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## BREEDERS' DIRECTORY.

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All ages for sale. Herd headed by Dandy Jim Jr. and Royalty Medium, a son of Free Trade.

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A grand lot of early pigs for sale, sired by Monroe's Model U. S. 29933 O., Tornado 30595 O., I. X. L. King and Royal Chief 30343 O., from highly-bred sows, many of them and the two first named boars purchased direct from Ohio's best breeders. I pay express on pigs to August 7. Sows bred to farrow in the fall for sale. Write me for No. 1 stock. Safe arrival of all guaranteed.

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We keep strictly to the Delaine sheep—wool on a mutton carcass—and we guarantee satisfaction in size and in quality of wool. Eighty rams and 100 ewes for sale at a low price, considering quality. Write at once to

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SHEEP AND POULTRY FOR SALE.—Some choice COTSWOLD and MERINO bucks, any age. Will sell to suit the times. The leading varieties of first-class poultry for sale at all times. Address H. H. Hague & Son, Walton, Kas.

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Has won more prizes in 1892 and 1893 than any other herd out, including championship at six State fairs and World's Columbian Exposition on Iowa Davyson 101419. His calves for sale. Write.

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Inspection invited.

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## 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.  
OCTOBER 3—W. H. Wren, Poland-China swine, Marion, Kas.

### RABIES, OR HYDROPHOBIA.

From a paper read before the State Board of Agriculture, by Prof. Nelson S. Mayo, D. V. S., State Agricultural College, Manhattan.

It is thought that the virus of the disease exists in the saliva, and the virus thus passes readily into the wound; for, in the human subject, wounds upon exposed parts of the body are more liable to be followed by rabies than those where the teeth are cleaned by passing through clothing. The clothing also acts as a protection, and the bites themselves are not so serious.

In its general character, rabies resembles the known germ diseases very closely, but there are some points of difference worthy of notice. Germ diseases have what is known as a period of incubation, a definite period which elapses between the exposure or inoculation and the symptoms of the disease, while in rabies the period of incubation may vary from five days to one year, and some cases recorded longer than one year. Most cases develop in from twenty to eighty days.

Another point against the germ theory of rabies is the inability to find the germ, although Pasteur, Raux, and other bacteriologists, who have no superiors in this line of work, after years of investigation, have failed to find a germ. They have discovered that the brain and spinal cord of rabid animals contain the virus in its most active form, but they have been unable to isolate it. Future investigations may reveal a germ, or possibly, a peculiar poison, which may develop in the body.

*Symptoms in the Dog:*—The disease in the dog shows itself in two forms, or, rather, two different stages, called dumb rabies and furious rabies, according to the symptoms manifest. Dumb rabies always precedes furious rabies in the dog. The animal is dull, sullen and gloomy, and seeks to hide in out-of-the-way places; but does not remain quiet, but continues seeking different places or positions. He may gather sticks, straws, etc., and carry them away, or may eat some of them. The dog recognizes his friends, but does not seek their company, nor does he show any disposition to bite persons or animals, or to bark; hence, the name "dumb rabies." As the disease progresses, the animal becomes more nervous and excited and seems to suffer from hallucinations, and may give vent to a hoarse, "croupy" bark. The saliva is increased somewhat in quantity, and is more viscid than usual, hanging in strings from his mouth. The mucous membranes of the eyes and mouth are redder than usual, and the eyes have a wild and staring appearance. If the dog is confined, he makes frantic efforts to escape; and if not confined, he usually leaves his home and travels long distances, attacking other animals, especially other dogs, cattle and horses. The rabid dog may attack them vigorously or simply snap them. A rabid dog seldom or ever barks while fighting or biting, even when bitten severely by another dog.

The furious stage of rabies usually lasts several days, during which there are frequent spasms, until the dog is exhausted. In the furious stage, a dog does not remain long in one locality, but seems impelled by some irresistible desire to travel and bite other animals. There is a popular idea that the "dog days" of July and August are especially productive of rabies in dogs, but statistics show that in France more cases of rabies in dogs occur in the winter and spring months.

In cattle the symptoms vary somewhat. The first thing noticed is an uneasy and excited condition and an inclination to fight other stock. The bowels are constipated at first, but later this is followed by severe diarrhoea and straining. The animals may be subject to spasms, and they usually bellow, sometimes for one or two days, almost continually, in a peculiar hoarse

voice. The eyes have a wild, vacant stare, and there may be a trembling of the muscles in some parts of the body. There are usually spasms, with periods of listlessness, when they may lie down or stand quietly for some time, if not disturbed. Cattle are easily excited by the approach of strangers, and by small animals, such as pigs and chickens, and they will rush at them, trying to horn them or trample them under foot. Rabid cattle will attack other cattle, horses and persons. The appetite fails and but comparatively little food is taken. They crave water and drink it freely, until the muscles used in swallowing become paralyzed. Often the muscles of the fore or hind quarters become paralyzed and they are unable to stand. There is also a profuse discharge ofropy saliva from the mouth in the later stages of the disease. Post-mortem examination reveals indigestion, impaction of the third stomach, and irritation of the bowels.

The same general symptoms are shown by rabid horses, modified of course by differences in structure and surroundings.

An outbreak of what I believe to be rabies occurred in western Kansas in September of the past year. A supposed rabid dog bit a stockman's shepherd dog, which was used in herding cattle. It also bit two other dogs and two pet raccoons, all of which exhibited signs of rabies, and were destroyed. Two other dogs, which fought with the rabid dog, did not show signs of rabies. The stockman whose shepherd dog was bitten, and which contracted rabies, lost forty-two head of cattle out of a total of eighty-four head, one horse and some pigs. I believe there have been other outbreaks in other parts of the State, with serious loss, but this is the only one I visited and studied.

Prof. F. S. Billings, formerly of the Nebraska Experiment Station, investigated several outbreaks of this disease in that State, and reports it under the title of "The So-called 'Hydrophobia' of Cattle," in which, while recognizing a similarity, he was of the opinion that the disease was not true hydrophobia; but he informed me recently that further investigation had convinced him that the disease was true rabies.

*Treatment.*—The only treatment that is satisfactory is preventive treatment, and consists in applying suction to the wound and in cauterizing it freely as soon after the wound is inflicted as possible. This is quite difficult to accomplish in horses and cattle, unless the wound is large enough to be readily detected. Small wounds are so hidden by the hair as to render their detection difficult. For the human subject, in addition to this mentioned, there are Pasteur institutes at Chicago, New York and Paris. That they are sustaining the reputation and fulfilling the mission of their founder, the following statistics will show:

Paris institute, in 1886, 2,671 persons vaccinated, with a death rate of .94 per cent.

Paris institute, in 1892, 1,790 persons vaccinated, with a death rate of .22 per cent.

Paris institute, in seven years, 12,782 persons vaccinated, with a death rate of .52 per cent.

New York institute, in 1892, 104 persons vaccinated, with no deaths.

Chicago institute, in three years, 302 persons vaccinated, with one death.

Of the 302 treated at Chicago, 21 came from Kansas.

The time may come when this treatment can be applied to animals with the same success which has been attained in the human race. Let us hope the day is not far distant.

I may mention the so-called "mad stone." I consider them not only useless but dangerous. If a piece of porous stone is applied to a flesh wound made by a rabid animal and some of the poison absorbed, and the same stone should be applied to another flesh wound not made by a rabid animal, there would certainly be a possibility of communicating the disease, unless the stone had been thoroughly sterilized in the meantime. To illustrate: A stockman living in an adjoining town had four horses bitten by a rabid dog. The omnipresent "mad stone" was produced, but, being skeptical, it was applied to the wound of but one horse, as

a test. That horse died of rabies; the others recovered. While this case is not at all conclusive, it indicates a source of possible danger in the use of the so-called mad stones.

There is another excellent method of preventing rabies, and one quite easy to apply, and that is the immediate destruction or safe confining of all suspicious acting dogs—and, I might add, many that are not suspicious. The destruction of many worthless dogs, I think, would do much to rid us of this terrible and fatal disease.

### Swine Management.

In regard to the care and management of swine, J. A. Worley, of Sabetha, has prepared the following advice:

"There is one very important factor that has been brought to a high standard of perfection in the treatment of the human family, and that is thorough sanitary regulations, and it is to this very important subject that I wish to call attention. While I don't claim that improper sanitary surroundings are the cause of this disease, neither do I claim that proper sanitary rules will exempt you from the ravages of the disease. Yet you are all aware of the high position that it occupies in relation to all epidemic diseases of the human family, and it should call forth more attention in the handling and treatment of our domestic animals, especially our herds of swine. The time has past when we thought anything was good enough for the hog to eat, and as for shelter and sleeping quarters they had all the hog yard covered by the broad canopy of the heavens. There was certainly one good point in their favor, and that was their sleeping quarters had splendid ventilation. In the winter time they should have dry and warm places to sleep, and have it so arranged that there will not be any danger of them piling on top of each other in severe cold weather and smothering those underneath. They don't require a great amount of bedding where their sleeping place is warm, but their bedding should be changed at least once a week and their pens well sprinkled with air-slacked lime. This will keep the hide in a clean and healthy condition, the pores of the skin are not clogged with filth and dirt and mange but are left free and open to perform their natural functions. You all know that a mangy hog is not a thrifty hog, and improper sleeping quarters, especially in winter, are the principal cause of mange. The herd should at least once a month be sprinkled with sulphate of lead, and if there are any signs of mange use nitrate of lead—one small teaspoonful to five gallons of water, giving the hog a good wetting all over. This leaves the hide clean and kills all eruptions or diseases of the skin. My method of arranging their sleeping quarters is to have small pens for them to sleep in, and only let three or four in each pen. The bedding should be hauled out of the yard each time that the pens are cleaned.

"In regard to ventilation, I don't think that there are very many hogs that are hurt by their sleeping pens being too close or air-tight. Then, the next thing, what will we feed our hogs? Perhaps there are some that will say: 'Oh, I just throw them some corn in the morning, enough to last them all day, and there is water in the branch; they can go and help themselves.' I guess the boys cut a hole in the ice last week. I am happy to say that we have not got as many of this kind of swine-breeders at the present time as we had in the past, and to such, if there are any, I would say, though surrounded by plenty they may be starving to death, like the miser surrounded by his bags of gold, yet dying from starvation in the midsts of plenty. No, brother swine-breeders, it takes something else besides corn and water to enable us to grow swine so as to be the least susceptible to disease. A moderate ration of corn, in connection with good clover pasture, is all right. The young stock will make a good growth where they have the run of a clover field, and will come out ready for the new crop of corn in the fall with good appetite and a strong, vigorous

constitution. But don't neglect the sanitary part during the summer. Give them plenty of shade to lay in during the hot weather and plenty of pure water to drink. And here is a point that I would impress upon your minds. Most of us living on prairie farms have the water pump for our stock, and on these farms the hogs are either watered in an open trough or a barrel set in the ground, fed from a tank. Now Mr. Hog will root in the mud and get his nose and face all daubed up, and then he walks up to the water barrel and takes a drink and then proceeds to wash his face, and of course all the mud that had accumulated there goes into the drinking vessel; and you may have, perhaps, a hundred head of hogs, and they will all wash their faces at the same place two or three times a day, so you may know how fast the dirt and mud will accumulate in the barrel. I was talking to a neighbor of mine not long ago on this subject, and I stated to him my objections to the water barrel for watering. He said that he had used that method in watering his hogs and it worked all right. I asked him how long he had used it and he said about two years. I asked him if there was any mud in it, and his answer was that he did not know; he had never looked to see whether they had worked any mud into it or not. Now, farmers, you that use the hog water barrel, how often do you clean them out—once every two years, or not? Don't you think that most any of us would kick if we had to use a drinking vessel two years without having it washed. I have discarded the barrel, and instead use a tub about eight or ten inches deep; the water comes into this from the bottom, and when I want to clean it out I put a plug in the pipe, shut the water off, and it is a very easy matter to clean it out, and I always sprinkle well with lime each time.

I have noticed from past observation that the greatest mortality among our herds from cholera is in the fall of the year, and to a great extent seems to start shortly after commencing to feed new corn; in fact, the first start of the disease has often been laid to feeding of new corn. There is no doubt but that the months of July and August are very trying months on the herd, the weather being very hot and the pastures, becoming dry and parched, there is not the amount of succulence in the grass that there is earlier in the season, and they are liable to become costive. This should be attended to and corrected by feeding shorts and bran, with some oil cake added to it, and when you commence feeding new corn use it light to start with and let the hogs have plenty of salt.

"And now I want to say a few words before I close in regard to the different kinds and varieties of patent hog remedies that are peddled over the country, all claimed to be sure cure for hog cholera. There is one good thing about them, and that is they are accompanied with a full set of sanitary laws, and I believe that if we would practice these laws they would likely do more good than the medicine; but some of them, no doubt, can be fed to the herd to advantage, as they are an aid to digestion and help to keep the hog in a healthy condition, and as the doctor once remarked in regard to some medicine he had left for his patient, if they don't do any good they won't do any harm. But whether you feed anything of the kind or not you should feed charcoal at least once a week to the herd. This is something that is within the reach of every one and I think that it is more conducive to good health than any other thing we can feed."

### Kansas Swine Breeders.

The annual meeting of Kansas Swine Breeders' Association will be held at Wichita, Kas., Thursday, October 4, 1894, at 7:30 o'clock p. m., and continue over the 5th, in connection with the State fair.

By order of the Executive Board,  
GEO. W. BERRY, President.  
WILLIS E. GRESHAM, Secretary.

**Five World Beaters.**  
"SICKLES" BRAND HARNESS.  
All genuine stamped with this  
"Trade Mark." Made in five styles at \$6.50, \$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.

## Agricultural Matters.

### About the Kansas Corn Crop.

**EDITOR KANSAS FARMER:**—On last Saturday, July 28, I returned from Osborne to Topeka. For three days preceding a hot wave from the south visited all portions of the State.

In northwest Kansas, and all the way down the Solomon and Kaw valleys, until within fifty miles of Topeka, I saw the withering effects on the corn plant. But at such times there are always those who are panic-stricken—throw up their hands and say: "All is lost." That is not true. All is not lost. All along I saw fields which good conditions for balance of season will, in my judgment, make considerable corn. First, that portion of the crop which was early and in which the plant was fully developed or nearly so—the ear already formed, some in roasting ear stage—this corn, with favorable conditions from this time on will, I believe, make fully a half crop.

I examined it carefully on my own farm in Osborne county. With the large amount of vitality in the plant and with abundant and seasonable rains I believe a fair crop may yet be harvested.

Again, that part of a crop which was planted later and had not yet put out the tassel or set the ear, if well cared for and thrify, with favorable weather, will likely recover and yield a reasonable crop. That portion of the crop, however, which was about tasseling or setting the ear at the time the hot weather came, is probably lost, since the pollen for the fertilization of ear is destroyed.

How to make the most of the crop which remains, is the question. A corn plant which has attained its full growth, or nearly so, and yet having grown no ear, has a much higher feeding value than a plant of same size which has grown an ear. This has been demonstrated by actual experiment. Just how much greater feeding value it has, has not yet been determined, but it is enough to know it has a much greater value as feed. The nutrition which is drawn from the plant to make the ear remains largely in the plant or fodder.

Prof. A. C. Goessman, Director of the Massachusetts Experiment Station, whom I visited in 1891, at his home, informed me that corn fodder cut at the right time and well cured, was found by actual experiment to be of equal feeding value to the best of clover or timothy hay, pound for pound, and of course his test was with corn which had grown an ear.

Now, in view of this fact, I make the broad statement that there are thousands, perhaps millions, of acres of corn in Kansas which may yield so little corn as not to pay for gathering, yet whose fodder, if cut at the right time, and well cured, will have a feeding value equal to more than half a corn crop without the fodder. Of course this applies only to corn with a largely developed plant. The corn of later growth, whose ears have not yet set, if seriously damaged would, of course, be of less value. But to save all the feed you can and in the best shape you can, is safe advice to give. In case a farmer has but little stock or does not need all the feed his corn will make, I still say, cut it up, all of it. For be assured that feed—such feed—will command a good price in gold before grass grows next spring.

M. MOHLER.

### Results of Subsoil Plowing.

The following letter giving results of experiments with subsoil plowing, was recently received by the Secretary of Agriculture, from Mr. Peter Youngers, Jr., of Youngers, & Co., Geneva, Neb., and is deemed of sufficient interest to warrant its communication to the agricultural press. Mr. Youngers writes as follows:

"Having practiced subsoil plowing extensively on our nursery grounds near Geneva in growing fruit and ornamental trees with gratifying results, we concluded to experiment with grain and vegetables.

"The ground was prepared by subsoil plowing in the fall of 1892, and the

crop of 1893 consisted of corn and potatoes. Corn that year being only a very moderate crop in this vicinity (maximum forty bushels per acre, and the average not exceeding twenty bushels), we harvested a crop of seventy-five bushels per acre from a strip of ground that had been subsoiled. The potato crop was practically a failure in this vicinity; the result of our experiment was a good crop—about 125 bushels per acre.

"This season (1894) the crop consists of rye, oats, corn and potatoes. Rye harvested indicates a yield of thirty-five bushels per acre, while rye in an adjoining field with the same seed, planting and harvest, but not subsoiled—will yield ten bushels per acre.

"Oats on land subsoil plowed in the fall of 1893 will yield forty to forty-five bushels per acre; oats on land subsoil plowed in the fall of 1892 will yield thirty to thirty-five bushels per acre; oats on land adjoining, under ordinary cultivation, will yield ten to fifteen bushels per acre (the average crop under the adverse conditions that prevailed), in each instance the seed, soil, and planting being the same.

"The superiority of subsoil cultivation is especially conspicuous in the length of straw and stand on the ground.

"The results of experiments with this year's corn and potatoes cannot at this time be determined. With a continuation of the present favorable

### Corn vs. Alfalfa.

The Colorado Experiment Station (Bulletin No. 26) reports on investigations of the comparative yield of dry digestible matter in crops of corn and alfalfa:

|                             | Total.        |                | Digestible.   |               |
|-----------------------------|---------------|----------------|---------------|---------------|
|                             | Corn.         | Alfalfa.       | Corn.         | Alfalfa.      |
| Dry matter.....             | Lbs.<br>5,539 | Lbs.<br>10,304 | Lbs.<br>3,005 | Lbs.<br>5,611 |
| Albuminoids.....            | 405           | 1,602          | 290           | 1,198         |
| Nitrogen, free extract..... | 8,263         | 4,782          | 2,186         | 3,114         |
| Fiber.....                  | 1,472         | 2,800          | 1,060         | 1,198         |
| Fat.....                    | 84            | 246            | 63            | 101           |
| Ash.....                    | 315           | 829            | .....         | .....         |

The variety of corn was Golden Beauty, and it was planted May 16 in hills three feet apart each way and irrigated once. The alfalfa was three years from seeding, was irrigated twice and cut three times. The table indicates that a much greater feeding value can be secured from an acre of alfalfa than from an acre of corn.

