends upon what you mean by the word. If you mean conscious seeking for admiration, pretended love making, attracting the notice of strangers in the street, in short, a heartless desire for the mere gratification of vanity: I say, flirtation is highly reprehensible. But if you mean an earnest desire to give pleasure a little innocent railing and harmless chatter, a graceful, charming courtesy, flirting is as proper and as healthful as laughing. Let the heart be right, and the outward conduct will, sooner or later, regulate itself.

The world moves. Women do to-day in all guilelessness, what they couldn't have done fifty years ago without laying themselves open to severe criticisms. We may gain just an inkling of the ancient state of affairs, by reading a little book of essays, written by a lady of the old school. In speaking of Mrs. Emma Willard and her physiological researches, the writer states most naively that Mrs. Willard hesitated to make her discovery (Circulation by Respiration) public, for fear she could not do so, without the violation of feminine propriety! What must be thought of a state of society in which such a sentence could be written? Or rather, in which such a consideration could ever have had weight?

If we believe our grandmothers and old aunts, the time really was when women did think in just the above strain, as a consequence of the false training that they received. In those days it was not considered proper for a lady to go in to a gentlemen's office, or to write him a letter even on business. Woman's competing with man in the everyday affairs of life has arranged all that, and women are as good as ever they were. In fact, people are beginning to remember that slips from virtue were more common in other days than they are now; and to learn that hedging in women, so far from protecting them, is, in fact, insulting all men by implying that they are soundrels.

Of this be sure—whatever is not wrong is right. Furthermore, "Evil be to him that evil thinks." A young man and a young woman, who are good and pure in heart and life, can safely be trusted with perfect liberty; a young man and a young woman who are not so, can defy all hindrances.

There are, however, restraints to be respected, in the association of young gentlemen and ladies. But they should not be like prison

walls, frowning and horribly suggestive; rather should they be like the light wire fence in the park, invisible until touched.

Keep every man at a certain distance,—not in any manner of aggression, but rather by a negative influence. Your own delicacy ought to be the best guide here; and no one can teach you. Only, be sure that you are sincere, that there is no pretension about you, and it is safe to say that you will get as much respect as you deserve.

Let no man touch you, except when you shake hands. A real gentleman may fasten your cloak in such a way that you will scarcely know it. He may admire an article of dress without examining it. If he wishes to look at a piece of jewelry, take it off and hand it to him. Put on your overshoes yourself. If any young man should forget himself once, say nothing, but draw yourself quietly away, he won't do so the second time. If he does, still say nothing, but leave the room.

In fact, notice nothing annoying. Your very absence of remark will express your displeasure far more effectively than words. There's always a way of retreat; the door. You won't be troubled very often,—if you are, you will most likely bring it on yourself.

We hear various cautions expressed regarding kissing, embracing and the like. I can scarce understand why we should. It passes my comprehension how, under ordinary circumstances, and concerning parties who are not lovers, any such counsel should be necessary. If you are fully protected by your own self-respect, no true gentleman will ever advance far enough to think of kissing you.

I have used the term "true gentleman." This brings me to consider who your friends ought to be. Certainly, not anybody and everybody; not any chance acquaintances, picked up here and there. No man ought to have the privilege of visiting at your house, who is not known to be respectable, and who has not been introduced to you in a proper manner by some one in whom you have confidence. If you exercise care in forming acquaintances, you won't have to be very anxious about their behavior afterwards.

Yes, a better day is coming, a day of simplicity, truth and purity, a day held up as one of the ideals toward which the Christian Church is to advance, in which men and women shall dwell together as "brethren and sisters." To those who are worthy, the day has already dawned. —*Rural New Yorker.*

Buying and Selling.

The following good story is published by an eastern exchange. We don't know that any of our Kansas grocers would act so dishonestly, but it is well enough for farmers to not be too credulous. There are few of them so credulous as Mr. Robby:

BUYING.

"Here comes Robby, from Sleepy Hollow, with a load of butter. We are short, ain't we, Jonas?"

"Yes, all gone but the bad lot, and they are all crying for something good."

Robby, from his wagon, "Nipper; I've got some butter for ye."

Nipper is busy and does not hear.

"Hello there, Nipper, come and see this butter."

Nipper slowly closed his order book, directed the delivery boy to hop around with the cod-fish, shifts a yellow ham near the door from one peg to another, cocks his stovepipe on the back of his head, thrusts a thumb in each armhole of his vest, and shuffles slowly toward the street as though about to squint at the state of the weather.

"Why, Robby, what you got there?"

"Butter, Mr. Nipper."

"Butter, hey? Now, if ye had eggs I might buy. Butter's dull, Robby."

"Is that so? Daisy heard as it had gone up."

"Gone up!—well, yes; gone up the spout. Dick, take them turnips to Richfinger," turning away.

"Won't ye look at this lot, Mr. Nipper?"

"Robby, we're full. Jonas was just sayin' he couldn't store another tub. The town's glutted—glutted, and heaps of it is spoiling in New York, and there are no buyers."

