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## KANSAS FARMER.

Established in 1863.

Published every Thursday by the  
KANSAS FARMER CO., - - TOPEKA, KANSAS

E. B. COWGILL.....President  
J. B. MOFFAT.....Vice President  
D. C. NELLIS.....Secretary and Treasurer

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I. D. GRAHAM.....Associate Editor  
H. A. HEATH.....Advertising Manager

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### ADVERTISING RATES.

Display advertising, 15 cents per line, agate (fourteen lines to the inch). Continuous orders, run of the paper, \$1.54 per inch per week.  
Special reading notices, 25 cents per line.  
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All advertising intended for the current week should reach this office not later than Monday.  
Every advertiser will receive a copy of the paper free, during the publication of the advertisement.  
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KANSAS FARMER CO.,

116 West Sixth Ave., Topeka, Kans.

### Table of Contents

Afternoon ride, an.....	700
Alfalfa bacteria, experiments with.....	694
Aullenson, A. N.....	713
Birds and the farmer.....	702
Blackbirds, those small.....	708
Bottom, James.....	713
Canker in mouth.....	713
Castrated pigs.....	713
Children's farm, a.....	700
Club department.....	701
County agricultural collective exhibits.....	699
Digestion, deranged.....	713
Dille, W. T.....	697
Diseased cow.....	713
Editors' excursion, the Kansas.....	693
Eggs, water-glass for preserving.....	708
Farmer can not afford, what the poor.....	694
Fishing (poem).....	700
Flag, the American (poem).....	701
Flood waters, restraint of.....	698
Flour in China, American.....	694
Gison, Chas. D.....	713
Golden belt to Saline county, over the.....	706
Grandfather's visit, and how he caught six bears.....	700
Grange department.....	712
Heaves.....	713
Hen, the American.....	708
Horse, evolution of the.....	697
Horse-feeding, principles of.....	695
Hot weather work (poultry).....	708
Hutchinson, Alex.....	713
Insect intelligence.....	700
Kansas' growing crops.....	704
King bird, the.....	700
Lice, look for.....	708
Mange-lumpy-jaw.....	713
Milking sheep of Larzac, France, the.....	707
Moqui snake dance, the.....	701
Opossum, Mr.....	700
Oroles, observations among.....	700
Peters, J. R.....	713
Pig-grazing, a system of crops for.....	696
Plea for humanity, a.....	701
Poultry-raising, practical.....	708
Relief measure, no general.....	693
Rose garden, in the.....	703
Sanded areas? what shall be done with the.....	703
Silo, a giant cement.....	706
Stock at first profit, selling.....	696
Sweeney, hip.....	713
Swerdfeger, Chas.....	713
True spirit, the.....	709
Vegetables in intensive cultivation.....	702
Webb, W. W.....	713
Wheat supremacy passing? is our.....	709
Whispery bird, the (poem).....	700
Willard, J. T.....	703

It pays to be decent. If you have good stock to sell you will be at home in the advertising columns of the KANSAS FARMER. It will pay in money also.

We hear of men who "try experiments," who "try to do their best." The men who succeed are they who make experiments and who do their best. The KANSAS FARMER will help you to succeed.

In a well-considered article printed on page 703 of the KANSAS FARMER, Prof. J. T. Willard, of the Kansas Experiment Station, makes valuable suggestions as to the use of areas of land covered by sand during the late flood.

Thinking to contribute in a modest way to the relief of the flood sufferers, the publishers of the KANSAS FARMER offered to send a year's subscription free to every loser by the flood. It now transpires that Uncle Sam's postal laws will not permit the company to carry out this proposition. It is therefore withdrawn.

Through an error, the name of Mr. Louis Zahn was misprinted in the interesting article he furnished us on "Alfalfa on Sandy Land," which was printed on page 682 of last week's issue. Mr. Zahn lives at Newkirk, Okla., and his article was much appreciated, and we regret exceedingly that another name was signed to it.

### BLOCKS OF TWO.

The regular subscription price for the KANSAS FARMER is one dollar a year. That it is worth the money is attested by the fact that thousands have for many years been paying the price and found it profitable. But the publishers have determined to make it possible to secure the paper at half price. While the subscription price will remain at one dollar a year, every old subscriber is authorized to send his own renewal for one year and one new subscription for one year with one dollar to pay for both. In like manner two new subscribers will be entered, both for one year, for one dollar. Address, Kansas Farmer Company, Topeka, Kans.

### NO GENERAL RELIEF MEASURE.

The relief funds, which had been placed in the hands of Governor Bailey, were turned over to a commission of five men and by them divided among the several counties affected by the floods, to be administered by the several boards of county commissioners. The division was made to conform as nearly as possible to the numbers of destitute in each county. Wyandotte County got over one-half of the entire amount. The most persistently pressed claims came from the cities and towns, so that the amount devoted to farmers was small.

The special session of the Legislature enacted laws enabling counties to replace bridges and to take extraordinary means of relieving their own people. No relief appropriation of State funds was made.

The necessities of those who have

lost will have to be relieved by their own efforts, by the assistance of their friends, and by the county commissioners very much as in ordinary cases of distress.

### THE KANSAS EDITORS' EXCURSION.

Kansas people all unite in being proud of the Atchison, Topeka, and Santa Fe Railway, more familiarly and perhaps affectionately called the "Santa Fe." This road originated in Kansas, was projected and built by Kansas men and, like everything else having such an origin, it has spread throughout the world. While it does not own tracks extending to all parts of the civilized world it does own those which pass through the most interesting and valuable portions of it and its connections and fame reach everywhere else. This road was organized and has been pushed to its present magnitude by men possessed of the true Kansas spirit. It extended its branches into territory before there were settlers, and its management has the satisfaction of knowing that it is the only road that kept its tracks open for traffic during the recent disastrous floods which visited Kansas.

By courtesy of this great road and under the skillful management of Mr. F. S. Savage, its efficient advertising agent, the editors of Kansas and their wives were enabled to take a trip last week which will broaden the horizon and increase the efficiency of what is already recognized as the most efficient body of men and women now on earth.

The itinerary of this trip included a day's stop at Rocky Ford, Col., for the purpose of inspecting the million-dollar beet-sugar plant and the adjacent irrigated farm lands which have made this possible. Rocky Ford has won a wide-spread reputation because of its sugar-beets and its canteloupes, and our impressions of the visit at this point will be given elsewhere.

The editorial party was driven about over the country adjacent to Rocky Ford by the citizens, who courteously volunteered all information that was asked by the inquisitive editors. Later in the day the party was landed at Pueblo, where they were treated to a trolley ride given by the courtesy of the city street-car system whose splendid equipment is an object lesson which other cities may profit by. Following the trolley ride, which included the points of interest about the city, the party was given a banquet at the Imperial Hotel by the commercial club. The banquet was followed by toasts given by J. E. Junkin of the Sterling Bulletin, E. W. Hoch of the Marion Record, I. D. Graham of the KANSAS FARMER, and a number of the prominent business men who were acting as hosts. Col. D. R. Anthony of the Leavenworth Times proved himself as efficient a toastmas-

ter as he is president of the Editorial Association.

The next point in the itinerary was Colorado Springs, where a day was spent in visiting the various sights to be seen about this city and an excursion up to the top of Pike's Peak on the Cog Wheel Railway. Through the courtesy of the "Short Line" Railway the party was then taken over to Cripple Creek, where they were met by the commercial club and given a banquet at the National Hotel, after which tickets were purchased for a climb up the mountains on the electric cars to Victor, where the party was given the unusual privilege of inspecting the Gold Coin Mine. Here they had the novel experience of riding on an electric trolley through a tunnel three-quarters of a mile long and 1,000 feet under the surface of the earth. After the return to Cripple Creek the Colorado Midland placed a train at the disposal of the editors who were then taken back to Colorado Springs over that line, which passes through the magnificent Ute Pass, and thus completed the circuit of Pike's Peak for this party. The next day was spent in Denver, where the editors were given a complimentary trolley ride through this wonderful metropolis of the West, accompanied by a "Seeing Denver" man who used a megaphone in one end of the car to explain the many points of interest passed and who added much to the pleasure of the occasion by his ready wit. After the trolley ride the party were furnished with complimentary tickets to the observatory of the Equitable Building, where a complete panorama of the city and the adjacent mountains lay spread before them. Complimentary tickets to Elitch's Garden were also given the tourists and an inspection of the results of wonderful skill in landscape gardening, together with a musical entertainment, was enjoyed.

The tourists then returned to Colorado Springs, whence a portion of them were carried to Salt Lake City through the courtesy of the Denver & Rio Grand Railway, and the remainder of the party devoted the time to visiting points of interest not before reached.

On the return to Kansas the entire party was assembled in one of the three sleepers it occupied and an experience-meeting and love-feast was held. All were unanimous in the opinion that it was the best managed and most enjoyable excursion they had ever taken, and credit for this was given to Secretary J. E. Junkin, who seemed to anticipate everything and have every want provided for.

As this article is intended to give a mere outline of the itinerary no attempt has been made to give descriptions of points of interest visited or information of value that was gained. These will be reserved for other articles. We here voice the sentiments of the entire excursion party when we say that the Santa Fe is the greatest  
(Continued on page 698.)



## Agricultural Matters.

### What a Poor Farmer Can Not Afford.

FROM THE NEW ENGLAND FARMER, AUGUST, 1856.

