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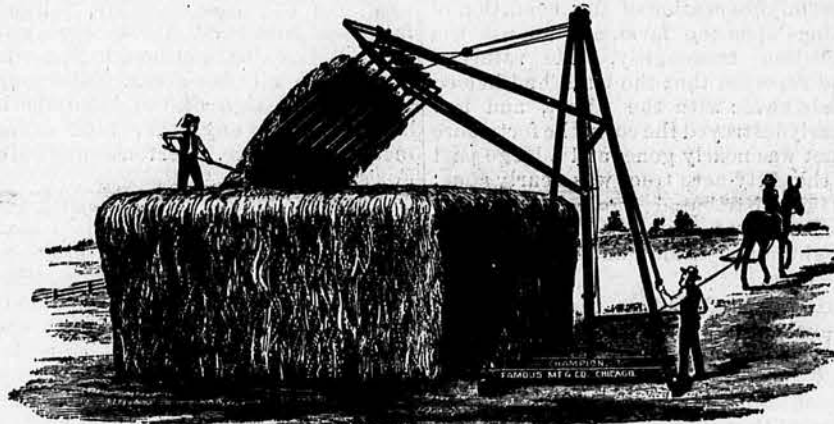
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Agricultural Matters.

RESULTS OF CHINCH BUG EXPERIMENTS.

By Chancellor F. H. Snow, State University, Lawrence, read before the annual meeting of the State Board of Agriculture.

At the risk of becoming somewhat monotonous, I am here for the fifth time for the purpose of presenting a report in regard to chinch bug experiments during the preceding year. The meteorological conditions of the year 1893 were peculiarly unfavorable to the working of the parasitic fungi which destroy the chinch bugs; more unfavorable than during any year in which the experiments have been made. As you all know, the weather during the growing months of July and August, over very large areas of the State, was very dry; there was but little rain. Dry weather affords the best possible conditions for the growth and development of chinch bugs, for, as you know, they thrive and multiply most numerous in dry seasons. During the year, however, the experiment station sent out something like 8,000 separate packages of the infection, all being that known as the white fungus.

You will probably remember that three years ago I brought to your attention the fact that three different diseases had been discovered which destroyed chinch bugs. Two of these diseases were fungi (microscopic plants) consisting of more than one cell. By the development of one of these fungi the vital organs of the bug were crowded, so as to be unable to perform their functions, and death resulted. The third disease we call a bacterial disease. Bacterial diseases are produced by the multiplication of a little one-cell organism. This organism is commonly considered to be a plant, although there is some difference of opinion as to whether it is plant or animal. Three years ago, in speaking of this bacterial disease, I spoke with considerable confidence. Professor Forbes, State Entomologist of Illinois, had been experimenting with this, and by the manufacture of culture fluids, he had hoped to be able to attack the chinch bug in the field with the bacterial disease. He published various papers in reference to this disease of chinch bugs, but finally, after two or three years' observation and experiment, made a discovery which threw considerable doubt upon the very question of the existence of a bacterial disease of the chinch bug. He found, upon microscopic examination of chinch bugs of all ages, sizes, and conditions of health, that this bacterium, the *Micrococcus insectorum*, was always present within the body of the chinch bug, whether the bug was sick or well; consequently the inference was legitimate that it was a question of doubt whether these bugs in which bacterial organisms had been found were really attacked by a disease.

My experiments showed, and continue to show, that there is a third disease; but, by the most careful observation and experiment in my own laboratory, I have been unable to propagate that disease in a scientific way, so as to satisfy a man of science that the disease can be communicated from one bug to another, or from the artificial cultures to the living bugs. That which we have called the bacterial disease remains to be thoroughly studied, so that we may know more about it. I have no doubt there is a third disease, but we are not yet able to control it. Three years ago, I thought it could be controlled in the laboratory, but since that time have changed my mind in reference to that point, and do not now feel certain that we are able to control it.

In regard to the two fungus diseases, I have established, beyond a doubt, that one of them is thoroughly efficacious for the destruction of chinch bugs. The second is not an efficient insect destroyer; it appears sporadically; it appears only under certain conditions of moisture which very rarely occur, and when it does appear it cannot be controlled. I have not been able to propagate it in such a way as to make it controllable and efficient in the destruction of chinch bugs in the field.

In regard to the white fungus, I can now safely state, beyond the shadow of doubt, that it can be propagated to any extent in the laboratory, and can be communicated from the laboratory to the field, and start the disease among the live bugs which are at work, and destroy them. There is no doubt about that, whatever. I have brought with me a box of bugs killed by this white fungus disease. This white fungus disease is entirely subject to our control; but, as I have stated, circumstances, during the months of July and August of the past season, over very large areas of the State, were very unfavorable for the development of the fungus.

I will give you an illustration of the manner in which the fungus has worked in parts of the State where there was no rain during the time to which I referred. About the last week in June I received a letter from Mr. Borton, of Durham, Marion county, begging me to send a man immediately from my laboratory to do something to check the ravages of the chinch bugs upon his farm. He said that his wheat had been entirely destroyed. There were 100 acres of wheat, and he reported that eighty acres had been entirely destroyed. The wheat was surrounded by corn, and the bugs were leaving the wheat and going into the corn. I was unable to send a man at the time; consequently I sent him some of the infection; but about a week later I received another letter, calling upon me, in the name of humanity, to send a man; that the corn was nearly destroyed, and the bugs were marching to take the whole farm. I then sent my associate, Professor Stevens. I gave him two or three quarts of the infected bugs, like those in this box, and told him to make a careful observation of the condition of things upon the farm, and to use the infection thoroughly. He returned and reported that the bugs had indeed made havoc with the wheat, and had nearly destroyed the corn; the forty-acre tract was nearly gone, and a large part of the sixty-acre tract was nearly gone; but he distributed the infection over the remainder of the farm, in the sorghum and millet, and in the rest of the corn.

He reported that an examination of the wheat field and of the corn field that had been swept by the bugs, and also an examination of the corn in which the bugs were still working, showed that the disease was actually working at the time—that is, the bugs were dying of this white fungus disease. In the dry weather the white covering or coat does not develop on the exterior surface; the bugs will die of the disease and frequently show no sign on the exterior, but an examination with the microscope will show them to be filled up with the fungus. Then let there come a light rain and the fungus will develop, and in a few days the whole exterior will be covered. Mr. Stevens found the bugs dying all over that farm of this disease, which evidently had taken effect from the material that Mr. Borton had saved over from the preceding year; but they were increasing faster than they were dying. You know how fast a chinch bug can propagate? A single female bug lays about 500 eggs at a laying, and there are two or three broods of the bugs in a season, so that a single chinch bug may be the mother of thirty-one and one-half million bugs before the season is over. The bugs in this case were multiplying much faster than the disease was killing them off, but they were being killed.

The condition of dryness continued until the latter part of August; but when I sent out requests for reports, in August, I was delighted to receive one from Mr. Borton. He said the bugs had destroyed eighty acres of wheat; that the corn and sorghum and millet were attacked in overwhelming numbers by the bugs; that he followed the directions and kept up the work of scattering infected bugs, and renewed the infection boxes every forty-eight hours; that he could not see that the infection was doing any good; that he sent to me for a man, who arrived there on the 4th of July; that they found a few dead bugs; that the

weather had been very dry until a few days before he came, when some rain fell; that there had been no time since July 4 that he could not go into the field and find dead bugs; that he had great faith in the infection, and believed it was the infection that killed the bugs; that the weather had been damp during the past week, and the disease had worked so well that the ground was white with the white-fungus-killed bugs, and looked as if there had been a light fall of snow. This is a very instructive case, because it shows that the seeds of this disease remain dormant in the driest weather, and, when the right meteorological conditions occur, the disease will be propagated faster than the bugs propagate, and the bugs will be overcome and the crops saved. They were dying all through that dry weather, but not fast enough to overcome the increase.

Upon receipt of this report, I sent a man down to gather some of those white bugs, and the bugs in this box came from that farm. I instructed him to gather up a hundred thousand of the bugs, as I wanted a good supply to keep over until spring. He did so—picked them up with forceps, one at a time. He also gave me a memorandum which said the bugs were dead all over Mr. Fox's and Mr. Borton's sorghum fields. In Mr. Miller's sorghum field, one mile distant, the live bugs were present by the millions. I charged him carefully to examine the surrounding fields, and see whether the bugs were dying in those fields. It is sometimes said that the bugs will die anyway, independent of this infection, and of course it becomes an absolutely essential point to maintain and prove that the infection produces the disease, and that the disease is not produced where the infection is not used. In this case, on Mr. Miller's farm, one mile north, there were millions of live bugs, although the sorghum had all been cut. Moreover, there was no sign of the infection in his field, nor in any other field examined, except Mr. Borton's and Mr. Fox's.

This report was made during the last days of September, and, as I have said before, these fungous diseases do not operate well in cold weather. The best time for them to work is during the warm months of June, July and August, which, fortunately, coincides with the time of most rapid development of the bugs; but in the latter part of September, when the nights become frosty, the infection refuses to work, and the spores remain dormant until the following spring. In the winter, too, the meteorological conditions, freezing and thawing, are generally fatal to the germ, and the disease cannot be kept over in the field from one season to another. That has been demonstrated in other States—in Indiana, for instance, where I noted the disease on the experiment station farm. It was readily communicated from my laboratory to the farm in Indiana, but it did not survive the winter. They took no pains to preserve the material from the outdoor changes, and lost it. They applied to me again the following spring for infection. This illustration indicates that the disease must be patiently worked with during the dry weather, and that the experimenter must be patient enough to wait until the right conditions appear; then the disease will work with sufficient rapidity to overcome the bugs. They may be kept somewhat in check even in dry weather. I have hundreds of reports from farmers stating that even though the weather was dry the bugs were killed off.

Last year, when I made my report before this board, some of you, perhaps, remember a criticism that was made. The critic said the bugs naturally gathered together in piles to shed their skins, in the operation of moulting, and that many farmers, upon finding these piles of skins, had mistaken the natural moulting of the chinch bugs for their deaths, and had reported successful experiments, when, in reality, the bugs had simply gathered together to shed their skins, and then flew away, and that accounted for their disappearance. I have solved that problem during the past year. I had

known for a long time that the chinch bugs did gather together to shed their skins; they do that. You can find piles of skins all over a field, separated by a few yards, perhaps, where the bugs have come together in a sort of hospital to undergo the operation of moulting. When they have performed that operation, they crawl out of their old skins, with new bodies of a pinkish color and white wings; their color gradually grows darker; they finally take wing and fly away to another field, and in that way spread themselves from one field to another. Now, that is a fact. It is also a fact that the disease works most successfully during the time the bugs are moulting.

You know how the disease called Asiatic cholera is propagated. You know the civilized nations of Europe to-day are meditating a forcible prevention of the religious pilgrimages in India, whither the natives go every year for religious worship, and by huddling together in large numbers, and bathing in water containing cholera germs, they take the disease, and communicate it to hundreds and thousands of other human beings when they return to their homes. The disease is thus scattered over Asia and all Europe, and that is how it spreads so rapidly. If the pilgrimages could be stopped, human beings would not congregate together (as chinch bugs do in these moulting conventions) and gather disease, and the danger from cholera would be reduced to the minimum. The gathering together of bugs in clusters for the purpose of shedding their skins furnishes a favorable environment for the spread of the disease. If the disease is not present they simply shed their skins, crawl out, and fly away, to lay more eggs and produce another brood; but if the disease is present in the field, those that have it communicate it to those that have not, when they gather together in these bunches. You will frequently find bugs in these bunches that died from the disease. That problem has been solved to my entire satisfaction.

I received nearly 4,000 reports from experimenters during the past year. Of these, over 50 per cent. are favorable; of the balance, a portion are unfavorable; another portion are put down as doubtful, that is, the experimenters are not certain that the infection did any good. Still another class thought the cause too insignificant to produce large results, and threw the infection away without giving it a trial. Some of the reports were unfavorable because the directions were not followed; others were not successful because sufficient persistence was not used. It needs to be followed up, and it would pay every farmer with a large farm, like Mr. Borton, to hire an intelligent young man to come to my laboratory and be instructed how to tell diseased bugs from healthy ones. There should be some systematic way of doing this, as well as other work on the farm. Chinch bugs have destroyed millions of dollars' worth of crops in this State every year, and there ought to be some systematic way of saving our crops.

A very important point to be attended to in carrying on these experiments is to devise some way by which the white fungus infection may be used early in the season in the wheat fields. If we are to keep on raising wheat, we must learn to thoroughly destroy chinch bugs. As you know, in some parts of this country wheat-raising has been abandoned on account of the ravages of the chinch bugs. If we can kill the bugs early in the season we can overcome the difficulty, and be enabled to keep on raising wheat. The difficulty in early spring is this: In the wheat field the bugs are scattered and under the surface of the ground, working near the roots, and it is very hard to pick up live bugs enough to start an infection box; consequently a great many farmers fail to start the disease in the field, because they think they are not able to get bugs enough to start an infection box.

The infection box started in May for a wheat field must be on a very small scale, compared with the infection box started in June for a corn-field. In a corn-field you can get plenty of bugs,

but in a wheat field it is a very laborious matter to go over the field and pick up enough bugs to start an infection box. The bugs are there, and so numerous that the wheat is beginning to suffer, yet it is hard to get enough. How shall we proceed in order to overcome that difficulty? I issued instructions to all my correspondents, in the month of August, to closely examine their fields to see if there were any white bugs like these, and if so, to gather a quart of them—a large supply—and keep them over the winter; then, having the material ready, put it out into the field. By this means you will get a start a good deal earlier, and the disease will control the bugs and kill them off. Of course, we must wait until such a time in the spring as the weather conditions are favorable. The disease will not work when the nights are very frosty. About the first of May is the earliest date at which experiments can be safely begun in the wheat fields; but, if every farmer would take care to provide himself in August with a baking powder can full of these white bugs, so as to be ready for the opening of the spring season, he would be able to get a start a month earlier than if he waited for infection to come from the laboratory. I think this method may prove a practicable one to overcome the difficulty I have suggested.

During the past two months I have received from France, from a scientific man over there, M. Giard, who had read of my experiments, a pamphlet giving the results of his experiments with a fungus very similar to this which I have been using. His experiments were made upon the white grub. You all know what that is—the thick, fat larva of a beetle, which works under the ground and destroys the roots of grass, grain, strawberries and other plants. It does an immense amount of damage. Sometimes the white grubs are so numerous that it is very difficult to raise a crop. They have them in France and they are a great menace to the agriculture of that country. This Frenchman has taken the white fungus parasite (of another species) and, by putting this fungus in ground infested by white grubs, it is believed to have killed them in the ground. If that can be done under the soil, for the destruction of the white grubs, it can be done on the soil of the wheat field. If you will deposit the white fungus at the roots of the wheat where bugs are at work, there is no doubt but it will be communicated to and cause the death of the bugs. This gentleman has shown in his pamphlet, which is beautifully illustrated, that the white fungus propagates through the soil and extends from one white grub to another, without any necessary contact between one white grub and its neighbor—that is, the fungus propagates in the soil. I have not tested that; I take it upon the word of the Frenchman. If he is correct, and he is an eminent man, there is no reason why we should not be able to use this fungus early in the spring, and begin the work two or three weeks earlier than we have heretofore been able to begin.

A great many correspondents urge the passage of a law requiring all farmers to use the infection, so that those who use it may not have their work neutralized by those who do not use it. Now, certainly, if we have the right to pass a law to prevent the spread of the cocklebur, as is done in the State of Illinois; or, for the prevention of the spread of the Santa Fe bur, which is so noxious a weed in our cities; or, if it is legitimate to legislate against the propagation of any noxious weeds then certainly it is legitimate to legislate for the compulsory use of the parasitic fungus.

I think I have demonstrated beyond the shadow of doubt that this white fungus can be controlled and made to save millions of dollars every year to the farmers of Kansas and of this whole Western country, if only we can get them to use it according to the directions provided. This experiment has passed the laughing stage. At first you were inclined to laugh at it; I was inclined to laugh at it myself, but I thought it worth trying; and year by year the experiments have grown, un-

til during the past year I have sent out from my laboratory over 8,000 packages of the infection, and they have been the means of inducing many others to use it, without making application to the station.

One word in regard to sub-stations that were started during the past summer. I went into that experiment with a great deal of trepidation. County commissioners of various counties, county clerks, and various other officers, and sometimes individuals, enterprising real-estate men, and others, applied to me for infection to start a distributing station. For instance, the county commissioners of Sedgwick county, from Wichita, made me a personal visit in order to see how my laboratory was operated. They wanted to start a laboratory at Wichita, and they stayed with me a day, and saw the manner in which the white fungus was propagated in the laboratory. They saw my box in which infection had been communicated to the live bugs in forty-eight hours. I can produce these dead bugs with the white fungus at any time in forty-eight hours in the summer. These county commissioners observed the method in which my laboratory was conducted. They went home and started one of their own. But in a short time, being unable to give personal attention to it, they turned it over to the janitor of the court house, who didn't know much about it, and the result was that after a few days the infection was lost. The janitor thought he was operating it all right, but he did not understand it very well; he put in too much water and drowned the bugs, and they gave out drowned bugs instead of diseased bugs. You must learn to distinguish that which is infection from that which is not. Let every man desiring to establish a distributing station send some man to my laboratory for instruction, and then let that individual be appointed to take care of the infection boxes, and know that what is sent out is really infection and not an imitation. I trust that measures may be taken in the future by which a systematic method of instruction may be provided in this important matter, for it is only by an intelligent use of nature's forces that we are able to make them profitable.

The Stock Interest.

THOROUGHbred STOCK SALES.

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

OCTOBER 2—C. C. Keyt, Short-horn cattle and Poland-Chinas, Verdon, Neb.

Lessons in Sheep Husbandry.

Some valuable pointers in sheep husbandry are given in the following summary of a lecture by Prof. J. F. Hickman, before the students in agriculture, at the Ohio State University:

That it does not seem practicable to produce the highest grade of wool and the finest quality of mutton from the same flock. That while it is possible to obtain both these products from the same flock, either one or the other will be of inferior quality. That the production of a superior quality of mutton from the Merino is not practicable.

That the breeder, if fully qualified for his business, can breed to suit his fancy. That the sire is the more important factor in breeding, and should be the production of the most careful breeding for a series of years; he should have all the qualifications of a model possible to unite in one animal. That the dam must have, first of all, a good strong constitution; next, a docile disposition, and finally the power of transmitting these to her progeny to a marked degree. That the production of a cross-breed cannot be relied upon for reproducing a fixed type.

The ram in all cases must have the best of care at breeding time, husbanding his strength and requiring of him the least possible exertion.

The ewes at breeding time should not be in high flesh, but in good, thriving condition. Grain feeding should be light until after the lambs have arrived. Lambs should have feed other than that taken from the mother after they are five weeks old, and should have some grain feed throughout the first year.