"But this is an extra lot, from the best pasture, with the spring brook in it, where you used to catch trout, Mr. Nipper, and Daisy made it with her own hands."

"Yes, yes, but it looks salvy like—worked so much—no texture you see, and full of buttermilk; won't keep, Robby, won't keep. Then it lacks the gilt-edge tone and flavor. What do you ask for it?"

"Well, Daisy thought as how she ought to have fifteen cents."

"Too high, too high; can't buy; good morning."

"See here, Nipper, what'll ye give?"

"Well, Robby, if I give you ten cents for that butter, Jonas will be as mad as a boiled lobster; Jonas will swear and make things lively. But you're an old friend, and I'm going to do it and take the consequences."

SELLING.

"Richfinger, come this way; I can show you an awful nice lot of butter; there it is. That's what I call elegant; made by Daisy Buttercup, the neatest and prettiest girl in the country. I used to spunk her mother before she married. She's dead now; old friends, you know, and can't help dealin'. Look at the color—there's dandelions and buttercups; look at the texture—as free from salt as snow-flake, and if ye find a hair or bug, I'll make ye a present of it. I daresay ye can scent the clover blossoms. Taste of it; notice the tone, the mellowness, the aroma—equal to cream candy any time. What do you think of it, Richfinger?"

"What's the price, Nipper?"

"Twenty-five cents to an old customer."

"Pretty high, isn't it?"

"That depends on what ye're buyin'. Grease is grease, and butter is butter. If ye want grease I can sell for less, but if ye want to lay in the best grade, the gilt-edge, the gold-laf, as it were, June butter—butter tha'll keep, mind ye, ye might go further and fare worse. Let me tell ye that butter is on the rise; the town is cleaned out, and them New York chaps are out looking up round lots. That means a foreign demand, and great scarcity, 'sir—great scarcity."

Fashion Notes.

Surah is only a soft twilled silk.

Puffs in the arm holes will be revived.

Jet is more fashionable than ever this season.

All fashionable coiffures are worn low or half low.

All spotted and polka dotted goods will be much worn.

Shoulder kerchiefs of large size will be very fashionable.

A glint of red appears on almost every toilet that is not mourning.

Little elbow capes of lace, chenille and jet make the most stylish summer mantles.

No matter how short the sleeves are, the gloves must be long enough to cover the arm.

Low shoes will be worn a great deal this summer to show the colors and embroideries on stockings.

The puffs on the tight sleeves are said to be more comfortable in warm weather. There ought to be some compensation for their ugliness.

Hooks and eyes, in plain and colored steel have been introduced as substitutes for buttons.

The loops of ribbon used to trim grenadine gowns are of doubled face and watered and satin ribbon, and are sewed perfectly flat on the dress.

The Princess saque, with a Spanish flounce at the bottom, continues to be the favorite form of dress for little girls.

Gold lace and colored lace is used for millinery purposes, for trimming parasols, fans and rich brocade and velvet dresses.

The Claudet scarf, of the popular shape that is rounded at the throat, is made up this season in the twilled Surah silk in checks or in plain colors.

Instead of woolen breakfast shawls there are now large quantities of India foulard, in bright colors and gay patterns, edged with Languedoc and Ragusa laces, put on slightly full, not plaited.

Purple and yellow flowers are in vogue. The favorite purple ones are the heliotrope, lilacs, asters and large pansies; while the marigolds, artemisias and soft roses with foliage are the popular yellow ones.

Mantles made of lengthwise plaitings are among the new devices for keeping one warm in July. They are lined and weighted by gimp and jet ornaments, which keep the plaits in place.

Painted wall-flowers, mingled with artificial crape flowers, with garnet beads in place of pistils, and painted aquatic plants and insects, are among the dress decorations seen by Don Juan of the Parisian.

Large hats with irregular, turned-up brims are elaborately trimmed with ostrich plumes, flowers, gold braids and gold ornaments, and used for carriage drives, archery, garden and lawn parties, or on all occasions when dressy toilets are admissible. A pretty idea for a garden hat is to cover a large frame with puff tulle and trimmed with a wreath of yellow mustard or cowslips. Country hats are of broad headed leghorn, trimmed with a scarf of tulle, or of coarse straw finished with a wreath of daisies and a bow of black velvet, the brim faced with black velvet. These are useful but heavy.

Diversity of Food.

No animal possesses so great a power of accommodating itself to varied external conditions as man, and this is especially true in matters concerning diet. Without this power the distribution of mankind over the surface of the globe must have been more limited than it now is. The difference of climate in different latitudes not only gives rise to different personal requirements as regards food, but likewise modifies the character of the alimentary products that are to be found. As we pursue the common routine of living which custom and our condition in life have fixed, the diversity of food in common use by the people of the world hardly receives a passing thought.