### Preparation for Oats.

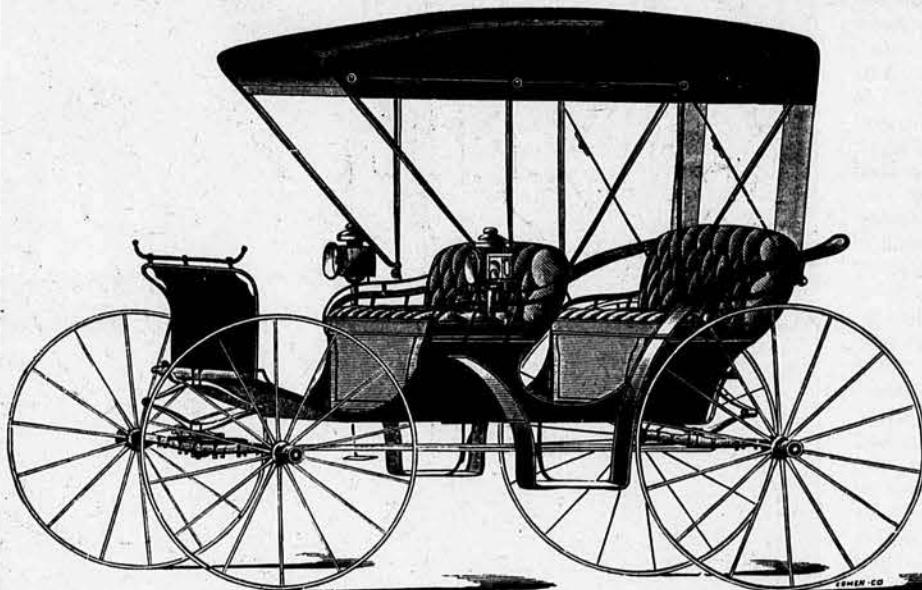
The Minnesota Experiment Station reports (Bulletin No. 31) experiments in the preparation of corn stubble for oats. The methods employed were (1) disked twice, (2) plowed 4 inches deep, (3) plowed 7 inches deep, and (4) plowed 7 inches deep and rolled firm. All plats were harrowed and drilled. The following table gives the yield per acre

to 3 inches. With oats a greater number of grains germinated at a depth of 1½ inches or less than at greater depths. With barley germination was better at a depth of 1 inch than at greater depths. Barley and oats were sown separately on large plats at depths of ½, 1, 1½, 2, 2½ and 3 inches. With oats the largest yield of straw occurred with depths of 1½ and 2 inches; of grain, with depths of 2½ and 3 inches. With barley 1½ inches gave the best results both in straw and grain.

Two bushels per acre of heavy oats weighing 37 pounds per bushel, and 2 bushels of light oats weighing 21 pounds per bushel were sown. The heavy seed oats yielded 3,389 pounds of straw and 64.09 bushels of grain per acre; the light seed oats yielded 2,492 pounds of straw and 54.59 bushels of grain.

The old saying that the "manure pile is the farmer's savings bank" is most excellently demonstrated by Prof. Magruder in his wheat experiments on the Oklahoma Experiment Station farm during the last season. The average of fifty unmanured plats was 36.18 pounds of wheat to the plat, while the manured gave a yield of 81.69 pounds to the plat. This yield reduced to bushels and acres gave for the unmanured wheat a yield of thirteen bushels to the acre and for the manured plat a yield of 32.3 bushels to the acre, or an excess of 19.3 bushels to the acre on the manured plats over the unmanured plats, or

## ONE HUNDRED THOUSAND VEHICLES PER YEAR DURING THE PAST FIVE YEARS.



THOS. D. HUBBARD, - KIMBALL, KANSAS.

conditions we will have the largest yield of corn we have ever had. Even under these favorable conditions the corn on subsoil plowed ground seems to possess a special element of strength that will, in all probability, exert its influence in demonstrating the value of subsoil cultivation."

The best potatoes grown this year by the horticultural department of the Oklahoma Experiment Station were Ohio Junior, Early Ohio, Early Six Weeks and New Queen. Beauty of Hebron, which has been quite popular through the country, has made a very poor showing in every test where planted.

Manuring potato ground seems to be a good thing to do. From a manured plat at the Oklahoma Experiment Station this year ninety-one pounds of Early Ohio potatoes were gathered, while another contiguous plat, of the same soil and cultivation and planted with the same variety, yielded only forty-seven pounds. Moreover, as reported by Prof. F. A. Waugh, 87 per cent. of the former lot was marketable, while only 63 per cent. of the latter was salable. So that the crop of marketable potatoes from the manured ground was seventy-nine pounds against thirty pounds from the unmanured. The manure was the ordinary stable product, and was applied in moderate quantity at the time of planting the potatoes.

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

of grain and straw, and the average quantity of water present in the soil and subsoil, based on determinations made June 20 and 30, July 22, and August 5, on an area of one acre.

Effect of different methods of preparing land on the yield of oats and water content of the soil.

| Method of Preparation.                            | Water in<br>3 inches<br>of surf'e<br>soil. | Yield of<br>Straw. | Pounds. | Bushels. |
|---|--|--------------------|---------|----------|
|   |  |                    |         |          |
| Disked twice.....                                 | 92,828                                     | 1,481              | 37.53   | 38.70    |
| Plowed 4 inches deep.....                         | 97,388                                     | 1,758              | 39.52   | 39.52    |
| Plowed 7 inches deep, rolled until very firm..... | 55,844                                     | 2,051              | 45.26   | 45.26    |
|   | 39,359                                     | 2,920              |         |          |

Oats and barley (100 grains in each hill of one square foot) were planted at depths increasing by ½ inch from ½

more than double. It would be out of place here to give the details of the experiment. It is our object to get these results before our farmers that they may profit by them before wheat seeding time. Some of the individual plats yielded as follows: Pinquit's Velvet Chaff gave on unmanured plat thirty-eight pounds, and on the manured plat 88.5 pounds. Michigan Amber gave on unmanured plat twenty-nine pounds, and on manured plat eighty-six pounds. Silver Chaff bearded gave on unmanured plat twenty-nine pounds, and on manured plat ninety pounds. Little Red gave on unmanured plat forty-five pounds, and on manured plat 80.5 pounds. About this same relation existed between the manured and unmanured plats throughout the whole series. The figures are plain and correct and speak for themselves.

Mulching potatoes has proved to be a good thing this year at the Oklahoma Experiment Station. In the experiments made by Prof. F. A. Waugh the total yield of a plat of mulched potatoes was 230 pounds against 132 pounds on another plat of the same varieties, but cultivated instead of mulched. The comparison of merchantable product from the same plats is even more striking, for the mulched yielded 202 pounds, or about 88 per cent. of marketable tubers, while the cultivated plat gave only 104 pounds, or about 78 per cent. Five varieties were used in the test, and all of them showed a preference for growing under mulch. The mulch was clean straw, applied just after the potatoes came up.

## Irrigation.

### IRRIGATION BY THE USE OF PUMPS AND WINDMILLS.

By John M. Irwin. Copyrighted by Stover Manufacturing Co. (Published by Permission).

Irrigation by windmills and pumps involves the selection of a good mill and a suitable pump or pumps which supplies the necessary machinery, but the irrigator must, in addition to this, build a suitable reservoir to store the water for the reason that the direct flow of water from the pump can not be used in successful irrigation for two reasons, the first of which is the absence of pressure required to push the water forward over the land; and second, the cold water drawn from the well is unsuited to plant life.

*To Make a Reservoir.*—First, select a suitable location, one that will occupy the land as high, or higher, in elevation than any of the land you wish to irrigate; then lay off the lines marking its dimensions. If the land on which the reservoir is to be built be of fresh sod, it will be necessary to plow up or remove all of the sod from the ground on which the embankments are to be constructed, otherwise there would always remain a seam through which the water would escape from the reservoir, as sod is not fit material to use in the construction of embankments, it should not be used when building them up to their required heights. When the outlines of the embankments are established and the sod removed, as before stated, then plow within the lines of the proposed embankments and with a scraper draw the earth from the inside of the reservoir to build up the walls with. The wall should not be less than five feet in height, measuring on the outside, and very wide or thick at the ground level. The wall should be so carried up that the slope from the inside will be very gradual, not abrupt, for the reason that if the walls are nearly perpendicular, waves of the water will destroy them, hence the advantage of making the walls very sloping from the inside; the outer walls may be made more perpendicular, because there is no water from the outside to injure them. Having built the walls by using the earth from the inside of the reservoir, and everything ready for puddling the earth to hold water, the first thing in order is to plow up all of the land over the whole bottom surface of the reservoir, four or five inches deep, then with a harrow or drag, or other suitable implement, reduce the earth to a very fine pulverization, and after this shall have been done, and thoroughly done, the next thing in order is to make ready to puddle.

Having your team and that of your neighbor, if you can procure his services, with his team, with drags, or harrows, or inverted scrapers, or other suitable tools that will be best adapted for working fine earth into mortar. Now, all ready to puddle, turn the water into the reservoir and begin to puddle at one edge, puddling carefully along this edge until the earth shall have been reduced to perfect mortar, and continue to work toward the other side until you have completed the entire bottom of the reservoir as far up on the embankment as you can work with your team to good advantage.

If you have done the work thoroughly and without stopping after you have once commenced, until it is all finished, your reservoir will then cement into a good solid bottom that will hold very well. After you have your reservoir thus made and puddled, the next thing is to provide some means to prevent the embankments from being washed down by the continuous waves of water which are caused by the wind. Many different schemes have been employed for this purpose and none of them with that degree of success that it is hoped will be obtained by further experimenting in the near future. Some of the irrigators use sod for protecting the walls on the inside by laying the sodded blocks in the same manner now employed by landscape gardeners in sodding lawns and houseyards.

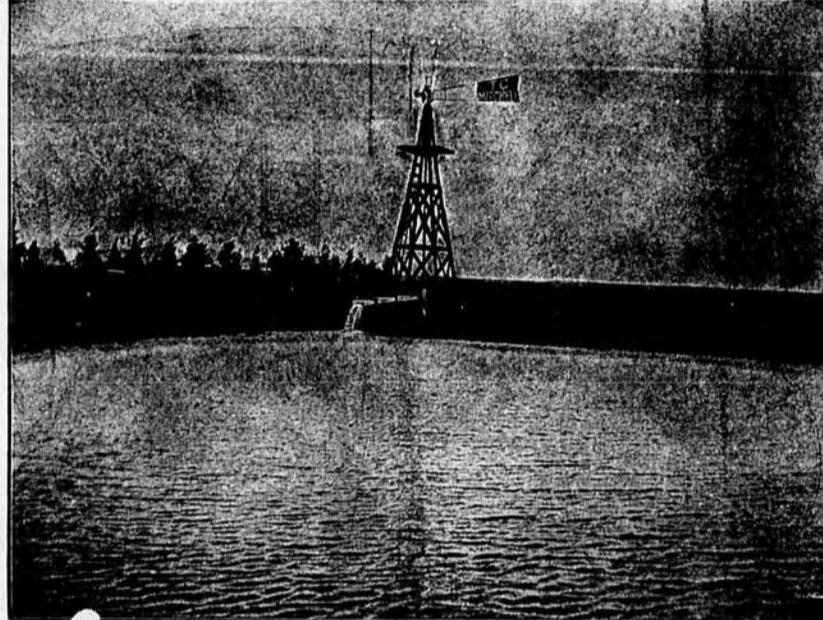
If stone can be had, the better way will be to riprap the embankment on the inside, as it would be the more

permanent and as a rule give better satisfaction. Some irrigators have used planks thrown onto the water, which will float and be driven by the wind to the opposite side of the reservoir from which the wind blows, the planks acting as a break-water to prevent the walls from being destroyed.

When the wind changes these boards blow over to the other side again, and thus continue to protect the walls, no matter from which direction the wind blows. This last plan—of boards—is not as good as sodding, in the estimation of many who have used both systems.

Another plan is to riprap the inside walls with brush and weight them down with stone, or hold them down by staking them. In this case the twigs and limbs of small trees and bushes are laid down against the wall in a compact mass, and as thick a mass as the supply of material will permit. This has been found to give very good results. If the walls have been sodded inside, instead of being protected by boards, or brush, or stone riprap, it will be well if some water grass can be procured from sloughs and planted in the seams between the blocks of sod, so that by the time the sod rots out the water grass may have taken firm root, so as to form a living protection to the embankment.

The outside walls of the embankment may be sodded, or they may be planted with such grass as irrigators prefer, such as blue grass, or other tame grasses. To maintain your reservoir in good order never allow it to go dry.



IRRIGATION WINDMILL, PUMP AND RESERVOIR OF JUDGE D. M. FROST, GARDEN CITY, KANSAS. (CUT LOANED BY STOVER WINDMILL CO., FREEPORT, ILL.)

If you do the bottom will dry out and crack open, which will require it to be replowed and repuddled, requiring just as much work to make it hold now as it did to make it hold in the beginning; for the same reason do not allow the ground to freeze. Freezing is just about as bad as leaving it go dry. To avoid freezing always keep two feet or more of water in your reservoir during winter.

We have now learned how to maintain a reservoir full of water, but to get it out onto the land is another thing. As we have located our reservoir on land of sufficient elevation, it will now only be necessary to find such a point of ground on the side that is the highest to locate our main ditch, i.e., the start of the main ditch. The bottom of the main ditch should not be any lower than the level of the ground, hence, it would be necessary to throw the earth up so as to make the ditch walls altogether a foot above the level of the ground. This keeps us above the level of the earth we wish to irrigate. If we have had no experience in irrigation we may not understand the advantage of keeping the water well above the level of the land that it is to flow over. In leveling up the land so that water may flow readily over it, you may be able to secure a sufficient quantity from the high point or knoll to be carried with the scraper, or other suitable means, to the land on which you are going to construct your main ditch. We will give a more detailed description of ditch-building further on in this connection.

door, which is to be hinged to the upper part of the box, will fall down or lie down over the end of the box so that it will form a water-tight joint. Any kind of suitable hinge may be used to fasten the door or trap to the top of the box. The weight of the water will cause the trap to remain closed, if not, a weight may be added. A lever or suitable means may be used to open the trap when the water is to be let into the ditch. The trap end of the box must be on the inside of the reservoir, not on the outside.

The reservoir should be of suitable dimensions—50x100 feet or 100x200 feet instead of 50x50 feet or 100x100 feet for reasons hereinafter stated. In calculating the height of wall, measurements should always be made from the outside instead of the inside and from five to six feet in height above the level of the land.

The water lying in the bottom of the reservoir, below the land level, can not be used because it can not be taken into the ditch. The first foot above the land level is of comparative small value because of the low pressure and the slowness with which it forces the water through the ditch. For these reasons the water should never be allowed to be drawn closer than a foot above the level of the outlet of the reservoir.

Irrigators who employ their reservoirs as a fish pond will find it advantageous to maintain, not only the water that lies below the level of the water-box, but to allow six inches or a foot of the water that lies above the water-box to always remain. By so doing they

*How to Build a Water-Box With Trap* to carry the water from the reservoir to the ditch. The box should be made of plank two inches thick and long enough to reach through the bottom from the inner side of the embankment, through the embankment to the outer side, so that the bottom of the box will be no higher above the ground than the bottom of the ditch into which the water flows from the box.

These boxes may be made in any width or height, such as eight inches wide and four inches high, or twelve inches wide and six inches high, or sixteen inches wide and four inches high, or six inches high, or ten inches high, as may be most suitable. The capacity of the boxes should always be in proportion to the capacity of your reservoir. All of the lumber used in the boxes should be long enough so that the length of the board will be sufficient without splicing and should never be less than two inches thick. When the box is completed thus far, then saw one end of the box off at an angle of about 45°, in such a way that the longest part may be on the bottom and the short side on the top and the widest part of the box should always lie on the ground and not edgewise. *To Make a Trap-Door for this Box* use a piece of lumber wide enough and long enough so that it will cover the end sawed off in the same manner described above. *How it is Fastened to the Box.*—Take leather and make it in form of a gasket and fasten the leather to the ends of the boards that you have thus sawed off so that when the lid or trap-

## Half the Money

spent for harness and shoes could be saved if they were treated right. Whether leather lasts or not depends on the care it gets.

### Vacuum Leather Oil

is the care-taker.

25c. worth is a fair trial—and your money back if you want it—a swot with each can. For pamphlet, free, "HOW TO TAKE CARE OF LEATHER," send to VACUUM OIL CO., Rochester, N. Y.

will not destroy their fish nor the reservoir by permitting it to dry up or be injured by freezing in the winter.

It has been suggested by some irrigators that good results would be obtained by planting around the embankments any variety of low-growing bushes for the double purpose of protecting the water from the force of the wind, which disturbs it into waves to destroy the embankments and to give to the reservoir that pleasing effect so much desired.

### Sherman County Irrigation Association.

On August 11, a meeting will be held at the court house, at Goodland, by the Sherman County Irrigation Association, at which time participants of last week's excursion will read papers on the following subjects, founded upon their observations and investigations while on the trip and at different points, the presentation of each subject to be followed by discussion:

"Cost of Irrigation—Can Sherman County be Irrigated?" A. B. Montgomery and G. R. Shook.

"The Pump for Irrigation," William Tompson and George Hess.

"Reservoir and Ditch," M. B. Tomblin.

"Does Irrigation Increase Rainfall?" W. H. Proctor.

"Forest and Ornamental Trees by Irrigation," C. A. Hayworth.

"The Orchard by Irrigation," H. S. Groves.

"Small Fruits by Irrigation," T. M. Simmons.

"Truck Gardening by Irrigation," Barney McClusky.

"Alfalfa and Other Grasses by Irrigation," John Bray.

"Potatoes and Other Root Crops by Irrigation," W. T. Dubery and H. J. Jones.

"Corn and Wheat by Irrigation," Joe Boothroyd and Percy Judd.

"Oats, Rye and Barley by Irrigation," Wm. Walker, Sr., and Asa Franklin.

"Horses, Cattle and Hogs in an Irrigated Country," A. B. Meade and W. J. Koon.

"Dairy and Poultry Farming Aided by Irrigation," Joe S. Williams.

"Fish—Can They be Grown in Reservoirs?" J. R. Eicher.

"Does Irrigation Aid the Towns and Country—if So, How?" C. M. Millisack and Frank Robinson.

Every one interested in the welfare of the county and its agriculturists should attend this meeting with the determination to do all in his power to advance the cause that promises to make Sherman county the most prosperous section of this great State.

It speaks well for an article when the longer it is used the better it is liked. Such is the case with Ayer's Hair Vigor. People who have been using it for years could not be induced to try any other dressing for the hair, because it gives such perfect satisfaction.

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.

RUDY'S PILE SUPPOSITORY is guaranteed to cure Piles and Constipation, or money refunded. Fifty cents per box. Send stamp for circular and Free Sample to MARTIN RUDY, Lancaster, Pa. For sale by all first-class druggists and in Topeka, Kas., by W. R. Kennedy, Druggist, northeast corner Fourth and Kansas Ave.

## 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.  
Office 800 N. Y. Life Bldg., Kansas City, Mo.

## HOW TO FIGHT RUSSIAN THISTLE.

EDITOR KANSAS FARMER:—Owing to the great and well-founded alarm which exists in the northern counties of this State over the spread from the north of that dire enemy known as the Russian thistle, I would be glad if you could give space in this week's issue of your widely-read journal to the following useful suggestions, prepared by Prof. H. L. Bolley, Botanist of the Agricultural Experiment Station at Fargo, North Dakota. They are so pertinent and helpful that no one who reads them need be ignorant of what now threatens to become a formidable adversary of profitable agriculture.