That corn alone is not in general a

good feed for sheep of any kind or age. That wheat bran, ground oats and a little oil meal are good grain foods, and roots, such as mangel wurzel and turnips, are admissible adjuncts; ensilage is also one of the best foods, especially for breeding ewes.

A good pedigree is a very good thing, but an animal with a pedigree as long as the moral law might at last be a very inferior animal, and after we have scanned carefully the pedigree and studied it a whole day, we will want to see the animal before we buy, and when all is said and done it is not so much what is the pedigree of our flock as what is its present condition. Have we left all along the line of our breeding and feeding marks that stand out in bold relief, pointing as the finger of evidence to the results of careful study, of unremitting care and attention, of unmitigated toil and a final representative of the ideal type, embodying the beauty and symmetry of form, and bearing every evidence of a strong constitution of unmistakable vitality and the ideal individuality?

Growth of the Sheep Industry.

In a recent paper before the Otsego County Farmers' and Dairymen's Association, Mr. Chas. Babbitt gave the following figures as having been compiled from authentic sources:

Year	Number of sheep in the United States.	Pounds of wool produced.
1810	10,000,000	13,000,000
1840	19,311,000	35,802,114
1860	22,471,275	60,264,913
1870	40,853,000	162,000,000
1880	40,765,900	234,500,000
1890	44,336,072	276,000,000
1891	45,431,136	285,000,000
1892	44,353,385	

While there has been a steady growth in the number of sheep, there has been still greater progress in the production of wool. In the following schedule is shown the source of this increase in wool: Average weight of fleece in 1840, 1.9 pounds; 1850, 2.4; 1860, 2.7; 1870, 3.5; 1880, 4.8; 1887, 5.1; 1891, 5.5. This increase is the average on all the flocks in the United States, the result of proper breeding and good management. And this with the millions of dollars for spring lambs, the increased fertility of the farms, all contribute in making sheep farming the most profitable branch of agricultural industry.

Exports of Cattle and Sheep.

An increasing market is noted in Great Britain for cattle and sheep from the United States. Shipments have been larger than usual for some time past, and we now observe the statement that freight room on all vessels equipped for carrying these animals has been engaged for May and June, and some of the best ships are filled with engagements to the end of the shipping season, about November 1. Risks of passage for live stock after October check trade because of insurance restrictions.

About 2,000 head of cattle are sent out each week. It is estimated that at least 30,000 head will be shipped in the season. The rate to United Kingdom ports is from 50s. to 55s. per head, and 57s. to Hamburg. Sheep are carried at 7s. a head. Freights make it unprofitable to send out any but choice animals. The cattle come from Illinois, Iowa and neighboring States. Montana and Wyoming furnish the sheep. Estimates of sheep shipments for the season range from 50,000 to 100,000 head.

As regards the exports of dressed meats, which have also been active of late, it is also stated that one steamship line will soon place in regular service two new double-screw ships, built expressly for this trade, with ample cold storage. Three more ships for the same purpose have also been ordered by the same line.—Country Gentleman.

Outlook for Common Horses.

Common horses are poor property to hold with the expectation of selling. The demand is light, but the supply is like the myriads of the locusts of Egypt, says an exchange. An advance of \$2 to \$5 a head would bring out unnumbered quantities of them. A large number are now received at all markets which are not worth the freight on them, and many railroad companies require consignors to guarantee freight before shipping. It doesn't pay to ship them, it can't pay to keep them. What

Mothers,

when nursing babies, need a nourishment that will give them strength and make their milk rich.

Scott's Emulsion

the Cream of Cod-liver Oil, nourishes mothers and makes babies fat and healthy. Gives strength to growing children. Physicians, the world over, endorse it.

Don't be deceived by Substitutes!

Prepared by Scott & Bowne, N. Y. All Druggists.

shall be done with them? They should not be kept to perpetuate their worthless kind. Too many have been kept and bred heretofore. If more breeders had hitherto awakened to the fact that it doesn't pay to keep plugs the outlook would be different now. Over-supply is hardly the trouble, for there never was a demand to supply. If breeders persist in keeping cheap horses the result will be cheap colts, and it is better to kill some colts than to raise them. At the prices now prevailing they won't pay for the hay they eat. The only hope for improvement lies in educating owners of worthless mares to quit breeding them, and in driving worthless stallions out of existence.—The Epitomist.

Beef Cattle for Profit.

An Ohio correspondent of the *Agricultural Epitomist* says that success in any branch of live stock husbandry depends on three important factors, viz.: Good breed, good feed and good care.

First.—The best breed obtainable should be secured, and a good sire is half the herd. We want an animal that will make the greatest gain in the shortest time, at the least cost of feed. So we want compact, medium-sized, thick-fleshed, easy keepers, that will mature at 3 years old and make a 1,500 to 1,700-pound steer. To obtain best results we should select animals of quiet disposition and hornless, as they are more quiet about feed racks and troughs. Those with broad backs, deep loins and massive quarters, for it costs no more to produce a pound of steak than a pound of neck or tripe. As to the best breed, that depends somewhat on our surroundings; while Polled Angus suits some best—others might like Herefords or Short-horns.

Second.—Feed. In growing young stock we should feed to form plenty of bone and muscle and not too much fattening food. So we should feed oats and bran very liberally and not too much corn the first two seasons. But when the cattle are to be fed for market, increase the corn and oil meal ration and feed less oats and bran; bright, well-cured clover and timothy hay or good corn fodder is best for rough feed.

The golden text should be, feed and water regular. Many farmers buy well-bred stock, thinking they don't need as much feed or care as scrub stock. They suppose they will thrive on buckwheat straw and find a good shelter on south side of a barb-wire fence, and expect them to come out nice and sleek in the spring, and because they do not exceed their expectations the scrub farmer will still keep his scrub stock.

You Don't Have To

go 2,000 miles to reach the land of the prune. The irrigated lands of Idaho along the line of the Union Pacific system are capable of producing the class of fruit seen in the Idaho exhibit at the World's Fair. Why! by stopping in Idaho you'll save enough on your fare and freight to make the first payment on your farm. Investigate. Advertising matter sent on application. Address A. M. Fuller, city ticket agent, U. P. system, Topeka, Kas., or E. L. Lomax, G. P. & T. A., Omaha, Neb.

Irrigation.

DODGE CITY IRRIGATION CONVENTION, MAY 26, 1894.

The trains from the east on Friday night were met by members of the local committee and the visitors were cared for comfortably at the Oriel. On Saturday morning a procession of vehicles took the "visiting statesmen" to the well-kept orchards, rose gardens and fields of Mr. Beeson, and to see the "mogul" water-lifts, the fish ponds and the alfalfa of Mr. Churchill. En route it was noticed how many house lots in town and acre lots in the suburbs had alfalfa, orchards and roses. Irrigation has its results here as at Garden City and elsewhere.

The water supply of the Arkansas valley underflow will irrigate every acre of the valley and some of the neighboring slopes. From Coolidge and Garden City to Wichita and Arkansas City this great valley will become a paradise of vegetable products rich as the valley of the Nile, pleasant to behold as the garden of the Lord.

The convention was opened by the performance of a string band, and the speeches of the visitors were enthusiastically received. The program was carried out almost as printed in these columns last week. Mr. Hinckley's paper, was not read as he was not present, but it is to be published in the KANSAS FARMER. Mr. Moses, of Great Bend, spoke of the demonstrated success of irrigation and urged the farmers to go at once to irrigating small areas, planting trees and beautifying their homes. Judge Emery said Dodge City could be, and was, becoming as beautiful as San Bernardino or Riverside, and urged united action of the county, State and Inter-State Associations on the State Legislatures and Congress to make complete the irrigation surveys that had begun in the mountain States by extending them to the plains, so that the water supply could be known as certainly as science could define it. John E. Frost, the Land Commissioner of the Santa Fe railway, read a carefully-prepared paper on land values as affected by irrigation, with numerous illustrations from the Arkansas valley, which showed how permanently land was improved and values more than doubled by a few years' irrigation. Mr. Hubbell, of Kansas City, gave figures and formulæ for raising water by machinery, showing where wind power is valuable and cheap and where gasoline engines or horse-power might be preferable. Prof. Newell, of the United States Geological Survey, showed the methods and instruments by which the survey has ascertained the flow of the mountain rivers, and indicated that it was not possible for the Arkansas, as a surface stream, to do much or anything for Kansas, as the Colorado ditches would take more water now than the river supplied, but its underflow would be always available. Prof. Hay, of the State Board of Agriculture, spoke as a geologist of the water supply of the plains and particularly of Ford county. He spoke of the land as divided into three parts, having different relations to this subject. First, the sub-waters of the Arkansas valley were easily obtained and were sufficient for the irrigation of all the valley and some of the slopes. Then the slopes could be irrigated by saving the storm waters of the draws in inexpensive reservoirs, and lastly the high prairie had abundance of water for the irrigation of twenty to forty acres in every square mile, and where the wells were not more than one hundred feet deep this water could be economically lifted for the wetting of the surface and the enrichment of the farmer. Hon. J. R. Burton, of Abilene, told of his gradual acquaintance with irrigation and how a land company he was connected with had adopted the policy of selling only comparatively small farms and how he now believed that in that way western Kansas could be irrigated and made a prosperous land, and its semi-aridity would no longer be a detriment to it. Capt. Churchill, of Dodge City, expounded alfalfa and fish ponds in an interesting manner, and the visit paid

to his ground showed the stranger that his performances were as good as his words. Mr. Bristow, of Salina, on behalf of the Inter-State Association, said the blessings of irrigation were so immense that the existence of the association to bring it to the notice of the farmers of the plains by distributing information about it was itself a blessing and concerted action in this matter better than any political party. Colonel Stowe, of the Kansas City Commercial club, briefly congratulated the meeting on its speakers and enthusiasm and said a formal invitation would shortly be sent to hold the next Inter-State meeting at the mouth of the Kaw. Mr. Steefee, on behalf of the Wichita Board of Trade, said that city was heartily in sympathy with any movement that would benefit western Kansas. He also gave some details of a plan of an irrigation colony now being brought into operation on Thompson creek and the Medicine river, near Belvidere, Kas.

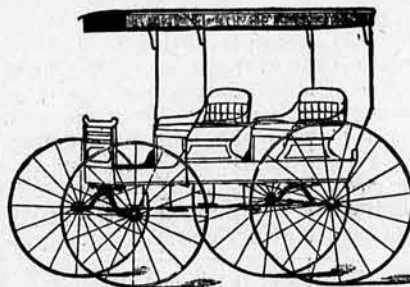
F. D. Coburn, Secretary of the State Board of Agriculture, and E. B. Cowgill, of the KANSAS FARMER, and other persons whose influence will help the movement, were present, giving the convention their cordial sympathy. Farmers from Gray county and Meade, and irrigators from Finney added to the strength and interest of this most successful convention.

Probable Duty of Water in the Central West.

In a communication to the Gering Courier upon this subject, Mr. A. P. Kittell says:

"It is of great importance to determine the present duty of water for

100,000 VEHICLES PER YEAR DURING PAST FIVE YEARS.



town and to church. The farmer's son may for a smaller price have a handsome buggy to carry his lady love to church, to picnics or on the evening drive. The business man, the farmer, the stockman, may all have the WONDERFUL HANDY WAGON for a song. This handsome "Handy Wagon" has no equal for lightness of movement, convenience of getting in and out, easy riding and low price. "A thing of beauty is a joy forever" when it takes so little money to get it.

For pictures distinctly exhibiting the style and structure of these wonderful vehicles, their prices and their descriptions, enclose a 2-cent stamp and address the manufacturer's agent,

THOS. D. HUBBARD, KIMBALL, KANSAS.

future canal development, and its maximum duty for the better cultivation of lands already under ditch. Whatever service water may perform at this time we know that service can be increased by eliminating many of the sources of waste apparent on every side. The varied conditions of soil and surface preclude the possibility of a uniform standard, and there are local causes for a diversified duty, even where the lands are not appreciably different. "In Colorado, water rights vested on a basis of the low duty assigned to water ten years ago, have, in instances, deteriorated lands and reduced their productiveness by a surfeit in application, while on adjoining lands through an enforced economy, a higher duty, better condition of the soil and greater productiveness have resulted. Unskilled labor has a penalty of 25 to 50 per cent. attached to it in the application of water, and unfortunately this class is too prevalent in the irrigating fields, in many cases, no other being obtainable. An abundant water supply tends to carelessness in its application and consequent waste. Where liberal water rights are provided, it is frequently the practice to turn the water upon the land and permit it to run, without change or attention, throughout the night, and sometimes during the day, a large volume of the water soaking into the soil without benefit to the crop. Too little attention has also been given to the proper preparation of the surface to facilitate the rapid spreading of the water. This is principally the result of too large individual ownership in land, rendering it impracticable to give close supervision and secure careful preparation of the land. The best results will be ob-

IRRIGATION SUPPLIES.

Windmills, Steam Pumps, GASOLINE ENGINES, ETC., ETC.

GET OUR CATALOGUES.

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tained from small proprietary rights in land, and a consequent higher state of cultivation. The ownerships of the cultivated lands in the irrigation districts should be multiplied by ten, and the population increased to that extent. I am unable to give the general results as to the service water has performed in the North Platte valley, as we have no gauging stations, and the areas under cultivation not being reported, and the systems used for measuring water not being correct, but am positive that one cubic foot per second is more water than will be called for to water 100 acres, after the irrigator gets to watering under an economic system.

"You can take Colorado. Ten years

WATER PIPE.

Our Hard Burned Vitrified and Glazed Clay Pipe is everlasting. With our Improved Joints this pipe will stand same pressure as iron and costs about one-fourth as much. Write for particulars.

W. S. DICKEY CLAY MFG. CO.,
Makers of all kinds of Burned Clay Goods.
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Five World Beaters. "SICKLES" BRAND HARNESS. All genuine stamped with this "Trade Mark." Made in five styles at \$8.50, \$9.00, \$10.00, \$15.00 and \$25.00 per set complete. The best harness for the money on the market. Ask your harness dealer for them. Manufactured only by J. B. Sickles Saddlery Co., St. Louis, Mo.

dates above given, the mean discharge of the Cache la Poudre river was 735.97 cubic feet per second of time, or second feet. The area cultivated under the ditches from this stream as reported by the water commissioners of District No. 3, was 139,222 acres. By calculation, it will be found that the mean discharge for the time given spread upon the acreage reported, would cover it uniformly to a depth of 1.178 feet, and would give a duty for the water measured at the canon of 189.168 acres per second foot of continuous flow.

"The precipitation at Fort Collins for the period stated was 0.682 foot in depth. Assuming this to be uniform throughout the district, and adding to the irrigated depth, and we have 1.178 plus 0.682 equals 1.860 feet, as the amount of depth of moisture received by the crops cultivated on the acreage given. But it is claimed that much of this water is used over and over again, as the result of seepage back into the river, which is undoubtedly true. Referring to the tabulated statement for 1889, under the head of "Seepage," it will be seen that the flow in the river, at the time of the measurement in October, was 98.96 cubic feet per second of time. The volume of seepage water was probably greater at the close of the irrigation season than at any other time; but assuming it to have been uniform throughout the season, and adding the amount per second to the mean discharge of the river, we have 735.58 plus 98.96 equals 834.54 second feet, which would give a duty of 166.62 acres per second foot."

Those of our readers that intend making hay this coming harvest are very respectfully invited to look up the merits of the center draft wide-cutting mower, the sweep rake and the power lift rake; also the Junior hay-stacker, manufactured by the very successful Dain Manufacturing Company, of Carrollton, Mo. The KANSAS FARMER takes pleasure in calling the attention of its readers to their advertisement elsewhere in this issue and of the merits of their very excellent haying implements. Perhaps the best recommendation as to their popularity is that since their machines were first placed before the agricultural public their sales have increased and reached almost every civilized country of the world to that extent that now they are the largest exclusively hay machinery manufacturers in the world.

"Among the Ozarks,"

the Land of Big Red Apples, is an attractive and interesting book, handsomely illustrated with views of south Missouri scenery including the famous Olden fruit farm of 3,000 acres in Howell county. It pertains to fruit-raising in that great fruit belt of America, the southern slope of the Ozarks, and will prove of great value, not only to fruit-growers, but to every farmer and home-seeker looking for a farm and a home Mailed free. Address, J. E. Lockwood, Kansas City, Mo.

TABLE SHOWING DUTY OF WATER.

Duty in acres per cubic foot.....	189.168	189.168	189.168	189.168	189.168	189.168
Total depth over area.....	1.86	1.59	1.09	1.09	1.09	1.09
Rainfall during period.....	0.682	0.538	0.532	0.532	0.532	0.532
Equivalent in depth over area in feet.....	1.178	1.254	1.192	1.192	1.192	1.192
Area cultivated in acres.....	139,222	139,222	139,222	139,222	139,222	139,222
Mean Discharge May 20 to September 20, in cubic feet per second.....	735.97	770.51	425.42	294.24	461.97	35.98
Streams Gauged and Year.	Cache la Poudre..... 1889	Big Thompson..... 1890	St. Vrain..... 1890	Boulder Creek..... 1889	Bear Creek..... 1889	Bear Creek..... 1890

For the purposes of the estimates given, Colorado has assumed the irrigating season to be four months, embracing the time from May 20 to September 20 inclusive. J. P. Maxwell, State Engineer, says: 'In 1889, within the

AMONG THE BREEDERS.

Sunny Slope farm, owned by C. S. Cross, of the First National bank of Emporia, Kas., was visited by a representative of this paper, who felt a curious interest in ascertaining just what a new establishment on a large scale could do these times when so many breeders were lying low and waiting, Micawber-like, for "something to turn up." In company with that famous cattleman and veteran breeder, F. McHardy, the writer made a thorough inspection of Sunny Slope farm and its large herds of Hereford cattle, Poland-China and Berkshire swine. Here is an upland farm, four miles northwest of Emporia, well stocked with a magnificent lot of cattle and swine, which, for choice and practical breeding and individual excellence, can hardly be surpassed anywhere, and is unequaled by any breeding establishment of its age in this country. In short, Sunny Slope farm is a revelation and an object lesson to our breeders generally. In less than two years here is collected one of the largest and best herds in the West and comprises some of the choicest selections from noted herds of cattle and swine. It is a big venture but a practical success. The Herefords comprise the pick from the herds of C. M. Culbertson, Benj. Hershey, C. S. Fowler, Kansas Hereford Cattle Co., and T. J. Higgins. The breeding bulls at present are Beau Real 11055, sired by Anxiety 4th, bred by Gudgell & Simpson; Archibald V. 54483, sired by Archibald 1st, and Wild Tom 51592, sired by Beau Real.

The manager of this well-equipped farm is H. L. Liebfried, formerly of Garden City, and well known to the breeding fraternity, and he has made a decided hit and evidenced great skill in his selection of breeders from the most noted Berkshire and Poland-China herds of the country. How he hypnotized other breeders to part with certain animals that had made herd reputations as breeders and prize-winners, he does not offer to explain, and therefore may well be proud of the success achieved.