The Esquimaux are mainly an animal-feeding people, and are fond of fat and marrow; they relish a slice of raw blubber or a chunk of frozen walrus beef. Fire, they claim, would ruin the cur, pithy expression of vitality which belongs to its uncooked juices. Siberians subsist mainly on fish or reindeer meat, boiled or fried in train oil, while bread is everywhere rare.

The usual food of the laboring classes in Mexico is a thin cake of crushed Indian corn, under the name of *tortilla*, and, notwithstanding the great abundance of cattle in many places, the traveler can rarely obtain meat in the little country huts. The Guachos in the Argentine Republic live entirely on roast beef, with a little salt, scarcely ever tasting farinaceous or other vegetable food, while their sole beverage is mate, or Paraguay tea, taken without sugar.

The natives of Australia live upon fish when near the coasts, but when in the woods upon opossums, and almost any animal they can catch, and also a kind of grub which they find in decayed wood. From the earliest period the most general food in India has been rice, which

is still the most common food of nearly all the hottest countries of Asia. In Ceylon beef is forbidden, being an abomination. The almost endless coconut forests provide the native with the most important agent for supporting existence.

The Chinese have no prejudice whatever as regards food; they eat anything and everything from which they can derive nutrition. Dogs, rats, mice, monkeys, snakes, sea-slugs, rotten eggs, putrid fish, unhatched ducks and chickens are embraced in their diet. Travelers say butter, cream, milk or whey are seldom ever seen in China. The sinewy parts of stags, fins of sharks, birds nests, are purchased by the wealthy at enormous prices. The Japanese eat largely of fish as well as rice, also of fowls both wild and tame. The flesh of whales is a common food in some parts among the poorer classes. In the dishes they make a plentiful use of mushrooms, bulbous roots and of beans. Beef and goose constitute the principal part of the animal food throughout Egypt, but the advantages of a leguminous diet are acknowledged by the modern Egyptians.

In many parts of Africa dates are the main subsistence of their inhabitants. All live on dates, men, women, and children, horses, asses and camels, sheep, fowls and dogs. The principal diet of the Kaffir is milk, which he eats rather than drinks in a sour and curdled state. One good meal a day taken in the evening, consisting of the curdled milk and a little millet, is almost all that he requires, and with this he is strong, vigorous and robust. A Kaffir will never touch pork, though he will eat fish, also the flesh of an ox, cooked or raw.

Natives of the Friendly Islands consume large quantities of yams, plantains and coconuts; while of their animal food the chief articles are hogs, fowls, fish and all sorts of shell fish, and the lower people eat rats. Hogs, fowls and turtle seem to be reserved for their chiefs. The inhabitants of New Caledonia subsist chiefly on roots, fish and the bark of a tree, which latter they roast and are almost continually chewing. It has a sweet, insipid taste. The victuals of the Hottentots are the flesh and entrails of cattle and of certain wild beasts, with several varieties of fruits and roots.

Thus it is seen that a great diversity exists as regards the food consumed by the human race in different parts of the globe. Instances are to be found where life is sustained upon a wholly vegetable, a wholly animal and a mixed diet. The mixed diet, however, may be regarded as that which, in the plan of nature, is designed for man subsistence.

The Clematis.

The barrenness and desolate aspect of farm houses and out-buildings is certainly a great drawback to the beauty of our rural landscape. The general appearance of the homes of farmers would indicate that their owners are too intent upon field work to have time or inclination to make their dwellings beautiful. Occasionally a climbing rose or Virginia creeper is seen, but rarely anything less common and familiar. There is no necessity for this sameness, for there are many climbers which are perfectly hardy, and which, once started, will thrive under very adverse circumstances, and among those the Clematis is entitled to a place in front rank. In this genus we have a great variety of form, color, and size, combined with perfect hardiness, and it may be made to flower freely through the entire season, from early summer to late autumn. The Clematis is by no means particular about soil, yet, like most plants, it will generally reward its cultivator for liberal treatment.

Canning Fruits.

There are in fruits and cereals three kinds of sugar—cane sugar, glucose and fructose, all three nearly allied, but still each one has peculiarities of its own, and yet one is easily changed to another. In the growth and maturity of plants these are continually changing. Cane sugar is easily converted into glucose. When it is used for preserving fruits, if the sugar is boiled with the fruit, a large portion of the sugar is converted into glucose, which is not so sweet as the cane sugar, and the more acid there is in the fruit the more sugar it requires, because the acid aids in converting the cane sugar into glucose. Cane sugar will not produce alcohol, but glucose will, and alcohol is very frequently created into preserves, in which case the idea is prevalent that there was not sugar enough applied, when the fact is it was not properly used. If the fruit is first boiled, then the sugar brought to a boiling heat, and the fruit put into the sugar, less of the saccharine principle will be required, and the fruit will be better preserved.

How to Get Rid of Ants.

During a recent visit to Mr. Humann, in Osthelm, I had an opportunity of becoming acquainted with a very successful method of speedily getting rid of ants which are so troublesome in the apiary.

One takes small bottles, fills them half full of syrup or sweetened water, and puts them in the places where the ants have their passageways, in such a manner as the necks of the bottles lean against a wall or board, in order that the ants may easily fall into the trap and drown.