The following remarks are from an address by Horace Greeley, at the annual fair in Erie County, N. Y., last autumn. Mr. Greeley had a pretty thorough agricultural training while a boy, so that nearly all the processes of art are familiar to him. To this he added a close and discriminating observation, and thus qualified himself to write as good an agricultural address as we read from any source:

"The truth I am most anxious to impress, is that no poor man can afford to be a poor farmer. When I have recommended agricultural improvements, I have been told, 'this expensive farming will do well enough for rich people, but we who are in moderate circumstances can't afford it.' Now, it is not ornamental farming that I recommend, but profitable farming. It is true that the amount of a man's capital must fix the limit of his business, in agriculture as in everything else. But however poor you may be you can afford to cultivate land well if you can afford to cultivate it at all. It may be out of your power to keep a large farm under a high state of cultivation, but you can sell a part of it and cultivate a small one. If you are a poor man, you can not afford to raise small crops; you can not afford to accept half a crop from land capable of yielding a whole one. If you are a poor man you can not afford to fence two acres to secure the crop that ought to grow on one; you can not afford to pay or loose the interest on the cost of a hundred acres of land to get the crops that will grow on fifty. No man can afford to raise twenty bushels of corn to an acre, not even if the land were given to him, for twenty bushels will not pay the cost of the miserable cultivation that produces it.

"No man can afford to cultivate his land in such a manner as will cause it to deteriorate in value. Good farming improves the value of land, and the farmer who manages his farm so as to get the largest crop it is capable of yielding, increases its value every year.

"No farmer can afford to produce weeds. They grow, to be sure, without cultivation; they spring up spontaneously on all land, and especially on rich land, but though they cost no toil, a farmer can not afford to raise them. The same elements that feed them, would with proper cultivation, nourish a crop, and no farmer can afford to expend on weeds the natural wealth which was bestowed by Providence to fill his granaries. I am accustomed, my friends, to estimate the christianity of the locality through which I pass, by the absence of weeds on and about the farms. When I see a farm covered by a gigantic growth of weeds, I take it for granted that the owner is a heathen, a heretic, or an infidel—a christian he can not be, or he would not allow the heritage which God gave him to dress and to keep, to be deformed and profaned. And if you will allow me to make an application of the doctrine I preach, I must be permitted to say that there is a great field of missionary effort on the farms between here (East Hamburg) and Buffalo. Nature has been bountiful to you, but there is great need of better cultivation.

"Farmers can not afford to grow a crop on a soil that does not contain the natural elements that enter into its composition. When you burn a vegetable, a large part of its bulk passes away during the process of combustion into air. But there is always a residue of mineral matter, consisting of lime, potash, and other ingredients that entered into its composition. Now, the plant drew these materials out of the earth, and if you attempt to grow that plant in soil that is deficient in these ingredients, you are driving an unsuccessful business. Nature does not make vegetables out of nothing, and you can not expect to take crop after crop off from a field that does not contain the elements of which it is

formed. If you wish to maintain the fertility of your farms, you must constantly restore to them the materials which are withdrawn in cropping. No farmer can afford to sell his ashes. You annually export from Western New York a large amount of potash. Depend upon it there is nobody in the world to whom this is worth so much as to yourselves. You can not afford to sell it, but a farmer can well afford to buy ashes at a higher price than is paid by anybody that does not wish to use them as fertilizers of the soil. Situated as the farmers of this country are in the neighborhood of a city that burns large quantities of wood for fuel, you should make it a part of your system of farming to secure all the ashes it produces. When your teams go to town with loads of wood, it would cost comparatively little to bring back loads of ashes and other fertilizers that would improve the productiveness of your farms.

"No poor farmer can afford to keep fruit-trees that do not bear good fruit. Good fruit is always valuable, and should be raised by the farmer, not only for market, but for large consumption in his own family. As more enlightened views of diet prevail, fruit is destined to supplant the expensive quantities of animal food that are consumed in this country. This change will produce better health, greater vigor of body, activity of mind, and elasticity of spirits, and I can not doubt that the time will come when farmers, instead of putting down the large quantities of meat they do at present, will give their attention in autumn to the preservation of large quantities of fruit for consumption as a regular article of diet the early part of the following summer. Fruit will not then appear on the table as it now does, only as dessert after dinner, but will come with every meal, and be reckoned a substantial aliment.

"No poor farmer can afford to work with poor implements that either do not do the work well, or that require an unnecessary expenditure of power. To illustrate this, it will be necessary to ask your attention to the mechanical operation requisite for the production of good crops. It is essential to the thrifty growth of a plant that the air should have free access to every part of it, the roots as well as the leaves, and that the soil in which it grows should be moist, but not too moist, and should have a certain degree of warmth. These necessities of vegetation will enable us to understand the mechanical operations on the soil demanded by good farming.

"The soil should be light and finely pulverized, in order that the little fibers sent out by the roots in search of nourishment may easily permeate in all directions. It should be porous to be easily penetrated by air and water, and as its own weight and the filtering of rains tends constantly to bed it down into a compact mass, it needs frequent stirring."

#### Experiments With Alfalfa Bacteria.

In some parts of the country alfalfa without any apparent reason fails to make a proper growth or a permanent stand. The KANSAS FARMER has suggested that lack of the peculiar bacteria to produce the root tubercles which appropriate atmospheric nitrogen to the use of the plant may in some cases at least account for the failure. Recent experiments conducted by R. W. Clothier, professor of Agriculture and Chemistry, Southeast Missouri State Normal, tend to confirm this view. Speaking of these experiments Professor Clothier, who is a "formerly of Kansas" man, says:

"I have long believed that the chief reason why the farmers of the Mississippi Valley have had difficulty in growing alfalfa, is lack of bacteria in their soil. I have been experimenting some along this line, here on the normal grounds, and while my work is not yet completed, it might be well for me to present to you now for publication the results already obtained.

"The soil upon which I am working is a loess clay, on top on one of the Mississippi River bluffs. A few years ago the top of this hill was all scraped off, the dirt being used to make ter-

aces in other parts of the campus. If I can succeed in growing alfalfa upon such a soil, I am confident that it can be grown upon any other farm in southeast Missouri. In October, 1901, I placed thirteen loads of manure upon a part of this hill, the plat measuring 90 by 135 feet. The manure was plowed under and the ground left idle till May 1, 1902. I then laid off four small plats, 10 feet square, adjoining each other. All of them were sown to alfalfa. The two further south were untreated. One of those on the north side was treated with 15 pounds of unslaked lime, and the other was untreated with the exception that two pounds of dirt from an old alfalfa field, containing tubercles, was spread upon a strip two feet wide on the west side.

"The alfalfa came up nicely upon all the plats. In about six weeks the alfalfa on the untreated soil began to turn yellow, and, practically, quit growing. On the limed plat it continued to grow, but did not have a bright green color. On the inoculated strip of soil the alfalfa had a rich, dark green color, grew nicely, and about the middle of the summer the green strip began to grow wider. Examination of the roots showed them to be bountifully supplied with nodules. At the end of the growing season, last year, the green strip had grown to be five or six feet wide; the alfalfa on the limed part was still a good stand, though having a pale green color, while the alfalfa on the two plats untreated had gradually died out till there was practically none left, and what little could be seen was entirely killed by the winter.

"This spring the alfalfa on the inoculated plat started out with a dark-green color, and this color showed a decided tendency to spread rapidly, soon covering the remainder of the plat and beginning to encroach upon the limed plat. The alfalfa on the limed plat still retained its pale green color, grew slowly and showed a tendency to die out. On May 25, the alfalfa on the inoculated soil was eighteen inches high, while that on the limed plat, not yet reached by the bacteria, was not over eight inches high. At the present writing the bacteria have spread from a strip two feet wide, over a distance of twenty feet, and have covered all the limed plat, except about three feet on one corner.

"This certainly demonstrates the fact that alfalfa can be successfully grown, by inoculating the fields that do not contain bacteria, with a small quantity of soil from a field known to have them. I should like very much to have the addresses of farmers in this part of the State, who know that they have the alfalfa bacteria in their soil. I have examined several fields during my farmer's institute work, and have found the bacteria absent in nearly all cases.

"I do not consider my experiments complete and shall continue them. It is known that most bacteria do better in the presence of small quantities of alkali. It may be that the beneficial effect of lime noted in these experiments was due to this fact, or it may be due to its neutralizing effect on acids present in the soil. Our upland soils contain considerable free acid, but I think it doubtful that they contain enough to be injurious to alfalfa. These are points that I hope to determine by future experiments. The lime also improves the texture of clay soils and I have no doubt that the good results obtained by its use were due, in part, to this fact."

#### American Flour in China.

The British Consul-General at Canton, in a report sent from China to London and published in that city, stated that the demand for flour among emigrants returned from the United States is so great that the quantity of flour imported in 1902 exceeded that of 1901 by 95,831,328 pounds, and was also some 78,400,000 pounds in excess of the average for the past five years.

These figures of increase in Chinese consumption of flour are justified by the figures of the Treasury Bureau of Statistics, showing exportations of flour to China and adjacent ports. Indeed, it is only when the shipments to

the ports adjacent to China are considered that the rapidity of increase in exports of flour to that part of the world is realized. To China alone, the exports of American flour have grown from 13,718 barrels in 1892 to 99,624 barrels in 1902. This increase of 85,906 barrels is small, however, compared with the increase in the shipments to Hongkong, from which point most of the flour there received is distributed to the various ports of China. The exports of American flour to Kongkong in 1892 were 45,690 barrels, and in 1902, 1,398,893 barrels, an increase of 941,203 barrels. To Russian China, the exports of American flour, which began in 1900, were 16,587 barrels, and in 1902, 50,140 barrels. To British China the flour exports were 375 barrels. Grouping the three statements of exports of flour from the United States to China, to Hongkong and to Russian and British China, the total for 1892 stands at 471,408 barrels, and for 1902, 1,649,032 barrels. This shows an increase of over 200 per cent in the exportation of American flour to China and to ports contributing to the consumption of China, while the total exportation of flour in the same years was, in 1892, 15,196,769 barrels, and in 1902, 17,759,203 barrels, an increase of about 15 per cent.