Prof. Bolley says:

\* \* \* \* \*

"Of its damaging capabilities I need only note that entire fields of large area may be seen into which it would be extreme cruelty to force a team, because of the large size, density and thorny nature of the brush. Within the area of its distribution in South Dakota (most of that portion known as the James River valley) many farms are being abandoned, the cactus having taken full possession.

"From Lisbon to Edgeley, and southward from these two points, there may be seen many fields which in the spring gave promise of a good yield of wheat. At this date the ground is occupied by a solid mass of the cactus brush; and there was no harvest. Three years ago farmers in that region were hardly aware of the existence of such a weed, but were at times interested in a few stray ones tumbling across the prairie. Sixteen years ago the weed did not exist in the Dakotas; yet in 1892 government officials estimated the damages upon wheat land alone as being \$1,600,000. The area of distribution in the two States is now about 30,000 square miles.

"The weed is not a cactus or a thistle, but is commonly named Russian cactus and Russian thistle because of its origin and thorny nature. It is a near relative of the native tumble weed (*Amaranthus albus. L.*), and like it scatters its seed principally by tumbling before the wind. Its size varies, accordingly as it is or is not crowded in its growth, from slight stiff sprigs, three to six inches high to a dense, much-branched, harsh, thorny, rounded bunch, three to six feet in diameter. It is delicate and succulent while young, but as it nears maturity the branches become hard and stiff and bear many small rose-colored flowers. The latter are arranged alternately about one-fourth of an inch apart, and are enclosed by three short, stiff, thorn-like leaflets. Before blackened by frost the stems are striped with red. Besides dropping out, as the weed tumbles along, the individual seeds may be blown short distances because of the slight wings formed by the dried blossom parts in which each is enclosed.

"Points to Keep in Mind:—This weed grows only from the seed.

"Only weeds which have been allowed to reach large size ever tumble. These are, in most part, found only in waste places, or improperly cultivated spots, such as margins of wheat fields, old fire-breaks, gopher knolls, etc. A good fence will stop most of these.

"At any time when weeds are mature enough to break loose of their own accord they can be collected and burned.

"When young, the plant is eaten greedily by sheep and cattle.

"The weed perishes immediately by being uprooted or cut off at the base; and its seeds are short-lived. When growing in small form, because of its density upon the ground, it may be turned under by the plow in early August, and thus in most parts destroyed; or if left until mature there will be a time late in the fall when it, together with the stubble and other weeds, may be cleared from the land by fire.

"It does not grow upon the native prairie sod, save where there are bare spots. During the month of August a comparatively small force of workmen would suffice to destroy all weeds upon road margins and the wild lands of the worst infested township in the State.

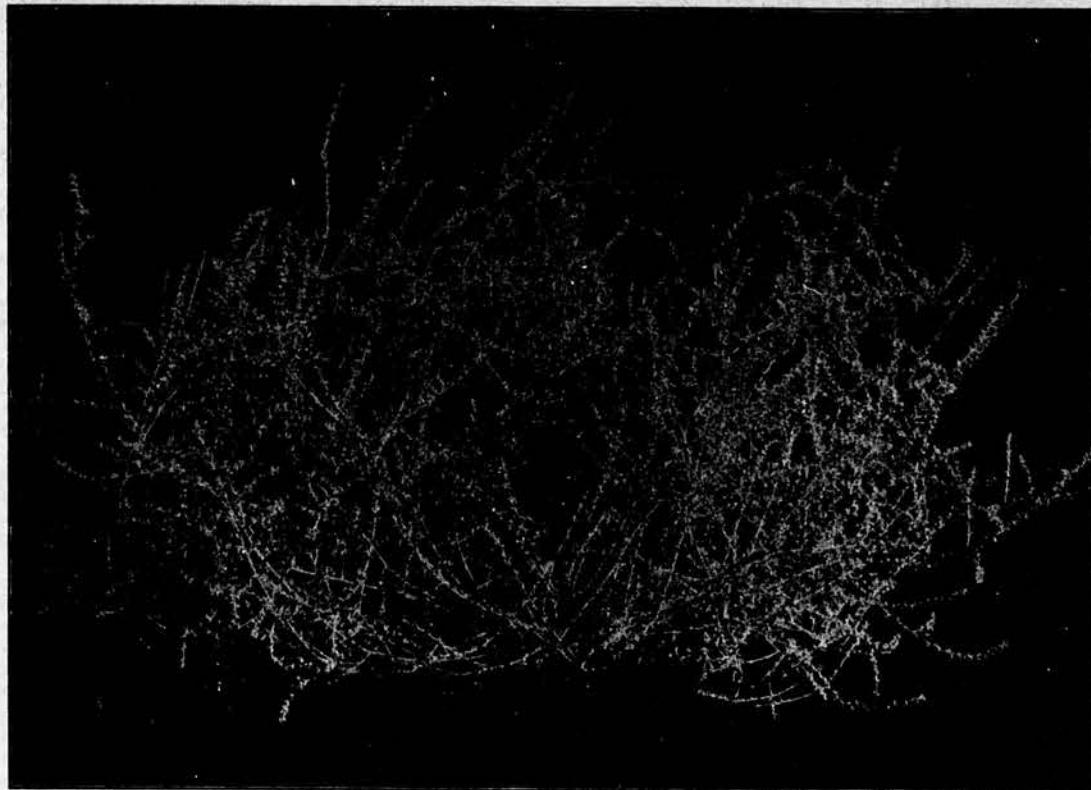
"The weed matures its seed but slowly, so that if vigilantly destroyed during the early portion of the season,

(a) Small branch of a young plant, natural size. (b) A seed magnified five times.

The branch in the center is from a mature plant in the very prickly state, shown natural size.

ing more rapidly, perhaps, than any heretofore known, and, under the present loose attention which it is receiving, will soon cause an enormous amount of damage throughout the State.

seeds. The seed of this plant is as large as a mustard seed, and may be known by the fact that the embryo is spirally coiled, in form like a small snail shell.



RUSSIAN THISTLE, ABOUT ONE-SIXTH NATURAL SIZE, FROM D AND SEVENTH STREETS, LINCOLN, NEB.

frost will very effectually destroy the later plants.

"Aside from its tumbling capacities this weed possesses no quality which would make it hard to exterminate under a careful system of farming and road management.

"To summarize, this weed is spread-

When once it has generally taken possession of a large area of land only heroic measures will keep it in check. There are, however, no good reasons why it should be allowed to continually encroach upon new land.

"Suggestions:—Sow no small grain that is not thoroughly clean from weed

"A good wire fence is of much advantage.

"Do not break up any more of the native sod than you can tend and keep clean.

"Put all land sown to wheat or small grain in such condition that the crop may have the best possible start of the weed.

"Do not allow scattering weeds to reach tumbling size. Where it is abundant mow, rake and stack as you would hay until the time comes when you can burn it.

"The weed should be plowed under when immature.

"Never try to run a barren fallow where this plant is abundant.

"Patches of the weed may be effectually destroyed as follows: Instead of trying to run a barren fallow sow on a fair quantity of the small grains, say rye, wheat or oats, pasture until late in July or first of August, then turn under thoroughly.

"To keep land which is as yet free from the pest from becoming seeded by the tumbling weeds and free seeds, the following plan is worthy of trial: Sow each spring a strip of sunflowers about one drill width around each field. Induce these to grow as dense and strong as possible. Leave the stalks standing during the following autumn and winter, clearing the ground by fire in the spring.

"We believe that each farmer can readily keep his own farm clear of this weed, provided it is kept off the waste lands and roadsides. For this purpose we have a State law with direct reference to this weed. Enforce it. If for some reason it is ineffectual the people of this State should find it out speedily, that it may be remedied."

F. D. COBURN,  
Secretary State Board of Agriculture.  
Topeka, July 31.



#### Save Your Corn Fodder.

Every prudent farmer recognizes that a short hay crop creates a necessity for additional preparations for his winter's stock feed, and none is more profitable than his crop of corn fodder if properly harvested, taken care of and judiciously fed out. The old-time corn-knife has been supplanted by a more rapid process in the use of corn-cutters operated by horse power, and among those invented none has given better satisfaction nor is more popular than the Dain Safety Corn-Cutter, made by the Dain Manufacturing Co., at Carrollton, Mo. They invite correspondence and will give prompt attention to all inquiries. They want farmer agents and will, where they have no regular agent, sell direct to the user.

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## The Home Circle.

### To Correspondents.

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

### A Girl of the Long-Ago.

An old man sits at eventide, when the summer's sun is low.  
His thoughts, like birds of beauteous wing, go back to the long-ago;  
He looks upon golden tress which like a sunbeam lies  
In his wrinkled palm, and tears will start unbidden to his eyes.

The tress recalls a girlish form, he sees it through his tears,  
A merry voice rings out from where are grouped the vanished years;  
Yes, from the past two eyes look forth with love-light all aglow,  
And now before him stands once more a girl of the long-ago.

You'd smile to see her standing 'mong the maidens of to-day,  
Her garments of a quaint old style forever passed away;  
And in the attic, hid away—a secret 'tis you know—  
Is an old, old dress, the wedding gown of a girl of long ago.

There are silver buckles on her shoes, a dainty little pair,  
The old, old man looks down and smiles, as if they're really there;  
He saw them trip the "Money Musk" when the harvest moon was low.  
What said he on the homeward ride to that girl of the long-ago?

No matter what; the wedding bells rang joyously one morn  
When o'er the clover came the wind to kiss the silken corn;  
And he who oft with beating heart had played the boyish bean,  
Stood up and blushed beside his bride—the girl of the long-ago.

That day the silver buckles got a new and brighter gleam;  
And then began, by heaven blessed, love's long ecstatic dream;  
He took his bride to where the flowers of summer bloom and blow,  
For he had won earth's fairest prize, the girl of long ago.

And that is why lies in his palm that tress of golden hair;  
It peoples with a thousand scenes the thin and viewless air;  
And at his bidding from the past, whose curtain hangeth low,  
Comes forth in beauty and in youth a girl of the long-ago.

Methinks that while he sits and rocks, with life at its decline,  
Still for his eyes and his alone her silver buckles shine;  
I cannot tell you when she died; this only do I know:  
She is his bride to-day as when he won her long ago.

A little Miss steals forth sometimes and climbs upon his knee,  
Her fingers smooth his snowy locks, her eyes are fair to see;  
He kisses her with youthful zest, his own eyes all aglow,  
Because she is the image of a girl of the long-ago.—*Good Housekeeping*.

### MUSICAL NOTATION.

Graduating thesis, by Lorena Estella Clemens, Alida, Kas., at Kansas State Agricultural College commencement, 1894.

Musical notation is of interest, not only for its own value, but also for the light which it throws on music as a whole. This art, although progressing slowly at times, has never ceased to advance throughout its long existence, while each period of its development has called for a change and improvement in its written language.

For convenience the history of notation has been divided into three parts. In the first period the letters of the alphabet were used; then, centuries later, a species of Hieratic characters took their place, and last we have the notes written on the lines and spaces of the staff.

The Greeks used the letters of the alphabet, but this system could never be very successful, as they had no way of representing the degree of the scale by the position of the notes. To overcome this difficulty an entirely new system was made, about the eighth century, composed of points, accents, hooks and numberless other signs, placed over the syllables to designate the pitch; but still the performer had no means of knowing the interval to be ascended or descended.

The tenth century brought an improvement, from which our present system has probably grown. A red horizontal line represented the letter F, and the higher and lower notes were represented by signs placed above or below it. This was so much of an improvement that a yellow line was added above for the letter C. From these came our F and C clefs, which, with our more modern G clef, are modifications of Gothic letters. A staff of many lines was introduced in the tenth century, in which the words were written in the spaces, and a little later only the lines were used, the notes being represented by points.

Soon after this the "time table" was invented, which made each note equal in value to two of the next lower order. The tenth century brought an improvement, from which our present system has probably grown. A red horizontal line represented the letter F, and the higher and lower notes were represented by signs placed above or below it. This was so much of an improvement that a yellow line was added above for the letter C. From these came our F and C clefs, which, with our more modern G clef, are modifications of Gothic letters. A staff of many lines was introduced in the tenth century, in which the words were written in the spaces, and a little later only the lines were used, the notes being represented by points.

Buckingham's Dye for the whiskers is a popular preparation in one bottle, and colors evenly a brown or black. Any person can easily apply it at home.

modes, each having three prominent notes besides the final, namely, dominant, mediant and participant, named in order of their importance.

The flat and natural, used as accidentals, are found in very early times, but the sharp can only be traced to the last half of the thirteenth century. However, musical typography changed very little until instrumental music came into use, about the sixteenth century, bringing with it the five-lined staff, the "time signature" being written as now, in the form of a fraction; but not until faster music was used did the oval-headed notes take the place of the square or lozenge-shaped ones, while dramatic music brought with it the marks of *tempo*, as *allegro*, *moderato* and others similar.

About 1840 a system known as the "tonic sol-fa" was introduced, in which the notes are represented by syllables only, and the pitch of the scale is determined by the letter indicating the key; later there were some modifications, known as the buckwheat system, the syllabic system, the numeral system and a system in which the key is represented by a heavy line or lines.

Music—the universal language of the emotions, once considered as a mere luxury and accomplishment, is now a necessity in giving us a symmetrical and harmonious culture. It refines the taste, purifies the heart, soothes in sorrow, intensifies love, in times of trial and discouragement it inspires hope and courage to overcome difficulties, and when trouble as a dark cloud gathers about us it is the mission of music to penetrate this darkness and gloom and let in upon the despondent soul the sunshine of hope and joy.

### Letter from Oklahoma.

DEAR HOME CIRCLE:—We have been having some little excitement in our little inland town since last I wrote to you—a run for the Kickapoo lands, caused by a false report. The word came at 11 p. m., and in less than half an hour every man who could ride, and several women, too, were going pell-mell for the "promised lands." They staked claims, and some even came back and went to Guthrie to file. Finding it to be a local run, the runners soon discovered it to be a fake, and returned crestfallen. One man even sold his claim for \$40. No one yet knows just how the false report started. After the race, folks settled down to business quieter than ever to endure the drought and heat with the best grace possible.

Yesterday, while our town was pursuing the even tenor of its way, a band of outlaws

came riding up the principal street, shooting at every one in sight. They made for one of the banks, and the citizens, panic-stricken, made for the backs of houses and the woods. An old gentleman, a barber, whose name was Mitchell, was sitting near the bank. They ordered him to keep still, but he jumped up and shouted: "The Dalton band is robbing the bank!" It was the last word he ever uttered. They shot him through the heart. They fired between twenty-five and fifty shots. Many of the citizens had narrow escapes from flying bullets, but no one else was hit. The robbers failed to get into the safe, as it was a time lock. They took all the loose cash in reach, a watch, and started. By this time the people were finding their guns, and as the robbers rode out north of town a number of mounted men were after them. One of them was shot and brought back and lodged in jail. Our sheriff and deputies soon returned with the wounded man and let the rest go, followed by two young men who trailed them to the Creek lands, but dared go no farther alone. It was a citizen who wounded the robber. I think if such a thing should happen again soon, there would be a warm reception. Right after the excitement a deputy marshal shot a citizen, and he died at eleven, the result of a quarrel. So to-day there are two funerals, and two murderers in jail.

This band was composed of a negro, two full-breed Creek Indians and others—I don't know just how many, nor who they were. The drought struck us within the last two weeks. Corn is drying up. Grapes are suffering. The cotton, too. We have had plenty of cloudy weather—rains in sight, but none for us. We still hope for rain before things are dead. There are other localities where the drought is more severe.

Numbers of cattle have died from fever—those which came from the North (Kansas and Illinois). "A hint to the wise." M. J. HUNTER. Chandler, Okla., July 31, 1894.

Buckingham's Dye for the whiskers is a popular preparation in one bottle, and colors evenly a brown or black. Any person can easily apply it at home.

### A Few Edible Toadstools and Mushrooms.

On the continent of Europe the spontaneous annual crop of mushrooms is an important factor in the food of the people. In England and America an equally abundant crop is neglected. How can the non-scientific wanderer through the woods and pastures distinguish between the edible and the poisonous fungi, and thus reclaim this delicious harvest? According to W. Hamilton Gibson, selection is easy, and there is only one mushroom which contains a deadly poison, and that, though common, is easily avoided. In an article in the August Harper's he describes and pictures a dozen varieties that may be distinguished by the novice and made a valuable addition to his larder. A part of his article is as follows:

"Walking in the woods, recently, with a country friend, we were discussing this 'toadstool' topic, when we came upon a cluster of fungi at the base of a tree trunk, their broad expanded tops apparently upholstered in fawn-colored undressed kid, their under surfaces being stuffed and tufted in pale greenish hue.

"What would you call these?" I inquired.

"Those are toadstools, unmistakably," was his reply.

"Well, toadstools or not, you see there about five pounds of delicious vegetable meat, for it is the common species of edible Boletus—*Boletus edulis*."

"A few moments later we paused before a beautiful specimen, lifting its parasol of pure white above the black leaf mould.

"And what is this?" I inquired.

"I would certainly call that a mushroom," was his instant reply.

"This mushroom proved to be a fine, tempting specimen of the *Agaricus Amanita bulbosa*, the deadliest of all the mushrooms, and one of the most violent and fatal of all known vegetable poisons, whose attractive graces and insidious wiles are doubtless continually responsible for those numerous fatalities usually dismissed with the epithet, 'Died from eating toadstools in mistake for mushrooms.'

"Nor are the other popular traditions and tests by which the primary selection of the 'mushroom' is 'proved' for safety worthy of any more consideration; tests, for instance, such as the following: 'Pleasant taste and odor; boiling with a silver spoon, the staining of the silver indicating danger; peeling of the cap; change of color in fracture,' etc. I once knew an aged dame who was a village oracle on this as well as other topics, and who ate and dispensed toadstools on the above rules. Strange to say, she lived to a good old age, and no increased mortality chanced as a result of her generosity.

"How are these popular notions sustained by the facts?

"Many, indeed a majority, of the most delicious species will not 'peel' at all; others change color, turning blue or green or tawny almost instantly on being broken, while the most deadly amanita peels with a certain degree of accommodation which would at once seem to settle its claim as a 'mushroom,' has, moreover, to many, an inviting odor and a pleasant taste when raw, and when cooked giving no token of its fatal resources until from six to eight hours after being eaten, when its unfortunate victim is usually past hope—absolutely so in the absence of proper medical treatment, in the administration of atropine in hypodermic injection in one-sixtieth grain doses, this deadly drug having been only recently discovered to be an effective antidote to amanitine, the poisonous principle of the amanita fungus.