By means of camphor, ants can be driven from rooms where honey is stored.

In gardens, lime-dust operates very destructively upon them. Their hills, after being scratched open, are sprinkled with lime-dust, and then hot water is sprinkled on them.

To render jars of honey or preserved fruit inaccessible to these insects, place the jars in

chests whose bottoms have been previously covered with ashes or pulverized chalk.—*Elaenaeche Biennensuechter.*

To Get Rid of Pests.

A few drops of carbolic acid in a pint of water will clean house plants of lice in a very short time. If mosquitoes or other blood-suckers infest the sleeping rooms at night, uncork a bottle of pennyroyal, and these insects will leave in great haste, nor will they return as long as the air in the room is loaded with the fumes of that aromatic herb. If rats infest the cellar, a little powdered potash thrown into their holes, or mixed with meal and scattered in their runways, never fails to drive them away.

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.

62 Golden Chromo, Crystal, Rose, Danask, Navy, &c. Name in gold and jet sets. Winslow & Co., Meriden, Ct.

\$777 A YEAR and expenses to agents. Outfit Free. Address P. O. VICKERY, Augusta, Maine.

CHEAPEST BIBLES Ever furnished Agents. FORSHER & McMANIS, Cash Premiums. CHICAGO, ILL.

\$77 A Month and expenses guaranteed to Agent 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. Agis Outfit, 10c. GLOBE CARD CO., Northford, Ct.

50 Chromo, Glass, Scroll, Wreath and Lace cards, 10c. Try out. CHROMO CARD CO., Northford, Ct.

18 Elite, Gold Bow, Bevel Edge cards 25c. or 20 Chinese Chromos, 10c. J. B. HUSTED, Nassau, N. Y.

ELEGANT AUTOGRAPH ALBUM, gilt covers, 48 pages. Illustrated with birds, scrolls, etc., in colors, and 47 Select Quotations, 15c. Agent's outfit for cards, (over 60 samples), 10c. Davids & Co., Northford, Ct.

50 Chromo, Tortoise Shell, Cupid, Motto, Floral cards, 10c. outfit 10c. Hall Bros., Northford, Ct.

50 Gold, Chromo, Tortoise Shell, Marble and Bow CARDS, 10c. SEAVY BROS., Northford, Ct.

AGENTS WANTED for the richly illustrated and complete and authentic history of the great tour of GRANT AROUND 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. Beware of "catch-penny" imitations. Send for circulars and extra terms to agents. Address NATIONAL PUBLISHING CO., St. Louis, Mo.

FREE TO MOTHERS. A pamphlet by J. B. Husted, on the value of the mother's milk, for infants and children. Address P. O. Box 227, Racine, Wis.

AGENTS WANTED. A Library in One Volume.

A Book for the American Farmer and Stock Grower, Maning's Illustrated Stock Doctor.

A live stock encyclopedia, including horses, cattle, sheep, swine and poultry, with all the facts concerning the various breeds, of their characteristics, breaking, training, shearing, buying, selling, profitable use and general care. 400 illustrations, two charts illustrating the ages of horses and cattle. Send for circulars, terms, &c., to THOMAS BROTHRO, Emporia, Kansas.

Pianos--Organs.

CHEAPEST HOUSE IN AMERICA. 1st-class instruments, all new, for cash or installment, warranted 6 years. Illustrated catalogues free. Agents wanted. T. LEEDS WATERS, Agt., 28 West 14th st., New York

Rent paid two-and-a-quarter years buys one. BEST CABINET OR PAILOR ORGANS IN THE WORLD; winners of highest distinction at every world's FAIR FOR THIRTEEN YEARS. Prices, \$1, 27, 66, 84, 108, to 500 dollars and upward. Also for easy payments, \$5 a month, or \$6.38 a quarter and upward. Catalogues free. Mason & Hamlin organ Co., 154 Tremont St., Boston; 46 N. 4th St., Philadelphia; 85 Union Square, New York; 149 Wabash Avenue, Chicago.

17-STOP ORGANS. Sub-bass and Oct. Coupler, boxed and shipped only \$97.75. New Pianos \$105 to \$1,000. Before you buy an instrument be sure to see my Mid-summer offer. Illustrated, free. Address, Daniel F. Beatty, Washington, N. J.

Free to All. Any one who loves good, choice reading can have a copy of the

ROSEDALE LIBRARY. FREE. containing 32 large pages, mailed to them, by sending their name and full address to STREET & SMITH, NEW YORK WEEKLY, 31 ROSE ST., NEW YORK.

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 205 Kansas Avenue, over Douglas' Jewelry Store. Residence, 378 Harrison street. Office hours, 9 to 12 A. M., 2 to 4 P. M.

Golden Belt Route

KANSAS CITY TO DENVER

via Kansas Division Union Pacific Ry. (Formerly Kansas Pacific Railway).