From the standpoint of dollars, it may be added that the value of American flour shipped to China grew from \$67,441 in 1892, to \$291,252 in 1902; to Hongkong, from \$2,140,071 in 1892 to \$4,164,693 in 1902, while the shipments to Russian China in 1902 were \$149,669 and to British China, \$1,125, making the total value of flour shipped from the United States to China and contiguous ports \$2,207,512 in 1892 and \$4,606,739 in 1902; while the total value of all flour exported from the United States in the same period fell from \$75,362,283 in 1892 to \$65,661,974 in 1902.

The above figures cover simply the years 1892 and 1902, since the fiscal year 1903 is not yet sufficiently completed to enable a comparison of its figures with those of completed years of an earlier date. The Bureau of Statistics figures for ten months, however, show a slight reduction in the quantity of flour shipped to China and Hongkong, but a marked increase in the quantity shipped to Russian China; while the total value for the year 1903 will considerably exceed that of 1902. The exports of American flour to China, Hongkong and Russian China in the ten months ending with April, 1902, amounted to 1,486,047 barrels, valued at \$4,423,692, and in ten months of 1903, 1,437,472 barrels, valued at \$4,676,491. This slight reduction in the total quantity shipped is apparently due to the fact that the shipments of 1902 were somewhat above the normal, by reason of the very light importations of flour in 1901 during the war period in China.

The following table shows the total quantity and value of flour exported from the United States to China and Hongkong in each year from 1892 to 1902, including the shipments to Russian and British ports, which are respectively termed by the Bureau of Statistics, Russian China and British China:

Year.	Barrels.	Value.
1892.....	471,408	2,207,512
1893.....	566,181	2,126,270
1894.....	607,325	1,886,661
1895.....	823,562	2,199,046
1896.....	839,491	2,388,234
1897.....	940,582	3,394,341
1898.....	958,662	3,925,032
1899.....	1,249,340	4,135,540
1900.....	1,529,557	4,550,071
1901.....	1,436,209	4,202,842
1902.....	1,649,032	3,606,739

Some bacteria, large fungi, and rotten wood are known to glow in the dark, but shrubs and flowering plants are not usually credited with the property of phosphorescence. Dr. H. Beckurtz, however, has lately discovered an old record of phosphorescence, in an Indian grass known to the Brahmins as "diotishmati." The account is of much interest to botanists, but, while the plant has not been identified with certainty, it is concluded that the observer was led into error by phosphorescent bacteria on the grass.—Selected.

When writing advertisers please mention this paper.



## The Stock Interest.

### THOROUGH-BRED STOCK SALES.

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

September 1, 1903—Horses and Jacks, L. M. Monsees & Son, Smithton, Mo.  
 September 1 and 2, 1903—100 head of Herefords, at Hamline, Minn. C. R. Thomas, Secretary.  
 September 3, 1903—Central Missouri Hereford Breeders' Association, Macon, Mo.  
 October 2, 1903—Poland-Chinas, J. R. Killough & Sons, Ottawa, Kans.  
 October 6, 1903—A. E. Burling, Kansas City, disperson sale Polled Durham.  
 October 7 and 8, 1903—Combination sale of Poland-Chinas and Shorthorns. Poland-Chinas on the 7th, Shorthorns on the 8th. James P. Lahr, Sabetha, Kans., Manager.  
 October 12, 1903—C. O. Hoag, Centerville, Kans., Poland-China hogs.  
 October 15, 1903—Central Missouri Hereford Breeders' Association.  
 October 16, 1903—W. S. Wilson, Manager, Shorthorns and Herefords, at Monroe City, Mo.  
 October 19, 1903—Oak Grove, Mo., Poland-Chinas. E. E. Axline.  
 October 19-24, 1903—American Royal, Kansas City, sale by Galloway Breeders' Association.  
 October 22, 1903—100 head of Herefords, at Kansas City, Mo. C. R. Thomas, Secretary.  
 October 27, 1903—Duroc-Jerseys, Peter Blocher, Richland, Kans.  
 November 3, 1903—O. B. Smith & Son, Cuba, Kans., Poland-Chinas.  
 November 10-11, 1903—Marshall County Hereford breeders' annual sale at Blue Rapids, Kans.  
 November 13, 1903—Central Missouri Hereford Breeders' Association, animal sale; S. L. Brock, Macon, Mo., Secretary.  
 November 17, 18, 19, 1903—Armour Funkhouser, Herefords, at Kansas City, Mo.  
 December 3, 1903—100 head of Herefords, at Chicago, Ill. C. R. Thomas, Secretary.  
 February 4, 5, 6, 7, 1904—Percherons, Shorthorns, Herefords, and Poland-Chinas, at Wichita, Kans., J. C. Robison, Towanda, Kans., Manager.

### Principles of Horse-Feeding.

C. F. LANGWORTHY, OFFICE OF EXPERIMENT STATIONS, WASHINGTON, D. C.

(Continued from last week.)

#### METHOD OF CALCULATING RATIOS.\*

The feeding value of any ration may be readily calculated and compared with the standards. Suppose a horse at moderate work and weighing 1,200 pounds is fed 11 pounds of oats and 10 pounds of timothy hay daily. The pounds of timothy hay daily. The horses at moderate work calls for 1.8 pounds of protein and 26,700 calories per thousand pounds live weight. A horse weighing 1,200 pounds would therefore require 1.2 times as much, or 2.2 pounds protein and 32,000 calories. Oats contain 9.39 pounds of digestible protein and 122,100 calories per hundred pounds. Eleven pounds would therefore furnish 1.03 pounds of protein ( $9.39 \times 0.11 = 1.03$ ), and 13,431 calories ( $122,100 \times 0.11 = 13,431$ ). Timothy hay furnishes 1.25 pounds protein and 69,850 calories per hundred pounds. Ten pounds would therefore furnish 0.13 pound protein ( $1.25 \times 0.10 = 0.13$ ) and 6,985 calories ( $69,850 \times 0.10 = 6,985$ ). The sum of the nutrients furnished by 11 pounds of oats and 10 pounds of hay would therefore be 1.16 pounds protein and 20,415 calories, or 1.04 pounds protein and 11,585 calories less than the standard calls for. This may be made up by adding more oats, hay, or other feeding-stuff. The amount of oats required to furnish the necessary protein may be learned from the proportion  $100:9.39::x:1.04$ ; or, in other words, by dividing 104 by 9.39, which gives 11.07. This quantity of oats would also furnish 13,517 calories, making the total protein of the ration 2.2 pounds and the total fuel value 33,932 calories. The fuel value of the ration is in excess of the standard, though the agreement is close enough for all practical purposes.

It will be remembered that it is not necessary that the amounts furnished in a ration shall exactly equal those called for by the standard, but rather that they approximate them, being greater rather than less through a long period. Rations which will furnish the amounts called for by other feeding standards, or by the average values deduced from American rations, can, of course, be calculated in the same way. As will be noted, the amount of feeding-stuffs necessary to provide nutrients equal to the amount called for by the Wolff standard for a horse at moderate work is large compared with the amounts ordinarily used in this country.

#### MUSCULAR WORK AND ITS EFFECT ON FOOD REQUIREMENTS.

It is commonly said that the amount

\*It will be remembered by readers of the Kansas Farmer that Professor Willard, of the Kansas Experiment Station, and E. B. Cowgill, editor of the Kansas Farmer, have each published a method for the exact computation of balanced rations, making entirely unnecessary the unsatisfactory and unsatisfactory "cut-and-try" method here described.

of food required by horses is proportionate to their weight; it being self-evident that a large horse would require more material than a small horse to build and repair the body and to carry on all the vital processes which constitute internal muscular work. Investigations have shown that the requirements are more nearly proportional to the surface areas than to the body weight. Individual peculiarity is, of course, a factor which must be reckoned with, but the general statement is justified. The factor which has the greatest influence on the ration required is the amount of work performed, the ration increasing with the work. When horses which have been consuming a large ration and performing work are compelled to rest, even for a few days, the ration should be diminished.

In order to study the effects of work upon the amount of food required it is necessary to have some means of measuring and comparing the different kinds of work done.

#### MEASURING MUSCULAR WORK.

It has been said already that the total work performed by a horse consists of internal and external muscular exertion. The former includes the force expended in the digesting of food, the beating of the heart, etc.; the latter that expended in moving the body, i. e., in the motion of forward progression, and in drawing or carrying a load. The latter factor is the one of most importance in considering the horse as a beast of burden. The amount of such muscular work has been calculated or measured in various ways. The methods of calculation are often complex and need not be discussed in detail.

According to the classic experiments of James Watts, a horse can exert a power equal to 33,000 foot-pounds per minute, i. e., in one minute can exert a force sufficient to raise 33,000 pounds 1 foot. This value has been termed one horsepower and has been accepted as a common unit for the measurement of force. In countries where the metric system is employed, the more common unit is the kilogrammeter. This unit is equal to 7.2 foot-pounds. According to Watts's values, a horse working working eight hours per day would perform work represented by  $33,000 \times 60 \times 8 = 15,840,000$  foot-pounds. Later estimates give lower values. It has been calculated that an average horse will produce only about 22,000 foot-pounds per minute, which would be equivalent to 10,560,000 foot-pounds in a working day of eight hours.

According to German experiments, the day's work of a horse hauling a load eight hours on a level road amounted to 7,999,800 foot-pounds. Working the same length of time with a dynamometer the work amounted to 12,996,000 foot-pounds. Larger values have been obtained in calculations representing the amount of work performed daily by army horses.