Sunny Slope farm is run on business principles. Every detail has the utmost care and attention. No unprofitable animal is long kept with the breeding herd, but, regardless of cost, is transferred to the feeders' lots and marketed as speedily as possible.

Mr. Cross has met with splendid sales and is greatly encouraged with the patronage already accorded him. He is content with moderate prices. Having bought his stock at dull time prices he can and does afford to part with produce at reasonable prices. Farmers and breeders are always welcome, and a visit to this establishment will exemplify just how to make money with improved stock, even at the present time.

From an interview by our live stock field man, Mr. Brush, with T. W. Ragsdale & Son, Paris, Monroe county, Missouri, all-round breeders of cattle, swine and poultry, we quote: "Your question as to the future outlook of the cattle industry, is one that under the existing condition of affairs is a rather hard one to do a great deal of prophesying on and have that confidence in it that a successful prophet feels that he ought to have to insure a continuation of his profession. To say that pure-bred cattle are low, in fact, the lowest we ever knew them to be in the history of thoroughbred breeding, is true, yet all hope that bottom has been reached. This spring's sales brought a dim light of encouragement and if the finances of this country were settled the farmers of the great Western producing regions would at once look for better stock with which to improve their herds, they having, in common with the breeders of pure-bred animals, sold down low and neglected to breed up. As to your second question—"The influence of pure-bred bulls on common stock," will say that the generous and liberal use of pure-bred bulls of any of the registered individual breeds does, even as low as fat cattle are, bring better returns than does the scrub. For instance, a scrub animal at two and a half years turned on the market, ranging from 1,000 to 1,200 pounds, whereas graded or pure-bred animals weigh from 1,500 to 1,700, bring \$1 or more per hundred and are developed and fattened in less time on the same feed or ration. As to your 'Stock Gossip' inquiry, will say that our herd of sixty-five head of Short-horns are now headed by British Jubilee 96493 and Crown King 111418. The latter is a pure-bred Cruickshank, and both are very excellent sires, as their breeding and individuality demonstrates. While trade has not been, this past spring, what we should have liked, yet we feel as though our cattle are none the less valuable, and look forward to better things in the future, believing, as we do, that matters cannot well get worse and that the demand for a better class of beef cattle is sure to come, as the discouragements arising from low prices has tended to reduce herds of all kinds, especially pure-bred and cross-breeds. Among others we sold lately was a fine yearling bull for \$100. Our World's Fair herd came through the winter in excellent condition, and

among other tippy young things now here are four young bulls by Grover King that we think are hard to beat, and they promise something strongly akin to first prize winners. The crops never promised better here in old Monroe county, and southeast Missouri is to be congratulated on its agricultural outlook, notwithstanding fairly good prices only is not what any farmer and stock-raiser would like to see."

James Qurollo, Kearney, Mo., breeder of poultry and Berkshire swine, writes: "My stock are all doing well. Have sixty-eight nice pigs and several sows still to farrow. Have added to my herd a new boar from New Jersey, Mephistopheles 32412, sired by imported Collegian 26578 B. B. H. B. 3216, dam Prosperene 27682. I can't explain his name to you, but I can say he is a fine young boar; he has the finest coat of hair and the finest ear I ever saw on a hog. The chicks and turkeys are doing finely. I think I have the finest Leghorns I have ever raised. They are very uniform in color and true Leghorn type. We are well pleased with our advertisement, as we have made many sales from it. Success to the KANSAS FARMER."

W. H. Wren, the very successful breeder of Poland-China swine, writes: "Since my February sale I have strengthened my breeding herd with several very choice-bred animals of both sexes. Among others added is a boar by Short Stop, dam Tecumseh's Queen, and another by Happy Medium, dam Choice of 90. If there are any better bred ones in the land should like to hear from them. In the female division was a sow by Orient, the sire of Lambing's Choice, four others by Iowa Champion, and another by Allerton, a son of George Wilkes. The herd are all coming on first-rate, and from indications now my offerings for my coming sale, on Wednesday, October 3, will be all that the most particular breeder could ask for."

N. E. Mosher & Son, breeders of Herefords, Poland-Chinas and Mammoth Bronze

manufacturing, especially in our midst, beef would soon enjoy the boom as did our pork sixteen months ago and be far more lasting, as it takes about three times as long to reach the demands by a matured supply. Your second inquiry as to the use of pure-bred stock in promoting the cattle industry, will promote the business in several ways, more especially in reaching earlier maturity. A good grade Hereford steer, if properly cared for, will weigh at thirty months old 1,500 or 1,600 pounds, while on the other hand, an average scrub or very low grade would weigh only about 900 or 1,000 pounds. Not only this, as the records for top prices of the principal markets show, that the high-grade, cross-bred or pure-bred animal brings \$1.50 to \$2 more per hundred pounds than does the ordinary animal. Now, as to the breed of cattle, we are like our friend, J. M. Clay, of Plattsburg, Mo., who in your former issue stated that he thought that the Short-horns were the best cattle on earth. We only disagree with him to the extent of thinking the same thing of the Hereford breed. Our knowledge of cattle being based on observation and experience, forces us to prefer the white-faces as the best all-purpose cattle, and that some of our personal friends prefer the blacks, namely, the Aberdeen-Angus, and their relative, the hardy Galloways. It is true, too, that we feel a great deal as the old lady did when she kissed the cow, 'everybody to their liking.' However far one may go in a sort of a jocosse or bantering way in setting forth his personal preferences as to the breed selected, we do not claim that our Herefords will do well on sage brush, neither literally or figuratively, as was indicated by friend Clay, although we believe that he was only speaking in a figurative sense, and leave the outcome to the experience of our future friends and patrons whose care and industry has perhaps more to do in reaching a pocket-book conclusion than has the breeder's individual preference. Did we not seriously believe that the Hereford has the strongest constitution, are better grazers, better rustlers, are

Dandy Jim, Jr., owned and bred by the well-known Kansas breeder, Dr. Pearson, of Kinsley, Kas. The spring pig crop that now runs up to about sixty head and were mainly sired by Mugg's Victor 11100, by Victor M. 9242; dam Miss Reveal 25877. Mr. Wood was so well pleased with Mugg's Victor on his arrival at his Kansas home from Centre, Ind., that he ordered a young sow of Mr. Mugg, who shipped him one sired by the always victorious in the show ring, Trenton Rock, dam by Victor M. Both Trenton Rock and Victor M. won sweepstakes at four different State fairs; not only this, but Victor M. is the sire of both boar and sow that won grand sweepstakes at the World's Fair. The visitor will find, on inspection of the spring pigs, that a large majority of them are promising enough now for show yard individuals—not one, two or three good ones in each litter, but a clear, clean, heavy majority. In the horse division are several registered Kentucky-bred individuals, including the three and four-year-old stallions Wilkesdorf 23095 and Keno Wilkes. The former was sired by Allandorf 7462 and out of Evergreen. He was bred by W. C. France & Sons, Lexington, Ky., from whose record books one learns that his four ancestors sold for an aggregate of \$48,850. Mr. Wood's idea is to breed for both speed and high road service, and after one sees the sire, looks over his get and scans the pedigree of the youngster's sire, the only conclusion is that eastern Sumner county is destined to have, in the near future, a grand lot of high-class carriage and a more than a mere promise of track stock. The other stallion, Keno Wilkes, is a model in trotting and roadster conformation. He is by Champion Wilkes (2185) 2:36; dam Lucy Keene, by Mastiff 2:31½. He is what the "Kaintuck" old-timer would say royally bred, and is a trotter, fast pacer and an all-round horse. He has been shown in the prize ring and won first at Wellington, Winfield and Wichita fairs. The poultry division is owned and superintended by Isaac's estimable wife, Mrs. Kate Wood, who is determined to retain her already high standing among the Western poultry-breeders. She has settled on three leading breeds, viz., Black Langshans, Black Minorcas and Light Brahmas. The Langshan strains are principally the Croed and Blackhawk, which have been strongly reinforced by recruits from Robinson, of Hazelton. The Minorcas came principally from Dalby Bros., of Ohio, and Childs, of Atchison. In a run of her Minorcas the harem is headed by a very fine individual that scores 93, and the hens run on an average 92½. The Langshans score a little higher, the hens ranging from 94 to 95 and the cockerel now doing the honors of the run scores 94½. He was pronounced the best individual at the Winfield poultry show, where some of the best on Kansas soil were exhibited. She also had the highest-scoring pen of any lady breeder who exhibited. In her efforts to attain a little higher standing among the breeders of Light Brahmas she has a very promising hatch from eggs shipped by Philander Williams, of Taunton, Mass., the originator of the Autocrat strain. Just lately she reinforced her Minorcas with a \$12 cockerel from Dalby Bros., of Ohio. Take it all in all, the visitor to Pioneer stock farm will find that Mr. and Mrs. Wood succeed in their efforts at breeding domestic live stock and have the confidence of their patrons. They desire a further acquaintance with the people of Kansas and will spare no pains in trying to please their customers.

An Indiana Home.

Our illustration on this page this week shows the home of Mr. Joe Cunningham, of the firm of Messrs. Joe Cunningham & Co., breeders of Poland-China swine and Plymouth Rock chickens, at Loree, Miami county, Indiana. In poultry Messrs. Cunningham & Co. make a specialty of Plymouth Rocks, breeding them exclusively. Their breeding stock consists of from 400 to 500 hens of strictly pure blood, mated to a suitable number of cocks and cockerels of first-class breeding to insure fertile eggs. This breeding stock is kept on five farms with ample room and abundant exercise so that the birds are always healthy and vigorous, and as a matter of fact, disease is practically unknown in the flocks. Their shipments in past seasons have always been very large, and although the egg season this year has only been fairly opened, they have made shipments to sixteen different States and the Canadas. Customers are invariably well pleased with purchases made from this firm, finding eggs packed with unusual care, hatching well whether hens or incubators are used, and bringing chicks that give credit, pleasure and profit to their owners. Messrs. Cunningham & Co. are prepared to fill all orders, large or small, in a manner that cannot fail to give satisfaction. Mr. Cunningham is also largely engaged in breeding Poland-China swine, and here, as in his poultry operations, his ideal is a high one. He is a member of the firm of Mugg, Cunningham & Co., well known in Poland-China circles as the winners of seven premiums at the World's Fair last year, including grand sweepstakes on both boar and sow. They will have a fine lot of pigs for this season's trade, and one to which they do not hesitate to invite the attention of breeders. Their advertisement will appear in our advertising columns next week.



HOME OF JOE CUNNINGHAM BREEDER AND SHIPPER OF POLAND CHINA HOGS, LOREE, MIAMI COUNTY, INDIANA.

turkeys, at Salisbury, Chariton county, Missouri, say: "Friend Brush, in regard to your recent inquiry pertaining to the present outlook of the cattle industry, will state that we think the principal cause for the prevailing low prices of beef is that the laboring class are out of employment, else are receiving when the few do work wages so low that it leaves but little to go on beyond a bare subsistence. If they were receiving the wages they formerly did it is our judgment that beef cattle would be selling to-day for from \$1 to \$2 more per hundred. If living smoke-stacks and the busy hum of machinery indicate anything in favor of the ability of the mechanic and all-round laboring man to consume more, then we are in favor of building up or creating conditions whereby he may become more able to be a more extensive consumer. If manufacturers in the immediate neighborhood lend to a local home consumption then we are in favor of fostering them in our midst. We believe that we need more of them in the West, hence protect them by all the fair means at our command. Well requited labor is always a good consumer, and just in proportion as his ability is to consume, just to that extent will the consumption of beef, pork and other agricultural products be made profitable to the producer. That there is a great shortage of cattle, no well-informed person will attempt to successfully deny, as the daily receipts of beef cattle at our principal market centers show—not only show a shortage, but away below the average one of two or three years ago, when the markets consequent on the declining prices were glutted with cows and heifers. The past six months, say, show an undisputable shortage that must be provided for in the near future. Through this part of Missouri it is safe to say that not over 50 per cent. as many cows and heifers are now owned as there were three years ago, and the yearlings and two-year-old steers are the fewest and farthest between that we have ever known them to be. If our monetary affairs or something else, and perhaps both combined, were adjusted, and encourage

equally as good breeders and sell for as much money on the market, of course we might be induced to try some other breed, but until the past victories achieved on the open range, on the open markets, in the competitive battles fought in the show ring, and on the shambles and the block will have been totally eclipsed by our honest Short-horn and Doddie competitors and the noble white-face relegated to the pages of past history, will your readers always find the old man and his boys still at the old Hereford stand in Chariton county. As to 'Stock Gossip' concerning our herd, we will state briefly that our herd is composed of the best and most successful strains in Hereford history. We aim to have the best, regardless of cost, and guarantee satisfaction in every instance to our customers. We invite inspection and correspondence. A word about our Poland-Chinas: As good as the best, and none too good for us."

Our representative, a few days since, paid the Pioneer stock farm, adjoining the sprightly little city of Oxford, in eastern Sumner county, Kansas, a visit, and found the thoroughbred horses, Poland-China swine and the runs of pure-bred poultry all in good, thriving condition and coming on very satisfactorily to all concerned. Mr. Wood, the breeder of the horse and swine stock, began swine-breeding eighteen years ago with foundation stock that was recorded in the first volume of the Ohio Standard Record. He early adopted the rule of keeping his best females and bought his males regardless of cost from the most successful herds known in Poland-China history. The herd now consists of about seventy-five head, all ages, and headed by two very excellent young boars. King Tip-Top 11098, by Young Tip-Top 3017, and his dam was Fancy Tip 9540, tracing back to Tom Corwin, Success and U. S. blood. The young fellow has all the conformation points desired by the modern Poland breeder. The other boar is Native Art 11099, sired by Black Diamond 9007; dam Pug Nose 20872, and is a son of a brother of

The Home Circle.

To Correspondents.

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

Marguerite.

There lived, one time not long ago, a bonny maiden fair,
With laughing eyes and rosy lips, and wavy, golden hair.

A lazy little maid was she, for all she was so sweet,
Nor cook a meal, nor sweep a room, nor sew—could Marguerite.

There lived a man, not long ago, who loved this winsome maid,
And at her tiny little feet his great big heart was laid.

A flutter shook her little heart, it fluttered on and on,
At last the little answer came, so soft, so sweet,
"Yes, John."

The day was set, the gowns were made, the tiny house was sweet,
Which was to be the little nest of John and Marguerite.

"But, John," said Marguerite one day, "I cannot cook at all;
I can't make bread, nor cook a chop, nor fry a codfish ball,

Nor make a cup of coffee, dear: Oh, do we have to eat?
And can't we do without it, John?" said pretty Marguerite.

"Of course we can, my dear," said John, "if not we'll buy a book
That tells about 'spare-ribs' and things, and tells you how to cook."

"I don't know how to go to work to sweep and dust a room,
I never could manipulate a dustpan and a broom."

"I care not how much dust, my love, is flying through the air;
The rooms will all be sweet to me if Marguerite is there."

"Dear me! I don't know how to sew, nor put a button on;
And rips will come, and buttons go—what shall we do, dear John?"

"Oh, don't you worry, Marguerite, we'll manage it all right,
And if the holes and rips must come, we'll pin them out of sight."

Soon to the cozy little home John took his Marguerite;
But fight against it as they would, they found they'd have to eat.

At first the cream would never rise, the bread would never "set,"
The coffee was the mildest drink that John had ever met.

The roasts were never quite cooked through, the boiled eggs always hard,
And what was fried was swimming in a little pool of lard.

The sweeping and the dusting and the work to keep things neat
Seemed never ending, wearisome and hard to Marguerite.

The buttons came off by the score, the holes and rips came, too;
John's little plan for pinning them they found would never do.

It took some time for Marguerite to learn to make things "go,"
To find the simplest way to cook, and sweep, and dust, and sew.

In time she learned, did Marguerite, but as the years rolled on,
She wished she'd learned a thing or two before she said, "Yes, John."

—Good Housekeeping.

OLD-TIME WEDDING LORE.

In "Home Circle" May 9, was given a portion of an article from *Westminster Review*, on the subject of "Marriage Customs." As marriage and female suffrage are matters much talked and thought about at present, it is well to learn all about them possible. The *New York Times* recently published an article on "Old-Time Wedding Lore," which contains some of the facts given in the other article from the *Review*. However, as it treats the subject in a somewhat different manner, a portion of it is given here as follows:

Beginning with the love tokens, it is interesting to notice in these days of luxury, when only the most precious and costly jewels are considered worth offering at love's shrine, that the knights of old counted the veriest trifle a sufficient reward from their lady love for the proudest deeds of valor and chivalry.

During the reign of Elizabeth, dainty little handkerchiefs, three or four inches square, were in high favor. These were usually embroidered by the hands of the fair giver or ornamented with fine gold lace buttons, tassels and the like.

Folded so as to display the artistic workmanship to the best advantage, they were conspicuously placed in the cap. My lady's glove, scarf or ribbon was also similarly worn, as is widely chronicled in story and verse. More popular than any of these, however, was the joint ring thus described in Don Sebastian:

A curious artist wrought 'em,
With joints so close as not to be perceived;
Yet they are both each other's counterpart.
(Her part had Juan inscribed and his had Zayda.)
You know those names were theirs;
And in the midst a heart,
Divided into two halves, was placed.
Of curious affiancing customs history

gives many accounts. Parke, in his travels in the interior of Africa, gives a glimpse of courtship in that remote region, where he witnessed an act of romantic devotion.

A young Slatee, who was about to become a benedict, seated himself one evening on a mat near the door of his house. In a few moments a young woman, his selected bride, approached him, bearing in her hands a calabash containing water. Kneeling by his side she desired him to bathe his hands, and after he had graciously complied with her request, with a tear of joy glittering in her eye, she put the vessel to her lips and drank the water.

This act is considered, in that part of the world, the greatest proof of fidelity and love a woman can offer.

Equally curious is a practice in vogue in some parts of Scotland. There, when a young man wishes to pay court to a young woman, instead of going to her father and making known his wishes, he proceeds to a public house and confides his secret to the landlady. This sympathetic individual at once dispatches a messenger for the object of his affections. The summons is rarely disregarded, and when the girl arrives upon the scene she is entertained in the most lavish manner the house affords, after which the details of the wedding are decided upon.

In Guernsey an engagement is almost as binding as a marriage. When a young man is accepted by the lady of his choice, the parents give them a feast, to which are invited all their friends.

In the course of the entertainment the young woman is led around the room by her prospective father-in-law to receive congratulations, and the young man is similarly escorted by his, after which they exchange rings and other gifts.

This public announcement over, the girl must never thereafter, on any account, be seen walking with any one but her fiance, while he is scarcely allowed to even as much as glance at anything feminine. These courtships are often carried on for years, and if in the course of time the affections of either undergo a change, and the engagement be broken, half of the property of the inconsistent one may be claimed by the other.