Only Line running its Entire Train to Denver and Arriving

Many Hours in Advance of all Other Lines from Kansas City or Leavenworth.

Denver is 114 miles nearer Kansas City by this Line than by any other. The Denver East Express with Pullman Day Coaches and Sleepers runs through

To Denver in 32 Hours.

The Kansas Express Train leaves Kansas City at 11 every Evening and runs to Ellis, 302 miles West. The First-Class Coaches of this train are seated with the Celebrated Horton Reclining Chairs. All Persons en-route to Mining Points in Colorado should go via the Kansas Division of the Union Pacific Railway. All persons going to the West should pass through this fertile Golden Belt by daylight, thus affording an excellent view of that magnificent section of the Union, the First West Producing State, and fourth in rank in the production of corn. This state possesses superior advantages to agriculture. Thousands of acres yet to be opened to actual settlement under the Homestead Act, and the Union Pacific has 62,000 fine farms for sale in Kansas. Thos. L. Kimball, General Pass and Ticket Agent, Kansas City, Mo. John Muir, Freight Agent, Kansas City, Mo. J. J. Gilmore, Land Comm'r, Kansas City, Mo. S. T. Smith, Gen'l Sup't., Kansas City, Mo. D. E. CORNELL, Gen. Agt., Passenger Dept., Kansas City, Mo.

Farm Letters.

PURDYVILLE, Hodgeman Co., (285 miles west of Topeka,) June 15.—We have been waiting for some one to speak from this part of the county, but think best to wait no longer lest the impression is that Hodgeman county is dried up and the settlers all blown away.

Wheat is a perfect failure. We had no rain since November till the 19th of May. Since then we have had three pretty good showers, but no real Kansas soaking rain. We are hoping and looking for one daily. A good many farmers have got discouraged and left for parts unknown. We have but nine families in our township, and as we know of no country where it rains just as the people wish it, we expect to stay here and make a desperate effort to make a living. If we cannot raise wheat we can try something else. We have good soil, good water, and a healthy climate. There must be something for a large portion of mankind to make a living at; if we can manage to stay here long enough to learn what it is.

We had a pretty good crop of rice corn and millet, melons, cucumbers, pumpkins and turnips, last year, from what we had out. It was our first farming in Kansas. We did not know what to plant, nor how or when to plant. (We had not read the FARMER then.) Some of the settlers had the misfortune to lose their teams, and did not have the means of getting much ground broken, consequently there was not enough raised in the township to support it. Many of us are under lasting obligations to eastern Kansas for bread. This year we have enough planted to have an abundance. If we only get rain, we shall not have "to send a man out to rouse the sympathy of eastern Kansas." The man who said that, has not left his wife and little children in a strange land, and from two to four miles from a neighbor, and gone to hunt work in winter, where often it is all a man can do to make his own bread. I cannot speak for the whole county, but I can safely say there was not one in this part who would not gladly have given fifty dollars' worth of corn, if he had it, rather than have said, "Give us bread for our families."

Corn, rice corn, and potatoes, are looking well since the rain. There is about one hundred acres of corn planted in this township. (There were but two acres last year.) We are trying to raise sweet potatoes and Texas peas. In short, we are trying everything recommended to a dry climate. I don't think we lack energy; it is knowledge and a little more rain we lack. We can gather a good deal of knowledge from the FARMER, but how are we to get the rain? Only by waiting for it.

How can I keep the ants from destroying catalpas as they creep through the ground?
MRS. WM. P.

ALCONA, Rooks Co., June 21.—The long faces the farmers were during the spring, have shortened since the first of May, when we had our first rain since last November. Since that time we have had rains, I believe, every week. On the night of the 19th inst., we had almost a Kansas "pour down."

Wheat will be much better than was expected. It is very short in the straw and thin on the ground, but as a general thing the heads are large and well filled. Many pieces of wheat that farmers thought would not be worth cutting, will go from five to eight bushels to the acre; some pieces will go as high as twelve to fifteen bushels to the acre. Parties having the Early May variety are now harvesting it.

Corn is looking well, and the prospects now are (should nothing happen it and we get rain at the time of earing,) very flattering for a large crop of corn. Potatoes will be a short crop, if any at all.

There has been a great deal of millet sown this season in this county. I would like to have the opinion of some of the older farmers in regard to feeding millet to horses. Some claim it is injurious, and horses would die from the effects of eating it; others claim it is the best hay they could get in this country for horses. My idea is this: to let the seed get ripe, and feed the horse all he will eat, and his regular feed grain besides would be injurious. Having never had any experience either in raising or feeding it, would be very thankful to hear from some that have. I am satisfied if it was cut before it is ripe, it would be much better for horses than our prairie grass.

In a recent number of the FARMER, Mr. Stoner said he had a remedy for preventing rabbits from girdling trees, and if some one would remind him of it this fall, he would tell them what it was. Please let us have the remedy now while it is yet fresh. By fall we may forget it until it should be too late. "Life is short" and we should not let a good thing go by, especially such a remedy as this, which is of so much importance to every farmer in the state of Kansas.