Taking into account the average amount of muscular work expressed in foot-pounds, the speed at which work is performed, the duration of the work, and the amount of work done at a walk and trotting, the total work done per day by French army horses carrying a rider weighing 175 pounds without a pack, and 265 pounds with a pack, and 200 pounds with accouterment for maneuvers, has been calculated to be as follows:

Table 3.—Work performed by French army horses per day.

Work per day.	Weight carried.	Velocity per second	Work per second	Duration of daily work	Amount of work at different gaits
ORDINARY WORK (RIDER WITHOUT PACK)					
Walking.....	176	5.446	958.5	2 30	8,626,500
Trotting.....	176	9.022	1,578.9	1 30	8,574,600
Total.....					17,201,100
ROAD WORK (RIDER WITH PACK).					
Walking.....	265	5.446	1,443.2	1 30	7,793,280
Trotting.....	265	9.022	2,390.8	1 30	12,910,320
Total.....					20,703,600
MILITARY MANEUVERS (RIDER WITH LIGHT PACK).					
Walking.....	198	5.446	1,078.3	2 00	7,762,760
Trotting.....	198	9.022	1,786.4	3 00	19,293,120
Total.....					27,055,880

According to the calculation of an English army officer, the mean ratio of carrying power to body weight is 1:5.757; that is to say, it takes, roughly speaking, 5.75 pounds of body weight to carry 1 pound on the back during severe exertion (racing excepted). The rule he gives for ascertaining the carrying power of a horse is to divide his body weight by 5.757, and if intended for only moderate work to add to the product 28 pounds. It has to be noted that the observations on which this rule is based were made upon military horses. It is doubtful if it would work out so accurately if applied to all horses used for the saddle.

#### MUSCULAR WORK IN ITS RELATION TO THE RATION.

Many experiments have been made, chiefly in Europe, to determine the exact relation between the amount of muscular work performed and the amount of the different nutrients required per day. It is the opinion of many prominent investigators that, provided a sufficient amount of protein is supplied for physiological maintenance, i. e., to replace the wear and tear of body tissue, it is immaterial which of the three classes of nutrients (protein, fat, and carbohydrates) furnishes the energy necessary for external muscular work performed by horses.

A view very commonly held to-day is much the same and in accord with the above, viz., that provided an adequate quantity of protein and energy are available for maintenance, it is theoretically immaterial which class of nutrients furnish the energy for muscular work, although carbohydrates and fat are practically better suited for this purpose than protein, since any great excess of the latter is costly and may prove injurious to the health. In this case the term maintenance is not used in its strict physiological sense, but refers to a condition in which no appreciable amount of external muscular work is performed, and in which the internal muscular work is fairly uniform from day to day and the body weight practically constant.

The speed at which the horse travels, the way in which the load is distributed, the external temperature, and other conditions evidently have an effect upon the work performed, increased speed, increased temperature, and faulty distribution of the load increasing the work.

It is commonly recognized that when work is increased more feed is required. Many experiments have shown that the pace at which work is done also has an effect, and in general the greater the speed the larger the feed requirement. Some of the reasons given for the fact that rapid work is less economical than slow work are the increased action of the heart when the horse is trotting or galloping; the lifting of his own weight at each step only to allow it to fall again, thus developing heat; and the increase of body temperature with exertion and the loss of heat by the evaporation of water through the skin and lungs.

A number of investigators have studied the relation between muscular work and digestibility. Small variations have been observed under the different experimental conditions, the feed being on an average a little less thoroughly digested when severe work was performed. But on the whole it seems fair to say that from a practical standpoint the diminished digestibility

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due to muscular work is not very important.

A recent German investigator found that the amount of food required was affected by anything that disturbed the horse. In one experiment a horse confined in a stable was much disturbed by flies and consequently restless. The increased work in fighting the flies caused an increase of 10 per cent of the carbon dioxide excreted. This means that more food material was burned in the body than was the case when the horse was quiet, for the combustion of food in the body, it will be remembered, furnishes the carbon dioxide excreted in the breath.

In addition to other matters, this same investigator noted that the body conformation had a marked effect on the economical production of work. He found that defects in external conformation and movements necessitate an increased amount of muscular exertion. This has an important bearing upon the market value of the horses. Too low a stall temperature also increases the amount of material required for maintenance. In many cases observed this increase was hardly covered by 2 pounds of oats daily.

#### PROPORTION OF ENERGY OF FOOD EXPENDED FOR INTERNAL AND EXTERNAL MUSCULAR WORK.

A horse converts 38.3 per cent of the energy of food into mechanical work. On account of the energy required for respiration, the beating of the heart, etc., only about 34 per cent of the energy of the food is actually available for external muscular work. The best record for a steam engine is said to be an efficiency per indicated horsepower of 22.7 per cent on the basis of total heat supply. Per delivered horsepower the amount is probably 10 per cent less. The animal is, therefore, seen to be a much more efficient machine than the engine.

#### ENERGY REQUIRED TO CHEW AND DIGEST FOOD.

One of the most interesting of the lines of investigation followed in an extended series of experiments, carried on under the direction of Professor Zuntz at the Agricultural High School in Berlin, was the determination of the energy required to chew and digest different foods. The experiments were complicated and too extended to describe here except in very general terms. They showed that the respiratory quotient, i. e., the ratio of the carbon dioxide excreted in the breath to the oxygen consumed from the air is a very delicate index of the changes which take place in the body. It was found that the internal muscular work expended in chewing, swallowing, and digesting food could be determined by the variations in the respiratory quotient and in the amount of carbon dioxide excreted when this kind of work was performed, as compared with the amount when the animal rested. Different feeding stuffs modified the respiratory quotient in different ways, and it was evident that some required more labor for digestion and assimilation than others. This is a matter of considerable importance, for it is evident that if two feeding stuffs of practically the same composition are digested with equal thoroughness but one requires for digestion and assimilation the expenditure of more internal muscular work than the other, it is really less valuable; in other words, the two may contain the same amount of digestible nutrients, but one causes the body more labor to assimilate than the other. On the basis of Zuntz's average figures of composition and digestibility, 1 pound of hay furnishes 0.391 pound of total nutrients, and 1 pound of oats 0.615 pound of nutrients. As regards nutritive value, hay and oats are therefore commonly said to be to each other 400:600. As shown by the experiments referred to, 0.123 pound, or 20 per cent of the total nutritive material present in 1 pound of oats is expended in the labor of chewing and digesting them. In the case of 1 pound of hay, 0.192 pound, or 49 per cent of the total nutritive material, is required for the same purpose. Therefore hay and oats stand really in the proportion of 200:490. In other words, oats surpass hay in feeding value two and one-half times instead of one-half time, as they are ordinarily assumed to do.

#### "TRUE NUTRITIVE VALUE" OF FEEDING STUFFS.

Taking into account the internal muscular work required to chew and digest foods and deducting this from the digestible nutrients present in the foods, what we may call the "true nutritive value" of a number of feeding stuffs was calculated by Zuntz with special reference to horses. The results are shown in the following table:

Table 4.—Calculated "true nutritive value" of 1 pound of different feeding stuffs.

Feeding stuffs.	Dry matter.	Crude fiber.	Total digestible nutrients. a	Labor expended in chewing and digestion.		True nutritive value.	
				In terms of energy.	In terms of nutrients. a	In terms of energy.	In terms of nutrients. a
Meadow hay (average quality).....	85	.260	.391	376	0.309	828	0.182
Alfalfa hay cut at beginning of bloom.....	84	.266	.453	394	.219	422	.234
Red clover hay.....	84	.302	.407	429	.239	303	.168
Winter wheat straw.....	86	.420	.181	535	.297	—209	—116
Oats (medium quality).....	87	.103	.615	224	.124	883	.491
Maize.....	87	.017	.785	148	.082	1,265	.703
Field beans.....	86	.069	.720	200	.111	1,096	.609
Peas.....	86	.059	.687	183	.102	1,054	.586
Air-dry disemibittered lupines.....	86	.157	.645	294	.163	867	.482
Linseed-cake.....	88	.094	.690	225	.125	1,018	.565
Potatoes.....	25	.010	.226	49	.027	358	.199
Carrots.....	15	.016	.113	37	.021	166	.092

a Protein, plus carbohydrates, plus crude fiber, plus fat multiplied by 2.4.

As will be seen, the true nutritive value of straw is negative in the above table. In this connection it was stated that so long as heat alone is considered, the digestible nutrients in straw should be given their full value as shown by the heat of combustion. Providing the labor of digesting a mixed ration does not exceed 4.63 pounds, or 8,316 calories, the digestible nutrients in straw have a positive value. If the labor of digestion is greater than this, an excess of straw would only increase the internal muscular work, so that approximately a quarter of a pound of nutrients per pound is of no value for the body.

#### FIXING RATIONS ON THE BASIS OF INTERNAL AND EXTERNAL MUSCULAR WORK.

It was shown in connection with the above tests that a ration suited to the performance of any kind of work can be calculated on the basis of the nutritive material and energy required for maintenance plus that needed for the work performed, though the method is too involved to discuss in detail. Thus on the basis of experiments and observations it was calculated that a horse weighing 1,100 pounds requires for maintenance 7,056 pounds of true available nutrients. Similar calculations were made for a horse working with or without harness and wagon on a level and going up or down an incline at different gaits.

It was found that the amount of total nutrients required increases with the increased speed; furthermore, a greater amount is required in climbing an incline than for forward progression on a level. In descending a gentle incline a much smaller amount of nutrients is required than in climbing the same incline, and as compared with the motion of forward progression there is also a saving in the amount of nutrients needed. In general, it was found that the energy expended was less than in traveling on a level, provided the incline was less than 5° 45'. At this point it was equal to the amount expended in traveling on a level. If the incline was greater, energy was required to keep the body from descending too rapidly and the expenditure was greater than on a level.