Of significance, too, is the remote antiquity of nearly all of our marriage customs. The use of the ring and cake at weddings is almost as ancient as the ceremony itself. In an old book, "Swinburn's Treatise of Spousals," is the following:

"The first inventor of the ring, as is reported, was one Prometheus. The workman which made it was Tubal-Cain. And Tubal-Cain, by the counsel of our first parent, Adam, as my author telleth me, gave it unto his son, to this end, that therewith he should spouse a wife like as Abraham delivered unto his servant bracelets and earrings of gold.

"The form of the ring being circular, that is, round and without end, importeth thus much, that their nuptial love and hearty affection should roundly flow from one to the other as in a circle, and that continually and forever."

Anciently the wedding cake was usually broken over the head of the bride and then thrown among the guests to be "scrambled" for. Sometimes slices of the cake were passed through the ring nine times and then distributed among the friends to be carefully preserved to dream upon under the following conditions:

Fast any Friday in the year,
When Venus mounts the starry sphere;
Thrust this, at night, in pillow-blere.
In morning slumbers you will seem
To see your lover in a dream.

Years ago, in England, when the bride came from the church it was usual for one of her friends to throw wheat on her head, and when that newly-married pair entered their own house, for some to present them with a pot of butter. Of the most remote origin are the nuptial garlands, which were as much used by the heathens as by the Jews, while the Romans considered no bridal costume completed until the wreath was added.

Among the Anglo-Saxons, after the benediction was delivered, both bride and groom were crowned. Sometimes these chaplets were blessed, and they were frequently made of myrtle.

Marriage in the Greek church is called matrimonial coronation, and the wreaths used in the ceremony are solemnly destroyed eight days after the ceremony.

In some countries the bride is crowned with a wreath of prickles and so delivered unto her husband, that he may know he has invited himself to a thorny pleasure.

Rosemary, which was supposed to strengthen the memory and confer numerous virtues, was much worn at weddings, and also carried at funerals. The following on the "rosemary branch" speaks of its double use:

"Grow for two ends—it matters not at all,
Be't for my bridal or my burial."

The nuptial kiss is also a custom of much antiquity, and years ago a kiss was, in dancing, the established fee of a partner. The privilege is still allowed in country places all over the world.

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In Henry VIII are the lines:

"I were unmannerly to take you out
And not to kiss you."

The practice of making wedding gifts probably has its origin in the "bidding parties" of long ago that were held the day previous to the wedding for the avowed purpose of giving friends of the contracting parties an opportunity of assisting them in their new undertaking.

It was anciently the custom among Germans for the bride to remove her shoe when she was conducted to the bridal chamber, and to throw it among her guests, who all struggled to gain possession of the treasure, as it was considered a sure sign that the lucky finder would soon be happily married.

An old superstition that still holds good with many is to the effect that if a girl be married before her elder sisters they must dance without shoes at the wedding in order to counteract the ill-fortune this event is supposed to bring them and secure husbands for themselves.

In June, the month of roses, the birth-month of the Roman goddess Juno, more weddings occur than in any other month in the year. Its popularity is due to the pretty fiction that Juno (meaning yoke-maker) takes a special interest in marriages, and that her protecting care follows and blesses all those who are wedded in June.

An old Scotch writer says: "That day of the week upon which the 14th of May happens to fall in any year is esteemed unlucky through all the remainder of the year. None marry or begin any business upon it." The ill-fated Queen Mary, who married Bothwell in May, is thought by the superstitious Scots, to have cast an "evil eye" upon all who marry during that month. This belief undoubtedly gave rise to the warning conveyed in the well-known lines:

Marry in May,
Rue for aye.

A Tragedy.

There are tragedies in nearly all people's lives, though some may never know them by that name. We find them, too, in most unexpected places. Which reminds me that one day I stopped for dinner at a house in the Cumberland mountains, so deep in the fastnesses that I had to employ a guide to show me the way to the first road that would take me out to the county road. The family consisted of a man and wife, with six daughters, and a more ignorant lot of people I think I never saw. After the dinner of bacon, beans and corn bread, the man and girls went back to the field, and I talked awhile to the woman before resuming my journey. She was a typical mountaineeress, tall, angular and sallow, but there was a gleam of intelligence in her face, quite unlike the lackluster of the usual woman of the mountains.

"Don't you get very lonely, away off here to yourself?" I asked her as she busied herself about the table.

"I reckon I mought, ef I had time," she replied, "but I don't give myself no time to think about things like that."

"And what about your girls? Don't they want to get out among people?"

"Not ez I ever heerd 'em say."

"Do they go to school in winter?"

"No."

"Have they never been?"

"Not yit," this half apologetically.

"Do they have anything to read?"

"They can't read."

"Can't read?" I repeated in surprise, for even though the older mountaineers cannot read and write, as a rule the younger ones, under a more modern civilization, can.

"No, they can't," she said, as if irritated by my tone.

"Are you so far from a school house that you can't send them?" was my next venture.

"It's two miles, and they could go, but I won't let 'em."

This was a new phase, and the matter became more interesting.

"Why not?" I asked, with a persistence that was risky.

She stopped her work and turned to face me.

"Them gals," she said, "don't know nothin' but these here mountains and that river down ther; they don't know what is goin' on in the world outside; they never seen no steam cars, ner 'boats, ner

telegraphs, ner telephones, ner fine houses, ner beautiful clo's, ner gentlemen, ner ladies; they don't hardly know thar's such, but I do, fer I've saw people ez hez seen 'em, and they've told me; many's the night I've gone to bed and cried myself to sleep in the loft that wuz my bed-room, thinkin' about what there wuz in the world that I couldn't even hope to git a look at; I got so I could read, and then I read about 'em all, and that made it wuss; thar wuz nothin' but mountains and loneliness and silence fer me, and I couldn't help myself nohow. Then I married Jim, and we come here; Jim can't read ner write, and the pore feller is satisfied, fer he don't know no more than the gals does and they're company fer each other. The gals might git like I wuz of they larnt readin' and writin', and how could they ever git away from this place and go among such different things? They couldn't, jist the same ez I couldn't, an' if I can keep 'em frum knowin' whut's away off whar the mountains ain't, ner the lonesomeness, ner the silence, I'm a goin' ter do it, and let 'em live and die right here whar they air a heap better satisfied than ther mother has ever been, though they never heerd her say nothin' about it, one way ner t'other, ner they never will."

The hard lines of determination had come into her face when she began speaking, and I could see they were pressing back the tears of disappointment as she talked to me; and when she turned to her work again, she brushed her eyes hastily, while I sat there, thinking of the silent heroism and uncomplaining sacrifices of this woman, longing in the solitude of the mountains for the breadth and the beauty of the world beyond them, yet never voicing her wish; walking straight through the darkness of ignorance, knowing of the light above it; standing fast with her family about her, as the millions rushed on toward the higher attainments of life, crushing her soul down into its narrow confines and keeping it there because she realized that for her and for hers, this was the earth and the fullness thereof.—*Detroit Free Press.*

Drs. Thornton & Minor,

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The Young Folks.

A Regular Sell.

An Irishman in hardest luck
Had tramped through many States,
And everywhere was badly stuck—
Against him were the Fates.
His tattered clothes were quite a sight,
His thin, starved body, too.
For nowhere could he get a bite
Or any work to do.

He reached a city, though, one day
And tried to beg a meal,
But every person turned away
Their anger to conceal.
He asked for work, he was refused,
For bread, refused again,
Until he felt himself abused
By all the city men.

While passing by a junk shop which
A sheeny peddler owns,
He saw the fellow had got rich
On buying rags and bones.
Pat thought awhile, and then went in
To interview the Jew,
And try an honest meal to win
As beggars oft will do.

"Good morning, sir," said Pat inside,
"Do you buy rags and bones?"
"V' yes, of course," the Jew replied,
"Dot's vy dis store I owns!"
"Well then," said Pat, "my tuck prevails
For once in many a day.
Be jabbers! put me on the scales
And see how much I weigh!"
—H. L. Beamish.

The Victory of Peace.

An old battlefield
In the sunny South,
And a sparrow's nest
In a cannon's mouth;
The cannon buried
Under leaves and dust,
And scarred and broken
By its years of rust;
But the sparrow sings
Through the livelong day,
And clambering vines
Make the cannon gay.
—Frank H. Sweet.

YOUNG FOLKS' TRIP SOUTH.

(Continued from last week.)

Any one traveling from Vicksburg to Baton Rouge, by rail, would notice that the country passed through is much more beautiful than that between Memphis and Vicksburg. Our party saw nicely cultivated fields, beautiful leafy trees, green hills and grassy valleys, with clear streams of water, all of which were reminders of sunny Kansas.

At Baton Rouge our young folks had the first view of the Mississippi since they had left Vicksburg—one hundred and fifty miles north. At this place we were again reminded of Kansas by seeing the State capitol, for it occurred to us that this was the first capital building in the United States whose doors had been barricaded and broken down by "warring factions." The cars stop almost in front of the building and the traveler's first idea is that the city has a wonderfully large and beautiful depot.

After leaving the city the location of the great river is always within view from the car window, but the water itself is invisible. The surface of the river is higher than the level of the railroad, and a high, strong levee keeps the water from overflowing the track.

As an occasional steamboat was passed, the deck and pipes only were to be seen from the train, and presented much the same appearance as the views of steamboat scenes given in large theaters where the power that propels is hidden from view.

Our young people had passed through the wheat and "corn belt," then the "cotton belt" and were now in land of sugar cane. For nearly ninety miles between the capital of Louisiana and the city of New Orleans, the train passed through an almost continuous cane field. The depots between the two points named consist of platforms large enough to permit ten people to stand up straight. These platforms are covered by a roof supported by four posts at the corners and the sides are entirely open. We now saw the Southern plantation as we had learned about it by reading Mrs. Southworth's books, and Augusta Jane Evans'—or was her name Mary? Large, white plantation houses surrounded by shady trees, which appeared to have been standing for one hundred years, were flanked by rows of negro cabins white-washed and glistening in the sun. Each of these plantations possessed a large sugar-house, where the juice of the cane is extracted and other sugar-making processes are performed.

The cane plants at this time (April 24) were about six inches high and the cultivation they were receiving seemed to be much the same as corn plants would receive in Kansas.

Did your heart ever "bleed" much in reading the sorrowful descriptions of the poor slaves who were driven to the cane fields before the war, and whose actions were accelerated by the crack of the overseer's whip? Well, we all saw, that morning, several droves of slaves—that is to say, freemen—who were diligently hoeing the cane with an overseer on horseback watching their every move. The overseer was white, and had no whip visible to the eye, but every colored man and woman knew

that their bread depended on satisfying the overseer with a proper amount of work.

The cane fields are laid out with rows at right angles with the river, and at equal distances of only a few rods apart were deep ditches which served the purpose of carrying off the drainage water from the river and which were emptied into streams which flow down into Lake Pontchartrain.

It was nearly dark when our party reached New Orleans, but as some of us had been there before we knew right where to go, and a few moments' walk from the depot brought us to St. Charles street, where we found a very pleasant room within a "stone's throw" of General Lee's monument. You all know who General Lee was. He was a great and good General who "fought, bled and died" for his country, that is, he died after the war. By his valiant deeds he is supposed to have wonderfully helped the Southern people and to have saved them from the barbarous soldiers of "the North." Just what he saved them from, or how much more they would have suffered if he had stopped fighting before he began, it is, perhaps, difficult to state definitely. Any way, the Southern people have erected in St. Charles street, New Orleans, an exceedingly fine monument, on the top of which stands a "heroic" size representative of General Lee in military uniform, with the bottom of his pants legs tucked into his high top boots as though he were going out duck shooting—or fishing with the President, for instance. This monument is one of the finest military monuments in America—as fine as the one erected to the memory of General Grant in Riverside park, New York. Upon second thought it occurs that the Riverside park monument is not yet erected. When will it be built? However, it makes but little difference to General Grant. The cause he fought for was, and is, not a "lost cause," while General Lee's was very badly lost. But, to get back to Lee's monument, it might be mentioned, that it is located in the center of a little park where several streets terminate, or, perhaps, commence. This little park is called Lee Circle, and the center is a high mound covered with beautiful green grass, and the base of the monument may be reached by going up a gravelly walk on either of the four sides facing the four cardinal points of the compass. This is one of the prettiest spots in New Orleans, and is especially patronized on bright moonlight evenings by romantically inclined young folks. Whether the "cause" he fought for was good or not, the people of the South, in erecting this handsome monument, would have made General Lee famous even if he had never handled a sword. Of course, there are no monuments to Lincoln, Grant nor Sherman in New Orleans—not even one for General Butler. Perhaps it is not exactly correct to say that there is no monument to General Butler in New Orleans, for if you go "just 'round the corner" from Lee Circle and enter the Southern War Museum, you will see numerous monuments of the General. One is a framed newspaper copy of his famous order concerning the women folks of New Orleans. Another is a queer picture of him under which he is named "Beast" Butler. Just why he was called "Beast," we do not know, but if you ever saw him you know his name was not "Beauty." Did you go to the "Libby Prison" war museum in Chicago, last summer, and see the articles preserved there showing the mementoes of valorous deeds done by Union soldiers from 1861 to 1865? Well, down there in New Orleans they have gathered together many of the tear-stained and blood-stained relics which are dear to the Southern heart, and there is nearly so large a collection as the first named, and it really is very interesting to a Northern man, woman or child, many of whom have been there, and their names are recorded in the register kept for that purpose. When you go down to New Orleans just step into the war museum and you will find the names of our whole party entered upon its pages.

Kicking a King's Shins.

Whatever may be said of the kings of Hawaii, they had a true sense of royal dignity, as this story will show.

Once Lord George Paulet, in command of the British man-of-war Carysfort, was cruising in the Pacific. He ran into the harbor of Honolulu, and took a look at the islands. He liked them. Accordingly, with the true British instinct, he decided to annex them to the extensive dominions of Her Britannic Majesty. He landed a company of marines, hoisted the Union Jack, fired a cannon, broke a bottle of wine, and announced that Hawaii was a British colony.

There were not many whites in Hawaii then, and the native government was not strong enough to resist Great Britain. The few whites there were chiefly American missionaries. But they were the genuine New England stock. They never lacked for backbone. One of them, Dr. Judd, the father of A. F. Judd, the present chief justice of Hawaii, was a man of singular courage and great mental force. He was the first white man to hold office in Hawaii, and was then prime minister of the king,

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

Royal Baking Powder

ABSOLUTELY PURE

Kamehameha, third of the name. In fact, Dr. Judd was the real ruler of the kingdom.

Dr. Judd prepared to visit Washington to induce the United States to interfere in behalf of Hawaii. But before he could go, Admiral Thomas, in command of the British squadron in the Pacific, arrived at Honolulu. He disavowed the act of Lord Paulet and ordered that the British flag be taken down. Soon afterwards his government approved his action.

Admiral Thomas became an immense favorite with the Hawaiians. They thought there was no body like him. The king decided to give him a splendid banquet at the palace. But the king's knowledge of topics such as Admiral Thomas would be likely to discuss at the banquet was limited. So Dr. Judd arranged that the king and the admiral should sit opposite each other, while he would sit beside the king. Admiral Thomas, who was known to be fond of talking, was to be allowed to monopolize the conversation. The king was to say merely yes or no. Dr. Judd was to kick him on the right shin when he should say yes, and on the left shin when he should say no.

The afternoon before the banquet the doctor coached the king carefully and the king said he understood.

The banquet was really sumptuous. The admiral was much pleased with the well-meant and well-cooked compliment to himself. The king also was in the best humor.

By and by, when the edge was taken off appetite, the admiral began to talk about public topics, and frequently he would appeal to the king to know if he didn't think just that way, too.

At the first question Dr. Judd kicked the king's right shin under the table, and the king promptly answered no to the admiral's question. According to the prearranged code, he should have said yes. Dr. Judd gave him another kick and he hastily said yes. But a minute later the king got mixed again, and the doctor's kicks confused him more than ever.

The king made so many mistakes that the doctor was busy throughout the banquet kicking his shins. And his vexations at the king's mistakes caused him to kick pretty hard, too.

But the king was a king, sure enough mindful of his dignity. He never kicked back, nor did he cast one cross look at Dr. Judd. He merely listened to the admiral and smiled and said "no" when he should have said "yes," and "yes" when he should have said "no." The signal was inextricably mixed in his mind.

When the banquet was over it was found that the king's shoes were full of blood, and his shins were gashed like a freshly-pounded tenderloin steak by the toes of Dr. Judd's stout boots. He had to be carried to his bed, and he was so lame he could not walk again for two weeks.

But the king was the right sort. He had true grit. He said to Dr. Judd, in Hawaiian: "You did right. It was my fault. I got mixed—but you kicked pretty hard." —New York World.

Food, when it sours on the stomach, becomes unwholesome and unwholesome. It poisons the blood, and both mind and body suffer in consequence. What is needed to restore perfect digestion is a dose or two of Ayer's Pills. They never fail to relieve.

If I could address but a single sentence to boys, it would be: Be good to your mother. I often think that the best thing in life is the patience and goodness of mothers towards their children. A boy who has been mean to his mother will have a pain in his heart that he can never get rid of. This conscience you hear of becomes more powerful as you grow older; if your conscience does not hurt you now, it will later on. An old man told me once that when a very little fellow he had slighted his mother, and the other children caught him at it. After fifty years, it was still a humiliation to him; the one recollection of his childhood that he could neither forget nor explain away. In all your life, boys, you will never have another friend like your mother; read this sentence to any old man and he will tell you it is true. The world is full of selfish people, and you will meet no other kind after parting with your mother. But in a mother's heart there is not an atom of selfishness toward her children.

See Chicago Sewing Machine Co.'s advertisement in next week's issue.

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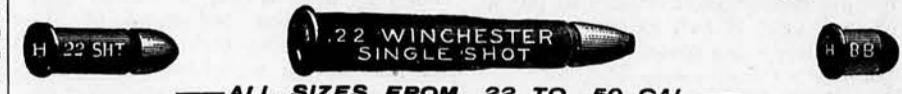
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Address all orders **KANSAS FARMER CO., Topeka, Kas.**

You can do your neighbor a service by suggesting to him to write us a postal card for a sample copy of the KANSAS FARMER. He needs it in his business.

The May report of the Statistician of the United States Department of Agriculture shows considerable reduction of the areas of wheat and oats in the United States and a corresponding increase in the area of corn.

A generous rain visited the eastern part of Kansas on the night of May 28. Reports show that it extended west as far as Arkansas City. It is to be hoped that the great wheat belt extending across the middle of the State was also reached.

If our subscribers who are about to renew their subscriptions will notice our advertisement of "Picturesque America" in this issue, they no doubt will desire to take advantage of our offer. Send for our supplement containing our various clubbing propositions.

Readers should remember that the special offer to send the KANSAS FARMER to new trial subscribers for 50 cents from now to January 1, 1895, is still open, and that the person who sends in the subscription is authorized to keep 25 cents of the money. See the neighbors and get us a big list of trial subscribers.