G. M. BERGER.

FORT RENO, I. T., June 20.—Even here in the center of the Indian Territory, the KANSAS FARMER is taken and read by one, at least, with pleasure and profit.

There is not much farming done here; not that it is a barren waste, nor that it is a rocky, sandy, unproductive country, but on the contrary, a rich, warm soil, very productive, and yields good returns for the labor of farming it, where it has been tried, and one of the most beautiful countries one could wish to see. The land lies well, being dotted with jack-oak groves, which, when clothed with verdure, as they are now, form a landscape that is beyond the power of any pencil to portray.

There are quite a number of new farms, or ranches as they are called here, that have been opened in the last year or so, up and down the

FARMERS, MONEY TO LOAN AT 8 PER CT.

No Commissions.

No Charge for Drawing or Recording Mortgage.
Interest Annually, Address

A. D. FISHER,
Manager,
Topeka, Kas.

North Canadian, on which Fort Reno is situated, and farther south on the south branch of the same river and the Wichita. The Wichitans and Camanches, who are more civilized have made rapid strides in farming. They supply us with many of the necessities of life. The Arrapahoes and Cheyennes, whose headquarters for government supplies are at Darlington, two miles east of the post, are more wild and roving, yet there are many who farm and work at other industries. Many of them are reliable and trustworthy men. The military here have eight employed as scouts, and the agent, J. D. Miles, has quite a number enrolled as a police force. Some work in the bake shop, others in the butcher shop, while many, both male and female, are used as cooks, waiters at the table, and as laundrymen at the schools.

But enough, for fear I will be accused of bidding for settlers, which I certainly cannot be, as none are allowed to stay here unless they are employed by the government in some way, or who are connected to the Indians by marriage. This rule has been enforced lately pretty rigidly.

It was very dry the fore part of the season, but lately we have had good rains that have made the corn and spring crops very fine. Corn retails for one dollar per bushel and other things in about the same proportion.

J. B. FOLKS.

LARNED, Pawnee Co., June 27.—Everything looks prosperous again and bids fair for a splendid crop of the different varieties of corn, sorghum, millet and potatoes. Grass never looked better at this season of the year on the south side of the Arkansas river. We have had an abundance of rain since the 9th of June, but the hot winds seemed to check the growth of all crops until the last ten days.

The chinch bug and cabbage worm have done considerable damage to the Indian corn in some localities, and have injured some few fields of millet. Farmers are putting in all the ground they can although it is late. We have confidence in the soil and climate to the extent of a bountiful crop.

The rainfall has been very spotted in the county, especially west and north. The rain and hail to-day was the heaviest I have ever seen in Kansas. I know of no damage except a few window lights broken, and we think it will put a stop to the bugs and worms. I understand that hail stones were picked up near Mr. Ormidy, weighing 2½ pounds. Great damage was done to window-glass in that neighborhood. Corn and millet were also injured considerably. Our prospect never was better for a good crop than at the present. Many of our settlers have gone east and west to hunt and work to supply their families with provisions until fall.

Wool is coming in, but there are no buyers; 18c to 25c is offered for good lots by speculators. Now is the time our wool men lose the benefits derived from an association. But men will only learn by experience; that is often a dear school but many will learn in no other.

W. J. COLVIN.

N. B.—Chicago is the best shipping market, and Kinsey & Co. are the most reliable men in the business.

COFFEE CO., June 6.—Not hearing from our county since our fine rains, and wanting all to know how good we feel, I thought I would send a few lines. We had two fine showers a week ago which wet the ground six inches deep, and as I write it is raining again.

Small grain is a failure here on account of past drouths. Our prospects for hay were poorer than at this time last year, and though the rain came late we now look for fair cutting. Corn is five feet high on an average, and the stand first-rate—never better, and our county may expect as good a crop as we have ever raised.

Stock all doing well, and in demand. Fat cows selling at \$2.25 on the farms; two-year-old steers average \$25; three-year-old steers, \$30 to \$35; yearlings held at \$15 to \$16, straight. These prices are for native stock.

W. H.

ROXBURY, McPherson Co., June 28.—The wheat in this section is mostly harvested and some threshing has been done, the average yield will not exceed ten bushels per acre; the quality is good. Oats are about the same as last year and unless rain comes soon will hardly be worth cutting. Corn looking well but is needing rain badly; the chinch bugs are damaging it to a considerable extent. Early potatoes look well but have not formed tubers of any size worth mentioning. The Colorado beetle infested them for some time but have now almost disappeared. Vegetable gardens are almost a failure. The seeds did not germinate from lack of moisture. We planted some seed by furrowing the ground with a hoe, then filled the furrows with water. As soon as the ground absorbed the water we planted the seed, covered with dry dirt and secured fine healthy plants. At the same time we planted the same quality of seed

but omitted the water, and the seed did not germinate. We have had an ample supply of vegetables ever since the second week in May. But how tired we were sometimes only a woman can tell. A small green worm about the size of a knitting needle and one inch in length has destroyed our sweet potatoes, beets and peas. The ground seems to be perfectly alive with them; they cover everything with a web somewhat similar to a caterpillar. Small fruits and trees set last spring are looking well, especially the catalpa trees. Stock of all kinds looking well. The cholera is prevalent among the fowls.