#### SUMMARY.

Some of the principal deductions noted in this bulletin follow; the conclusions which have been drawn for horses applying with equal force to other animals of the same group, such as asses and mules.

Horses, like other animals, require a definite amount of nutrients and energy per 1,000 pounds live weight for maintenance, and an extra amount, chiefly energy-yielding nutrients, for muscular work, the amount being proportional to the character and amount of work performed.

The amount of nutrients required increases with the amount of work done and with increased speed. More energy is required for climbing an incline than for traveling on a level. In descending an incline of less than 5° 45' less energy is required than in traveling on a level. If the incline is greater than 5° 45', more energy is expended (to prevent too rapid descent) than in walking on a level.

The ration should consist of concentrated and coarse feeds. The ratio by weight of coarse fodder or bulky feed to concentrated feed in the ordinary ration has been found to be about 1:1. Crude fiber may perhaps be fairly considered as the characteristic constituent of coarse fodder. The ratio of crude fiber to protein in the average of a large number of American rations has been found to be about 2:1.

Theoretically at least any sufficient and rational mixture of wholesome grains, by-products, roots, and forage crops, green and cured, may be used to make up a ration, though there is a very general prejudice in favor of oats

and hay, corn and hay or corn fodder, and barley and hay (frequently that made from cereal grains), the first-named ration being perhaps that most commonly regarded as satisfactory for horses. A corn ration is very commonly fed in the middle West and Southern United States—that is, in the corn-producing belt. The barley ration is quite characteristic of the Pacific coast region. In the semiarid regions of the United States Kafir-corn and alfalfa have proved to be of great value, owing to their drought-resisting qualities. Both crops have been found useful for horse feeding. Of the two alfalfa has been used much more commonly, and has given very satisfactory results.

Investigations have shown that it is often best to modify a ration, for instance, by substituting corn wholly or in part for oats, so that while the horses remain in good condition, the cost of the ration is diminished. Where large numbers of horses are fed this is often a matter of considerable importance.

Generally speaking, horses digest their feed, and especially the nitrogen-free extract and crude fiber in it, less thoroughly than ruminants.

Horses require a considerable amount of water daily, the quantity varying with different seasons of the year, the amount of work performed, etc. The time of watering, whether before or after feeding, is a matter of little importance, and, generally speaking, may be regulated to suit the convenience of the feeder. Horses become used to either method of watering, and irregularity should be avoided, as sudden changes are apt to prove disturbing.

Judging by the average results, representing the practice of a large number of successful American feeders, and also the results of many tests at the experiment stations in different parts of the United States, horses with light work consume on an average a ration furnishing per day 0.99 pound of digestible protein and 14,890 calories of energy per 1,000 pounds live weight. Similar values for horses at moderate work are 1.49 pounds digestible protein and 22,710 calories. It is believed that for horses at severe work larger amounts are required. Generally speaking, these average values are less than those called for by the commonly accepted German feeding standards for horses performing the same amount of work, yet from what is known regarding the American horses it seems fair to say that they were well fed.

Additional experiments are much needed which will result in a series of standards suited to American conditions.

#### A System of Crops for Pig Grazing.

R. L. BENNETT, DIRECTOR ARKANSAS EXPERIMENT STATION.

Experiments carried on in 1902 indicate that alfalfa, wheat, corn, and peanuts grown in a certain order and fed in like manner, furnish the cheapest and best foods for growing pigs from birth to maturity. An area of alfalfa suitable for carrying the number of pigs intended to be reared, should be planted on extra good soil, and this crop will afford grazing during the fall, summer, and part of winter, and at such time during the winter as the alfalfa is dormant wheat will furnish grazing.

The wheat and corn are grown for grain food, to be fed in equal parts to the pigs while grazing alfalfa. These two grains should be crushed before feeding, or perhaps the wheat can in some instances be fed in the sheaf. After the wheat is cut, the last of May and first of June the peanuts are planted and covered deep and will yield fully as large a crop of nuts as they would if planted earlier without having been preceded by the crop of wheat. The peanuts then furnish

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grazing for fattening and finishing off the pigs in September, October, and November.

Peanuts can be planted at the time of planting corn, and in the same drill, and will yield a good crop without detriment to the corn; or Black or Clay cow-peas may be planted broadcast in the corn at the end of the second plowing, and further cultivation be dispensed with by the cow-peas shading the ground and preventing the growth of crab-grass and other vegetation. Planted at this date cow-peas will do practically no damage to the corn, it is thought, as the moisture in the ground will ordinarily be sufficient to mature both the corn and cow-peas before summer drouths occur. By this method the cow-peas or peanuts in the corn, and the peanuts following wheat, aid in restoring to the soil any fertility removed by the corn and wheat, and at the same time produce nearly as great a yield, if not as great, as they would if the land had not grown the corn and wheat crop. A full crop of wheat and corn is made on the same land and virtually a full crop of peanuts and cow-peas is produced, thus making two full crops in one season, on the same land, and at least maintaining if not increasing the fertility. The cow-peas and all of the peanuts that are grown in the corn are grazed off in the fall after harvesting the corn. Then the corn land is prepared and wheat sown. The land upon which the wheat grew and on which the crop of peanuts was harvested by the pigs in September, October, and November, is planted to corn the succeeding spring. On thin, sandy soil it might be advisable to try turf oats instead of wheat.

From experiments now in progress I shall be able to publish the areas required for these crops for the production of a definite number of hogs, or pounds of pork per acre, on a soil of known fertility. An estimate, however, can be made of the areas required for producing 250-pound pigs on alfalfa, corn, wheat, and peanuts by using the areas of foods grazed and the quantity of corn and wheat shorts, estimating wheat at fifteen bushels per acre and corn at twenty-five, though a less quantity of corn or even none at all may be fed after grazing peanuts.

#### Selling Stock at First Profit.

EDITOR KANSAS FARMER:—I was reading your article under the heading, "Gossip About Stock," in which you chastised a friend for selling his Poland-China hogs at weaning-time for an average of \$10 a head, and I want to say that man has a level head. I am 54 years old and all my life have raised Poland-China hogs and Shorthorn cattle and the trotter and the road horse. Many a hog have I cleaned up for the show-ring, and many a fine Shorthorn have I led in the show-ring, and fancy drivers back in Indiana and in Kansas, too. I showed two years at Emporia thirty years ago and always got a part of the ribbons. I worked for another man who never knew when he was getting the best profits and held for bigger prices at a loss, invariably, as he had registered stock.

I started out on a piece of school-land in Kansas twenty-three years ago, with four good cows, a fine filly that came from Kentucky, and two fine sows, and took pains to do the breeding with the man who kept registered stock, paying a fair service fee, but have never registered anything I have raised. I have broken fourteen colts to single harness and never kept one until it was 4 years old—always got a good price and sold at a good profit; same with hogs and cattle. Our home consists of 130 acres, joins Madison Junction and is a fine home—alfalfa and timothy and all grains in cultivation, good improvements, buildings well-painted, fine barns and big evergreens, with 160 acres of good pasture one-half mile away, all obtained by keeping good stock, working hard, and selling at first profit. I have also had



some experience in fitting stock for market. I have the hogs and some as fine driving-horses as you would wish to see, nicely broken to the harness and not yet 3 years old.

We invite the readers of the KANSAS FARMER to inspect our stock and surroundings. W. T. DILLE.  
Greenwood County.

#### Evolution of the Horse.

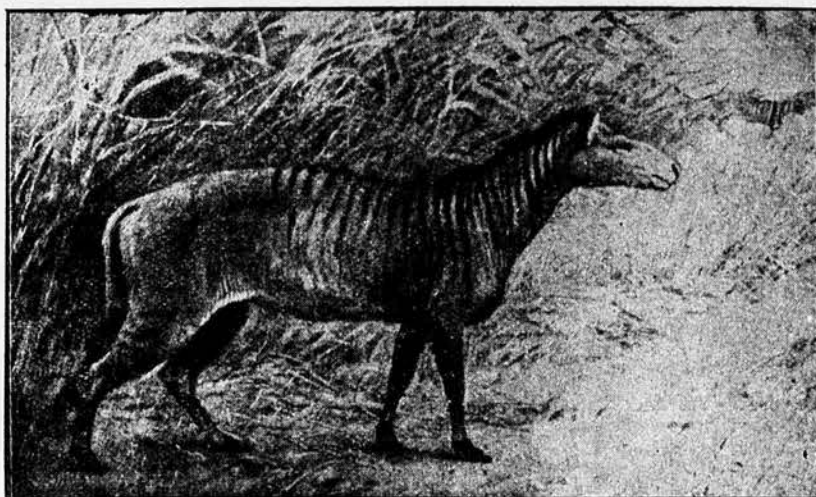
Among the recent features prepared by the Paleontological Department of the American Museum of Natural History under the supervision of Prof. Henry F. Osborn, the curator, is a remarkable exhibit depicting the ancestry and evolution of the horse. The blue-ribbon high-stepper of to-day is authentically traced back three million years or more. At this remote time he was about the size of a fox, only sixteen inches high, having four and five toes, with which he scampered over the marshes and shores of primeval earth. This noteworthy exhibit, the only one of its kind in America or elsewhere, is due to the Hon. William C. Whitney, through whose generosity a special expedition for the search of fossil horses was equipped and has been kept in the field for the past two seasons. The material gathered during this period, including some previously obtained by the Museum, together with a series of fine water-color paintings by Charles R. Knight, of wild asses, zebras, quaggas, etc., complete the display. The development of the horse is said to be one of the finest examples



THE WILD HORSE OF ASIA. THE LAST LIVING ANCESTOR OF THE MODERN HORSE.