"Upon a certain spot on the lawn of one of my neighbors, year after year, without fail, there springs up a most singular crop. For the first two years of its appearance it was looked upon with curious awe by the proprietors of the premises, and usually ignominiously spurned with the foot by the indiscriminating and destructive small boy. One day I observed about five pounds of this Delmonico delicacy thus scattered piecemeal about the grass, and my protest has since spared the annual crop for my sole benefit. It usually makes its appearance in late September, and continues in intermittent crops until November. A casual observer of this cluster of edible toadstools might imagine that he beheld a convention of goose eggs standing on end in the grass, their summits more or less spotted with brown. If one of them is examined, it is seen to be a curious short-stemmed mushroom which never expands, perhaps five inches in height, and whose surface is curiously decorated with shaggy patches. In its early stages it is white and singularly egg-like, but later becomes brownish, and its shaggy points almost black. The concealed gills are crowded and of equal length, at first creamy white, but gradually changing through a whole gamut of pinks, sepias and browns until they become jet black, at which time the whole substance of the cap melts or deliquesces into an unsightly inky paste, which besmears the grass and ultimately leaves only the bare white stalk standing in its midst.

This is the 'shaggy-man' mushroom, *Corprinus comatus*. It is a savory morsel, and it cannot be confounded with any other fungus. It should be gathered in the white

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or pink stage, and may be prepared for the table in various ways, either broiled or fried, as described for previous species, or stewed with milk.

"It will surprise many to know that the plebeian puff-ball of our pastures is good for something besides old-fashioned styptic, smoke, and the kick of the small boy.

"There are a number of species of the puff-ball, varying in shape and size from the small white globular variety of an inch in diameter, and the pear-shaped, to the giant pasture species which may attain the dimensions of a football. All are edible, if gathered at the white stage, those of yellow or darker fracture being excluded. Of the esculent qualities of the larger species, *Lycoperdon giganteum*, we may judge from the statement of a connoisseur: 'Sliced and seasoned in butter and salt, and fried in the pan, no French omelet is half as good in richness and delicacy of flavor.' M. C. Cooke, the British authority, says of it: 'In its young and pulpy condition it is excellent eating, and indeed has but few competitors for the place of honor at the table.'

### 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,

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## The Young Folks.

### Charmed Smoky Water.

There is an old, old legend,  
Told by the Western men,  
That they who drink of the Smoky's tide  
Shall return and drink again.

For, they say, an Indian chieftain,  
In the mystic days of old,  
Stood beside the shining river  
And his spell of magic told.

And he cried: "Blessed be the river,"  
As he stood upon the brink;  
"They who once shall drink its waters  
Shall return again and drink."

"Tho' they wander to the Eastland,  
Or to Western mountains high,  
They shall wander to the Smoky  
Once again before they die."

Give the Indian and his magic,  
But the river still remains,  
And its limpid waters sparkle  
As they wander o'er the plains.

And how many, Oh! how many,  
Have left the State and moved away.  
Then have wandered back to Kansas  
And are living here to-day?

Ellsworth, Kas. G. A. TANTON.

### A WONDERFUL DOLL.

Many years ago, before you or I were born, there lived, in the capital of a great country, an old widowed woman whose name was Marion. She had a little granddaughter, who was an orphan, and was called Betzy. They were so poor that many and many a time a crust of bread was the only meal they had for a whole day. Little Betzy had never tasted a tart or a candy—not even a stick of barley sugar. Sometimes, in crossing the park to sell the small bunches of violets, by which she gained a few pence for her old grandmother, she had seen the beautifully dressed children feeding the swans in the large marble basins.

Pieces of nice cake and buttered bread, part of the children's own lunches, would float upon the clear water for an instant, and be then eagerly nipped up by the hungry swans. And often the graceful white fowl would stretch out its long neck and take the dainty food from the hand of some pretty child.

Then poor little Betzy would sigh and say to herself: "I am so hungry. I wish I were a swan, to have all those nice lunches given to me. My supper is always a hard crust that almost breaks my teeth." But Betzy was a sweet, brave child, who, being neither jealous nor greedy, quickly consoled herself thinking.

"Ah, well! I am not so unfortunate after all. I have good teeth, but poor grandma is mostly to be pitied, as she has no teeth. When I am old enough I shall work day and night that she may have some good hot soup before she goes to bed."

One day, old Marion having washed some clothes for a neighbor, received in payment a silver shilling.

"Now," said she to Betzy, "take this piece, be sure you do not lose it, and buy some fresh bread and black pudding. I feel very feeble to-day, so we must have a good dinner. We will have a meal fit for a king. We have never been so rich. Hurry along, now, for I am very hungry."

Betzy ran off to make her purchase, and in return for her money received a good half of a fresh loaf of bread and two little puddings. Quite happy in the thought of the good dinner she would have, she was running along, singing gaily, on her way to the poor little hut, which was the only home she had. On the road she met a poor old beggar woman, who looked very miserable, and said to her:

"My dear little child, I have not had any food for two days. I shall die of hunger if you do not give me something to eat."

"I am very poor myself," answered Betzy. "I have only this lunch, which is all the food my poor grandma and myself can get for some time."

"Oh, but I am so very hungry!" sighed the beggar woman.

"I do not like to see you cry, poor woman, so you shall have my share of the dinner. I can do without it. Waiting a little longer will not make much difference. I am so used to it." And the sweet child opened her basket and gave away her own part of the food.

"My dear girl," said the stranger, "your kind act shall not be forgotten. Here is a reward for you." Taking from under her cloak a beautiful doll, she placed it in Betzy's arms and disappeared.

It would be impossible to tell you how happy Betzy was. She had never owned a toy in all her life. Her only pleasure had been to talk to the pretty dolls through the glass windows of the shops. Even then she had never seen such a beauty as this one. She held it to her breast, kissed its little red cheeks again and again, calling it her dear child, as laughing and dancing along she at last reached her home.

"What has kept you such a long time?" scolded the grandmother. "I told you to

make haste. If you ever stay so long again I shall whip you. Do you hear?" Poor little Betzy was so frightened at this greeting that she hid the doll behind her with one hand and held out the basket with the other.

"What is that all you could get for the money I gave you?" old Marion asked, looking at the food.

"Yes, grandma, but it is all for you. I—I am not hungry."

"What do you mean by telling me that, you who are always hungry as a rat? You have been doing something wrong."

"Oh, no, indeed, grandma," answered Betzy, crying.

"You should have some money left then."

"No, grandma, but I gave the rest of the dinner to a poor woman who was more hungry than I am, and she gave me this doll because she thought I was good."

"How dare you tell me such a story?" screamed Marion, now very angry. "Do you think I am a fool, to believe you? This doll has cost a great deal of money. You stole it, and you are a wretched little thief."

"Oh, no, no. I did not steal it. I am not a thief," cried the child, falling on her knees and clasping her little hands, while the tears ran down her cheeks.

Grandmother Marion was very severe in matters of honor. She could not believe the story. So she tossed the doll over in a corner and boxing Betzy's ears she sent her to bed.

"To-morrow I shall find out that it was stolen. I shall return it, and this miserable child shall ask for pardon on her knees. Oh, the shame of it!" grumbled Marion to herself, as, quite sure that she was right, she threw herself on her mean bed, and worn out with age and excitement she was soon fast asleep, snoring soundly.

Of course there was no sleep for poor little Betzy. She was very hungry, and her ragged pillow was quite wet with her tears. Her cheeks were still smarting from the slaps she had received, and, worse than all, her dear treasure was lying over in the corner.

"Will grandma take you away from me? Ah, how cold you must be over there on the ground. If I could only have you here by me." So Betzy talked to her doll, in mind, and finally hearing how deeply her grandmother was snoring, she took courage, stole softly out of her bed and tiptoed with little bare feet over to the corner, caught up the doll and hurried back. And there she lay coddling her treasure in her arms, kissing and talking to it, until she fell fast asleep.

Early the next morning Marion threw open the window, and, with a very stern face, went to look at her grandchild, whom she found contentedly smiling in her sleep.

"Humph! she must be a very bad little girl to look so calm after stealing as she did yesterday. I will wake her up and make her confess it now."

What was Marion's surprise when dragging the ragged covers off rather roughly she discovered the child and the doll covered with golden pieces. They fell to the ground with a clear, ringing sound, and, scattering in the sunlight, quite dazzled the eyes of the old woman. In one hand of the doll there was a folded paper. Marion seized it eagerly, and found written upon it these words:

"Do not scold Betzy. She deprived herself of her dinner to feed a poor beggar, who was, in truth, a fairy. The doll was given to her as a reward, and her act of charity has made you both very rich."

Now old Marion was almost wild with joy, not only because she found herself so rich, but because Betzy proved to be an honest child, and the grandmother really cared much more for that. Betzy, waking up, and finding her grandmother looking so very cheerful and happy, told her the whole story of yesterday's adventure, stopping every other minute to kiss her beautiful doll.

"How shall we ever be able to count all this money?" said Marion. "Two pairs of hands will never do it. Run to our neighbor and borrow her bushel measure. The neighbor was neither very charitable nor good-natured, but she loaned the measure. When Betzy returned it, the neighbor, under a pretense of dusting it out well, banged it about with rather a disgusted air. Suddenly a piece of the gold that had caught somewhere at the bottom of the measure rolled out on the floor.

"How is this?" she cried. "Old Mother Marion, who was so poor yesterday! Has she come into a fortune that she can measure her money by the bushel? There must be some magic here, and I shall be the one to find it out."

She ran to Marion's house, and by clever questions soon learned the story.

"Mother Marion," said she, "I will take the doll now. You are rich enough. Oh! do not deny me or I shall say that you are a witch. You know that they will burn you up then, you and that affected little jade over in the corner, there, who is pretending to cry, I see."

Of course they dared not oppose her after such a threat, so she carried home the doll. She put her finest sheets on the bed and had two coverings well aired, so that

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the wonderful doll should be made very comfortable. Then she lighted a night lamp, so that she might see everything very clearly.

"Ah!" said she to herself, rubbing her hands in expectation. "If that wonderful doll brought so much gold to Betzy's miserable little cot, what shall I not find in that grand bed, with those fine white sheets, and room enough for four persons to be at their ease?"

Her great avarice kept her watching all night long, and at the very dawn of day she threw open the shutters. Trembling with excitement she lifted the covers, peering curiously under them. Oh, horrible! A toad jumped into her face; then a snake crawled up to her collar; then frogs, crickets, grasshoppers, in fact, all the ugliest and most disagreeable little animals and insects jumped off the bed and clung to her skirts or crawled into her hair.

Crazed with fear, she uttered a shriek and threw the doll out of the window. A loud cry answered hers, and this was the cause of it:

It was the early part of winter time, when all the birds are flying away to find a warmer country. Just then the King's son, a young Prince about 15 years of age, was walking with his tutor, and with uplifted eyes was watching a flock of fowl that had formed into a dark triangle as they soared through the blue sky. He had asked an explanation from his tutor and while gazing up at the clouds was suddenly struck in the face by the falling doll, with such force that its feet were thrust into his mouth, almost choking him. He coughed and pulled at the doll by the head with all his strength, but the more he pulled the deeper sank the feet into his throat, nearly strangling him.

His tutor and all his followers assisted to save him, but without success. The poor little King grew purple in the face and every one thought he would die.

Fortunately Betzy was just coming along to beg of her neighbor to restore the doll. She saw it immediately and ran toward the Prince, crying:

"Ah! my dear, dear little child!" She rushed forward to seize the doll's arm, but that was not necessary to save the Prince, for the doll jumped itself, right into the arms of the little girl, and every one stood dumb with astonishment. Of course, the grandmother was only too glad to tell the whole world, if she could, of what a sweet, charitable child she had. Full of tender thankfulness, the little King took Betzy's hand in his.

"This child," said he, turning to his courtiers and the crowd that had gathered about him, "has just saved my life. As I learn that she is good and charitable to the poor, I cannot choose a better wife. When we are old enough we shall be married. My people shall be happy, and I hope that my Queen, by her virtues, and I by my courage, will contribute to the glory of our country."—Boston Post.

### Life's Lost Chords.

The music of life is anything but a perfect whole. It is marred by discords, as well as rendered beautiful by harmonies. Here and there, it is true, a lovely phrase is completed and rounded off to melt into the general theme. But how often must we bitterly regret vagrant airs which spoil the beauty of the composition, or strive vainly to find again those lost chords of life which have eluded our grasp forever.

There are the melodies of childhood—so gay that we could not help dancing as we listened to them. Even in them we hear, as their notes come floating to us out of the far away past, an occasional pause, and silence. Then we strain our attention to the utmost and try to recall the chord which is missing, so that our memory may be complete. But it is useless; a few bars are lost to us, and can never be regained.

Later on these silent spaces become more numerous, and oh! how far more significant. It is no longer the loss of a note here and there which we deplore. A whole melody is spoilt, turned into a discord, or gone forever. And now we have ourselves to blame. The music of life comes to us through our own acts and thoughts. We make our own discords and harmonies. And—when a phrase is lost—we search for it with tears, knowing that it is we ourselves who have let it slip, and that now, perchance, it is beyond recall.

It is not at the time, perhaps, that we notice the deficiency. We are too self-absorbed to catch any save the broad flow of the melody of life which, in our youth, sweeps us on heedless of pauses, falterings, and even of occasional silences. Remembred in later years those silences become only too apparent, and—just as the airs of childhood lack part of their lilt and gayety—so the fuller and more passionate music of youth appears marred by breaks and discords.

Some beautiful harmony, some dream

and ideal, has been forgotten that we might push eagerly forward to the end of the piece. The theme itself has allure us so much that we have ceased to consider the minor passages, and have dropped from our lives, and now miss from our hearts, the sweetest tunes of all. We have cared so much for the blare of trumpets that we have allowed them to drown the tender notes of the violins.

We cannot remake our memories. Whatever we have lost by the way, whatever chords and cadences we have ignored, spurned or forgotten, those can never again be ours. Through the long afternoon of maturity—through the longer evening of age itself—we search for them in penitent sorrow. They are past recall. Let us be careful lest, because of our unavailing regrets, we lose others as sweet and beautiful, though perhaps less full of passionate rhythm and abandonment.

For all our life echoes melodies, and some there be who hear them, and some who hear them not.

But his lot is of all the most sad who, through willful deafness, has lost his perception of the harmonies of existence, and who gropes blindly after chords and combinations which he shall never find again.

God knows—for we do not—whether he may hear them yet in heaven.—Mabel Hickson.

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# KANSAS FARMER.

ESTABLISHED IN 1863.

Published Every Wednesday by the

## KANSAS FARMER COMPANY.

OFFICE:

No. 116 West Sixth Street.

SUBSCRIPTION PRICE: ONE DOLLAR A YEAR.

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

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

Address all orders

KANSAS FARMER CO., Topeka, Kas.

It is said that farmers are buying wheat on the streets of Winfield to feed to cattle and hogs.

The price of corn advanced 7 cents yesterday in Chicago, closing at 59 $\frac{1}{4}$  cents. Wheat advanced 2 $\frac{1}{2}$  cents to 55 $\frac{1}{4}$  cents. Bad news from the corn fields was the exciting cause.

The United States Treasury reports the gold reserve, which was formerly supposed to be sacredly kept at \$100,000,000, is, according to the August 1 report, only \$54,975,607.

An Associated Press telegram from Lemars, Ia., says: "Plymouth county farmers are cutting the drought-stricken corn for fodder with self-binding reapers. Dozens of machines are running."

Chicago stocks of wheat increased 1,273,000 bushels last week, corn decreased 134,000 bushels, oats increased 201,000 bushels. The Chicago stocks are 18,643,000 bushels of wheat, 1,380,000 bushels of corn and 350,000 bushels of oats.

The hundreds of horses belonging to the Armour establishments in Chicago have been fed on a mixture of half wheat and half coarse grain for some weeks, and, although the employees at first predicted failure, the experiment has given complete satisfaction. Feed men in Chicago say not half the livery stables are feeding oats.

### NAMES WANTED.

It is not often that this paper makes a special request of its readers, but we want the name and address of every farmer in Kansas who is not a subscriber. Will every one of our readers favor us with a postal and a list of names?

The visible supply of wheat in the United States and Canada last week increased 2,800,000 bushels, corn decreased 235,000 bushels, oats increased 351,000 bushels. The visible supply now contains 60,001,000 bushels of wheat, 3,738,000 bushels of corn, 1,598,000 bushels of oats and 218,000 bushels of rye. Same week last year: Wheat, 59,439,000 bushels; corn, 6,921,000 bushels; oats, 1,663,000 bushels.

A delegation of fifty-two members of the Sherman County Irrigation Association made an excursion last week through the irrigated regions of the eastern half of Colorado and of western Kansas as far east as Garden City. Among them, as was to be expected in any gathering of intelligent Kansas farmers, were many subscribers to the "Old Reliable," and it was a pleasure to the editor, who met the party at Garden City, to greet those to whom he has for so long, these many months, sent his thoughts every week. It is hoped that we shall in the near future be able to lay before the entire circle of readers a full report of the finding of this jury as to the questions of irrigation and how to accomplish it.

### AMONG THE IRRIGATED FARMS.

The editor of the KANSAS FARMER had heard much speculation as to the effects of hot winds on irrigated crops, and in order to see for himself, took a trip last week to Garden City. This thrifty town is located well out in what has been termed the semi-arid region. The audacity of the first settlers in locating one hundred miles beyond the "rain belt" was admired more for its daring than for its wisdom. To-day one passes about one hundred miles of brown, bare plains, semi-desert, on which the grass is as brown as the soil and too short to burn, and comes suddenly upon beautiful groves, green fields, ponds of water, orchards bending with fruit, gardens and beautiful homes. The writer remembers that a few years ago he saw the places, where these things are, as bare and barren as the surrounding country. The secret of the transformation is water. Under the barren plains of the valley at a depth of eight to ten feet is a great reservoir of water held by or slowly moving through an immense bed of gravel and sand. Constantly replenished and always full, this reservoir underlies the plains to an unknown extent and at varying depths.

The farmers about Garden City have sent hundreds of pump points into this reservoir and have harnessed the ever-willing wind to the pumps. They have constructed ponds by inclosing small areas with earthen walls and puddling the bottom and sides until they are water-tight. Into these small elevated lakes the water is pumped by the wind and is used as needed for the prosperity of vegetation.

The first attempts at irrigation at Garden City were with water diverted from the Arkansas river into ditches. This was entirely successful when there was water in the river, but upon the frequent occasions when the river bottom was a bed of dry sand this proved unsatisfactory. It did fairly well for alfalfa, which is reported to thrive if it gets a good wetting every year or two, but other vegetation cannot live so long without surface water. The windmill pump and the surface reservoir therefore became a necessity. There are now in operation in the vicinity of Garden City some hundreds of mills and pumps. Some are relying on these alone and others are using river water from the ditches when it can be had and supplementing this by the individual pumping plant.

The experience gained in details of construction is most valuable, and to learn of this was one object of the editor's recent visit. This experience pertains to the development of the water supply, its application being in no wise different from that of "ditch water," with which experience is older than civilization itself. The development of the water supply divides naturally into four sub-headings, viz.: (1) The well; (2) the pump; (3) the power, and (4) the reservoir.