KANSAS GIRL.

MOUND VALLEY, Labette Co., June 19.—I notice in the FARMER frequent articles upon the subject of timber culture in this state, especially the series of letters now being furnished by Mr. Hanan. I think those letters very beneficial to the people of this state. Mr. H.'s experiments with the different kinds of timber will no doubt save the readers of the FARMER many discouraging mistakes.

So far as I have noticed, no one has ever mentioned the wild cherry, one of the most valuable timber trees found in the states. I have wondered why this tree is so neglected, and having business in Arkansas, whence I have just returned, I saw there the cherry growing to such perfection that I resolved to bring it to the notice of the FARMER folks.

Along the White river, in Washington Co., Ark., I saw many cherry trees from two to four feet in diameter, with timber straight as needles, and heads towering away above their neighbors about them, many of them sixty feet in length without a limb. They look grand to a Kansas man. Another peculiarity I noticed—they are not twisted about and broken like other timber. They are a strong topped, deep rooted tree and not easily injured by the wind. I had always looked upon the cherry as a rather slow-growing tree, but in Arkansas it is evidently a rapid grower.

So pleased was I with the trees I saw, that I engaged a man there to gather a package of the seed and send it to me by mail, when ripe. I intend to plant the seed in nursery first and transplant after a year or two. If any of our folks wish to try the cherry they can obtain seed, by ordering soon, of Mr. E. Boyd, Springfield, Washington Co., Ark. No seed will be gathered except on orders, therefore order soon.

The soft maple, so beautiful and so much talked of, in this state is not a substantial tree. It is easily bruised and broken, and decays rapidly from any injury. It is apt to grow forked and often splits apart.

Wheat harvest is over; stacking nearly done. Not a big crop this year, but those who sowed will have bread enough and to spare. Oats promise a good crop, and corn and grass excellent. Stock of all kinds doing well. Some distemper among horses. Fruit abundant where orchards are old enough to bear. We "licked our chops" over our first meal of ripe peaches yesterday, June 18th. Who beats us?

Mr. Sams, in FARMER No. 22, and others, in alluding to that two-hundred-dollar exemption law, do not seem to take in the whole of it, after all. The constitution exempts two hundred dollars from taxation, and it is six hundred dollars. There is not one-fourth of the population of our county that pay a dollar tax on personal property. But a bare majority of such men can vote a heavy railroad tax upon any township in the state as often as the opportunity offers itself. In this way we pay a premium on shiftlessness. But I believe we can vote the whisky away from them anyhow. Brother farmers, hurrah for prohibition!

J. B. COOLEY.

The Biggest and Best Show

Ever in Kansas.

JUST ADDED

A PAIR OF LIVING HUGE



SEA ELEPHANTS,

The Only Ones In Existence.

At Topeka, Monday, July 19th.

AN OVERWHELMING AND ABSOLUTE MONARCH

REIGNING TRIUMPHANT AND PRE-EMINENTLY GRAND.

A PERFECT SEA OF CANVAS-CRESTED TEMPLES

FLOODED WITH THE

DAZZLING ELECTRIC LIGHT.

Another Sun Discovered.



A Bewildering, Brilliant

(THE GRANDEST

ILLUMINATOR

ON EARTH.

A Perfect Panoply of Splendor.

—AND—

MIGHTY ORION

In the shadow of which all other illuminators pale and glimmer with an uncertain light

THE ONE GREAT SHOW OF THE WORLD

W. W. COLE'S

Circus, Menagerie, Aquarium

AND CONGRESS OF LIVING WONDERS.

The Concentrated Marvels of Two Continents—Embracing 10,000 Rare and Exclusive Features. Positively the Grandest Show on Earth; representing a cyclopean array of the world's most choice wonders, is one VAST OBJECT-TEACHING P.E.D.A.M.

W. W. COLE, Sole Proprietor.

Who personally dictates each and every movement of this gigantic enterprise, a fact that is sufficient to guarantee an entertainment pure and perfect to a degree so enthusiastically distinct from the usual routine of canvas exhibitions, that nothing objectionable or indecorous is ever discovered in this

NEW AND TRULY MASSIVE SHOW.

One hundred daring Equestrians, five funny Clowns, two hundred beautiful Horses, five hundred Men, Women and Children. Travels only by rail, using its own cars. Costly and gorgeous Ward-robos. Astonishing effects.

30 Dens of Zoological Wonders 30

From the upper and lower seas. I have also secured, at an expense exceeding \$20,000 for the season,

THE TWO GIANTS

Each eight feet high (each only half an inch). Combined weight nearly half a ton. Beyond all possibility of a doubt the most gigantic couple that exist, and I back my assertion with \$10,000. Veritable Giants; towering above all mankind. The most interesting curiosities that can be produced.