in existence illustrating the doctrine of evolution by means of natural selection and the adaptation of an animal to its peculiar environment. Several specially-trained and experienced investigators have carried on the field explorations, notably Mr. J. W. Gidley, who has made many successful finds of fossil horse remains on previous expeditions, and Mr. Barnum Brown. The crowning discovery of last season's ex-

remains of the skeletons are now found petrified and imbedded in the great sandstone and clay-rock formations, which are gradually being worn away by the rain and the wind. Thus has been preserved a record of the succes-

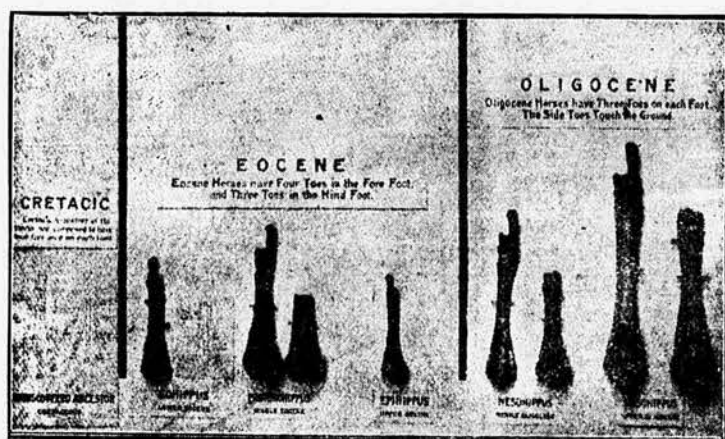


THE FIRST PRIMITIVE FOUR-TOED HORSE. SIXTEEN INCHES HIGH. FROM A PAINTING BY CHARLES R. KNIGHT.

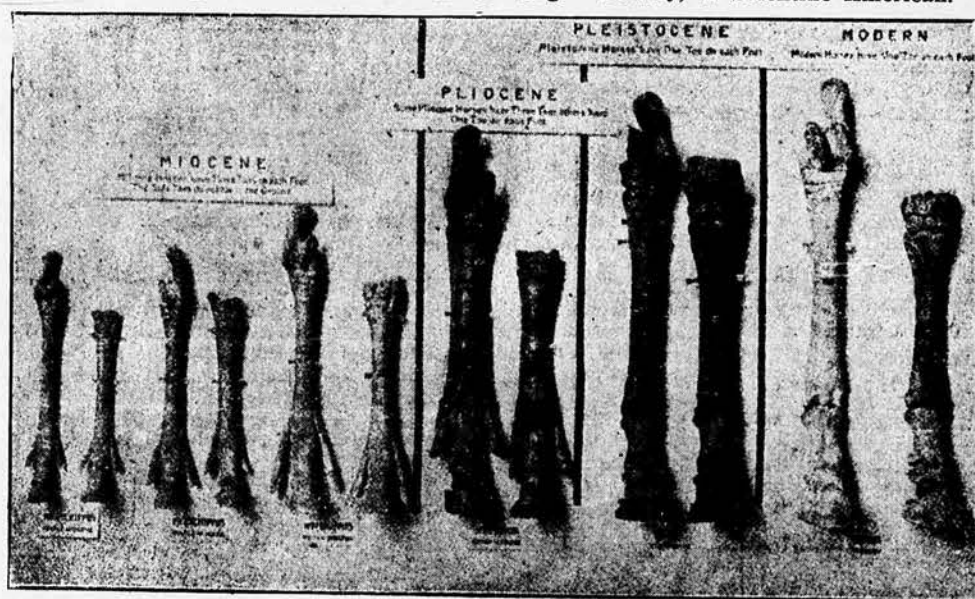
sive species of the horse which once inhabited this Lake Region. The earliest recognized ancestor of the horse family is Eohippus, found in the Wasatch beds of Wyoming and New Mexico. He was about the size of a small fox, with four complete toes on the forefoot and three on the hindfoot. He was fitted for swamps, and had simple, monkey-like teeth, and not at all like the complicated grinders of the horse of the present day. There is reason to believe that the still more remote ancestors of this and all other mammals had five toes on each foot, as in the forefoot of the earliest known stage is found a splint-bone, or small rudiment representing a missing digit or thumb. The accompanying illustration clearly shows the life history and origin of the horse in the various successive developments of the feet, and is arranged according to geological periods. Those found in the lowest strata of the Eocene Age, representing the earliest stage of evolution, are placed first, while the most recent ones, found in the uppermost strata of the Pleistocene, represent the final stage of evolution of the race, and are placed last. Viewing the specimens in the order of the age of the strata in which they were found, they show a regularly pro-

gressed, represented the fifth digit. The evolution of the horse, adapting it to live on the dry plains, is said to have gone hand in hand with the evolution of the plains themselves. At the commencement of the Age of Mammals,

very with primitive man. The latest proof of this is the series of animal drawings and etchings recently found cut deep in the rock sides of the Combarelles Cave in France. Hitherto the small, big-headed horse found on bone and flint in other caves was supposed to be purely a food animal, and never to carry men, but in the Combarelles drawings there is depicted another horse with small head, finer nose and delicate form. What is more important is the fact that some are shown with a halter or cord attached to the head, which goes far to prove that the Cave Men had domesticated and used the horse as a beast of burden, as well as for food. This justifies the conclusion that the men who were contemporary with the mammoth rode horses, and may have employed them in hunting with their weapons of stone and bone this great hairy beast, possibly some two million years ago. The wild horse at present is limited to the Old World, and is found only on the desert plains of Central Asia and Africa. Two specimens, male and female, of the little known Przewalsky's horse of Asia have just been received at the New York Zoological Gardens, having been captured by agents for Carl Hagenbeck in the Desert of Gobi. These are the nearest approach to the present horse of civilization, and supply an important link hitherto missing in the chain of evolution, which reaches down from the three-toed horse to the domestic animal of to-day. Prior to the discovery of the numerous fossil types of America, it was generally believed that the horse originated in Europe, especially as the Indian tribes first encountered by the white men on this continent had no horses. Modern paleontological research, however, such as is now being carried on by Professor Osborn and Professors Marsh and Cope in the past, has demonstrated that North America possesses a far more complete series of developmental stages, and points to the fact that the cradle of the modern horse lies probably not in Europe, but in the New World. The writer acknowledges his indebtedness to Prof. Henry F. Osborn for the privilege of reproducing photographs, and to Dr. W. D. Matthew, Associate Curator, for certain data incorporated in this article.—Walter L. Beasley, in Scientific American.



DEVELOPMENT FROM FIVE TOES TO THREE TOES.



DEVELOPMENT FROM THE MIOCENE THREE-TOED HORSE TO THE MODERN ONE-TOED HORSE.

#### The Evolution of the Modern Single-Toed Horse from the Prehistoric Five-Toed Horse.

pedition was made by Mr. Gidley near the end of a six weeks' search, when he uncovered the remains of a small herd of fossil three-toed horses, having skulls, numerous fore and hind limbs in perfect state of preservation, from which a complete skeleton has been constructed. These were found in a section known as the Niobrara beds in South Dakota. The difference between the skeleton restored from this find and the domestic horse of to-day is chiefly in proportions. The skeleton represents an animal with head about the size of a large draught-horse, but with the height of body and length of limb of an ordinary Western pony, and with a length of body very similar to that of the zebra. While extinct horse remains have been found in various parts of the world, the most complete and best-known series comes from the western part of our continent, which, during the Tertiary Period and Age of Mammals, was a great Lake Basin. After being drained off, this vast tract turned partly into an immense arid and desert region known to-day as the Bad Lands, or Equus Beds. The scattered

gressive change from the most ancient to the most recent times. In several of the first stages there are four complete toes on the fore, and three on the hindfoot. A new feature is observed in the Eohippus, that of the central toe of each foot is becoming much larger than the side toes. In the next descent an important stage is reached, that of the Oligocene, out of which was evolved Mesohippus, the first three-toed horse. The middle toe is now much larger than the side toes, which bear very little of the weight of the animal, which is now about the size of a sheep. Miocene comes next in line with Hypohippus, equaling in size a Shetland pony. Hipparion of the Pliocene times follows. This genus is much like Protohippus, but larger, and the feet are still three-toed. The climax stage of the evolution of the horse was, evolved in the Pleistocene Age of Man. In this stage, that of the modern horse, the side toes have entirely disappeared, and are indicated by splints on the fore- and hindfoot. No trace remains on the fore-foot of the little nodules which, in his diminutive ances-

trated, thereby enabling the animal to feed on the hard and somewhat nutritious grasses on the dry plains, which required more thorough mastication than did the soft foodstuffs of the earlier ages. In the first part of the Quaternary period wild species of horse were found in every continent except Australia. For some unknown cause, all these horses became extinct in North and South America. The small, short-legged and shaggy-haired wild horse of Europe was contempo-

#### Tales Worth Telling.

A little boy who goes to Sunday school not far from city hall was asked by his teacher who was the first man.

"First man? I know," said the boy "he was George Washington."

When the teacher told him that he was wrong, and that Adam was the first man, our youthful friend replied, "Oh, you are speaking of foreigners! I thought you meant Americans!"

#### 30 YEARS SELLING DIRECT

We are the largest manufacturers of vehicles and harness in the world selling to consumers exclusively. **WE HAVE NO AGENTS** but ship anywhere for examination, guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness. Visitors are always welcome at our factory.

Large Catalogue FREE Send for it.

No. 644—Top Buggy with 4 in. Kelly Rubber Tires. \$52.50. As good as sells for \$35 more.

No. 527—Surrey. Price \$75. As good as sells for \$50 more.

**ELKHART CARRIAGE & HARNESS MFG. CO., Elkhart, Ind.**



## THE KANSAS EDITORS' EXCURSION.

(Continued from page 693.)

railroad on earth in our present estimation and that if J. E. Junkin ever desires to be president of the United States he can have the direct vote of all the editors.