Well-digging is very old, and yet the man who undertakes in the old way to dig an open well in the Arkansas valley which shall supply large quantities of water finds difficulties which can be overcome only at great expense. A few feet below the surface, and usually at or near the depth at which water is found, occurs a bed of sand and gravel—occasionally quicksand—without any intermixture of plastic material. This sand is full of water; and sand, gravel and water together come in upon the digger with surprising alacrity. Curbings against this in the usual way is readily done, but when the water becomes too deep to work in and has to be pumped out its inflow through the bottom carries with it the sand and gravel so that but little progress is made. Driven wells have been resorted to with success and abundant supplies for domestic purposes and for watering stock have been obtained by driving down one and a quarter inch pipes with perforated and wire-jacketed joints. But the supplies required for irrigation are far beyond the capacity of such small wells, and one of the problems has been to enlarge the supply of water without too great expense.

On the fourth page of this paper is presented a copy from a photograph of

the irrigation plant of Judge D. M. Frost, of Garden City. The small lake of water therein represented covers about a quarter of an acre and is all pumped from one well. This is one of the latest plants installed and in its construction advantage was taken of all previous experience. The plant and its construction will therefore be at least partially described here. The pump consists of a perforated "point" ten feet long and six inches in diameter. The suction pipe, connecting the "point" to the cylinder, is six inches in diameter. The cylinder is twelve inches in diameter by twenty inches long, and the pipe or pump stock above the cylinder is twelve inches in diameter. The depth from the surface of the land to the water is ten feet. The cylinder is placed just above the water and the top of the "point" is immersed about fourteen feet below the surface of the water and the lower end of the point is about twenty-four feet under water and thirty-four feet below the surface of the land. To sink this point was really the only difficult task. An open well was dug to the water. A sheet-iron casing twelve inches in diameter was made. A section of this was set up in the well and the sand was taken from the interior by means of a sand pump. Other sections were added and sand pumped down to the required depth. The "point" was put in and the suction pipe connected. Coarse sifted gravel was then filled in around the point and as the filling progressed the sheet-iron casing was withdrawn. The other portions of the pump were then attached. An open-ended barrel was sunk in the bottom of the open well near the pump to facilitate observations of the amount by which the water level at that place is depressed when this large pump is in active operation. When the pump makes thirty twelve-inch strokes per minute the water surface is depressed in the barrel about six inches and there remains stationary. Thus, when supplying about 150 gallons per minute this well was lowered only six inches. This seems to put at rest all questions as to development of water supply.

By a method similar to that just described, an "open well" was sunk to a depth of thirty feet at Garden City a few days ago by the Wonder Pump Co. This is a twelve-inch well, but before sinking, the sheet-iron casing was punched full of small holes for about ten feet of its length. A Wonder pump, driven by a steam engine, was used and the discharge of water was variously estimated at 200 to 600 gallons per minute. The surface of the water was lowered about seven feet in this well and there remained stationary until the pump stopped, when it rose to its former level in fifty-nine seconds.

The question of the pump to use is a delicate one on account of the partially established claims of many persons interested in pump specialties. The writer has had a rather extended experience with pumps, having sold and put in operation under guaranty many thousands of dollars worth of these machines. He has now no interest for or against any pump or manufacturer. He has recently bought for his own use two irrigation pumps, and while not presuming to superior wisdom, believes his readers may be interested in knowing that after considerable careful investigation to make sure of being up with the times, he bought plain iron single-acting plunger pumps. They are to be used with twelve-foot steel windmills, geared to make one stroke of the pump to two revolutions of the mill. The length of stroke will be eight, ten or twelve inches. The cylinders are eight inches in diameter and eighteen inches long. The points are six inches by ten feet. The suction and delivery pipes are six inches in diameter. The lift will be about twenty feet. These pumps were bought of Prescott & Co., Topeka.

The power to be used is another debated question. So far the windmill is far in the lead in Kansas. The mills used at Garden City vary from eight to sixteen feet in diameter and are of all makes. Generally they are scarcely strong enough in their working parts to endure the heavy labor of the irrigation pumps. The writer has selected

for his own use the twelve-foot mill built by the Currie Windmill Co., Manhattan. It appears to be a good mill, is very simple and the guaranty is very broad.

Reservoirs or surface ponds are constructed of various sizes. The banks are usually made about four feet high. Their construction and use will be more fully treated in the "Irrigation" department of this paper.

There are yet many unanswered questions as to irrigation in Kansas. It can now be said, however, that, at least in the great valleys, it is practicable, the water supply reliable and the results certain. The further solution of the problem may be rapid or slow and the extent to which irrigation will be found practicable on the uplands uncertain. But there is no uncertainty as to its advantages where practicable.

### KANSAS CROPS.

Exceedingly diversified reports have been published as to the condition of crops in this State, and especially as to the effect of last week's hot winds on the growing corn. To ascertain the truth about this the KANSAS FARMER requested its correspondents, who are practical farmers, to report with especial reference to the corn crop. Space will not be taken here to give these reports in detail, but an attempt will be made to summarize these, supplemented by the personal observations of the editor, who made a trip across the corn belt a few days after the damage was done.

In the eastern fourth of the State the wheat yield is large and the quality excellent. This quarter comprises a very large part of the corn belt, while only in its western edge does it embrace the eastern edge of the far-famed wheat belt of the State. In this eastern fourth, except in a few minor areas, the corn crop was practically uninjured by the hot winds. In the northeastern corner of the State, farmers are accustomed to yields of corn which anywhere else would be considered phenomenal. In this section some damage is reported, while others report average crops. Further south, the reports indicate an unusually large crop of corn. In estimating the condition of corn it may be said that from the east line of the State to Topeka it is fully average, and from Topeka to Emporia damaged possibly 10 per cent.

The next fourth of the State embraces a very large part of the wheat belt, and in it the conditions favorable to corn gradually diminish. The exceptions to this general statement are in the river valleys, in which the corn areas extend fully to the western limits of this belt or to the middle of the State. In this quarter of the State there is an immense amount of very fine wheat, and yet the crop is not as heavy as in some of the best years.

Corn was damaged in much of this region, and considering the region along the Santa Fe as typical, it may be said that from Emporia to Florence the damage was 25 per cent.; from Florence to Newton, 60 per cent.; from Newton to five miles beyond Burrton, 80 per cent. In the vicinity of Hutchinson the corn was not injured in the least, and the prospect was excellent. From Nickerson to Raymond, the damage was about 20 per cent. Raymond is near the middle line. Beyond it corn is produced in the valleys, but it is too uncertain on the uplands without irrigation to be reckoned as more than an occasional crop. Along the Arkansas river, there is some corn as far west as Pawnee Rock, but it was damaged to the extent of at least 30 per cent.

In the third quarter of the State—considering the State in four arbitrary divisions—the belt in which wheat is a reliable crop, finds its western limits. Occasionally this entire belt produces enormous crops of wheat. But the western half of this belt is but sparsely settled and on the average cuts but little figure in crop statistics. In the valleys, alfalfa is being sown and is doing well. Other crops do well where irrigated. Wheat in this quarter of the State will probably make half of an average crop for this section. Millet, Kaffir corn and similar crops are

good and are coming out finely with the late rains.

In the extreme western fourth of the State irrigation is an essential part of farming, as it will prove a profitable part in the quarter lying just west of the center. The response to the application of water and the readiness with which it may be applied, render the prospects of these western divisions bright, but until irrigated their figure in crop reports will be nominal, except in extraordinary years.

Compared with other corn-producing States, Kansas is conceded to have the best prospect, and an unusually large acreage, and while her crop will not be a phenomenal one, present prospects indicate for the State nearly an average crop of this cereal. It is to be noted that in every case in which the lister is mentioned, listed corn is reported as faring far better than surface-planted.

#### OUR AGRICULTURAL COLLEGE EXPERIMENTS WITH IRRIGATION.

While at Garden City last week, it was the pleasure of the writer to meet Mr. F. W. Dunn, who has immediate charge of the Agricultural college experiments with irrigation. Mr. Dunn is a graduate of this college and has had a valuable experience with irrigation in Colorado. The college is fortunate in securing his services, and it is to be hoped will be able to retain them.

The experiments undertaken have so far, however, required rather the skill of the engineer than that of the practical irrigator. The first question which western Kansas asked was as to the practicability of obtaining water for the table lands independently of the uncertain surface streams, that is by pumping from the subterranean stores. To the solution of this great problem the college station addressed itself with the slim appropriation of \$600 to be expended. Mr. Dunn has been a careful student of all that has been done, both in the bottom and on the high lands, and is to-day, perhaps, the best informed man in the State as to all the details of well-making. He knows not only what others have done and how and what difficulties they have met and how they have sought to overcome them, but he knows also a great deal about these points from his own experience. If the total result of the season's work shall be the determination of a reasonably cheap method of obtaining a sufficient supply of water on the uplands, the labor will have been well expended. The station well was first sunk into the upper water-bearing stratum. This, which affords abundance of water for ordinary purposes, proved insufficient for the demands of a ten-inch pump operated by a sixteen-foot windmill. The work of sinking a well into a lower and stronger water supply was nearly completed last week, and it is hoped that by this means the essential first necessity will be met. If, however, the result shall be negative, still the information will be worth many times its cost. But a negative answer will not be accepted as conclusive unless backed by more investigation and experimenting than can be done with \$600.

There are besides the question of developing water supply on the high lands many others which are asked many times a day and unanswered. There are hundreds of thousands of acres of bottom lands for which the water supply is sure. As to these the investigation may begin at this point. Some of the questions for which scientifically accurate replies are needed and wanting are: (1) How many hours in each day, week and month has the wind force enough to drive a loaded windmill? (2) What is the proper load for a mill of a given size? (3) What size of mill gives best results when compared with its cost? (4) How much water is required to irrigate once one acre of a given character of land in a given crop? how much in other crops? (5) How much water will a given plant raise? (6) How much land may be properly irrigated with a given plant under prevailing conditions? (7) What is the best combination as to sizes of mill, pump and reservoir? (8) Is windmill, horse-power, gasoline or

steam power most suitable, and under what conditions?

These and many other practical questions will doubtless receive attention when sufficient funds can be had to procure the necessary apparatus and sufficient time devoted otherwise than to the development of the water supply.

It is to be hoped that the college irrigation experiment station will be made a permanent institution, lending its continued aid to the solution of the problem of the profitable irrigation of the vast areas which must otherwise remain unproductive, or at best uncertain as to their productions, but which, with water, will be converted into farms of surprising fertility.

#### A GRASSHOPPER-CATCHER.

Inquiries continue as to the best method of destroying native grasshoppers. These seldom do very extensive damage, and yet they often make bare the edges of wheat fields and cause considerable annoyance by their attacks upon gardens.

A. B. Kramer, of Pierceville, Kas., has invented, constructed and used a devise for catching these 'hoppers, which, according to accounts, is cheaper and more effective than any other ever made. Mr. Kramer is reported to have caught over fifty bushels of the pests with his machine in one season.

John Stevens, of Garden City, also constructed a catcher after Mr. Kramer's pattern and caught thirty-two bushels of hoppers.

The device consists of a low sled which carries burlap sacks with the mouths wide open and turned to the foe. It is constructed as follows: Make three runners, each four feet long, of 2x4 scantling. Place these seven feet apart. Nail fourteen-foot boards across these, covering the top of the sled except one foot at the front. Take three pieces of 1x4 boards, each two feet long, for upright pieces or standards. Nail one of these to each of the runners just in front of the board covering and in such position that the top ends will incline forward six inches. Nail across these in front at the top a piece of 1x4 fourteen feet long. Nail common burlap sacks to this top piece and the front board of the sled cover in such away as to hold the mouths of the sacks open to the front. Hitch a horse to each end runner of this sled, put a boy on each horse and instruct the boys that the faster they ride the more 'hoppers they will catch.

The KANSAS FARMER regrets that it cannot present a picture of this 'hopper-catcher, which has a wide reputation in western Kansas. It is advised, however, that persons interested write to Hon. A. B. Kramer, Pierceville, Kas., for fuller details as to construction and efficiency of his machine. It is not patented.

#### Weather Report for July, 1894.

Prepared by Prof. F. H. Snow, of the University of Kansas, from observations taken at Lawrence:

An average July except as to rainfall, there being but two Julys of our twenty-six years' record in which the precipitation did not exceed that of the present month. Mean cloudiness low. Compared with the twenty-six Julys of our record, the month was slightly warmer. Rain storms few, but each accompanied by electrical phenomena.

Rainfall was 1.86 inches, which is 2.47 inches below the July average. Rain fell in measurable quantities on four days. There were four thunder storms during the month. The entire rainfall for the seven months of 1894 now completed has been 17.96 inches, which is 2.16 inches below the average for the same months in the preceding twenty-six years.

Mean cloudiness was 24.24 per cent. of the sky, which is 14.15 per cent. below the July average. Number of clear days (less than one-third cloudy), nineteen; half clear (from one to two-thirds cloudy), ten; cloudy (more than two-thirds cloudy), two. There were five days entirely clear and one day entirely cloudy. Mean cloudiness at 7 a. m., 23.66 per cent.; at 2 p. m., 31.93 per cent.; at 9 p. m., 13.09 per cent.

The Treasury department estimate of the population of the United States on August 1 is 68,519,000.

#### Fish Culture.

**EDITOR KANSAS FARMER:**—While the subject of water farming is under consideration, I wish to call the attention of those farmers that think of embarking in the enterprise of irrigation, that in their plans to construct and build an irrigating plant they do not want to lose sight of the value (to say nothing of the pleasure) of fish culture. There is no meat food that can be raised for less money per pound than fish, and there is no branch of farm work that affords so much pleasure and healthful recreation to both the old and young as the cultivation of fish. If the boys and hired help would put in the time they spend in going off to the neighboring creeks and rivers to catch a few bullheads, they could raise more and better fish at home. A man should go at the raising of fish with the same business principles as he would if he were going to embark in the raising of hogs or cattle.

In the first place, he should select the kind of fish that are adapted to the kind of water he has at his command. If the water should be mostly storm or surface water, or muddy creeks, then he should stock up with German carp, mud cat, bullheads, etc., that thrive in such waters. But if you have good soft spring water, then you can stock up with speckled trout, rainbow or mountain trout, silver bass, white or sunfish. There is no kind of stock-raising that one can get stocked so easily and cheaply as with fish. It is the only line of stock that the States furnish to individuals free. Any one who has suitable ponds to keep them can get, free of cost, plenty of small fish to start with.

If you want to raise fish for the market you must provide a place for artificial spawning and hatching of the eggs. It takes no more skill to procure the eggs and hatch the spawn from fish, than to hatch the eggs of the hen in an incubator. If left to themselves, all kinds of fish eat and destroy one-half of their eggs, and as the big fish always eat more or less of the smaller ones, there should always be a part of the pond partitioned off with a rack or screen, so that the large fish cannot get into the small fishes' part of the pond.

It would be more than useless for any one to embark in fish culture that did not provide a pond that the fish could not get away from in times of high water. Three-quarters of all the failures in fish culture that I have known of have been through failure to hold or keep the fish in the ponds during the period of high water.

Select your fish ponds where they will not catch the surface water of a very large area of land, so that in heavy rains you will not have much surface water to contend with. Make the wasteways to your ponds two or three times the capacity that is needed to take care of the water in any ordinary flood.

The best food for fish is the coarse and offal meat from the slaughter house, cooked and chopped fine and mixed with any kind of vegetables. Sour milk curd is an excellent food for both old and young fish.

I will at some future time tell the readers of the FARMER how to procure, impregnate and hatch the fish eggs.

J. S. SHERMAN.

#### 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 August 6, 1894, T. B. Jennings, observer:

Good rains have prevailed generally throughout the western division from Ford and Clark northeastward to Riley and Osage, and in the extreme northeastern, eastern and southeastern counties. Little or no rain has fallen through the northern half of the middle division, through Marshall, Pottawatomie, Jackson, Shawnee, Jefferson, in Sumner, Cowley, Elk or Greenwood, nor in the northern portion of Coffey. The sunshine and temperature have been more nearly normal.

The rains and cooler weather have operated beneficially. In the west the Jerusalem and Kaffir corn and the al-

falfa are doing well and pastures have revived. Within the rain belts in the middle and eastern divisions corn, pastures, hay and fruit crops are materially improved, but outside of the rains these crops have deteriorated, the corn leaves have dried in many fields and much cutting, to save fodder, is being done; apples are falling badly, hay is light, pastures brown and some prairie fires have occurred, grapes are wilting on the vines. Threshing is progressing and oats and flax are yielding fairly well.

Director Sage, of the Iowa Crop and Weather Bureau, says corn has deteriorated considerably in the past week, and the State will import more wheat than it ships out. The pasturage and hay crops of Iowa are worth more than the entire corn and oat crop together. With hay short and pasturage almost entirely exhausted, the straw and forage short, and the reserves of old corn light, the State will need more corn than it will raise.

John T. White, of Ada, Kas., is reported to have said Kansas will feed 15,000,000 bushels of wheat to stock this year. The present large receipts are coming wholly from renters and share farmers. It will not continue much longer. Then receipts will drop off short.

#### Irrigation Conventions in the Sixth Congressional District.

Hon. W. B. Sutton, as President, and Hon. E. D. Wheeler, State Forestry Commissioner, as Secretary, of the Sixth Congressional district, have appointed meetings as follows:

Gove City, August 9, 1:30 p. m.

Grainfield, August 9, 8 p. m.

Russell Springs, August 10, 1:30 p. m.

Sharon Springs, August 11, 1:30 p. m.

Colby, August 14, 1:30 p. m.

Hoxie, August 15, 1:30 p. m.

Hill City, August 16, 1:30 p. m.

In connection with these meetings there will also be organized county farmers' institutes.

The speakers who will attend and make addresses are Judge J. S. Emery, Lawrence; Prof. Robt. Hay, Junction City; Hon. E. D. Wheeler, Ogallala; Hon. E. R. Moses, President Interstate Irrigation Association, Great Bend; Judge W. B. Sutton, Russell, and others.

The localities which are favored with these meetings—which are non-partisan and strictly for irrigation business—are expected to entertain the invited speakers, also to do the local advertising.

#### Publishers' Paragraphs.

Newspapers are making many glowing and excellent offers these days as inducements to stir up their readers to secure more new subscribers, but our offer of "Picturesque America" is the best thing for the money we have ever seen. We send one part free to any one sending us one new subscriber.

#### The Weekly Kansas City Star

Addresses the farmer as a business man and a citizen. Doesn't tell him how to farm, but how to sell, and where and when, and keeps a vigilant eye upon his rights as a shipper, a producer and a tax-payer. All the news, too, and plenty of "good reading" for the family. Now read in 100,000 farm houses. Fifty-two big eight-page newspapers for 25 cents. To any one who sends the Weekly Star five yearly subscribers, together with \$1.25, the paper will be sent one year free.

#### Texas Wants You. You Want Texas.

If you like May weather in winter, apply to nearest agent of Santa Fe route. He will supply it in thirty-six hours. It is done by buying a ticket to Galveston or Houston. Perhaps less expensive than staying at home, because a big coal bill is saved.

Regular winter tourist tickets can be bought any day, but special excursions will be run the second Tuesday of each month from a limited territory to all points in Texas.

The excursion fare? Cheap enough—a little over a cent a mile; tickets good thirty days, with stop-overs south-bound.

The Gulf coast of Texas is a charming resort for invalids who don't like zero weather. Big attractions also for home-seekers; twenty acres of land there planted in pear nets the owner \$6,000 each year after orchard is established. Strawberries and grapes also profitably raised.