ANOTHER GREAT SPECIALTY, THE

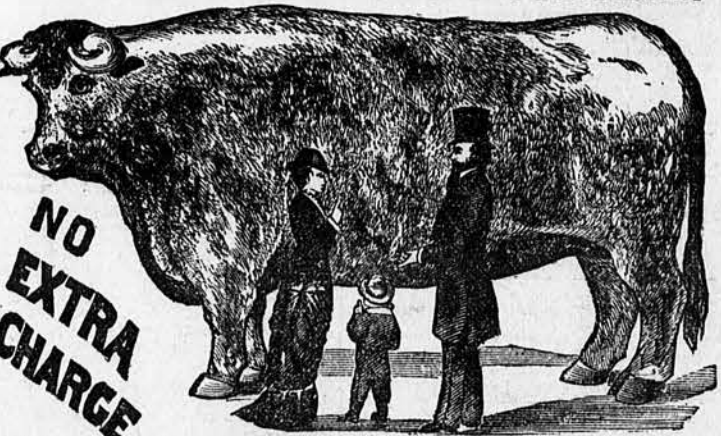
WONDERFUL LEAPING HORSE

And Six Famous Trick Stallions.

The most wonderful and best performing Stallions in the world. They wait in three couples. They march erect on their hind feet. They sit in chairs. They drill like soldiers. They form tableaux. All performing together at one and the same time. One jumps over the backs of the others. They see-saw upon a board. Their performances are astonishing and just as represented on lithographs and large bills. In fact, these equine wonders perform a number of incredible evolutions and display a degree of intelligence surpassing anything the world has ever seen in the way of animal education.

ALSO, JUST SECURED

THE MAMMOTH KANSAS OX: 6 FEET HIGH



A mastodon in his way, and, as recorded, the largest beef animal ever bred. Perfect in every point, and a wonder to behold. So positive am I that this huge beast is the largest of his kind ever bred, I make a standing proposition of \$5,000 for his equal in weight, beauty and enormous size.

TRAINED ANIMALS A SPECIAL FEATURE.

Just Imported. First and Only One in this Country.

A PERFORMING SPANISH BULL

Together with his trainer, a real Palador (bull-fighter) of Madrid. This animal waltzes, rears, jumps gates, and concludes with a sham bull fight, in which he oftentimes is too "true to nature."

A GRAND AND PRINCIPAL PARADE

Surpassing the Cavalcades of Oriental Conquerors. A Retinue of Glistening Gold and Glory.

More Wild Beasts, More Men and Horses, More Curiosities, Magnificent and Gorgeous Ward-robos, Horrids, Kings, Knights, Body Guards, Ladies of the Court, Soldiers, Battlemen, Horse-guards, clad in Armor of Silver, Steel and Gold. Platings, forming a scene of splendor never before equaled. See the Grand Free Hippodromatic Street Pageant. Coming on our own Railroad Cars. Horses all in Fine Condition. All Railroads run to and from this New and Great Show at Cheap Rates to all.

REMEMBER, Only One Ticket Required to all advertised exhibitions of the Great Show of the Universe. Circus, Menagerie, Museum, Aquarium, Giants, and Trained Animal Exhibitions of Wonders. Doors open at 1 P.M. and 7 P.M. 1,300 cushioned opera chairs.

Will also exhibit at Wellington, Monday July 12; Winfield, Tuesday, July 13; Independence, Wednesday, July 14; Humboldt, Thursday, July 15; Ottawa, Friday, July 16; Lawrence, Saturday, July 17; Wamego, Tuesday, July 20; Junction City, Wednesday, July 21; Salina, July 22.

KIDNEY WORT.

PERMANENTLY CURES
KIDNEY DISEASES,
LIVER COMPLAINTS,
Constipation and Piles.

DR. R. H. CLARK, South Hero, Vt., says, "In cases of KIDNEY TROUBLES it has acted like a charm. It has cured many very bad cases of PILES, and has never failed to act efficiently."

NELSON FAIRCHILD, of St. Albans, Vt., says, "It is of priceless value. After sixteen years of great suffering from Piles and Constipation it completely cured me."

C. S. HOGARON, of Berkeley, Cal., says, "One package has done wonders for me in completely curing a severe Liver and Kidney Complaint."

IT HAS WONDERFUL POWER.

BECAUSE IT ACTS ON THE LIVER, THE BOWELS AND KIDNEYS AT THE SAME TIME.

Because it cleanses the system of the poisonous humors that develop in Kidney and Urinary diseases, Biliousness, Jaundice, Constipation, Piles, or in Rheumatism, Neuritis and Female Disorders.

KIDNEY-WORT is a dry vegetable compound and can be sent by mail prepaid.

One package will make six quarts of medicine.

TRY IT NOW!

Buy it at the Druggists. Price, \$1.00.

WELLS, RICHARDSON & CO., Proprietors,
Durlington, Vt.