ROCKY FORD, COL.

The first stop made by the Kansas Editorial Excursion was at Rocky Ford, Col., on Saturday, June 20. The object of the visit here was to give the editors an opportunity to inspect this little city and vicinity which has become famous for its canteloupes and its sugar-beet factory. Perhaps the most important result of the visit was a fuller knowledge of irrigation—its results and problems, which are best studied at this point. Without irrigation this community could not have existed, much less attained the fame which has come to it. By means of irrigation a successful and prosperous country has been developed in a region that was previously a desert. The soil is a peculiar sandy loam underlaid by a gravel bed through which water percolates as readily as through a sieve. This soil admits of immense quantities of water without baking on the surface or souring. In itself the soil is apparently barren. By the application of water wonderful crops are produced. The whole surface of the arable land is cultivated like a garden and the practice here is to sow the sugar-beets in drills so thick that thinning by hand becomes necessary later in the season. The object of this is to insure a good stand and an even crop after the thinning is made. The labor of thinning is performed by Navajo Indians, Mexicans, and colonies of boys from Pueblo and other cities who are under the care of matrons. All these hands are under the superintendence of American foremen and their work is efficient and cheap. At the close of the season they are given transportation back to their homes. The sugar-beet factory at this point is one of the series of Oxnard factories and represents an expenditure of about \$1,000,000 for the plant and about the same amount as an annual expenditure for operating expenses. The factory employs 450 men during the season of six months, and pays the beet-raisers of the valley about \$6,000 per day for beets. This outlay, with the wages of the men, means a cash expenditure by this company of about \$7,000 per day, or about \$1,000,000 during the season of six months.

Beside these operations the factory uses four car-loads of limestone, ten cars of coal, and one car of coke per day. While the company owns 6,000 acres of land near the factory which it has bought for the purpose of raising sugar-beets, it remains true that about four-fifths of all the beets received at the factory come to it by rail. For the purpose of handling this immense amount of freight, the Santa Fe Railway maintains a switching crew at Rocky Ford. In addition to the 450 men employed at the factory, the company maintains sixteen receiving stations in the Arkansas Valley to which farmers can deliver beets and receive the same price as if they delivered them at the main factory. At this point also is maintained the Arkansas Valley Experiment Station which is a part of the system of stations maintained by the United States Government. This station has already issued bulletins upon canteloupes, sugar-beets, the codling-moth, tomatoes, potatoes, grasses, legumes as fertilizers, and is continuing experiments upon questions relating to fertilization and crop-rotation, habits and life history of the codling-moth, fungus and insect pests of the canteloupe and other crops, irrigation and fertilization problems, and experiments with grasses and forage crops. While the farmers in the valley have been remarkably successful in the growth of the canteloupe, the sugar-beet, onions, sweet potatoes, and orchard and small fruits, the problem of raising Irish potatoes successfully is not yet solved. There are a few farmers who are successful in efforts to raise Irish potatoes but many find it difficult to raise anything more than tops and so do not engage in the business. Some remarkable results are reported by the farmers who are successful in raising different crops. One farmer reports the sale of \$139 worth of late cabbage per acre. Another \$280 per acre for tomatoes. Another, \$80 per acre for watermelons and other are \$125 per acre for grapes; \$500 per acre for cherries; \$165 for raspberries, and the sugar-beet raisers report from \$76.23 to \$160.07 returns per acre for that crop.

Inquiry among farmers in a limited way seems to develop the idea that while the sugar-beet factory has been an extremely valuable addition to their community in that it affords them a home market for a readily grown product, it is doubtful if other crops would not be more profitable when grown on the same land. The hauling and delivering of the beets is a considerable expense to the farmer which would not be incurred were he able to manufacture the crude products of the farm on his own premises, and some are of the opinion that sugar-beets are even more profitable when fed to milch-cows than when sold to the factory. As it now stands the beet pulp from which the sugar has been extracted by the diffusion process is used for the feeding of live stock, but its value seems not to be great except merely as a succulent element. As before stated, we consider that the most profitable lesson learned at Rocky Ford was the knowledge of their methods of irrigation and the returns received from it, and we predict that with the knowledge which comes with experience the Arkansas Valley will prove itself more famous and in a broader way than is now deemed possible even with the advantages of a million-dollar sugar-plant within easy access.

## THE PITTSBURG OF THE WEST.

Away out west, at the foot of the Rocky Mountains yet still within the great American Desert, sits the Pittsburg of the West. But a few years ago the place where now stands Pueblo, Col., was a barren waste of sage brush and sand. Its natural location made it at once the entrepot and distributing point for the Rocky Mountain region, while its natural advantages in the shape of near-by coal and ores, together with abundance of water for irrigation and other purposes have made it a center for a great railroad and manufacturing industry. The Kansas editorial excursion was most hospitably received and entertained by the enterprising citizens, a majority of whom are formerly of Kansas men.

The tourists were shown the immense steel-plant which employs thousands of workmen and which when completed will occupy 500 acres of space for its factories alone. The smelters, the magnificent mineral palace, the splendid rows of business houses, and the marvelous results obtained by irrigation were all made matters of special study.

The city now numbers 65,000 of the most energetic and progressive business men that we have even seen assembled outside of our own State limits, and the results of the energy, brains, and money which have been expended here are things to marvel at and not to understand in so short a time. Pueblo rightly claims to be the southern gate of the mountains and hence it is an important station on the great Santa Fe Railway system. This great railroad has made Pueblo possible, and the irrigation system has made it prosperous. The combination of the two together with its central location has brought the capital here which has established and maintained the great manufacturing plants which are now its chief industry. Pueblo is a wonderful city with more vim and "ginger" to the square inch than any like area within recollection; and Kansas, like Colorado, feels proud of it because it is the work of Kansas men upon Colorado conditions. This is a combination which renders failure an impossibility and success only a matter of course.

## GOOD RANGE CATTLE.

During the excursion it was a matter of interest to note the prevalence of Hereford cattle on the ranges of the West. It is true that most of the herds seen from the car windows were grades but it is also true that a majority of them had white faces. This fact shows the enterprise of the Hereford breeders in pushing the merits of this excellent breed. It may also serve as a hint to breeders of other cattle that there is room at the West. The recent experiences of Secretary Cowan of the Shorthorn Breeders' Association in the extreme Northwest indicates that a market exists for good cattle in that region but that it may be necessary to go to it. Breeders of Shorthorns, Angus, and Galloways have long since demonstrated the value of their several breeds under all sorts of conditions, and there is reason to suppose that if the energy shown by the Hereford people in exploiting their cattle were exhibited by representatives of the other breeds a strong and steady market would be found for them in the range country as well as on the farm. There are thousands of acres of cheap land

in western Kansas and eastern Colorado but not one acre of it is cheap enough to raise scrub cattle on.

## CROPS BY THE WAY.

During the trip the writer was particularly interested in the condition of the crops along the line of the Santa Fe Railroad. From Florence eastward, this road passes through some of the richest alfalfa country to be found in any State and the crops are simply magnificent. Alfalfa eighteen inches high and very heavy on the ground is now being harvested and the yield will be enormous. These statements apply also to the great Arkansas River valley through which this road extends for hundreds of miles. Not only the appearance of the crops from the car windows, but information gleaned from local passengers and at the stopping places develops the fact that the reality is fully equal to the appearance.

Some time since fear was expressed that the "fly" had seriously damaged the wheat. While the fly was present and did more or less damage, the wheat harvest which is now beginning along the main line of the Santa Fe is probably fully equal to if not better than that of any recent year. The weather conditions during the entire winter and spring have been almost ideal in the wheat region.

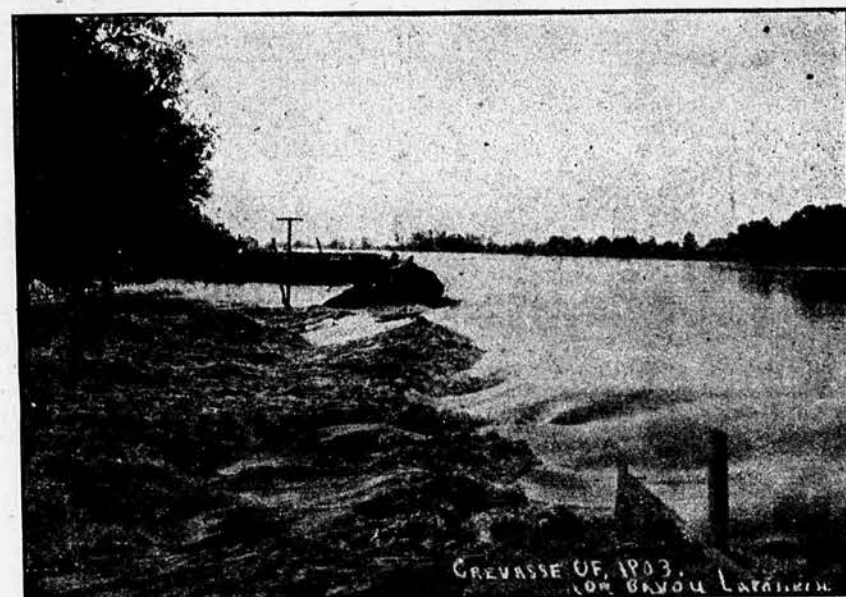
The large amount of rainfall, together with the cool weather has retarded the growth of the corn plant so that it is not as far advanced as is usual at this season of the year but it is pleasant to note that the farmers have been busy and their fields are remarkably

## RESTRAINT OF FLOOD WATERS.

The serious character of the recent floods whose most destructive ravages extended from Salina, Kans., all along the Kansas River devastating farms, towns and cities, to its mouth at Kansas City, doing serious damage throughout Missouri with a culmination at East St. Louis, and manifesting its power along the levee-protected banks of the lower Mississippi—this serious work with the realization of the fact that it may be repeated or even exceeded at intervals in the future has led to a discussion of means first, of protection against the floods, and second, of preventing their recurrence.