The alfalfa growing and being harvested in the vicinity of Dodge City at the time of the visit of the irrigationists, May 26, was sufficient vindication for the enthusiasm of Capt. Churchill on this particular kind of clover. Indeed the profit which Mr. Churchill is evidently making from his broad acres of alfalfa would enthruse anybody into whose pockets it might flow.

In order to secure the additional circulation to which the KANSAS FARMER is entitled by virtue of its intrinsic excellence, the publishers have this week made a sensational introductory offer for the remainder of the year. Every boy in every subscriber's family ought to make from his commissions on this offer enough money to pay all of his Fourth of July expenses and buy his mother a new dress besides.

The Sixth Annual Report of the Experiment Station, Kansas State Agricultural college, being for the year 1893, has just been issued. It contains a brief outline of experimental work of the station for the year and a statement of accounts. To this is appended a list of previous publications of the station, a compendium of meteorological records for the past thirty-six years, the most complete in the State, and a full index to all the published matter of the year. The meteorological summary is a model that kind of work, and makes invaluable the otherwise valuable bulletin.

THE SITUATION.

The seriousness of the industrial situation is increasing. The coal miners' strike is becoming almost universal, and violence is freely considered on both sides. The miners' organizations will not, if they can prevent it, permit any work in the mines, and the mine-owners are determined to operate their properties with such labor as they can get. Forcible resistance to the entrance of others into the positions which the miners refuse to occupy, pending the settlement of the controversy, is met with forcible attempts to operate the mines with other laborers. Riot and bloodshed have thus been added to the pains of idleness and want. In the gold and silver mining district of Cripple Creek, Colorado, the strikers have fortified a mountain top from which they command numerous mining properties. They patrol a district eight miles square and defy both mine-owners and county officials.

In the meantime the marches and slow navigation of the "Commonwealers" continue, with the national capital as their destination. Arrests, imprisonments, fines, threats, ridicule, argument, avail nothing against the impulse to go to Washington. The only real check to the movement appears to be that which it got in Kansas, in the suggestion that the men better stay at home and vote next fall than to go to Washington, for what nobody appears to know definitely.

One year ago the financial, commercial and industrial situation was considered desperate. Great declines from the amount of business of corresponding periods of the year before were noted. Now the comparison is with one year ago and the decline is continued. It can scarcely be otherwise, while productive industry is largely suspended. It is doubtful if any one has a just conception of the woe and misery, the anxiety and despair, of the present moment. And worse, still, nobody appears to know how and be able to apply a remedy for existing evils. A situation of idleness, of want, of despair, cannot continue indefinitely without becoming a situation of desperation.

When, according to the most reliable Babylonish history, Nebuchadnezzar was stricken with the form of insanity more recently called lycanthropy, and his wife, Anyitis, assumed control of the affairs of state, she counseled with the General of the armies as to how to keep employed and fed the hundreds of thousands of people whom the great King had then at work upon the great walls and temples of the city and kingdom. War was less dreaded than idleness. The General wisely determined to carry on the building operations with unabated energy, and during the seven long years during which the crazy King ate grass, grain and melons with his tame buffalo in the park enclosed in his palace, the Queen kept every industry in such active operation that there was neither time for mischief-brewing nor cause of want, and when his brute companion died and Nebuchadnezzar regained his reason, his kingdom was restored to him, unimpaired and well-governed.

In all ages, idleness, especially idleness of great numbers, has been found the greatest of all dangers. Want is its inevitable consequence. Discontentment, mischief, disorder, violence, revolution—what train of disorders does idleness breed! If there is a power in statesmanship, if there is efficiency in any agency to cause a resumption of the industries of the United States, to enable the people again to obtain work, to be well fed and comfortably housed and clothed, there should be no delay in the application.

WHEAT CONDITIONS—AN ENEMY TO CHINCH BUGS.

In a letter dated May 24, Mr. C. Wood Davis, of Peotone, Kas., says of wheat:

"Soft wheat that was just in blossom was hurt by the frost. Such plats as were in the fullest bloom have been hurt seriously, while those nearly past or just entering the flowering stage are hurt but little. My opinion is that the soft wheat is injured from 5 to 10 per

cent. and the hard wheat little if any, as it was but just reaching the critical stage.

"The fields are swarming with chinch bugs, but the rains of the four weeks ending May 8 destroyed most of the eggs, and on our fields we have found no young bugs, but expect to soon if the present dry weather continues unless the vast number of red and black ants which I find in the fields are destroying the eggs of the chinch. I am disposed to think this may be the case, as with close scrutiny I have, as yet, been unable to find a single egg. Of course the old, or breeding bugs, of last fall's brood are not injuring the wheat, and the injury must come from the young ones."

It is to be hoped that red ants, black ants or some other enemy will eat up the chinch bugs' eggs. This matter is worthy of the closest attention, and if the ants need to be encouraged, means should be taken to that end. The injuries reported by Mr. Davis are, unfortunately, widespread.

A HYDROGRAPHIC SURVEY OF KANSAS.

There have been numerous inquiries for definite information as to the probability of obtaining sufficient water for irrigation at different localities in the western half of Kansas. In general, it may be stated that the supply is abundant in all the valley lands of the Arkansas, and of several other streams, for the wants of these lands. In much of the remaining region there is obtainable water enough to irrigate portions of the land, varying from 10 per cent. to the entire area. There are other areas, probably, of limited extent, where it would be a waste of capital and labor to attempt to obtain a sufficient supply for more than mere gardens. The scientific work so far devoted to the determination of the water supply of western Kansas and its distribution, has shown that the problem is an unusually easy one of solution; that there exists in the records of railroad offices and in various private and public hands, a vast amount of scattered information which, if brought together, supplemented properly, and carefully studied, compiled and published, would be of inestimable value in the development of the country. The government, in the prosecution of the geological survey, made a proper and valuable beginning of this investigation in Colorado, and did also considerable work in this State. Under varying auspices and partly at his own charge, Prof. Robert Hay, of Junction City, has also developed much valuable information as to water supplies of Kansas.

It is to be regretted that just at this juncture the government proposes to abandon the work at a time when its need is felt as never before. This purpose, it is believed, may be changed if the economic importance of the speedy completion of a hydrographic survey be sufficiently urged. The KANSAS FARMER, therefore, suggests that every person who recognizes the importance of this work, write to the Director of the United States Geological Survey, Washington, D. C., and to our Senators and Representatives in Congress, urging that it be immediately resumed and continued until the important questions involved shall have been answered, and the information shall have been given to the public.

BISULPHIDE OF CARBON FOR BEAN WEEVIL.

EDITOR KANSAS FARMER:—Please tell me through your paper how to use bisulphide of carbon in beans to keep weevils from eating them up. That is, would you put beans in tight barrels at time of threshing them and treat them immediately, or would you wait until the weevil eggs had time to barely hatch and then treat them? And how many times will they have to be treated? Should barrels to treat beans in have small holes in bottom or be tight? Please answer explicitly and you will probably oblige more than myself.

Lay, Kas.

A. H. SUTTON.

The details of the methods for the use of bisulphide of carbon have not been experimented with fully. The remedy is efficient, both to prevent the laying of the eggs and also to destroy the young larvae. It is a most offensive smelling substance, as well as destructive to insect life. Its great volatility

makes it a temporary remedy only. As long as the odor is noticeable it may be safely assumed that the remedy is there and the beans safe. It will be safest to apply the remedy at the time the beans are put away in the barrels or other receptacles. If these are tight and closely headed there will be less rapid dissipation of the bisulphide, and therefore a longer period before renewal will be necessary. But if the odor entirely disappears during the season when the eggs are likely to be laid it will be safer to make another application of the remedy. It should be remembered that the vapor of bisulphide of carbon is heavier than air and will pass out through any openings in the bottom of the receptacle.

LATE-BLOOMING FRUITS.

The destruction wrought by the May frosts on the fruit crops of the country has emphasized the importance, suggested by the March freeze, of late-blooming varieties. Flowers of various kinds are now and will continue to be for some time bursting into bloom. Many of our choicest fruits have ample time to ripen in this climate if they should bloom a month later than is their custom. There is an inviting field for experimentation in developing late-blooming strains of standard varieties of fruits. While results will not probably be rapidly attained they are sure to follow well-directed work.

The Pomologist of the United States Department of Agriculture has taken a preliminary step by collecting information of late-blooming varieties of the peach. In the May report he gives the following summary of the investigation:

"In reply to the inquiry regarding the varieties of the peach which have been observed to bloom later than others, seventy-eight varieties are named by one or more correspondents.

"Owing to the great diversity in the varieties of this fruit grown in the different regions from which reports were received, and the lack of reports on any very widely distributed variety which can be taken as a standard for comparison, it has not been possible to determine what one or more varieties bloom later than all the others in different latitudes. It is evident, however, that the early ripening varieties, such as Alexander (including Amsden), Rivers and Hale have been found to be the latest bloomers by the largest numbers of observers. These varieties, all of which are white-fleshed, and most of which are semi-clingstones having large blossoms, seem to constitute the most widely distributed late-blooming group of the Persian race. They are planted in small numbers, however, in most of the market peach regions, because of the inferior quality of their fruit and its susceptibility to rot.

"The reports indicate that in lateness of blooming the latest-ripening varieties stand next to the very early ones. This group, of which Smock, Salway, Fox Seedling, Picquet Late, Heath Cling and Bilyeu are leading representatives, includes varieties having both large and small blossoms, white and yellow flesh, and both cling and freestones. The larger number of well-known and widely distributed varieties in this group are yellow-fleshed freestones having small or medium-sized blossoms."

Doubtless great individual variations may be found in the blooming times of the varieties mentioned. Doubtless, also, trees propagated from the latest blooming would be found to possess this characteristic to a degree. Doubtless a few generations of selected late-bloomers would give strains of peaches far less liable than the average to damage from late frosts.

Wants Advice.

EDITOR KANSAS FARMER:—I wish to know the proper time to plant Kafir corn. I want to plant for grain and some for fodder. . . . I want to know how to raise turkeys, hatched by hens. Will some KANSAS FARMER reader tell me, and if they do better hatched by turkey hens and allowed to run—in fact, all about how to feed and what to feed, etc.? I had thirty hatched and kept cooped up with the hens which hatched them. The foster-mothers are kind and attentive, but all are dead but five, and they are droopy. We are all worn out caring for them. I have about fifty more eggs to hatch and want advice.

L. W. TRUESDELL.

Concordia, Kas., May 25, 1894.

[Look for lice.—EDITOR KANSAS FARMER.]

STRAWBERRY FARMING.

Older readers of the KANSAS FARMER remember when strawberry culture was confined to a small bed in the garden and a few tastes of the fruit constituted the extent of its use. The strawberry industry has now assumed such proportions that its larger culture can scarcely be called gardening, but instead is extensive farming. States further east and south have larger plantations of this kind than are found in Kansas, but the growth of strawberry culture in this State has brought forward some fields of this fruit.

The first extensive grower of strawberries in Kansas and still the leader is Mr. B. F. Smith, of Lawrence, who now has seventeen acres. Anxious to witness the operations of such a plantation and to compare the excellence of the many varieties, the writer spent a part of last Monday in Mr. Smith's fields. His comfortable residence in the suburbs of the city is pointed to as having been built out of the proceeds of his first strawberry crop.

We shall assume that the reader, like the writer, is interested in some points which the berry farmer forgets to mention unless questioned, presuming that these, so familiar to him, are known to everybody. Most of Mr. Smith's strawberries are grown on the upland, in the southeastern suburbs of Lawrence. The soil is that common to eastern Kansas uplands, a marly loam. Before planting this is thoroughly manured with barn-yard manure, well plowed and worked into a perfect condition by harrowing. The plants are set in April and May, and consist of the "sets" formed during the previous season. They are planted in rows four feet apart and twelve to fifteen inches apart in the rows. The sets are taken up in such a way as to leave a bearing row twelve to eighteen inches wide. The culture during the first season is such as to keep down all weeds and grass and to leave the surface always fine and loose. The ground is not disturbed during the second spring, except as incidental to taking up the sets, until after the berries are harvested. The space between the rows is covered with coarse hay.

The harvesting is done by "pickers" who pass along the rows, taking the ripe berries and placing them in the boxes in which they are shown in the markets. A picking is made each day except Sunday during the ripening season, which lasts for about two weeks with most varieties. On last Monday morning one hundred and fifty pickers were at work in Mr. Smith's fields. They receive 1½ cents per box. Each box holds one quart, liquid measure. So great is the demand for work that after employing the hands needed it was necessary to place a guard at the gate to turn away the applicants. For a day's work, pickers range from thirty to one hundred boxes. Women and girls are better pickers than men and boys. The filled boxes are placed in hand crates and carried to the packing-house, where they are placed in the cases. The name of the variety in the crate is written on the cover. The record with the pickers is kept by issuing a ticket for each box.

In passing over the fields with Mr. Smith the writer was surprised at his familiarity with the varieties. He can name each of the hundred or more varieties from the appearance of the fruit. The question naturally arises, why have so many varieties? But a strawberry enthusiast naturally wants the best and this can be found only by trying all things and holding fast to that which is good. Some are adapted to a wet season, some to a dry season; some endure frost better than others; some are good for home use but poor shippers.

After sampling every variety the writer pronounced unqualifiedly in favor of the Parker Earl as the best flavored, largest, most uniformly perfectly developed fruit, and observed also that its plant is very vigorous, stems high and strong and that it was scarcely injured by the late frost. A list of those most profitable to grow would be about as follows, in the order named: (1) Parker Earl, (2) Robinson, (3) Windsor Chief, (4) Captain Jack, (5) Muskingum, (6) Warfield, (7)

Biederwood. Some of the old favorites are left out, from the fact that they suffered greatly from the frost. Among these are the Charles Downing, Glendale, Haviland, Cumberland and Warfield.

Mr. Smith estimates that the frost shortened his crop by about five hundred crates, and since this means something like \$1,000 gross, it may well be believed that he attaches a good deal of importance to the varieties which were uninjured.

The dry weather was also shortening the crop seriously and led to the hasty installation of a system of irrigation. An inch iron pipe was connected with the water mains of the Lawrence waterworks, and laid out through a three-acre field of suffering strawberries. Water cocks were distributed at suitable distances along this pipe and to these a hose was attached with which the plants were watered by giving them as much water as the ground immediately among the plants would take up quickly. The results of this were surprising. In about three days after the first application of water to the three-acre field it was yielding as many berries as a ten-acre field unwatered. This led to the irrigation of the ten-acre field by means of tank wagons, since this field was too far away to be reached from the city mains. It does not require a mathematician to calculate that irrigation pays, when the yield of a valuable product is thereby multiplied by three and one-third.

Were this description not already too long, the writer would like to describe the system by which the sale and packing of plants is conducted to assure accuracy in sending to each customer the varieties ordered, and to make as certain as possible their arrival in good condition. Of the results of this care those who have purchased plants from the Highland fruit farm are the best witnesses.

The Use of Salt in Making Brick.

EDITOR KANSAS FARMER:—As you request, I state results of experiments here in use of salt in brick-making.

There have been several brick yards in Sterling. Although care was taken in selection of clays and in burning, by expert brick-makers, all of them made inferior brick, which were soft, deficient in strength, and crumbled when exposed to the weather. The clay also contained lumps of limestone which became lime in the burning, and as the fresh-burned brick absorbed moisture, the slaking lime caused loss of many brick by splitting. It has been supposed that this defect could only be obviated by riddling or sifting the clay, a difficult thing to do with damp clay, or by crushing the lumps of stone before mixing the clay, which adds expense.

Our State Geologist, Prof. Robert Hay, who has a wide reputation as a stratigraphical geologist, and who has a general knowledge of the subject, states that these faults of clay, in Sterling, are the rule in all the States of the plains, and that our Western marly clays rarely make good brick.

We have no iron, but little timber, good stone in few localities, and it is a matter of more than local, of more than State importance, to improve the quality and increase the manufacture of brick. Our hastily-built houses of Michigan pine should, in time, be replaced by brick structures less liable to decay and to conflagration, and should be formed from the only building material which nature has given us. It is doubtful whether Kansas can ever show as old wooden structures as exist in Europe or the East, for there seems to be something in our dry soil and drier air which brings premature age to wooden ties or posts and to our houses, already getting old, though built less than twenty years ago.

There are some of your readers who can remember when common pottery, jars, jugs, etc., were glazed with a thick shining surface produced by the use of lead. Later it was discovered that a strong glaze could be cheaply formed by use of common salt. The salt was decomposed by the silica, or sand, and by the oxide of iron in the clay, while the silicate of sodium was fused upon the surface of the ware, and

by this process all our common pottery ware is now glazed. It is easy to understand that, in making brick, if the clay is wet with brine, and well mixed in the pug-mill, then properly burned in the kiln, this silicate of sodium, or salt glaze, which is in fact a cement of glass, becomes a part of the body of the brick, instead of being on the surface, as in pottery, forming a strong bond which gives the tenacity and hardness which before were lacking.

Mr. Frank Lawhead, Jr., of this city, has burned six kilns of brick, using salt at the rate of rather more than one-half bushel to 1,000 brick. He states that the quality of the brick is much improved, and that he is less restricted to particular strata of clay. He states that the loss occasioned by lumps of lime in the brick slaking and splitting the brick is greatly reduced. I am not able to give an explanation of this effect of salt upon the lumps of limestone in the clay, but it seems to be an important effect. Mr. Lawhead's brick show no glaze, probably because he does not carry the heat high enough to completely fuse the silicate of sodium which is formed. It seems that this could be done and that it would give brick hard enough for paving or any other purpose. The matter seems worth careful investigation. It may be that while nature has given Kansas inferior clay, salt has been placed beneath the clay to remedy the defects of the clay.

We should remember that "money travels from countries which have but few industries to those which have many." A country which produces only agricultural supplies and which purchases all other articles, produces wealth for others to enjoy. It is encouraging to note the growing efforts to develop new industries—the cement works of Medicine Lodge, the gypsum of Gypsum City, the salt of Hutchinson, the sorghum sugar factories, the potteries, glass sand, and other lines, in a country of which it was said, only a few years ago, that "nature had provided nothing but air and grass." D. Sterling, Kas., May 24, 1894.

Weekly Weather-Crop Bulletin.

Issued by the United States Department of Agriculture, in co-operation with the Kansas State Board of Agriculture, for the week ending May 28, 1894, T. B. Jennings, observer:

An excellent week for work in the fields; the weather has been cooler with more cloudiness. Light rains have fallen in the western counties with fair rains in the extreme southwestern. Light rains have also fallen in the Kaw valley east of Saline. Very light rains in the Solomon, Republican and Verdigris valleys.

The frost of the previous week caused much damage in low lands, cutting corn, potatoes and gardens. Its peculiarity was best exhibited in the corn fields, where some hills were cut down while adjacent hills were untouched.

The dry weather is telling on many wheat and oat fields. Garden and fruits are feeling the want of rain, but corn, potatoes and pastures are in good condition.