Talk it over with agent Santa Fe route, or address G. T. Nicholson, G. P. A., A. T. & S. F. R. R., Topeka, Kas., and ask for a free copy of "Texas Gulf Coast Country."

## Horticulture.

### Red Spider on Raspberry Leaves.

A. S. Parson, Garden City, sends specimens of raspberry leaves injured by the "red spider," or a closely allied species, and inquires after a method of destroying them. The "red spider" thrives upon a great variety of plants, attacking them chiefly in hot, dry weather. It occurs upon the leaves, on both sides of which it lives in colonies, sucking the juices and covering the surface more or less completely with an open, fine-threaded silk web, much like an irregular spider web. This insect, however, is not a spider, but is a tree mite, and is so minute that, without a lens, one must look closely to see it.

As to the treatment, the only thing to be recommended with confidence is the thorough and repeated spraying of the infested plants in such a way that both sides of the leaves are well wet at each operation. In the greenhouse, where "red spiders" are often troublesome, pure water is the agent used in the spray, but in bad cases it is better to use a soapsuds made with coarse, strong soap, which has properties of insecticide and cannot injure the plant.

E. A. POPENOE.

### Planting Trees.

EDITOR KANSAS FARMER:—In a recent number of the FARMER was an article on "Trees and Soil," by "B.," in which he advances rather a new theory for planting trees.

As I understand it, it is to make a hole about three inches in diameter, draw the roots together until they will go into it, then fill it up with dirt, etc. If set in sod so much the better, but if not, they must not be cultivated to any great extent nor mulched, as this will induce too much growth.

As there are thousands of trees now planted yearly as fence posts are put in, would it not be well enough, before advocating this method for "B." to give his experience with the results? For instance, let him tell how many years he has been practicing this theory; how many trees he has planted in this way; the average number that grew and average growth in comparison with other trees planted in the old-fashioned way; the kind of soil he has, also climate, whether subject to hot dry winds and prolonged drought or not. It seems to me that before advising a complete departure from old methods, a person should experiment and practice his theories a long time before giving them to the public. But as "B." has undoubtedly done so, or he would not recommend such a radical change, I think it would interest the planters to have the results of his experiments before trying them. T.

### Maple Scale on Plum Trees.

EDITOR KANSAS FARMER:—I herewith send you a few limbs of a Wild Goose plum, which are affected with some kind of disease unknown to me. I would like to know through the "Old Reliable" what disease it is, and whether it can be cured or not?

It is with great pleasure I report that several big orchards have been planted here last spring and the trees are doing fine. I, myself, planted 500, and have now over 600. Some were planted out eight and ten years ago, and are heavily loaded with apples. Sorts doing best here and in bearing are as follows: Missouri Pippin, Ben Davis, Geniting, Maiden's Blush, Red Astrachan, Winesap. There are other kinds that will come to the front in a few years hence.

J. HAUSER.

[Above inquiry was referred to Prof. Popenoe, of the Agricultural college.—EDITOR.]

The twigs of plum accompanying are covered with the dead bodies of the maple scale (*Pulvinaria innumerabilis*), a pest which deserves more attention than it receives in certain localities. The white, cottony masses contain the empty shells of the eggs of the scale, from which, doubtless, the active, crawling young lice have traveled to the less densely populated new shoots above. Where let alone this scale may entirely destroy trees affected. The insect may be killed by the application of the kerosene spray, applied at the time when the young have left the egg and are crawling over the plant before settling in a new situation. This time may vary somewhat with the latitude,

but in general this movement takes place in spring or early summer, from the middle of May to the middle of June. In any case, however, it is easily determined by an examination of the affected branches from time to time. If a single tree is affected, and is not specially valuable, it is better to cut the tree out entirely and burn it with the pests upon it.

E. A. POPENOE.

### Moles and Mole Traps.

Will A. Appel, writes to American Gardening: "Please suggest some remedy for moles; they are damaging my flower beds and the lawn is very unsightly."

A. S. Fuller replies: "Of the three species of the ground mole inhabiting this country east of the Mississippi, the common shrew mole (*Scalops aquaticus*) is the most plentiful and destructive. It frequents both dry and moist soils, especially those which are light and free from stone. Its principal food is the harmless angle or earth worm, which is not the larva of an insect, hence all the theories so frequently advanced by would-be naturalists in regard to the mole hunting for and devouring grubs and cut-worms is pure and gratuitous nonsense, as I have proved time and again by keeping ground moles in captivity and giving them a variety of worms and other kinds of food. It is certainly true that these voracious little mammals will eat white grubs, cut-worms, wire-worms and other kinds of larva if they are very hungry, but the earth worm is their favorite and natural food and they prefer it to any other. But if it were true that the moles lived upon the larvae of noxious insects exclusively, they would destroy more plants in burrowing for a breakfast than the insects could during the entire day.

"Among the many other fallacies often repeated in regard to the habits of the mole, one is that no two full grown moles ever frequent the same burrow, and yet I have often taken from two to eight, and of both sexes, from the same burrow and within a few hours, showing that certain main burrows are used as runways for several moles and at the same time.

"An equally absurd idea is prevalent that the moles are most active about the middle of the day—in fact this statement is recorded in at least one of our standard works on natural history, while the facts are moles pay no regard to time and I have caught them at work at all hours of the day and sometimes far into the night.

"Equally as erroneous is the claim that certain plants are obnoxious to these pests, and that they will not burrow among buckwheat, castor oil beans and the much talked of mole plant, or caper spurge, for I have tested all these and many more of the same reputation without discovering that the moles avoided them.

"The use of poisons and strong-smelling substances placed in their burrows, is of little practical value, for if the moles meet anything very offensive, they will merely turn to one side and make a new runway in fresh soil. I have employed bisulphide of carbon, and the fumes of sulphur to drive moles out of my hot-bed frames, but it is very doubtful if any moles were killed by the fumes of either.

"Mole Traps.—About twenty years ago my losses from these burrowing moles had become so great that I advertised for a remedy and especially for a good practical mole trap. Result: Traps of almost innumerable forms, sizes and structure, patented and unpatented. Some were large, cumbersome and of complicated make, and strong enough to catch and hold a bear, while others were of the other extreme and hardly large enough for a mouse trap. From among all the traps received I selected one manufactured in Philadelphia, and I think it cost me \$4 exclusive of express charges. This trap has eight long steel prongs on each side and a strong V-shaped steel spring to force the prongs into the ground, and through the mole, if one happens to be in the way. This trap has been in constant use every summer since I obtained it, and with it I have caught nearly 600 moles, all on about

**R**EMEMBER 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:

### "Southern," "Red Seal," "Collier."

If you want colored paint, tint any of the above strictly pure leads with National Lead Co.'s pure White Lead Tinting Colors, 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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five acres, and yet there are a few left and more are constantly coming in from my neighbors' ground. If it were not for these immigrants my own grounds would have long since been cleared of ground moles, and I presume others, who have succeeded in catching moles, have the same trouble, but a really good trap is the only means known to me of checking the increase of the number of moles in one's garden, but complete extermination is out of the question where neighbors will not unite in making war upon a common enemy."

Reports from growers throughout Arkansas, as to varieties of apples which with them were the surest bearers, relate to forty-five varieties of which the following seemed to give the best satisfaction in the order named: Ben Davis, Shockley, Red June, Limber Twig, Early Harvest and Horse.

## The Apiary.

Edited by REV. E. T. ABBOTT, 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.

### To the Bee-Keepers of North America.

The North American Bee-Keepers' Association was organized in December, 1870, with the avowed object of "promoting the interests of bee-culture throughout North America." All who are familiar with its work know, and its published proceedings also show, that it has adhered to this purpose, and has contributed as much as any similar society in the world to the spread of a knowledge of practical and scientific apiculture. Reviews, translations, and citations from these proceedings appear in the aparian journals of all European countries. Much has in this way been done by this society toward giving to the American system of apiculture the recognition which its great merits justly entitle it to receive.

The association itself was never in a more flourishing condition than at present, having reached at the last meeting the highest membership it has ever possessed. But the remarkable progress made by apiculture in the United States and Canada within the memory of many who are still among the active members of this society—in fact, the development of this industry until it has become one of considerable national importance—makes it certain, when we consider the wide fields yet unoccupied, that still greater things may be expected. If all who are interested in this pursuit and are proud of the rank which the apiculture of America holds are willing to assist the objects of this association to the extent at least of becoming members and retaining continuous membership, results not merely gratifying to all but substantial benefits to every member will follow. It is not a trade union nor a socialistic society to promote strikes

The next annual convention will be held at St. Joseph, Mo., October 16, 17 and 18, 1894. To avoid confusion at the time of the meeting and just before, members or those who wish to become such are requested to forward their dues, \$1, at the earliest date possible, to the Treasurer of the association, Mr. George W. York, 56 Fifth avenue, Chicago, Ill., who will return a neat membership card. Those who attend the convention are requested to present membership cards and secure badges. State or local aparian societies paying an annual affiliation fee of \$5 receive medals to be given to their own members as prizes, and delegates appointed by these societies to attend the convention of the North American receive membership cards and badges free.

For further information address  
FRANK BENTON,  
Secretary North American Bee-Keepers' Association, Washington, D. C.

## FARMERS? ARE UNEASY?

Send a postal to the Bureau of Immigration, Spokane, Wash., for special information upon a rare offer made you by that great and naturally rich state.

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## In the Dairy.

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

### Study the Cow.

Those who are in dairying to stay will do well to make a careful study of what constitutes a good cow. Note the characteristics of the cows that win the dairy prizes at the leading fairs, study the cows of your own herd that demonstrate superior merit. Among all of the cows contesting in the World's Fair dairy test a year ago, some features were of outstanding prominence; among these it was strikingly apparent that these cows had deep, roomy barrels, wide loins and hips, and capacious, mellow-skinned udders. They also possessed good heart and lung capacity, and were heavy feeders. Their mammary veins and circulatory system were prominent and well developed. They impressed you with their strong constitutions and feminine vigor.—*Farm and Dairy*.

### How to Test Your Cows.

The present cheap, rapid and easy methods of testing cows leave no excuse for every dairyman not knowing the quality of milk of each one of his cows. If two tests are made of a mixed sample of four days' milk, one being taken six weeks after the cow calves and the other six months after calving, the average of these two tests will agree almost exactly with the average quality of the milk given during the entire milking period. There will seldom be a difference of as much as a quarter of 1 per cent. of fat.

If it is desired to know from tests nearer together what quality of milk a cow gives, very accurate results will be obtained by making two tests fifteen days apart, four months after the cow calved, each test being on a mixed sample of four days' milk. The average of these two tests, with one-eighth of 1 per cent. added, is surprisingly near the truth for the average quality of the year's milk.—*Vermont Experiment Station Report*.

### Margarine in Russia.

It is not generally known, says the *Mark Lane Express*, that Russia has in force a very stringent margarine act; the most stringent in terms, indeed, whatever it may be in execution, of all laws of the kind that have been promulgated. In the first place the manufacture of margarine is subjected to an indefinite excise duty, the amount being left to be determined by the Ministry in each case. Another provision declares that margarine shall be made in some bright color other than yellow, and the cases containing it are to be of the same color, as well as having to inscribe upon them the words "Margarine fat." The sale of the commodity must not be carried on in shops in which genuine butter is sold, and those in which the former article is on sale must bear a signboard notifying the fact. The next provision goes beyond that of any other margarine act, as it requires the proprietors of hotels, cook shops, restaurants or other public establishments in which food is prepared to exhibit in a conspicuous place and on every bill of fare a notice stating that their dishes are prepared with margarine, if that be the case. Lastly, the importation of margarine fat is prohibited.

### The Buttermilk Drinkers.

"If the demand for buttermilk increases each year as in the last few years," said the proprietor of one of the largest bars in the city yesterday, "it will soon be a rival to beer as a popular drink. Never before has the demand for this cooling beverage been so great as it is this year. It is not heralded and advertised by signs in saloons, for the reason that there is more money in beer. Nevertheless one would be surprised at the large quantities consumed. One bar gets away with ten gallons a day, while another that I know of uses six gallons. It is the great bugbear to the bars now, and the demand makes them keep it, no matter how they may seek to hold

it in the background. Buttermilk is destined to be the drink of the future, for among the many advantages which are claimed for it is one that will appeal to the vanity of men—it will not cause a flushed face nor a red nose, as other drinks do, but, on the contrary, is considered a good specific for both. Any afternoon you can find what are now derisively termed 'buttermilk brigades' lined up in front of any of the larger bars, guzzling buttermilk, happy in the knowledge that it will soon erase the expensive coloring on their faces which old king alcohol has painted—not in water colors either. The cow may yet, in a way, take the place of the brewery."—*Pittsburg Dispatch*.

### Indiana State Fair Milk Test.

In forwarding a statement of the conditions and prizes of the milk test to be conducted for two days on the Indiana State fair grounds, Superintendent C. B. Harris states that "every precaution will be taken to make the show and the test successful in every way, and we expect to have at the Indiana State fair this fall a very large show of cows that are butter-producers in every respect."

The conditions are as follows:

The following premiums are offered for cows showing by the Babcock test the largest amount of butter-fat in their milk for four consecutive milkings, the test to be made at the State fair grounds in Indianapolis, commencing Tuesday morning, September 18. First premium, \$50; second premium, \$30; third premium, \$20. The stable at the fair grounds will be open for the reception of cows as early as Monday, September 17. Cows must be in stable not later than Monday, September 17. Stable will not be open to the public until after milking on Wednesday evening, September 19. The Superintendent or his assistant will see the cows milked dry Monday evening, September 17, and will be present at each milking during the test, the milk to be immediately weighed and tested. Premiums earned will be announced Thursday, September 20. Exhibitors will feed and milk as they desire. Feed can be purchased on the grounds.

### Dairy Notes.

Color, flavor and grain are three essential elements of butter.

Milk retails in Denver, Colo., at the rate of twelve quarts for a dollar.

Have you a pair of scales? They are next in importance to a pencil in active service.

One of the greatest leaks in dairying is the great loss of butter-fat lost by careless handling.

The Iowa State Agricultural Society will offer a purse of \$130, divided into three premiums, at Des Moines, for the best dairy cow exhibited and tested for three days during the fair.

New York has passed a law appropriating \$30,000 to pay for claims for cattle affected with tuberculosis and horses with glanders, which have been slaughtered by order of the proper authorities.

A dairy writer says that you had better begin dairying with two cows and a strong desire to thoroughly learn the business, than with ten cows and a confident feeling that you can succeed as well as old hands in the business.

The Cresco (Iowa) *Plaindealer* says: "B. P. Norton milks twenty-nine cows, from which he sold 7,094 pounds of butter in 1893, which netted him \$2,224. In addition to the amount sold, a family and hired help, making an average of nine persons, was supplied with butter and milk. His butter averaged a net price of 24¢ cents, after paying for packages and shipping expenses. Who has a better record?"

The Illinois Experiment Station announces, in Bulletin 33, that it will supervise tests of dairy herds and in exceptional cases of individual cows, owned or exhibited in Illinois under the conditions named in the bulletin, which are reasonable and easily complied with. This offer on the part of the station authorities is doubtless made to render the dairy interests of the State valuable service in improving the milking stock.

## The Poultry Yard

### A Poultry Dealer's Views.

Fred Grundy, of Christian county, Ill., writes to the *Prairie Farmer*:

Some time ago I received a letter from a lady living west of the Mississippi, who said she had been practicing poultry-raising four years, and now she wanted to go into it in earnest and make some money.

"We have no regular poultry dealer here," she wrote, "so I will have to ship my fowls. Now, I want to raise the variety that will sell the best in the open market; one that my commission man will be glad to handle, and will bring me the best prices."

I was about to write her my opinion of the matter, when it occurred to me to interview a man who bought thousands of fowls every year, dressed them and shipped to the Eastern markets.

I read the letter to him and asked him what I had best say in reply.

"Tell her to raise Plymouth Rocks," said he.

"What about Wyandottes?" I asked.

"They're the same thing. Either will do well enough. So far as my business is concerned, there's no difference between them."

"What do you think of Brahmas, Cochins and Langshans?"

"Light Brahmas make very fair birds for my trade, but I prefer the Rocks. I don't like any kind of a black chicken. Black pin-feathers spoil the looks of a dressed bird. What dealers want is a nice, smooth bird that will dress clean and show a rich yellow skin. Careful buyers always select that kind of a bird. Big, scrawny and white-skinned birds go to cheap hotels and boarding houses."

"How do you like the white varieties of Plymouth Rocks and Wyandottes?"

"First rate. A white chicken always dresses nice. Still, I can make the colored Rock and Wyandotte broilers look mighty tempting with very little trouble."

"You buy all sorts of birds, I suppose?"

"Everything that wears feathers. We used to give one price for everything, but we now pay better for good birds. I'll tell you what makes a nice bird for our trade—a cross between Plymouth cocks and Light Brahma hens. They are a nice shape, dress well and look well, and good buyers like them."

"If you could induce all the farmers in your territory to raise one breed, what breed would it be?"

"Rocks, or a cross between them and Light Brahmas. If I could induce all the poultry-raisers in my territory to drop all the scrubs and black trash, and raise only such fowls as I like, I'd have a bonanza right here."

"You say that a cross between Plymouth cocks and Light Brahma hens make good birds. Now, suppose I should raise that cross this year, what kind of males would you advise me to use with that cross next year?"

"Pure Rocks. Pick out the best hens—those with least feathering on the legs, and of good shape and size, and mate them with good Rock males and you will be breeding up instead of down. You would have some mighty good market birds, and I'd like to buy a few thousands of them."

"How often would you add new Brahma blood?"

"That would depend on how the size and shape of my birds ran. I would get well-bred Rock males every year and mate with the nicest hens, and I wouldn't need any more Brahma blood for several years; and then I would introduce it by means of good males. I would advise any person who wants to raise birds for market, to pursue the plan I have given, or else raise straight Rocks or Wyandottes. You can read all sorts of stuff about the big breeds, in poultry papers, but it is all written by men who are interested in those breeds. You tell that lady to raise such birds as I have described, and she will always be sure of the top price, and her birds will sell on sight."

"Is there many Leghorns raised in your territory."

"Yes, lots of them. They're no good for meat, but they're lightning on eggs. My men get more eggs from our Leghorn-raisers than from anybody else. They're the best egg breed there is in existence. If anybody wants to keep hens for eggs alone, tell them to select pure Leghorns. But don't cross Leghorns on any other breed. That would be going down instead of up."



## A FRIEND

Speaks through the Boothbay (Me.) *Register*, of the beneficial results he has received from a regular use of Ayer's Pills. He says: "I was feeling sick and tired and my stomach seemed all out of order. I tried a number of remedies, but none seemed to give me relief until I was induced to try the old reliable Ayer's Pills. I have taken only one box, but I feel like a new man. I think they are the most pleasant and easy to take of anything I ever used, being so finely sugar-coated that even a child will take them. I urge upon all who are in need of a laxative to try Ayer's Pills. They will do good." For all diseases of the Stomach, Liver, and Bowels, take

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Every Dose Effective

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because it acts directly on the nerve centres, destroying the nerve craving effects, builds up and improves the entire nervous system. Makes WEAK MEN STRONG. Many report a gain of ten pounds in ten days. You run no physical or financial risk. NO-TO-BAC sold under

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BOOKKEEPING. 10 cts. ONLY. Easy home study. Wonderful book positively self-instructive. 10c mailed. Advertisements pay us, otherwise actually worth \$5. MACNAIR PUB CO., Detroit, Mich.