In the western counties the first alfalfa crop has generally been harvested and is in fine condition. New hay is in the market in the extreme south, being brought from the new territory south. Cherries are abundant in the central counties. Flax is generally reported in good condition: Cotton, in the extreme south, cut by last week's frost. Rye, good; barley, fair.

A Free Offer to the Sick.

Any person sick or in poor health, who will send a 2-cent postage stamp to The Flower Medical Co., 559 Columbus Ave., Boston, Mass., will receive, postage paid, their work entitled "Dr. R. C. Flower's Great Work in the Sick-Room." This work contains a description of Dr. R. C. Flower's great work in healing the sick—his treatise on sleep, eating, consumption, worry, with numerous recipes and formulas. This work should be in every household; it will relieve the sick and save thousands from getting sick. It will lift the burden of worry and bring sunshine into the darkest life.

The Kansas Weekly Capital publishes more Kansas news than any other weekly paper. A free sample copy will be sent on application to THE TOPEKA CAPITAL CO., Topeka, Kas.

ECHOES OF THE WORLD'S FAIR.

Its Revolutionizing Influence on the Agriculture of the World.

Hardly a corner of the globe is so remote that it has not felt the civilizing influence of our great World's Columbian Exposition. Thanks to it, primitive methods in manufacture and agriculture are rapidly giving way to the advanced ideas learned at the World's Fair. In no line is this awakening more pronounced than in harvesting machinery. This may be directly traced to the famous northwest harvest tour made by half a hundred foreign commissioners, last August. Already the Sultan of Turkey has ordered a Deering binder for use on his imperial domains, upon the recommendation of Hon. A. G. Asdikian, his agricultural representative at the fair; and orders are coming in from Russia, Roumania, Great Britain, Hungary, and in fact every grain-raising nation of the globe.

Hon. Sen Tsuda, the Japanese Imperial Commissioner, was so deeply impressed with harvest scenes on the North Dakota bonanza farms, that he enthusiastically wrote to the Deering people: "When I went to North Dakota to see wheat harvesting during the World's Fair, I saw your harvesters and binders operated, and am convinced that they are the best machines for harvesting that I have seen. I cannot but believe that they will contribute to the benefit of our people if introduced in our country."

BULGARIA HEARD FROM.

Professor Vulko I. Shopoff, the Commissioner from Bulgaria, a great wheat-raising country, upon returning from the tour enthusiastically wrote: "The work of the Deering binders, as seen on the great Larimore farm, surpassed all my expectations. It will give me special pleasure to recommend to our farmers to supply themselves with your machines, as thereby they will save themselves a great deal of time, labor and expense."

DEERING BINDERS IN RUSSIA.

But the effect of the American harvesting machines upon Russia has been the most pronounced. Hon. Edward Mitscherlich, the agricultural representative of the Czar, and one of the floor committee of awards at the fair, writing to Wm. Deering & Co., from St. Petersburg, says: "The prosperity of North Dakota made a striking impression on me, and I believe that the two chief factors which created this prosperity are the railroads and agricultural machinery, among which latter the most important is your self-binder. I saw hundreds and hundreds of them working day after day, without stopping. The preference which such first-rate agriculturists as the farmers of North Dakota are showing for your binders is the best testimonial of the high qualities of your machines."

As a result of Mr. Mitscherlich's recommendation, a Deering machine has been ordered by the Russian government for exhibition in the Imperial Agricultural museum at St. Petersburg.

Other Russian representatives were similarly impressed, and as a result we are told that many car loads of Deering binders and mowers have already been consigned to St. Petersburg, Odessa and other great Russian agricultural centers.

HUNGARIAN GOVERNMENT BUYS DEERING.

Hon. Ivan Ottlik, Royal Hungarian Commissioner, made a deep study of harvesting machines both at the World's Fair and among the North Dakota bonanza farms. Upon his return to Buda Pesth he so strongly recommended the Deering as excelling all others that Count Bethlen, Royal Minister of Agriculture, ordered the purchase of Deering binders on the several government estates, "in order," as he said, "that our farmers may learn the wonderful utility of this machine by seeing it in actual use."

CAPTAIN CONCAS GROWS PORTICAL.

The nineteenth century Columbus, Captain Victor M. Concas, commander of the Spanish caravels, writing from his headquarters in Cuba, says: "The magnificent spectacle which was presented before us, of forty-three of the wonderful Deering binders, is without doubt the best example of the energy of the European races which people America to-day."

FROM THE HONORABLE MASTER CUTLER.

Clear-cut as his cutlery comes a message from Hon. John F. Atkinson, master cutler of Sheffield, England, and judge of cutlery at the World's Fair. Says he: "The most interesting incident of that most agreeable and instructive trip to North Dakota was undoubtedly the witnessing of the Larimore 10,000-acre wheat field being cut by a battalion of forty-three Deering binders; and the ease and efficiency with which they did their work was most extraordinary. As a maker of reaper knives, I have seen many harvesting machines at work, but I certainly never saw any do their work as well as yours. The draught was particularly light for the amount of wheat harvested, and not a single machine was placed hors du combat the whole day from any cause."

The same features of excellence that aroused the enthusiasm of the foreign commissioners showed themselves so plainly in the exacting official World's Fair field trials, held in Colorado, that the Deering people were given sixteen out of the whole number of twenty-six awards given to the seventeen exhibitors of harvesting machinery.

Horticulture.

CULTIVATION OF THE GRAPE.

Mr. H. Claggett, of Kansas City, who a number of years ago was President of the Missouri State Horticultural Society, and who has had a great deal of experience in grape culture, gives the following, which is an extract of a paper read by him before a local horticultural society:

"The history of the grape is co-extensive with the history of man, and as the best of all the fruits it is taken as a figure to represent or correspond to the best fruits that man, in his life, should bring forth. It ought to be found in every garden or farm, and would be, to a much larger extent, if the people had a better knowledge of the means of bringing it to its highest perfection.

"As I have had many years' experience in cultivating, pruning and training it, and having attained a high degree of success, I propose to give all interested my method.

"I will first give a brief outline of the laws governing its growth and production of its fruit.

"The grape, as well as all other plants, is made up of elements collected from the earth and air. That which the root collects from the earth can make no part of the living tissues of the vine till they pass up into the leaves and there meet and combine with elements drawn from the air and breathe the breath of life. Therefore, the leaves, to perform their functions fully, must have free access to fresh air and light. The land must be in a proper state of fertility, and the ground stirred to the proper depth, that the roots may easily spread in it. The branches from the mother vine, which are to bear the fruit, should be so pruned and trained as to give the leaves access to air and light. As the same wood bears but one crop we must have two sets. While one set is bearing this year we must raise from the buds another set to bear next year. In planting a vineyard the rows should run north and south, as the currents of air are mostly in that direction. The best method to train the vines is on a trellis, which may be made by setting posts five feet or more above the ground. The first post should be set four feet outside the first vine and the rest sixteen feet apart, midway between the vines, on which should be fastened three wires, the first two feet above the ground, the second eighteen inches above that, and the third at top of the posts. There should be but two bearing canes to each vine yearly. The pruning should be done in winter or early spring before the sap starts.

"The canes that bore last year should be cut down to one bud from which to raise canes for next year's bearing, and the canes raised last year cut at the proper length and trained in opposite directions over the middle wire and brought down in a hoop form and fastened to the first wire so as to have a space of a few inches between it and the cane from the next vine.

"The summer pruning should receive prompt and careful attention, as upon that largely depends both the present and the next year's crop. When the buds start select two for next year's bearing.

"As these two vines grow they should be trained up about six inches apart to the top wire and turned on the wire in opposite directions, and pinched off near midway to the other vine. All the suckers that come out of these shoots should be rubbed off up to the top wire, the point where it should be cut off for the next year's bearing, and the suckers on the top wire allowed to grow, and they will have free air and light to do their work and form a beautiful canopy over the bearing vines.

"The number and size of the blooms that will come on each branch of these vines is fixed in the bud before the cane drops its leaves in the fall, and no pruning the next year can increase them, but it may bring more of them to perfection of a larger size. When a bearing branch starts out and there are three leaves on it and no bloom, rub it off, there will be none; and when the

blooms appear on the branch there will be one opposite each leaf, and when a leaf appears without any bloom on it, there will be no more on that branch. Pinch it off. As the branches advance in growth the blooms will appear opposite the second or third leaf. When a leaf appears with no bloom opposite, there will be no more blooms on that branch, and the bud should be pinched off near the leaf, or not more than one left beyond.

"The suckers, where there are no grapes, should be rubbed off; as the buds do not all put forth at once, it is necessary to go over the work of pinching several times to do the work properly.

"The sooner the branch is pinched off when beyond the last bloom, the better, as the material that would extend the branch if stopped will increase the size of the forming leaves that are to feed the grapes, and the broader the surface of the leaves the more food they can prepare. This is demonstrated by the fact that the larger varieties of grapes have smaller leaves than the smaller varieties. When the suckers appear opposite the bloom, let them grow till you can pinch them off, so that only one will remain. Two leaves will then be left to feed each bunch of grapes. All suckers, where there are no blooms, should be pinched off. Children, either boys or girls ten years old, can be taught in a few minutes to do this summer pinching.

"Those who have arbors in their yards or gardens may prune on this general principle and train the bearing canes in the space between the vines where it will be convenient to do the pinching, gather the grapes, and thin the canes for next year's bearing over the top of the arbor. By properly raising two canes from each vine as directed, they will lay the foundation for a full crop the next year. By allowing more than two canes to grow for the next year's bearing you increase the labor and diminish the crop; instead of three or four large bunches on each branch you will have one or two small ones, and if those who have pruned and trained on a different method will cut away the canes that have borne, and select the best of the past year's growth, and raise two from each vine for next year, they will get a full crop and have their vines in good shape.

"If any one doubts the advantages of this method he has only to try it on a portion of his vines, carrying it out to the letter and compare results. It may be well for all who have vines or intend to have them to paste this in their scrap-book."

Thinning Fruit.

A prolonged discussion took place on this subject at a recent meeting of the Ohio State Horticultural Society, in which some interesting as well as diverse views were represented by several members. S. D. Willard, of Geneva, N. Y., strongly recommended the practice at the end of the blossoming. The work should be commenced at the time of the droppings, and the operation should be thoroughly or severely performed. He has all varieties of fruit thinned, even cherries.

Mr. Johnson, of Ottawa, took an adverse view, and said thinning could not be performed without a great deal of labor. Mr. Counter, of Lucas, thins by cutting away fruit buds in winter. Mr. Miller said the fruit must be picked any way. He would rather pick a portion of it early, and thus get merchantable fruit in its season.

Mr. Cushman, of Cuyahoga, thoroughly thinned his Lombard plums, and in this way obtained handsome, merchantable fruit, while the unthinned fruit ripened unevenly and was very small and almost unsalable. Mr. Farnsworth found the Lombard strongly liable to rot unless thinned so that the fruit does not touch.

The substance of the discussion was that fruit liable to set thickly on the branches requires thorough thinning as a matter of necessity, to prevent rotting on the trees and to give a fine growth to the specimens. With the thin-bearing varieties the operation is less essential.

Get up a club for the KANSAS FARMER.

REMEMBER there are hundreds of brands of White Lead (so called) on the market that are not White Lead, composed largely of Barytes and other materials. But the number of brands of genuine

Strictly Pure White Lead

is limited. The following brands are standard "Old Dutch" process, and just as good as they were when you or your father were boys:

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If you want colored paint, tint any of the above strictly pure leads with National Lead Co.'s Pure White Lead Tinting Color, a pound of color to 25 pounds of lead. The best merchants sell them, the best painters use them.

A good many thousand dollars have been saved property-owners by having our book on painting and color-card. Send us a postal card and get both free.

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All complete. Ready to apply. Including Red or Black Paint! Anyone can put it on. Absolutely water-proof. Strong and durable. Put up in rolls of 250 and 500 square feet each.

For Wood and Shingle Roofs, Barns, Out-Houses, Etc., Etc. **RED AND BLACK CREOSOTE PAINT.** Guaranteed to outlast any cheap paint made. Write for circulars and samples; mention this paper. **WE PAY THE FREIGHT!** W. E. CAMPE ROOFING & MFG. CO., Kansas City, Missouri.

Entomology.

The Apple Leaf-Crumpler.

BY E. A. POPENOE, STATE AGRICULTURAL COLLEGE.

I have just returned from my farm in Labette county. While there I spent as much of my time as I could in the orchard. The soil has been well cultivated and is fairly free from weeds and grass. The trees are, at a short distance, green and fresh looking, but upon closer inspection I find almost every twig has at its outer end such a worm's nest as the enclosed. The trees needed trimming very much and I gave such attention as I could to them in that way. I need not state that the trees are apple trees. If you can suggest a remedy I should be glad to have it. Any suggestions that you may have as to the treatment of the orchard, especially with reference to spraying and the solutions to be used, would be acceptable.

Lawrence, Kas. JOHN N. MACOMB.

Answer.—The worm's nest proves to be the larval cases of the apple leaf-crumpler (*Acrobasis indiginella*) with the entangled leaves, as characteristic of this troublesome insect. The adult is a small grayish moth, expanding about an inch, and not nearly so often seen as are the untidy leaf bundles that shield the larval case. The eggs are laid in summer upon the apple leaves, and hatching, disclose the minute larva, which at once prepares the foundation of its case. This it does not leave until it becomes a moth, and, as necessitated by its own growth, it enlarges the case from time to time, building on a broader mouth, until finally the irregularly-curved case is perhaps an inch or an inch and a half in full length. At all times the contiguous leaves are enfolded around the case by means of the silken cables which the larva spins, and upon the inside of this shelter of leaves the larva feeds secure from observation. The growth of the first season brings the larva to about half its ultimate size, and fastening the case securely to a twig, it remains therein throughout the winter, awakening early in the spring to begin feeding upon the new growth of the season. Attaining full size within a few weeks, it withdraws into the case, transforms into a pupa, and shortly appears as a moth, to pair and to lay the eggs for another generation of the case-building larva. Such is the outline of its life history; and its treatment is easily deducible from the facts. The simplest remedy is the spraying of the leafing trees in spring with Paris green in water, one ounce to fifteen gallons. As the larva feed upon the leaves, they secure enough of the poison effectually to stop their work. Where the trees are regularly sprayed against the codlin moth, the same application will destroy the crumpler also, and in orchards regularly sprayed the latter insect does not exist. A spraying at this date would destroy all larva not yet transformed.

Whiskers that are prematurely gray or faded should be colored to prevent the look of age, and Buckingham's Dye excels all others in coloring brown or black.

June Notes.

Crowd the cultivating.
Keep the soil in good tilth.
Do not lay the corn by too soon.
Get everything ready for harvest.
Crowd the hogs intended for market.
Sell the cull sheep as soon as they are fat.

Cut clover just after the plants are in full bloom.

It is not too late yet to plant or sow a soiling crop.

Sweet corn may be planted this month and yet return a good crop.

In many cases it is the last cultivation that is the most profitable.

Be ready to harvest the wheat when the grain begins to harden well.

Poultry hatched after hot, dry weather sets in rarely thrives well.

Let the condition of the crops determine when the cultivation shall cease.

Considerable loss is often occasioned by allowing clover and grass to get too ripe.

Better hire a little extra help than to allow the work to get behind at this time.

Generally, with the poultry, all of the hatching should be finished up this month.

Good machinery properly handled lessens the cost as well as the risk of harvesting the crops.

This is a good time to plant cucumbers for pickles, sweet corn for drying and late squashes for winter.

Leaving the soil reasonably level and in a good tilth will aid materially in retaining moisture in the soil.

It is only in exceptional cases that it will be advisable to attempt to fatten stock after hot weather sets in.

After a crop has matured all reasonable care should be taken to harvest in good season and to store away in good condition.

The latter part of this month it will be a good plan to mulch carefully all newly set trees, whether fruit, shade or ornamental.

Give the work teams a little extra attention as the weather gets hotter and drier. Harvest work is usually hard upon them.

If not properly protected it will be best to commence making regular looks for the borers, especially with the young apple trees.

It will be found a good plan to clean out the lofts, bays and granaries thoroughly before harvesting and storing away the new crops.

The best not only sells the readiest but brings the highest prices, hence it is very important to use all reasonable care to have the best with all products.

One of the important items in securing a steady gain with stock during the next three months consists in making them comfortable; provide good pasturage, good shade and good water.

Eldon, Mo. N. J. SHEPHERD.

When writing our advertisers please mention the KANSAS FARMER.

In the Dairy.

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

Salting Cows.

Salting the cows is one of the little things that is sometimes lost sight of under the pressure of other and what is regarded as more important work, but a trial recently made at the Mississippi Experiment Station indicates that inattention to this point may be a rather expensive oversight. Three cows were kept without salt for four weeks and their milk record kept during the last two weeks of this period; then they were given the usual allowance of salt for two weeks, and on comparing the milk records it was found that the cows gave 454 pounds of milk during the first period when salt was withheld, and 564 pounds during the second, when salt was furnished, a difference of 110 pounds of milk in two weeks in favor of salting.

Fraud the Basis of Their Traffic.

The oleo combine are still advertising the beauties of their product in the daily papers of Chicago, and now and then they do manage to work into their announcements some very specious but highly delusive statements, as, for instance, the following:

"If you can't tell the difference, what difference does it make?" is what a bright lady said when told she had been eating Jersey butterine for a year and all the time thought it was creamery butter."

It is strange that the logic of such a position was not apparent to the oleo makers before they gave it publicity. Here is an admission on their own part that the lady in question had been deceived into buying butterine as creamery butter for a whole year, and as a matter of fact during all that time had been swindled into paying butter prices for a hog product. And yet they seek to gloss over the deception by making it appear that the lady didn't care, treated it as a sort of good joke, inasmuch as she was unable to discover the difference. If the lady had been as bright as the oleo people would have one believe, she would have at once brought suit for damages and made it pretty warm for the swindlers who had thus imposed upon her and robbed her of her money. The incident, however, serves to convict the combine out of their own mouths of the fraud they are perpetrating upon the public, and illustrates their own utter lack of moral business principles. Rigid laws can only protect the public against such frauds.

English dairymen have come to the conclusion that a grass farm is not the best for their business. On an arable farm they can get a succession of crops which are the best dairy food and can procure 50 per cent. more of food suited to dairy cows than by keeping the same area in grass. This, and the English method of feeding by which root crops and soiling are made to play a prominent part, are worth consideration by our own dairymen.

Vice President Morton's new barn at his Ellerslie farm, Rhinecliff, New York, is constructed to exclude as well as admit sunlight. The blinds are so arranged as to afford protection from cold, darken the building, or serve as awnings over the windows. This is an especially desirable feature in barns for summer use. A barn should afford protection and comfort in summer as well as winter. To do this it must be readily darkened and kept cool. Very many barns afford neither of these and furnish no immunity from flies, and it is a positive relief for animals to get out of instead of into a barn of this kind in warm weather.