## GOSSIP ABOUT STOCK.

Among the sale dates claimed this week is that of June K. King, Marshall, Mo., who announces a public sale of Berkshire swine on September 27. He will offer seventy-five head, the get of such boars as Lee Duke and Model Prince, sons of the \$750 boar, Model Duke.

The Chicago horse market continues about the same as of late. The retail market is very quiet, but with light receipts and a fair representation of buyers the auctions show some life, and for really good horses considerable strength. The demand continues for good-smooth chunks and large drivers with some action. There is a fair demand for farm mares and a limited one for draft horses, at prices not as strong as some weeks ago. Common horses are selling very low.

Mr. I. B. Brown, an old-time Berkshire breeder, whose farm is near Oskaloosa, is re-enforcing his hog stock preparatory to founding his next year's new herd. He lately purchased of Westley Mock, Martinsville, Mo., a very excellent brood sow, Gentry Belle 32038, by Model Duke 2d 22467 and out of Maguire 22608. She has a fine litter of eight, farrowed April 25 last. He lately made a personal selection of a very fine tip from the prize-winning herd of Geo. W. Berry, of Berryton, Kas. Her sire was Major Lee 31139, and dam Royal Empress 6th 32687, by Admiral 29840, that was bred by America's greatest Berkshire breeder, N. H. Gentry, Sedalia, Mo.

W. S. Tough & Son, managers of the Kansas City stock yards horse and mule department, report the market as showing more activity than at any time during the warm weather. Both the receipts and the attendance of buyers were unusually large. Notwithstanding this fact prices were about steady, probably \$2.50 better on smooth 900 to 1,200 pound mares and geldings. Breeders from the burnt district are sending in their horses and taking advantage of the present demand, as the prospects are that feed will be high during the coming fall, and there is very little encouragement to hold stock for better prices. The majority of the buyers were from the South and Texas. Mule market quiet. Very little trading in any class.

Among others making an importation of horses for 1894, was C. F. Johnson, of Oskaloosa, Jefferson county, Kansas, who went direct to the islands and selected thirty-nine head of registered Shetland ponies. The stud was visited last week by our field man, who reports an extra good string of the "wee Northerners," consisting of breeding stallions, brood mares and fillies. Among others in the stallion division is a three-year-old son of that noted World's Fair Shetland, Lord of the Isle, that stands thirty-two inches in height and tips the beam at 255 pounds. A coal black little beauty, a full sister, is a stately Shetland queen and weighs 275. The lot presents a variety in colors and conformation. This is, we believe, the only Shetland breeding farm now in the West, and we wish Mr. Johnson success in his enterprise.

Among others visited last week by our field live stock man, Mr. Brush, in Jefferson county, was Mr. S. A. Perry, a modern and wide-awake practical farmer who resides near Oskaloosa. He markets his grain condensed in the form of beef cattle and porkers, saving one of the two freight bills, labor and time. He lately purchased of the veteran swine-breeder, Mr. James Mains, the top spring boar pig of the herd. He is out of that excellent brood sow, Bread Winner, whose dam was Bess Stibbens 3d 721880 O., and by Tornado 30595 O., one of the best individuals that ever came to Kansas from Shellenberger's noted Ohio herd. The youngster is of good length and depth, extra good face, ear and head, very broad in his ham, of a standard Poland color, and now promises a worth of value to head any herd. The array of stock hogs on Mr. Perry's farm are generally well-bred individuals of the early-maturity type and just what every Kansas farmer should have as mortgage-lifters.

The history of Kansas swine breeding is becoming more interesting, and especially is this true since the victories were won at the World's Fair, when it was demonstrated that Kansas soil, climate and years of practical knowledge now have no superior in "swine history." Among those in the combined array of Kansas breeders no one stands higher nor has been more successful than Mr. James Mains, of Oskaloosa, Jefferson county. A native of Scotland, an adopted American at the age of 6, and a resident of Jefferson county since 1871, he now owns one of the best 300-acre farms in the State, whose stock pastures are blanketed with blue grass and clover. The well-arranged paddocks and lying-in pens and the excellent distribution of pure water facilities impress the visitor very favorable of what Scotch pluck and American "grit" may do if directed by a stick-to-itiveness and reflective intelligence. Mr. Mains, after four years' experience with the Berkshire, discarded them twenty years ago and laid the foundation

of his present herd of Poland-Chinas. He bought then the best to be had and now has a herd of about eight score, consisting of several excellent aged harem kings, about forty-five sows and an array of over a hundred head of youngsters, a major portion of which were farrowed prior to April 1 of this year. Among the leading boars that have been used are Monroe's Model U. S. 29938 O.; I. X. L. King 29519 O.; Royal Chief 30348 O.; Tornado 30545 O., and Excel (Vol. 16). They are out of carefully-selected dams from the most noted Ohio breeders, as Shellenberger, Duffield and others. Several litters now in the spring pig crop were sired by Monroe's Model U. S., who is a highly-bred yearling whose characteristics impress the onlooker very favorably—a typical and modern Poland head and ear, shortly set on wide, deep shoulders, an extraordinary heart measure, a good arched back, well lined, smooth and evenly turned, black coat with standard white points. He was sired by U. S. Joe, by Brown's Black Joe; dam Darkness, by Black U. S.; second dam Useful, by King Butler. Another string of the youngsters was got by I. X. L. King 29519 O., that is a large, strong-constituted individual that was sired by Mains' Fountain Head, by Fountain Head. Several of the best brood sows are by him that are worthy the close inspection of the visitor. Among the harem kings now is the very attractive young chap Excel (Vol. 16), bred by J. H. Monroe, Boke's Creek, O., a last September pig. He is by King Forward 14738; dam Lady Corwin, by Corwin Prince. His exterior conformation and general individuality at once catches the eye of the professional breeder and forces one after a careful going over to conclude that from a score-card scale but few whole numbers or fractional points would, in the hands of the critical scorer, be marked against him. Such, indeed, are his future promises that his present owner will breed him to many of his best Monroe's Model U. S., I. X. L. King and Shellenberger-bred sows. The experienced swine-grower sooner or later finds out that success and profit not only depend on the inherited and individual characteristics of the sire, but upon the hereditary and constitutional developments of the female, and her ability to bring forth large, strong and healthy litters and subsequently suckle and develop them. In the Mains herd are found some of the most prolific females on Kansas soil, and among them is Bread Winner, dam Bess Stibbens 3d 721880 O., by Silver Tip; Dora Stibbens 73318 O., a full sister of Bess Stibbens. One of the favorites is Queen of Scots 76390 O., dam Scottish Queen, by Fountain Head 18887; her sire was Stalwart Jr., by Stalwart, tracing back on dam's side to the celebrated Lady Duffield, by Foraker. One of the handsomest young sows in the herd is Black Bess (Vol. 16), a daughter of Queen of Scots, who has to her credit and the pleasure of her owner a first litter of seven by Monroe's Model U. S., that fully demonstrates the worth of the blood in both dam and sire. After a close inspection by the visitor the young beauty, Young Cora, will be cut out for a second scanning. She is out of Cora Stibbens, by Fountain Head 18887 O., and reminds one very much of some of those young maidens that won prizes at the World's Fair. Another cut-out brings first one, then another, until one concludes that the leet ring of twenty-five brooders ought to make a showing of youngsters second to none in the West, and so one finds them on looking them over. Among the toppy ones are Columbian Tips, Bess Stibbens, Scottish Queens and Shellenberger's Wilkes. Several nice young brooders and gilts bred to farrow in September are on the sale offering list. Viola (Vol. 16), a very excellent yearling of the Osgood line, sire Joe Coler 2d 29569 O., dam Fannie 63652, should go to some foundation herd whose owner is desirous of having results that come after years of practical experience in the improvements recorded along the highway of swine breeding.

Among the many successful Brown county (Kansas) breeders, none have been more successful nor more widely known than Mr. Eli Zimmerman, of Hiawatha. He has been engaged in raising and breeding pure-bred and registered swine twenty-five years, beginning with Polands and Chesters in Iowa. Twenty years ago he came to Brown county and built up a Poland-China herd and was the first to register in the herd books animals bred on Brown county soil. His experience as an auctioneer commenced in 1860, and officiating as master of ceremonies on the block at public sales of live stock afforded him an excellent opportunity to study the results of the breeder's effort, and he was thereby better enabled to select just such individuals whose mingling of blood would produce a higher and more finished type, developing a more rapid growth and early maturity—in other words, a more profitable hog. The visitor to Mr. Zimmerman's farm, after an inspection of his herd, will readily understand what experience and judgment will do when combined with a determination in the individual breeder to

lead his less ambitious co-workers. The annual reduction sale has been announced to take place on Mr. Zimmerman's farm, three miles southwest of Hiawatha, on Friday, October 5, the day following the coming sale of J. A. Worley, at Sabetha, eighteen miles by rail, in northeast Nemaha county. A draft of over one hundred of the nearly two hundred head will be catalogued and ninety will go to the highest bidder. The youngsters, both fall of 1893 and spring of 1894 farrow, were sired principally by five leading boars and out of thirty brood sows. Of the five sires that were used, the best one, perhaps, is Billy Wilkes 9309 S., a son of the noted great sire George Wilkes 5950 S.; dam Creole (4166) by Corwin Prince 898 S., and he by Tom Corwin 2d, out of Cora Shellenberger (119). The ordinarily well-up reader will at once recognize his breeding as being that of a top among the kings of tops. About thirty of the March farrow were sired by him. In another division of the paddocks are about twenty youngsters of March and early April farrow that were sired by Gold Coin 9310 S., he by Short Stop 6993 S., whose dam was Illinois Belle (14872), one of the greatest brood sows ever bred in Suckerdome. There are two extra good litters by Silver Tip, he by Gold Coin; dam Queen Lawrence 4th. Also two other strong litters by Champion. The three additional herd boars were Central, Roy Wilkes and Lord Benton, all three having many good ones in the younger division to their credit. The collection of brood sows is one of the best to be seen anywhere. Space and time forbid that extended notice at this time that they are entitled to have, but suffice it to make a brief mention of a few of them that the reader may have at least an introductory insight into the breeding of the offerings at the coming sale. Among the better ones is Beabout Wilkes (21520), got by George Wilkes 9550 S.; dam Lorene (21521). Ross Lynd 2d (21524), got by Billy Boy 9606 S.; dam Rosa Lynd (21526). Fair Lady (21519), by Free Trade 4420 S.; dam Wilkes' Sister (20435). May (21511), by King I. X. L. 5073 S.; dam Anna Heyl (8877). Hugo C. 2617 S. Another one, Topsy 2d (21508), by Dandy 8189 S.; dam Topsy (21509), and she by Melbourne's Dandy 1607 S. This list of sows farrowed a major portion of the young things, some gilts and boars ready for service that will be included in the sale. In a "stock gossip" notice later on a description of Billy Wilkes will be given in a more extended form, as he will be in the sale and every prospective buyer of a boar to head his herd ought to know more about Billy Wilkes and his very promising get.

Among other successful breeders in northeastern Kansas lately visited by our field man, is W. B. McCoy, proprietor of Walnut Grove stock farm, near Valley Falls, in Jefferson county. He began in Ohio twenty-five years ago with Chester Whites and Jersey Reds, and after four years' experience discarded them for the Poland-Chinas. The Chester, he thinks, a fairly good hog, and while the Reds are prolific it takes too long to reach that degree of early maturity that the more modern breeder and pork-raiser must secure if he keep up with his more progressive neighbor and competitor. His herd of Poland-Chinas now consists of about 150 head, all ages. The spring pig crop of 1894 was sired by five boars—King Victor, Free Wilkes, High Price, Vic Souvenir and Jingle Bob. That the reader may have some idea of their breeding, a brief synopsis is herewith given. King Victor, a yearling past (Vol. 15), was sired by Lail's Victor 4298 S.; dam Black Minerva (6690), whose litter of nine sold for \$418, and a brother, though not quite so good an individual, sold at same sale for \$103. The get of King Victor now in the herd are generally all good ones. Free Wilkes, a yearling, also, (Vol. 15), sire Master Wilkes 21623 A., by Geo. Wilkes; dam Lady Free Trade 77954 A., and she by Free Trade 15729 A., shows his worth in twenty of his sons and daughters, all promising good ones. High Price (Vol. 15), a long yearling, was sired by Sam Price 8076 S., he by One Price 4007 S.; dam Rose W. (9845). He was bred by the well-known Nebraska breeders, Messrs. Colthar & Leonard, of Pawnee City. This young fellow is a typical Poland and his worth is fully demonstrated in a good long string of youngsters that are hard to beat anywhere. Vic Souvenir, another strong and vigorous yearling (Vol. 15), was sired by Souvenir 9421 S.; dam Bessie White Face (6694), by Mc's Perfection 2215 S. His get are nice, smooth, well-turned and right in every way. Jingle Bob, a typical long yearling Poland, was the first-prize pig in the Missouri exhibit at the World's Fair, under one year. He was bred by Robt. I. Young, St. Joseph, Mo., and such is the showing of his get that he, in company with High Price, will be retained in service at Walnut Grove farm. About ten extra good gilts have been bred to them and are ready to go into new hands. The general worth of the youngsters can perhaps be better understood by a brief review of the breeding of several of the twenty-three brood sows. Among others is the very excellent and prolific U. S. Peace 3d (23249), by Good Blood 5647 S., and he by Seldom Seen. She has five crosses of U. S. blood, tracing back to Black U. S. 13471. Her present owner bought her of Robert I. Young, and he direct of Robinson & Leftwich, Easton, Mo. Her last litter of eleven, all solid blacks with white points, were sired by High Price and are his first known litter. It is reasonable to expect something good from such progenitors—at least a major portion of the litter, but the onlooker is not long in making up his mind that the whole litter are worthy the care of a judicious breeder. Lady Regardless 55632 A., a four-year-old, is perhaps the best brooder on the farm. Her sire was Regardless 43197; dam Black Beauty 18286 A., by Stem Winder 1214 S. She won first as a pig under six months at the Kansas State fair of 1890, in a very strong array of competitors. One of her last year's litters brought \$235; one son of this litter sold for \$50 in his pig form. Another one among the female galaxy is the aged Keep Her 30154 A., that was farrowed in 1887. She is a very remarkable producer, having always ten, eleven or twelve at a farrow. Of her last litter of twelve she raised nine. The visitor on inspection will pronounce her one of the best on anybody's farm. Symmetry 2d 33596 A., got by Black U. S. 2d 17637 A., dam Symmetry 26632 A., was very appropriately named. She always farrows seven to nine, and one of the best of kind mothers, always raising the whole litter. Lady Columbia, a very handsome individual, was once selected by the Nebraska State fair Columbian committee for the Nebraska exhibit at the World's Fair. She was also a prize-winner at the Nebraska State fair. She came to Jefferson county at a long price. Josie's Choice (23148), sired by Davis' Prize Winner 1608, and traces back to Black Bess. She was a little unfortunate in her last litter of twelve, raising only seven of them. To go along the entire line of the twenty-three aged brooders would take your time and our space, hence will briefly close by stating that friend McCoy has hundreds of dollars invested in his Poland herd, and such is the blood and individuality of the same that it brings him handsome and paying returns. In the poultry division the visitor will find B. Langshans, B. S. C. Leghorns, White and Black Minorcas, Buff Cochins, that score 92 to 94, Partridge Cochins above the 90s, and Light and Dark Brahmams. He reports a very successful trade this year and proposes to be out stronger next year with four additional varieties, making thirteen in all.

On the well-cultivated farm of Mr. W. H. Babcock, which lies one mile from the Brown county fair grounds, adjoining the county seat, Hiawatha, the reader will find one of the most interesting herds of Poland-Chinas in the State. Its present owner has been engaged in breeding general-purpose or early-maturing swine for twenty-six years, and five years ago laid the foundation of his present herd with Black Bess blood. The herd, while not as large in numbers as some others, is a remarkably good one and just such a collection as the general farmer should have or be interested in. That the reader may the better understand this last observation, a reference to the record books of the herd shows that the twelve sows at last spring's farrow tendered their owner ninety-three pigs, or an average of about eight to the litter. This the reader will observe is a very high average and shows that the herd is a prolific one and the fecundity of the female division and the prepotency of the two sires that were used is shown. The boar, Young Free Trade 11107 S., still at the head of the herd, is by Free Trade 2237 O., he by All Right 19765 O.; dam Winning Girl 71688 O., and third dam Centennial Sweepstakes 42886 O. His breeding is, you will see, just tip-top; and this is confirmed in the strong array of youngsters to his credit now in the herd. He is of good size, has good head and ear, strong, broad, level back, good hams, extra good bone and well up on his toes, in short, a typical standard Poland boar with all those characteristics needed to be a prolific getter of pigs. The blood of the females is quite interesting and a brief review of the pedigrees of several of them will give some idea of the blood lines in the herd. In the array standing well to the front is Lady Bess (18795), by Black Duke 5455 O., he by Corwin Prince 898 O.; granddam Darkness 8915; dam Black Bess 50th (11992); she by Moorish King 649 and out of Midnight 6226. Lady Bess is a very prolific breeder, having that strong characteristic family ability to farrow large litters and raise them. Five of her last litter of ten, three sows and two boars, are as promising as any on Kansas soil. Her spring litter of 1893, seven of which were raised—the other two lost by accident—six of which were sold for \$120, or an average of \$20 each. Her spring litter of eight in 1892 were an even lot, six of which sold for \$90. Queen Bess 2d (25906), sire Tom Brown 6153 S., by Erie 2d 6154 S.; dam Queen Bess (18794), and her dam Black Bess 30th, is another fine brooder. She farrowed ten in April last, six boars and four sows, and raised all of

them. They are all good strong growers and an exceptionally even lot. Ohio Maid, an extra good yearling, sired by Free Trade 29287 O., whose breeding is given above. Among her last farrow of eight are three sows and two boars that show the blood and characteristics of their progenitors. Another brooder that attracts the attention of the visitor is Daisy (20645), sired by Tom Brown 6158 S., he by Erie 2d 6154, and out of Lady Corwin 18797; dam White Face (18798), by Melbourne's Dandy 1607. This three-year-old Daisy is one whose exterior finish and style readily catches the eye and pocketbook of the professional show-ring breeder whose pile of "the stuff" aids him in laying it over his apparently less fortunate neighbor that shows his own breeding. In short she is rather too nice to be a profitable brood sow, although of excellent blood lines. It is true, though, that her litters, though small, do, in promising show ring qualities, make up in exterior qualities and conformation for the short litter in numbers. She is raising three of her last litter of four, and royal beauties they are truly, but do not inherit those prolific characteristics that Mr. Babcock strives for throughout the herd. She is the only one of the twelve harem ladies that is just a little too aristocratic and high-toned to meet the ideal of her careful and painstaking master. The aged brooder, Dimple (20650), by Jumbo 9007 S., and he by Melbourne's Dandy 1607; dam Lady Lee (20637), granddam Black Bird (16824), is an excellent brooder, in short, a typical Poland-China. In her last litter of seven are six, four boars and two sows, that meet the standard requirements of their present owner and are sure to receive the commendation of the visitor. Spot Comet, that usually farrows more than eight, was sired by Comet Chip 8743 N. W., he by Comet 8745 N.W.; dam Duchess of Oxford (20660), by Sambo 8746 N. W. She is raising five of her last spring's litter and they are strong, vigorous, typical youngsters that just suit Mr. Babcock and every general hog-raiser that desires to increase the profits of his herd. The reader will please bear in mind that none of the young things farrowed in 1894 have been sold and they will all be retained until the day of Mr. Babcock's public sale, which will be held on Wednesday, September 19, 1894. At the foundation of his present herd he adopted as one of his rules that in all cases where the individuals which were sent out did not prove to be just as represented, straight and all right in every way, he would make it good by another selection or else refund the purchase price, at the option of the buyer. Space and time forbids more extended notes at this time, but more will be given later on, when Mr. Babcock's sale advertisement will appear in these columns.