Well indeed may the American Jersey Cattle Club express by formal vote its appreciation of the work of its World's Fair committee. It accomplished the work appointed to be done. The history of campaigns records none more skillfully and successfully conducted. Evidently the effects of the Jersey triumphs in the Columbian

dairy tests are tangible. Transfers for the past year show an increase of 13 per cent. over those of the preceding year. It is a matter of regret that President Sibley declined to serve the club longer, but a matter of congratulation that he is succeeded by so good a man as Mr. Elmer A. Darling.

A practical dairyman at a recent farmers' institute said: "The dairy cow of to-day is a long ways transformed from the cow that Abraham owned. The great producing modern cow is the result of fussing. Does it not pay to fuss with a cow; give her warm stables; keep her clean; give her cow's food in abundance and work her for the profit? A cow that is hardy enough to stand a Western blizzard only gives a teacupful of milk, because she is existing under natural conditions. The fact is, the more artificial a cow is made the better producer she is. If we followed nature we would let this cow run in the woods and allow the calf to suck, cure cow hides in the barn and eat oleo on our bread."

To use a favorite expression of Horace Greeley's, "if mathematics is not a lie and reason a fool," the dairyman who raises his cows will have a better herd than he who takes what his neighbor doesn't want.

The Poultry Yard.

What Ailed the Hen?

EDITOR KANSAS FARMER:—I have known of two or three parties who have had setting hens hatch out a brood of chickens, and when the chickens were a week or so old and in healthy condition, the mother hen, with no apparent cause, would lay down and die.

This happened with a neighbor's fine Plymouth Rock hen a day or so ago. He asked me the cause. As we are sure it is not vermin, I ask if there is not such a thing as a hen having such strong maternal instincts, that it will deprive itself of sufficient food during the setting period and after the hatch is over, that it does not eat enough to exist on? The dead hen was as light as a feather. Her chickens, as I said, are healthy and active; not one of them has died. In this particular case, the hen in question fought a little during the setting period. Would your expert poultryman throw some additional light on this subject? Kansas City, Mo. D. M. TODD.

How to Select Turkeys for Breeding.

Select the handsomest, largest, best formed, straight-limbed, full-breasted, broad-backed, large-boned, early June hatched birds, says the *Poultry and Stock Review*. It is now conceded by poulterers that young turkey hens early hatched are the most valuable, better mothers, and a larger per cent. of their eggs are fertile.

Gobblers and hens should be kept through but a single season and disposed of the coming Thanksgiving, when if properly fed they are fully developed, and their weight is the greatest it will pay to make it. Gobblers with age become cross, arrogant and cussed, attacking children many times injuriously. Farm them off when their presence is a menace, expensive and burdensome, and their term of usefulness has expired.

The years past are but few when each neighbor boasted of the prowess of his old gobbler and the speed with which he could put the boys and girls to flight. It pays to keep them but one season—this is not theory, but practice.

Leg Weakness in Chicks.

Leg weakness in chicks is usually the result of too highly concentrated food and too little exercise; also, too much heat in the brooder often pre-disposes to that trouble, completely debilitating them, and crowding is as often caused by too much heat as too little. When chickens show symptoms of leg weakness give them a little milk to drink and feed them sparingly on coarse oat meal, millet and cracked wheat, scattered among the chaff, compelling them to dig for it. A little exercise that

way, with plenty of green food, will stimulate the digestive organs and often throw off the trouble. I do not believe in cooked food or other nostrums for chicks. They are not a ruminating animal, for every one has a little mill of his own to grind his food, and if you can only keep him trotting he is all right. Chicks which matured but died in the shell, are sometimes caused by fluctuating heat during the hatch, debilitating the chick so he has not strength enough to get out, but oftener by too little moisture; the egg being partly evaporated, the inside lining is toughened like leather, and clinging around the little fellow and fairly shrunken to him, he cannot extricate himself. You cannot get too much moisture the last week of the hatch.—*Poultry Chum*.

Small Scale Hen Farming.

While "hen farming" on a large scale is coming to be such an important industry, says a lady writing to the *Rural New Yorker*, much more should be said of "hen farming" as one of the important "littles" that go to make up success in farming. If the few hens that wander about on so many farms without a "local habitation" and considered only a nuisance, were given a tithe of the care bestowed on the rest of the "stock in trade" of the farm, many a welcome dollar would be added to its treasury. While with us hens are only a side issue, cared for and managed by the women of the family, our record for one year, with only twenty-nine hens, reads thus: Cash received, \$50.45; eggs sold, 221 dozens; average price per dozen, 17½ cents; average eggs per hen, 113. On account of the extra work, we do not keep account of the feed, but I believe \$1 per hen is considered a fair estimate, and as we used about forty-five dozen eggs, value \$7.67, and had all the chickens we wanted to eat in a family of six, beside the droppings for fertilizing purposes, I estimate that these hens brought in considerably more than \$1 apiece clear profit. Much that was fed them would not have been utilized in any other way. Our hens have a comfortable, roomy house, which is kept clean; have a variety of food, pure water to drink, and as conscientious care as the other stock on the farm.

As to breed, I believe that good care will make a success of any breed, but we sometimes feel that the breed we value highly—the Colored Dorkings—is neglected in the poultry articles. We find them fair layers, good mothers, not persistent sitters, and a delicious table fowl, having a large percentage of white meat. In dressing an eight-months-old cockerel last winter, I was tempted by the size of the breast to weigh it, and found it weighed one pound and a quarter. This breed is quite likely to lay while moulting, and does not stop at every cold snap. We prefer them to the so-called laying breeds, as the surplus cockerels will weigh two pounds when two months old, and can be sold to our local dealers at a good price. If we wish one for our own table, we find something besides bones, feathers and comb. In these times, success with most of us depends on making the most of all the "littles" in farming, as but few can undertake the big enterprises.

Disease is cured, not by magical incantations, but by medical science. Hence it is that Ayer's Sarsaparilla cures, and that it proves so eminently successful. It is a skillfully prepared and strictly blood purifier and tonic, the only one admitted at the World's Fair.

"For Years,"

Says CARRIE E. STOCKWELL, of Chesterfield, N. H., "I was afflicted with an extremely severe pain in the lower part of the chest. The feeling was as if a ton



weight was laid on a spot the size of my hand. During the attacks, the perspiration would stand in drops on my face, and it was agony for me to make sufficient effort even to whisper. They came suddenly, at any hour of the day or night, lasting from

thirty minutes to half a day, leaving as suddenly; but, for several days after, I was quite prostrated and sore. Sometimes the attacks were almost daily, then less frequent. After about four years of this suffering, I was taken down with bilious typhoid fever, and when I began to recover, I had the worst attack of my old trouble I ever experienced. At the first of the fever, my mother gave me Ayer's Pills, my doctor recommending them as being better than anything he could prepare. I continued taking these Pills, and so great was the benefit derived that during nearly thirty years I have had but one attack of my former trouble, which yielded readily to the same remedy."

AYER'S PILLS

Prepared by Dr. J. C. Ayer & Co., Lowell, Mass.
Every Dose Effective

HIRES' Rootbeer

makes the home circle complete. This great Temperance Drink gives pleasure and health to every member of the family. A 25c. package makes 5 gallons. Be sure and get the genuine. Sold everywhere. Made only by The Chas. E. Hires Co., Philada.

Send 2c. stamp for beautiful Picture Cards and Book.

MEN OF ALL AGES

may be cured. We eat all sexual disorders of men. Four out of five who suffer nervousness, mental worry, attacks of "the blues," are but paying the penalty of early excesses. The dread alarm of Impotency, the exhaustion of Spermatorrhea, may be cured in strict confidence at moderate expense. Send for our free sealed book, "PERFECT MANKHOOD."

ERIE MEDICAL CO., BUFFALO, N. Y.

"Like a grand electric light over fitting Jack O'Lanterns THE ERIE MEDICAL CO. FANY glows above the host of advertising quacks that come and go."—*People's Medical Monthly*, Buffalo, N. Y.

BARRED PLYMOUTH ROCKS

If you desire to purchase fowls or eggs of this breed from the choicest stock in America, send for large illustrated catalogue and price list, which will be sent free. Will send a beautiful little chromo of a pair of P. Rocks for 4 cents in stamps. Elegant breeding cockerels for sale cheap. Address, GEO. T. PITKIN, 3438 Rhodes Ave., Chicago, Ill.

De Laval Baby Separator.

Creamery Package Mfg. Co.,
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Baby Separators,

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and CREAMERY SUPPLIES

of every description—the largest and most complete stock of Dairy and Creamery Goods in the West—Send 10c Postage for our Large Illustrated Catalogue.

The Apiary.

Edited by REV. E. T. ANNOTT, St. Joseph, Mo., to whom all communications relating to this department should be addressed. Inclose a stamp if you desire a reply by letter. We invite questions and communications from any of the readers of KANSAS FARMER who may be interested in bee culture.

Bee Lore.

IMPORTANCE OF BEE-KEEPING.—At the late California convention, Mr. Francis W. Blackford, in an essay on bee-keeping, among other facts, said that the annual value of honey in the United States is close upon \$100,000,000; and the number of colonies of bees kept by apiarists equaled about one-fifth of the number of sheep in the United States. This would place the number of colonies of bees at 9,000,000, which, at an average value of only \$3 a colony, would represent an investment of \$27,000,000 in bees alone. It seems to us that if these figures are anywhere near the truth, bee culture is deserving of a great deal more recognition than it is now receiving at the hands of the national and State governments.—*American Bee Journal*.

It at least deserves more attention from the general public, for but few people who have not given the subject special attention realize the importance of this industry and the possibilities of largely increasing the general wealth which it offers to the farmers of the country.

"Fitness of person" is taking the highest rank in the bee business in the place of honey-producing hives and fixtures.—*American Bee-Keeper*.

This always has been and always will be true. There has been no greater humbug connected with the bee business than the idea that the kind of hive or appliance used increased the amount of honey gathered by the bees. This idea was no doubt started by the patent hive people, and it has gotten such a hold on the minds of many that it is very hard to make them believe that it is all a mistake. One hive may be more convenient than another, or may give one the honey in better shape than another, but the hive has nothing to do with the quantity of honey, if the bees are looked after and manipulated properly.

By putting up good honey in handy-sized packages, and then by taking a little trouble to introduce your honey into the families who are able and willing to pay for a good article, you can build up a good home trade. Then by square dealing it is easy to hold it. *Nebraska Bee-Keeper*.

Now is the time to look after the honey package. The farmer who turns old starch boxes over his hives for the bees to store surplus honey in will get as much honey as his neighbor, perhaps, but he will stand no show with that neighbor when he goes into the market with his honey all broken and running over everything, if his neighbor has taken pains to have his honey stored in handsome pound boxes and has cleaned and sorted them carefully before going to market.

Friend Alley says, "Let your bees swarm; they'll do better if you do." Granted; but will he tell us how to run half a dozen out apiaries, miles apart, all swarming at the same time, and no competent help? No doubt he'll growl out, as he has done on former occasions, "Drone traps, drone traps;" but "honest Injun," friend A., will it work on a large scale? I seriously doubt it.—*Progressive Bee-Keeper*.

I do not know what answer friend Alley would make, but I would say, do not run them. One apiary is all the average bee-keeper needs. If the specialist who thinks himself an expert and very scientific wishes to run more, let him devise ways and means suited to his own ideas and methods. There are very few who will want to follow out his plans.

I wish to go on record that to advance the idea of ripening honey artificially, as it has been advanced, is injurious to the bee-keeping industry, besides it is impractical.—*Canadian Bee Journal*.

This is my idea, exactly. The less artificial work there is about any kind of honey the better the honey; natural methods are the best methods in the apiary. The longer any kind of honey is left in the hive, the better the flavor and quality. It may not improve the looks of comb honey to leave it on too long, but it surely will greatly improve

the taste of it and its keeping qualities. As to extracted honey, it is very hard to secure first-class honey of this kind if it is not left in the hive until it is sealed over and thoroughly cured.

Clydesdale Showing.

EDITOR KANSAS FARMER:—The American Clydesdale Association has reason for congratulation on the continued liberal patronage that has been given this aggressive organization.

The breeders of Clydesdale horses have always been noted for their enthusiasm, which was fused into a white heat by the incomparable exhibit of Clydesdale stallions and mares made at the World's Columbian Exposition. The general depression in business that has so nearly paralyzed the trade in improved stock has evidently not had the effect of discouraging the breeders of Clydesdale horses. Volume VIII of the American Clydesdale Stud Book, we learn, will close early in June with the full number of pedigrees, which announcement will doubtless be a surprise to some breeders who expected that the usual number of registrations would not be filed for months after the regular time. Breeders of Clydesdale horses have had little or no competition from importers during the past few years, and from present prospects the home demand for stallions of this breed is likely to be supplied by the proprietors of studs residing in Canada and the United States.

The sentiment prevails quite generally among the leading breeders of Clydesdale horses, that an improvement in the demand for stallions and mares may soon be expected. It is predicted that the breeders who retain their best bred and most promising colts can confidently count on better prices and a more active demand when the next season opens.

Clydesdale breeders confidently assert that there is no more staple product of the farm than the Clydesdale horse, and that the demand for the same will be active with the first indication of the upward tendency in the general business of the country. Breeders who desire to have their stock recorded in Volume VIII of the American Clydesdale Stud Book will serve their interests by filing applications for entry without delay with the Secretary.

CHARLES F. MILLS, Secretary.

Springfield, Ill.

The Champion Stacker.

Since the invention of the mower, there has never been a machine that has done more to reduce the cost of handling hay than the broad sweep sulky hay-gatherer and stacker. That a field of ten acres can be put into a stack in ten hours with the labor of two men and two boys is almost incredible to those not accustomed to the use of these machines.

The stackers that are now on the market are made on two principles. What is termed the over-dump stacker takes the hay from the rake and by means of a combination of levers, raises it up, throwing it completely over the framework of the stacker, something after the style of a woman casting stones at the disturbing elements in her spring onion bed. If mankind had made an effort to devise a better method of scattering hay to the four winds of the earth, it would have been hard to improve on this one, as the elevation of the hay places it in such a position that, irrespective of the position of the wind, it is carried to the surrounding territory, and as said, deposited almost anywhere except on the stack.

The "Champion" Stacker, manufactured by the Famous Manufacturing Co., of Chicago, Ill., is built strictly on common-sense principles. The hay is lifted to the proper height, be it one foot or the height of the stack, no higher than is necessary, and may be deposited at any point on the stack, the only duty of the stacker being to indicate at what point the hay is desired to make the stack uniform and symmetrical.

The "Champion" Three-wheeled Broad Sweep Sulky Hay-Gatherer, as well as the "Peerless" Two-wheeled Sulky Hay-Gatherer, are too well known to need any praise in these columns. Each of them has sixteen teeth, which are metal-pointed if desired, and rakes a swath twelve feet in width, and on account of the close proximity of the teeth, by the use of a bent backing-pole, insures perfectly clean work in the shortest of hay. The neck-yoke strap ring is directly in front of the animal, so the rake is easily backed without danger of choking or hanging.

These goods have been sold in this territory for the past ten years, and their continued use is the best testimonial of merit. The price at which they are sold is within the reach of all, and even those who have but a small patch of hay cannot afford to delay further investigation of these labor-saving machines.

Any communication addressed to the Famous Manufacturing Co., Chicago, Ill., will secure full information regarding these machines, as well as their complete line of hay machinery, and the justly celebrated "Champion" Baling Presses.

The Family Doctor.

Conducted by HENRY W. ROBY, M. D., consulting and operating surgeon, Topeka, Kas., to whom all correspondence relating to this department should be addressed. Correspondents wishing answers and prescriptions by mail will please enclose one dollar when they write.

Answers to Correspondents.

(NUMBER 26.)

DR. ROBY:—I have a son who had la grippe four years ago, and it settled over his right eye. On right hot days in summer it gives him lots of pain. (2) He has smothering spells. He will be walking all right, when suddenly his heart seems to come in his throat and things turn blue for a minute and the palpitation of the heart is very fast. Please answer through "Family Doctor."

W. B.

Peterton, Kas.
Give drop doses of glonoine 6x, three times a day.

DR. HENRY W. ROBY:—I am suffering from nasal catarrh and catarrhal deafness, as local physicians have told me. One said it was liable, ere long, to eat through the dividing septum of the nose. Another said it was liable to form an abscess at the base of the skull. I am nearly, if not quite, deaf in one ear, and can only understand common conversation at a distance of a few feet when distinctly articulated. Some persons I can hardly understand at all. The only remedy I have tried is a nasal douche of chlorate potash, which seems to help my nose, but not my ears. As I am a young farmer and enjoy a farmer's health, I think there should be some cure for me. I would like to be relieved of the deafness, at least. If it is beyond your province, will you kindly direct me to some reliable specialist or remedy not beyond the reach of a poor man? Please answer through the KANSAS FARMER and oblige one who will remember you if you can do him good.

La Harpe, Kas.

A. T. ELLISON.

There is a possibility of catarrh ulcerating through the septum or partition between the two nostrils, but no possibility on earth or in heaven of its forming an abscess at the base of the skull or any other base. It was a base insinuation based on lack of anatomical knowledge to even suggest such a thing. And you will be a base and gullible farmer if you take any stock in such baseness. The base of your skull is all right. Your catarrh can be cured. The treatment that will do most good probably you will not find ready to hand in the small towns, so you will save time and expense by sending to me for it. I can get it prepared here for you better and cheaper than you can do it yourself.

DR. ROBY:—Won't you devote a little space in the "Family Doctor" to the cause, cure and prevention of the very common disease we call biliousness? Also, what is biliousness? Is there any place on this terrestrial sphere where the people are nearly or entirely free from that disease? I have not been entirely free from it for eight or ten years and have taken medicine most of the time.

J. O. BUTLER.

Tecumseh, Kas.
Biliousness, like charity, covers a multitude of sins. It is a term usually applied to a variety of symptoms, such as headache, loss of appetite, distress after eating, constipation or diarrhoea, "that tired feeling," or malaise, which is sometimes also called "spring fever." Originally the term was applied to those disorders caused by increased or diminished flow of bile. When more than the normal quantity was poured from the gall sac into the intestines it produced diarrhoea, called bilious diarrhoea. That was often associated with sympathetic headache called bilious headache. When there was a deficiency of bile the bowels were not sufficiently lubricated and thus became torpid, setting up constipation and headache with inappetency, all of which were called "bilious." Then, again, if the gall became too thick and crystallized into little gravelly stones, which were often too large to pass easily through the gall duct into the bowel, it gave rise to excruciating pain called bilious colic. But in later times we are prone to call nearly all forms of indigestion or faulty nutrition biliousness, until it comes to pass that the term has no meaning at all except that "something is the matter." At the present time the whole complex of disorders arising from dissipation, gluttony, overwork and under-sleep, the abuse of various functions, deficient and non-nutritious food, irregular eating and drinking, are spoken of as a state of biliousness. As there is no place on earth where folly and ignorance do not prevail, so there is no place on the planet where biliousness does not hold carnival among the genus homo. And that king of all peoples will not abdicate his throne in the frame and constitution of man until universal intelligence teaches all men how to live in obedience to the laws of health. As long as gluttony and drink and dissipation and sexual and mental excesses prevail, so long will this king reign over the race.