Mr. Martin Meisenheimer, a Brown county, Kansas, breeder of Poland-China swine, three miles southeast of Hiawatha, the county seat, announces that his coming public clearance sale will take place on Wednesday, November 7, 1894. Our representative visited Mr. Meisenheimer last week and reports a very excellent herd of leading Poland-China families. It was founded early in 1891, and recruits added that have strengthened it to that extent that its progressive owner ranks up with many of the older and more experienced breeders. A major portion of the spring pig crop of 1894 were sired by Tecumseh Free Trade 10788 S., farrowed August 20, 1892; sire Tecumseh Chip 2d 7609; dam Lady Free Trade (17189) by Free Trade 4420. He has the regulation Poland-China boar's face, good head and ear, full, graceful crest, good shoulders and full heart girth, a long, arched, broad back, wide, deep hams, well down on hock, even top and bottom lines, very heavy bone and stands straight up on his feet, has a coat of black with white points and plenty of constitutional individuality. In short, he is just that kind of a Poland gentleman, that the more you look at him the better you like him, and this is especially confirmed after a looking over of his numerous get found among the youngsters in the herd. There were three younger fellows keeping him company in an adjoining paddock. The first choice one is by Tecumseh Free Trade, and a very promising fellow he is, being large, blocky and of good conformation for one not yet a year old. Of the other two, both under twelve months, the visitor finds but little difference, either as to individuality or their breeding. The one, and perhaps just a little more growthy and stylish, is by Gold Coin 7412, and the other a son of Tecumseh Chip 2d. All three of these young fellows are worthy the attention of any one wanting good, young, well-bred males. The visitor will find, on an inspection of Mr. Meisenheimer's herd, that the fifteen brood sows are surely one-half of the herd, if one may correctly judge of their individual merit, their breeding and the very excellent character of the three and a half score of toppy youngsters. Among the foundation dams is Lady Free Trade (17189), farrowed September 23, 1890. She is by Free Trade 4422 S., the noted boar bred by one of Missouri's greatest Poland

breeders, D. F. Risk, who sold him for \$200 to Iowa parties, and they subsequently let him go to Bebout, of Rushville, Ind., for \$800. She had just farrowed the day that our field man was there, a litter of nine promising babies. She is also the dam of Tecumseh Free Trade, who has to his credit as good all-round lot of youngsters as any sire in the State of Kansas. The dam of Lady Free Trade was Beauty 5th (693), and she by Give or Take 830 S. Now, Mr. Breeder and stock hog raiser, what better breeding do you want? And the rest of the story lies with you in your acting on your judgment in making your selection on sales day. Lady All Right (25478), farrowed March 20, 1891, sired by All Right Chip 6666 S., he by All Right 8688, that was bred by Charles Frazer, of Unopolis, Ohio. Her granddam was Graceful F. (15006). What better would be wanted, no one could well guess, and if still more evidence be wanting, see five of her 8th of April farrow by Tecumseh Free Trade, that will be offered on day of sale. The dam of an April 14th farrow, a string of blocky little lads and lassies, is recorded as Lady Gold Coin (25225), is of a February farrow in 1892, and was sired by Gold Coin 7412 S., he by Tecumseh Chip 2116 S., and his dam Hannah (16828). In this litter there are perhaps four first choices, and one could hardly miss getting four more good toppy ones out of the litter and leave what the boy shot at. A little different line of breeding may be found in Kansas Girl, of an October, 1892, farrow, and known in the herd book under number 25224, sired by Black Diamond 9348 S., that was bred by the well-known B. F. Dorsey & Sons, of Illinois. Her dam was Rosa (21510), that was bred by the successful Poland breeders, Messrs. Colthar & Leonard, of Nebraska. Rosa was by King I. X. L. 5973 S., and he by Black Kate (8882). Her litter of eight, that were farrowed April 21, 1894, will show by sales day, next November, just what can be done by commingling the blood of Black Diamond and Rosa, and if they turn out as well as they now promise the prospective buyer will have an opportunity of getting something of the early maturing kind and of value as to breeding. There are just too many good ones for our space. However, we will briefly scan another one, Lady Corwin (17550), farrowed October 12, 1890. She was sired by Lord Corwin 4th 1651 S., and he by Black Rosa Corwin (678); dam Lady D. (17549), and she out of Daisy's Tip Top (6784). Her April 14, 1893, farrow of eight little ones was a smooth and blocky lot that surely attest the value of their breeding, and among others are two daughters that are hard to beat. In short, a whole string of gilts and youngsters yet unnoticed, which we will now pass for further time later on. Mr. Meisenheimer is to the manor born, being a son of Jacob Meisenheimer, one of the first settlers of Brown county, he having set his first stake in Kansas soil early in 1856. His homestead lies near that of his son Martin, the owner of the herd here but partly described. Both are well known and respected for their sterling integrity, good citizenship and success in agricultural pursuits. Mrs. Martin Meisenheimer has succeeded remarkably well in raising poultry. Two years ago she commenced breeding almost exclusively the Light Brahmans, and has arrived at the conclusion that they are among the best, if not absolutely the best all-round fowls of the many breeds of chickens that the farmer may breed. The 125 spring of 1894 hatch are well along, and a real handsome flock are they.

#### Sale Dates Claimed.

W. H. Babcock, Poland-China swine, Hiawatha, Kas., September 19, 1894.  
J. A. Worley, Poland-China swine, Saitha, Kas., October 4.

Eli Zimmerman, Poland-Chinas, Hiawatha, Kas., October 5.

Martin Meisenheimer, Poland-Chinas, Hiawatha, Kas., November 7.

Bert Wise, Poland-Chinas, Reserve, Kas., September 7.

June K. King, Berkshire swine, Marshall, Mo., September 27.

Best equipped, most thorough business training school in the Southwest. Wichita Commercial College. Y. M. C. A. building.

#### Excursion to Washington, D. C.

On account of the Knights of Pythias Conclave at Washington, D. C., the Baltimore & Ohio Southwestern Railway offers a rate of one fare for the round trip from all points on its lines. Tickets on sale August 22 to 26, good returning until September 15. Splendid opportunity to visit the National Capital at low rate. For particulars apply to any agent Baltimore & Ohio Southwestern Railway, or address A. C. Goodrich, Western Passenger Agent, P. O. Box 284, Kansas City, Mo., or O. P. McCarty, General Passenger Agent, St. Louis, Mo.

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. BRUSH, Topeka, Kansas.

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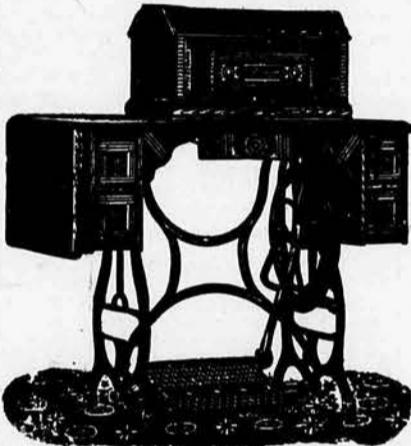
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### PROPOSED AMENDMENT TO THE CONSTITUTION.

Substitute for Senate Joint Resolutions Nos. 1 and 2.

Be it resolved by the Legislature of the State of Kansas: two-thirds of the members elected to each house thereof concurring therin.

SECTION 1. The following proposition to amend the constitution of the State of Kansas is hereby submitted to the qualified electors of the State for their approval, or rejection, namely: That section one, article five of the constitution of the State of Kansas be amended so that the same shall read as follows: "Section 1. Every person of the age of 21 years and upwards belonging to the following classes, who shall have resided in Kansas six months next preceding any election, and in the township or ward in which she or he offers to vote, at least thirty days next preceding such election shall be deemed a qualified elector. 1st: citizens of the United States conformable to the laws of the United States on the subject of naturalization."

SEC. 2. This proposition shall be submitted to the electors of this State at the general election of the year eighteen hundred and ninety-four, for their approval or rejection; those voting in favor of this proposition shall have written or printed on their ballots: "For the suffrage amendment to the constitution;" those voting against the said proposition shall have written or printed on their ballots: "Against the suffrage amendment to the constitution;" said ballots shall be received and such vote taken, counted, canvassed and returns made thereof, in the same manner and in all respects as provided for by law; as in the case of the election of Representatives to the Legislature.

SEC. 3. This resolution shall take effect and be in force from and after its publication in the statute book.

I hereby certify that the above resolution originated in the Senate January 16, 1893, and passed that body February 8, 1893.

PERCY DANIELS, President of Senate.  
W. L. BROWN, Secretary of Senate.

Passed the House March 1, 1893.

GEO. L. DOUGLASS, Speaker of House.

FRANK L. BROWN, Chief Clerk of House.

Approved March 6, 1893, 3:50 p. m.

L. D. LEWELLING, Governor.

STATE OF KANSAS,

OFFICE OF SECRETARY OF STATE, 1893.

I, R. S. Osborn, Secretary of State of the State of Kansas, do hereby certify that the foregoing is a true and correct copy of the original enrolled resolution now on file in my office, and that the same took effect by publication in the statute book May 18, 1893.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my official seal.

Done at Topeka, Kansas, this 25th day of July, A. D. 1894.

R. S. OSBORN,  
Secretary of State.

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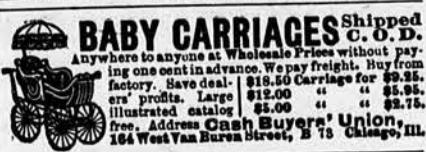
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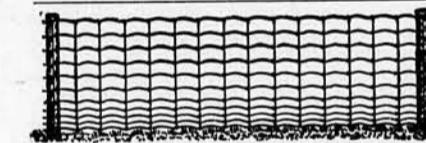
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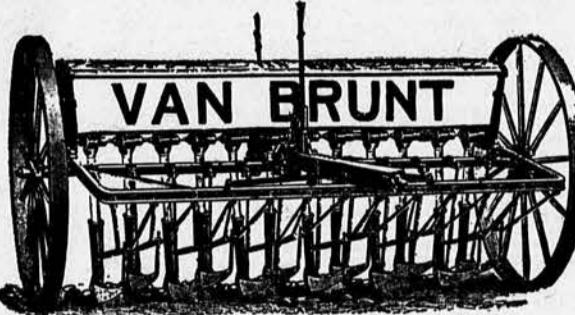
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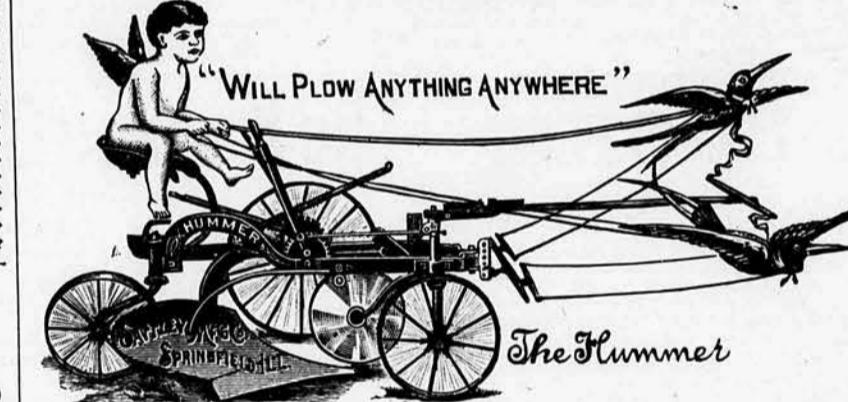
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Easily operated with spring lift. Turn a square corner nicely. No side-draft whatever.

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Davis' Cream Separator Churn, power  
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Agents wanted. Send for circular. All  
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I am selling excellent farms of 160 acres in Rocks  
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I own the town site of Halsey, Thomas Co., Neb.  
It has depot and other railroad improvements lo-  
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I have several fine lots near the Methodist col-  
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GALVANIZED POWER and  
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TOWER. Prices satisfactory.  
Warrant covers all points.  
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"For Sale," "Wanted," "For Exchange," and small advertisements for short time, will be charged two cents per word for each insertion. Initials or a number counted as one word. Cash with the order.

Special: All orders received for this column from subscribers, for a limited time, will be accepted at one-half the above rates, cash with order. It will pay. Try it!

**WANTED**—Three hundred agents to sell nursery stock for The Seneca Nursery. The finest Kansas-grown stock, the best terms, the biggest pay. S. J. Baldwin, Seneca, Kas.

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**JERSEY BULL CALVES FOR SALE**—Bull calves from cows closely related to the winners at the World's Fair. Dams are making from twelve to fourteen pounds of butter a week. Will ship to any part of the State. A. E. Jones, Topeka, Kas.

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Fruits of all varieties except tropical, and all grains and vegetables grow profusely. No crop failures. No drought. No irrigation. Pleasant and healthful climate. Good stock country. Good schools. Good churches. Good society. Good markets. Good water. Timber and minerals abundant. Cheap land. Investigate. Address Southwest Missouri Immigration and Improvement Co., Springfield, Mo.

**CRIMSON CLOVER SEED**—New crop. Per pound, 12 cents; per bushel, \$6. F. Barteldes & Co., Lawrence, Kas.

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**SEND FOR OUR PRICE LIST**—Of 500 farms in fifty counties of Kansas that have been abandoned by the owners and mortgagees for the taxes. Boggs & Hyman, Galesburg, Ill.

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## FRESH ALFALFA SEED.

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Red Clawson, per bushel..... \$1.00  
Winter Fife, " " " " " 1.00  
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F. BARTELDERS & CO., LAWRENCE, KAS.

**FOR EXCHANGE**—One thousand choice bargains in farms, ranches, timber and mineral lands, business and residence property, mills, hotels, opera houses, livery barns, stocks of merchandise, etc. Write me what you have for sale or trade and what you want for it. John G. Howard, Topeka, Kas.

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**SUNNYSIDE — YAKIMA VALLEY**—Irrigated lands. Produce apples, pears, prunes, peaches, hops, alfalfa. Worth \$30 to \$600 per acre. "Twenty acres enough." For map, prices, particulars, write F. H. Hagerty, Sunnyside, Washington.

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**WANTED**—To exchange carpenter work for a young sound work horse. Address "17," KANSAS FARMER office.

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Do you want cheap lands? Send for free circular containing full description of Oklahoma, its soil, climate, crops and other resources, with valuable statistics. Address HAGAN, PAINE & RUSSELL, GUTHRIE, OKLAHOMA.

## THE STRAY LIST.

## FOR WEEK ENDING JULY 25, 1894.

Sumner county—Chas. Sadler, clerk.

**MULE**—Taken up by John W. Sudderth, in Wellington tp., P. O. Wellington, July 2, 1894, one brown mare, mule, fourteen hands high, tip off right ear; valued at \$15.

**MULE**—By same, one dun mare, mule, fourteen and a half hands high, lame in both hind legs; valued at \$17.

**Harvey county**—T. P. Murphy, clerk.

**HORSE**—Taken up by G. J. Kilwever, in Pleasant tp., (P. O. Elbing, Butler county), June 14, 1894, one brown horse, about 12 years old, had on a rawhide halter, no marks or brands; valued at \$25.

**Chase county**—M. K. Harman, clerk.

**STEER**—Taken up by J. R. Blackshire, in Cottingham tp., P. O. Elmdale, July 9, 1894, one red steer, 3 years old, a little white on forehead, white between fore legs, small white spot on left hind leg above hock, no marks or brands; valued at \$30.

**Hamilton county**—John Wensinger, clerk.

**TWO HORSES**—Taken up by John J. Donohue, in Coolidge tp., June 27, 1894, two horses, about 2 years old; one dun, fourteen hands high; the other dark bay, fourteen and a half hands high; both branded C on left shoulder; valued at \$15 each.

**FOR WEEK ENDING AUGUST 1, 1894.**

Allen county—Jas. Wakefield, clerk.

**TWO MULES**—Taken up by C. K. Mills (Postoffice Moran), one span of mouse-colored mare mules, 2 years old, no marks or brands; valued at \$30.

**Lambette county**—J. F. Thompson, clerk.

**MARE**—Taken up by B. Coxad, in Mount Pleasant tp., July 3, 1894, one brown mare, fourteen and a half hands high, 7 years old, both hind and left front foot white, shod with light plates all round.

**HORSE**—Taken up by S. V. Green, in Canada tp., a mile and a half north of Angola, June 23, 1894, one bay horse, 10 or 12 years old, weight about 1,000 pounds, spavin on right hind leg, shod in front.

**COLT**—By same, one gray colt, small, 1 or 2 years old, no marks or brands; two animals valued at \$26.

**MULE**—Taken up by John McCaw, in Richland tp., near Chetopa, July 8, 1894, one brown mare mule, fifteen hands high, 14 years old; valued at \$15.

**MULE**—By same, one dark bay mare mule, fifteen hands high, 14 years old; one of said mules carries a large cow bell; valued at \$15.

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In San Luis Valley, Colorado, the Garden Spot of the Rocky Mountains.

Sixty thousand acres of fine land, all under first-class irrigation canals, with perpetual water rights, for sale cheap, six years time, 6 per cent. interest.

**Grains, Grasses and Vegetables Grow Here to Perfection.**

Crops sure; no droughts, no cyclones; no blizzards; abundance of pure artesian water; climate unequalled. We have churches, schools, railroads and good markets. For maps, circulars and full information, address JAMES A. KELLY & CO., Agents Colorado Valley Land Co., Monte Vista, Colo.

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## The ABC of Potato Culture.

Paper, 220 pages, 4x5, illustrated. This is Terry's first and most masterly work. The book has had a large sale, and has been reprinted in foreign languages. The second edition, reset and almost entirely rewritten, is just issued. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. Price 40 cents, postpaid.

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This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato book that it reads almost like a sequel to it. If you have only a horse or a cow, we think it will pay you to invest in the book. It has 44 pages, 7x10, illustrated.

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## Tomato Culture.

In three parts. By J. W. Day, D. Cummins and A. L. Root. Paper, 150 pages, illustrated. A most valuable treatise embracing field culture, forcing under glass, and raising plants for market. Valuable to any one raising garden stuff of any kind, aside from tomatoes.

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