DR. ROBY:—Please tell me what is the trouble with my baby. She is five months old. Has been vomiting considerable ever since she was born. What comes up is sometimes sweet and at other times sour. The last week other troubles present themselves. The stools in color are greenish and curdled, streaked with blood and much

Comfort

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25c worth is a fair trial—and your money back you want it—a swob with each can.

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VACUUM OIL CO., Rochester, N. Y.

slimy matter. Her bowels do not move often. Has no fever, unless it would be inward. Has a slight cough. Sweats freely. Has always looked puny. Is of a nervous temperament. Has no teeth yet. Is the trouble with stomach or bowels, or both, and would you advise weaning? It might be necessary to say my own health seems fairly good, but have no ambition.

Bird City, Kas. MRS. R. J. P.

Scrofulous children often throw up their food soon after nursing, and others do at times when not fed properly. Many mothers nurse their children every time they cry or fret a little to pacify them, and some mothers even think the child hungry all the time, and that its fretting is due entirely to that cause. Hence the babies get stuffed to constant repletion. The result is a good many puking, puling, puny babies, who plague their mothers very justly for the abuse they get all unconsciously from their doting mothers. No mother's stomach could possibly be healthy in its action that was kept constantly on the jump, day and night, digesting a race with the feeding process. Every stomach to work healthily must feed and rest, feed and rest, at the proper intervals, just as people must sleep and wake, sleep and wake, to be well rested and refreshed. Rest is refreshment to a stomach as well as to a body. You have probably nursed the child too frequently, ever since its birth, and thus created the nervous condition complained of.

Now, if you will just change all your habits along that line and only nurse the child once in three hours, no matter how much it frets or worries, and do that regularly, you will find that in a couple of weeks the baby will be better and that it will keep on doing better as long as you feed it correctly.

For the disorder already set up send me \$1 and I will send suitable remedies, that will help to cure the underlying disorders of constitution. Then it will get well and remain so.

Capital \$4,000,000.

The President of the Aetna Loan Association, St. Louis, Mo., writes: "My mares that were barren are now in foal by the use of the Perfect Impregnator, sold by the Specialty Manufacturing Co., of Carrollton, Mo."

Leasing Oklahoma School Lands.

All persons wanting to lease school land in Oklahoma will be rewarded by sending for a free sample copy of the HOME, FIELD AND FORUM, Guthrie, Okla., the leading agricultural paper of Oklahoma Territory.

Its either Direct Legislation through the INITIATIVE and the REFERENDUM or another Revolution. Which shall it be? For books, information and plan write W. P. BEUSH, Topeka, Kansas.

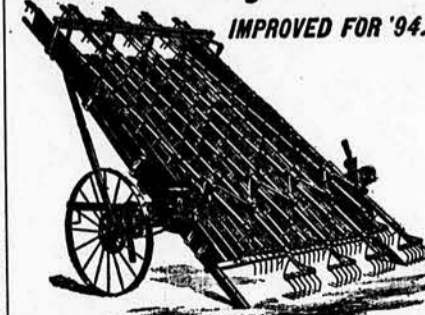
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Doors—All kinds Building Material. Purchasers
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FISH

always bite if you use Zampa Compound on your bait. Works on any kind of bait, and attracts all kinds of fish. No more bad luck if you use Zampa. 25-cent box lasts all summer. Sent by mail by ZAMPA CO., 38 Court St., Boston, Mass.

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IMPROVED FOR '94.



SUBSTANTIALLY BUILT. Light, Strong and Durable. Adapts itself to uneven ground. Works equally as well in light and heavy hay. DIRECT CLEARING. RAKES FEET. 6-TINE FORKS.
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ST. LOUIS, OMAHA, DES MOINES, KANSAS CITY, DUBUQUE, DALLAS, TEX.

The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the KANSAS FARMER.

FLIES ON JACK.—I have a jack and the flies seem to leave all other stock and go to him. Can you tell me how to keep them away from him?

A FREAK OF NATURE.—I have a fine Jersey heifer, 7 months old, with two of her teats grown together. Is there a remedy? Is it hereditary?

Answer.—If each teat has a separate milk duct not connected with the other a good surgeon might separate them successfully.

Gossip About Stock.

The noted Bates bull, Waterloo Duke, which was used so successfully in the Short-horn herd of Hon. G. W. Glick, Atchison, Kas., was recently sold to J. G. Morrill, of Atchison county, who had his barn burn and this famous sire was lost with it.

Our wool commission advertisers, Silberman Bros., make the welcome announcement to our readers that after they receive consignments they will advance 90 per cent. of its present market value, feeling confident that there will be no further material decline in prices.

Judge G. W. De Camp, of Allen, Lyon county, gives the following specific to relieve cattle from the ravages of the horn fly pest: "Take ten gallons of cottonseed oil or any kind of lubricating oil; one pound of carbolic acid; two gallons of pine tar; two pounds of sulphur; two pounds of copperas; boil for an hour, stirring well.

The Chicago horse market for week ending Tuesday, May 22 1894.—F. J. Berry & Co. report a steady increase in the demand. Receipts were light during the first half of the week, though they have been much more liberal during the past two or three days, and there is now a very firm tone to the market.

Shannon Hill stock farm, owned by Hon. G. W. Glick, Atchison, Kansas, is promoting the cause of improved stock by affording every farmer a chance to secure extra well bred Short-horn cattle at prices to suit the times.

Horse Owners! Try GOMBAULT'S Caustic Balsam. A Safe Speedy and Positive Cure. The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action.

WOOL DOES WOOL GROWING PAY? That depends upon how you sell your Wool. If you ship it direct to market and to the right house, "It does Pay."

SUMMERS, MORRISON & CO., Commission Merchants, 174 So. Water Street, Chicago.

cows and their calves to C. M. Irwin, of Wichita, Kas.; one is 4th Lady Bates of Shannon, by Waterloo Duke of Shannon Hill 89879. Then in succession in her pedigree comes the 29th, 26th and Imp. Duke of Aldrie, she tracing to Imp. Filbert.

Kansas City Stock Markets.

Our correspondent at Kansas City writes under date May 24:

"Our receipts this week 19,200 cattle, 57,600 hogs, 11,100 sheep, against 24,400 cattle, 50,900 hogs and 10,900 sheep the previous week; and 22,700 cattle, 41,900 hogs and 16,400 sheep the same week a year ago.

"Our receipts to-day, 3,460 cattle, 70 calves, 9,615 hogs and 1,521 sheep.

"While our cattle receipts were 5,000 less than previous week, prices have been no better, and in certain classes lower. All medium fat cattle, both steers and cows, some lower, and the light fat steers and heifers are a little lower; medium fat cows and grassy cows and heifers 25 to 40 cents lower, and it is now time of year that they will go lower.

"Hog receipts about 7,000 above last week and prices about 10 cents lower than a week ago. Tops to-day, \$4.67 1/2, against \$4.80 last Thursday.

Horse Markets Reviewed.

KANSAS CITY.

W. S. Tough & Son, managers of the Kansas City stock yards horse and mule department, report the market as showing the usual depression at this time of year. Monday trade opened up very weak. Buyers were extremely cautious and would bid on nothing but a good horse.

Mule market fairly active. Not much trading; but those that changed hands were strong at quotations.

MARKET REPORTS.

LIVE STOCK MARKETS.

Kansas City.

May 23, 1894.

CATTLE—Receipts, 3,828 cattle; 27 calves. Top prices on dressed beef \$4 25, which is 15c higher than a week ago. The range on this grade was from \$3 25 to \$4 25. Texas steers \$2 10 @ \$3 25, with nearly all the sales above \$3 00.

HOGS—Receipts, 2,417. Top prices \$4 60, which is 30 cents lower than a week ago. Pigs and lights, \$4 10 @ 4 25. Heavy hogs \$4 47 1/2 @ 4 60.

SHEEP—Receipts, 342. Sales at \$2 00 @ 4 40. Lambs, \$1 50.

St. Louis.

May 23, 1894.

CATTLE—Receipts, 2,400. Native steers, common to best, \$3 00 @ 4 00.

HOGS—Receipts, 2,600. Top, \$4 70. Bulk, \$4 60 @ 4 70.

SHEEP—Receipts, 700. Market steady. Natives, clipped, \$2 50 @ 3 90.

Chicago.

May 23, 1894.

CATTLE—Receipts, 13,000. Market active. Texans 10c higher. Beef steers, \$3 00 @ 4 60; stockers and feeders, \$2 35 @ 3 70; bulls, \$1 65 @ 3 25; cows, \$1 50 @ 3 45.

HOGS—Receipts, 38,000. Mixed, \$4 50 @ 4 75;

heavy, \$4 50 @ 4 82 1/2; light weights, \$4 50 @ 4 80. SHEEP—Receipts, 13,000. Good kinds steady, others weak. Natives, \$2 00 @ 4 75; lambs, per cwt., \$3 75 @ 5 25.

GRAIN AND PRODUCE MARKETS.

Kansas City.

May 23, 1894.

WHEAT—Receipts for forty-eight hours, 15,600 bushels; last year, 16,800 bushels. The market showed more firmness under the influence of bad crop reports. But at the same time buyers were cautious and slow to bid up prices, and sales in consequence slow.

CORN—Receipts for forty-eight hours, 75,000 bushels; last year, 33,600 bushels. Demand good and values a trifle firmer. Mixed showed more strength and life than white. A good market, however, was had for both.

OATS—Receipts for forty-eight hours, 16,000 bushels; last year, 30,000 bushels. A steady and firm market continues to be had for this grain. Offerings better but not sufficiently large to affect values.

MILLET—Market steady but dull. Per 100 pounds, German, 70 @ 80c; common, 55 @ 70c.

BRAN—Quiet but unchanged. Bulk, 56c and sacked 61c per cwt.

FLAXSEED—Selling fairly well and prices steady at \$1 22 per bushel upon the basis of pure.

HAY—Receipts for forty-eight hours, 320 tons. Dull and weak; low grades especially hard to sell.

BUTTER—A dull and weak market was had for most offerings. Choice table goods selling fairly to the consuming trade, but all low grades weak.

EGGS—Firm. Fresh, 7c.

POULTRY—Hens dull and retailers out of the market, but packers willing to clean up the receipts at their prices.

POTATOES—Both old and new stocks are firm: stocks at hand light. Movement, however, slow.

STRAWBERRIES—Receipts were light and demand for nice sound dry stock went at \$2 50 @ 3 10, while the best shipped stock went at \$2 00 @ 2 25, medium \$1 50 @ 1 75, and poor from that on down.

VEGETABLES—Jobbing prices: Beans, navy, California, per bushel, \$2 10 @ 2 15; country, \$2 00 @ 2 10; beets, per bushel, 50 @ 60c; cabbage, per 100 pounds, \$4 00; celery, California, 75c @ 1 00

per bunch; onions, Northern, per bushel, 80c. EARLY VEGETABLES—Asparagus, 10 @ 12c per dozen; cabbage, California, per pound, 3/4c; cucumbers, per dozen, 50 @ 60c; beans, per bushel, \$1 50 @ 1 75; beets, per dozen bunches, 50 @ 75c; egg plant, per dozen, \$1 @ 1 75; kale, per bushel, 20c; new potatoes, per barrel, \$3 50; pie plant, per dozen, 20 @ 30c; peas, per bushel box, \$1 @ 1 25c; radishes, per dozen bunches, 10 @ 15c; spinach, per barrel, \$2 @ 2 50, per bushel, 75 @ 80c; tomatoes, Florida, 6 basket crate, \$3 25. New onions \$3 00 per barrel.

BROOMCORN—Hurdled, green, 8 @ 3 1/2c per pound; green, self-working, 2 1/2 @ 3c; red-tipped, do., 2 1/2 @ 3c; common, do., 1 1/2 @ 2c; crooked, half price. Dwarf, 2 @ 3 1/2c.

GROUND LINSEED CAKE—We quote car lots sacked at \$25 per ton; 2,000 pounds at \$26; 1,000 at \$14; less quantities \$1 60 per 100 pounds.

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Chicago.

May 23, 1894.

The following table shows the range of prices for active "futures" in the Chicago speculative market for the speculative grades of the commodities. This speculative market is an index of all prices and market tendencies:

Table with columns: Commodity, High-cst., Low-cst., Closed May 21, Closed May 23. Rows include WHEAT, CORN, OATS, LARD, S. RIBS.

WHEAT—Cash—No. 2 red, 55c; No. 3 red, 51 @ 52c; No. 2 hard, 52 1/2c; No. 3 hard, 51c.

CORN—Cash—No. 2, 37 1/2c; No. 3, 37c; No. 2 white, 38 1/2c; No. 3 white, 38c.

OATS—Cash—No. 2, 34c; No. 2 white, 37c; No. 3 white, 36 1/2c.

St. Louis.

May 23, 1894.

WHEAT—Receipts, 17,000 bushels; shipments, 1,000 bushels. The market was dull, but stronger on long buying and on crop news, gaining 1/4 @ 1/2c. No. 2 red, cash, 50 1/2c; May, 51 1/2c; July, 52 1/2c; August, 52 1/2c.

CORN—Receipts, 246,000 bushels; shipments, 146,000 bushels. The market was higher, but nominal. No. 2 mixed, cash, 36 1/2c; May, 36 1/2c; June, 36c; July, 36 1/2c; September, 36 1/2c.

OATS—Receipts, 56,000; shipments, 17,000. Higher. No. 2 cash, 38c; May, 38c; July, 39 1/2c.

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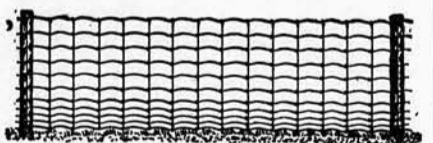
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	Cattle and calves.	Hogs.	Sheep.	Horses and mules.	Cars.
Official Receipts, 1893.....	1,746,828	1,948,373	569,517	35,097	99,755
Slaughtered in Kansas City.....	956,792	1,427,763	372,385		
Sold to feeders.....	249,017	10,125	71,284		
Sold to shippers.....	360,237	510,489	15,200		
Total sold in Kansas City.....	1,566,046	1,948,357	458,869	22,522	

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THE STRAY LIST.

FOR WEEK ENDING MAY 16, 1894. Cowley county—J. B. Fishback, clerk.

MARE—Taken up by C. D. Soule, in Vernon tp., March 28, 1894, one brown mare, 3 years old, a little white on left hind foot, weight about 700 pounds; valued at \$15.

Wyandotte county—Chas. E. Bruce, clerk. MARE—Taken up by John Nelson, in Wyandotte tp., P. O. address Twenty-sixth and Central avenue, Kansas City, April 24, 1894, one sorrel mare, 6 years old, fourteen hands high, white star in face and right hind foot white; valued at \$30.

Harper county—Wm. Duffy, clerk. HORSE—Taken up by E. Davis, in Anthony tp., April 16, 1894, one bay horse, 10 years old, branded "J. O." on left hip, one glass eye; valued at \$12.

MARE—By same, one iron-gray mare, 10 years old, heavy mane and tail, branded M on left hip; valued at \$12.

Rush county—W. P. Hayes, clerk.

COLT—Taken up by P. Magerkurth, in Big Tim-ber tp., May 1, 1894, one dark bay two-year-old horse colt, one white hind foot, star in forehead, rope around neck; valued at \$30.

COW—Taken up by David Zink, in Big Timber tp. (near Liebenthal), April 19, 1894, one dark red cow with white spots on hips and face, horns droop and turn in, a little lame in right hind leg; valued at \$15.

Anderson county—J. T. Studebaker, clerk.

FIVE HEIFERS—Taken up by John Bidwell, in Lone Elm tp., four red heifers, dehorned, small, 2 years old; also one red heifer with horns, some white in face, 2 years old.

FOR WEEK ENDING MAY 23, 1894. Cherokee county—P. M. Humphrey, clerk.

PONY—Taken up by W. R. Lyerla, in Shawnee tp., April 28, 1894, one horse pony, 14 years old, hind feet white, branded T on left shoulder and brand on left hip; valued at \$10.

MULE—By same, one mare mule, 2 years old, ear split; valued at \$15.

Chautauqua county—G. W. Arnold, clerk.

MARE—Taken up by C. H. Shobe, in Belleville tp., P. O. Jonesburg, May 6, 1894, one sorrel mare, sixteen hands high, 7 years old, no brands, wire out on left hind leg, small split in left ear; valued at \$20.

FOR WEEK ENDING MAY 30, 1894. Montgomery county—J. W. Glass, clerk.

MARE—Taken up by A. J. Sullivan, of Independ-ence tp., May 1, 1894, one black mare, 2 years old, star in forehead, weight about 800 pounds.

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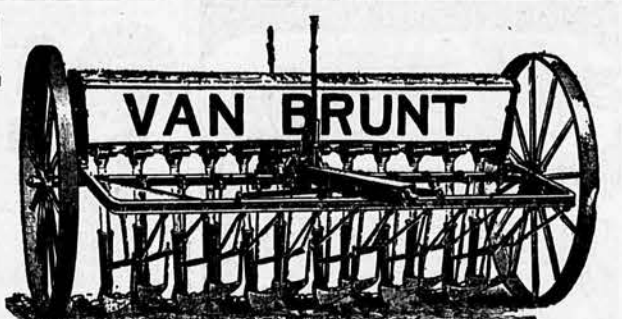
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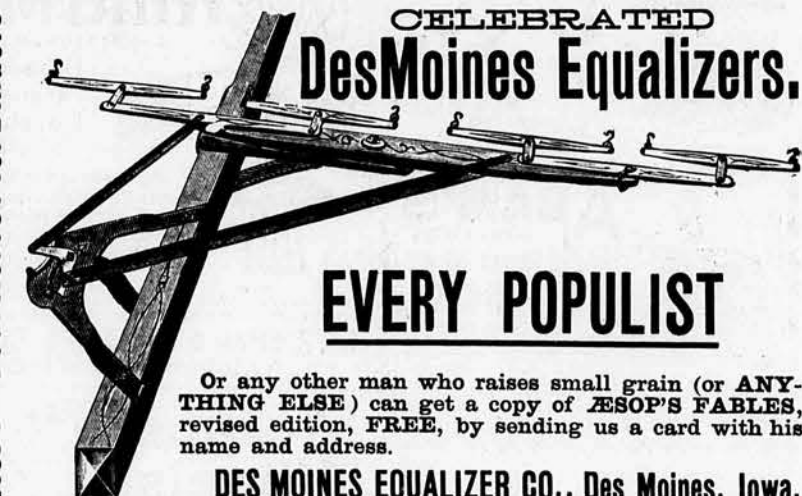
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