The first impulse is to build levees to confine the extraordinary flow to the ordinary width of the streams. When a river rises one or two feet above its banks, no great amount of engineering skill is needed to figure out that an embankment of two or three feet would protect the land behind the embankment. Progressive reasoning leads to the conclusion that to restrain a six-foot overflow or an eight-foot overflow will call for higher and heavier levees. Following these conclusions, the lower reaches of the great rivers have been the scene of great activity and have been provided with levees at great expense.

The liability of levees to break is illustrated by the accompanying illustration of a crevasse which occurred on the Mississippi River in Louisiana during the recent rise. This illustration was copied from the Louisiana Planter. Levees are necessarily made



BREAK IN A LOWER MISSISSIPPI LEVEE.

free from weeds. With the coming of the warm weather and with the great amount of moisture already stored in the soil, the prospects for a good corn crop are still excellent, although it frequently happens that a season which produces good wheat may not result in the production of good corn. Taken as a whole that portion of Kansas which is traversed by the great Santa Fe Railway between Topeka and the western border of the State may be said to be in unusually good shape so far as agricultural prospects are concerned. Prairie hay is abundant although lacking somewhat in nutritive value on account of the excessive moisture, and if no hail or other disastrous storms should reach this region there is every reason to expect a crop that will be a good one, if not indeed a record-breaker.

## COMMENDATORY.

The KANSAS FARMER has never received so many commendatory letters from both subscribers and advertisers as we are receiving in our daily mails. It is very gratifying and encouraging to receive these voluntary testimonials of which the following is a sample:

"Concordia, Kans., June 19, 1903.

"Kansas Farmer Company:—I herewith remit for the 'old reliable' KANSAS FARMER, of which I have been a reader for fifteen years and won't do without it for any price.

"I have taken advantage of the offer 'Blocks of Two' and send one new subscriber.

C. FREDERICKSON."

## Low Summer Tourist Rates Via Chicago Great Western Ry.

\$15.00 Kansas City to St. Paul and Minneapolis and return; \$19.00 to Duluth, Superior, and Ashland; \$13.00 to Madison Lake, Waterville, Faribault, and other Minnesota resorts. Tickets on sale daily to September 30. Good to return October 31. For further information apply to Geo. W. Lincoln, T. P. A., 7 West 9th St., Kansas City, Mo.

of the materials near at hand. Thus, where protection is needed is river alluvium generally what is popularly called "made land." While perfect, it holds against the slow current of the lower Mississippi. A muskrat hole, a slight change of the current so as to cut away the foundation of the levee, an hour's malicious work with a shovel—one of many circumstances may cause a stream of water under pressure to pour through the embankment destroying in a few hours the labor of months and allowing the floods to devastate the property behind the levee. A crevasse like that shown in the picture defies the puny efforts of man to close it until the floods have gone down.

A feature of the flood is that the same water that damaged Salina did business at Solomon, Abilene, Junction City, Manhattan, Wamego, St. Marys, Topeka, Lawrence, Kansas City, St. Louis and in all the country between these places and on down the Mississippi. The fact that it had driven a lot of people from their homes at Manhattan did not in the least reduce its power to plow up the country below. The fact that it drowned a lot of stock above Topeka left its power unimpaired to drown people at Topeka. Kansas City suffered none the less because of what had been done before the flood reached the Kaw's mouth.

The protection of both banks of a great river and its many tributaries from the prairies to the Gulf is a task which even a great government would find costly. The maintenance of such protection against the continual forces of destruction and against the ravages of currents of rapidly moving water is an undertaking even greater than the task of building them.

It is not unnatural therefore that thoughtful persons should inquire whether, on second thought, there can be found a cheaper and surer remedy, a means of preventing floods. The



countries from which these flood-waters come spread out like fans. From the fact that the last flood come from the gently undulating prairies some have assumed that the waters could never be restrained by reservoirs. There is a conception of reservoirs which confines them to deep mountain gorges such as may be dammed by great works of masonry impounding water to a depth of 100 feet or more. With this conception it is easy for some persons who can reel off the names of half the prominent hydraulic engineers of the world to say with all seriousness and candor that to reservoir the floods that fall on the plains is an impossibility. But the KANSAS FARMER showed last week that small reservoirs built on the prairies may restrain the excess of water above that which will be absorbed by the soil and that which can be carried off within the banks of the streams. Such reservoirs need not be very deep nor to occupy more than five acres to the quarter-section on the average.

The fact that water impounded in these reservoirs might later, and probably would, be devoted to the useful purpose of irrigation seems to have thrown some writers into fits. Let it then be agreed that this restrained water shall be allowed to run to waste—not even devoted to watering cattle—until the objectors shall consent to its beneficial use. Such consent will come before the reservoir banks are grass-grown.

A feature of the reservoir plan is seen in the fact that water restrained in Saline County is deprived of the power to harm country or town from Saline County to the Gulf.

But the subject is a large one. An official inquiry into the practicability of the reservoir plan, or of a plan consisting of dykes for low places on the river banks and reservoirs for retaining a part of the excess of precipitation until it can be safely carried off by the streams would be a service well suited to the hydrographic branch of the U. S. Geological Survey.

#### KANSAS FARMER'S NEW WALL ATLAS.

The KANSAS FARMER has arranged with the leading publisher of maps and atlases to prepare especially for us a New Wall Atlas, showing colored reference maps of Kansas, Oklahoma, Indian Territory, the United States, and the world, with the census of 1900. The size of the New Wall Atlas is 22 by 28 inches and it is decorated on the outer cover with a handsome design composed of the flags of all Nations.

Tables showing products of the United States and the world, with their values, the growth of our country for the last three decades, and a complete map of the greater United States are given. This is an excellent educational work and should be in every home. The retail price of this New Wall Atlas is \$1.

Every one of our old subscribers who will send us \$1 for two new trial subscriptions for one year will receive as a present a copy of this splendid New Wall Atlas postpaid, free.

Any one not now a subscriber who will send us 50 cents at once will receive the KANSAS FARMER for five months and will be given a copy of our New Wall Atlas free and postpaid.

#### FUND FOR FLOOD SUFFERERS.

KANSAS FARMER is pleased to acknowledge the receipt of the following amounts from generous patrons of the KANSAS FARMER which has been turned over to the relief committee for the special benefit of farmers and stockmen who have met with heavy losses by reason of the floods in the Kaw valley:

Kansas Farmer.....	\$200.00
An ex-Kansan in Boston.....	100.00
A. M. TenEyck, Manhattan, Kans.....	10.00
J. W. Vawter, Ulysses, Neb.....	8.00
Robt. Laughlin, Haven, Kans.....	5.00
A. D. & H. L. Perrin, Prescott, Kans.....	5.00
J. H. Houck, Agenda, Kans.....	5.00
W. H. Ransom, North Wichita.....	2.00
A lady teacher, Pasadena, Calif.....	1.00
Lorraine Frazier and others, Lovewell, Jewell County, 6 boxes clothing.....	

There is a good inquiry from land-buyers for lands that will yield profits for the stockman and farmer. Considerable realty of this sort is for sale in certain localities and by certain enterprising real-estate firms who make a specialty of farm land. Such a one is the reliable real-estate firm of Hiland P. Lockwood, whose central office is the Bryant Building, Kansas City. He makes a specialty of farm lands in Missouri and Kansas. He offers some lands that make from 100 to 200 per cent profit a year on the investment. Look up his advertisement on page 711 and send for a copy of the "Land-Buyers' Guide," which will be sent free to any one who mentions the Kansas Farmer in making the request.

#### County Agricultural Collective Exhibits to Be Shown at Topeka and Hutchinson.

The Kansas Commission for the Louisiana Purchase Exposition is composed of the following well-known Kansans:

Hon. J. C. Carpenter, President, Chanute; Hon. J. C. Morrow, Vice-President, Washington; Hon. C. H. Luling, Secretary, Topeka; Hon. R. T. Simons, Treasurer, Caldwell; and Hon. W. H. Waggoner, Atchison.

The Kansas World's Fair Commission in order to encourage enterprising farmers to preserve the best samples of all the cultivated products of the farm, orchard, and garden—cereals in the grain and sheaf, textile and forage plants, wild and tame grasses, and other useful products of the county, have offered the big cash prizes as an inducement. These exhibits should be representative of the county's agricultural production indicating both the excellence and the variety of the products grown.

In order that counties in all parts of the State may enter this competitive display, six prizes are offered at each of the two big fairs to be held in Kansas this year, September 14 and 19, the first by the Kansas State Exposition Company at Topeka and the other by the Central Kansas Fair Association at Hutchinson. The cash premiums at each fair will aggregate \$1,200, as follows:

The first prize will be.....	\$500
Second.....	250
Third.....	150
Fourth.....	125
Fifth.....	100
Sixth.....	75

#### SCALE OF POINTS.

The following scale of points will be used in rendering awards for county collective exhibits. In county collective exhibits it will be permitted to have present and display any and all articles desired. Only points enumerated in this score schedule, however, will be taken into consideration in making the awards:

	Scale of Points.	No. of points.	Points scored.
Corn.....		100	
Wheat.....		100	
Oats.....		100	
Barley.....		100	
Rye.....		100	
Other varieties of grain.....		100	
Native grasses and other forage plants not otherwise enumerated in this schedule.....		100	
Tame grasses, including millet.....		100	
Potatoes.....		100	
Onions.....		100	
Cabbages and beets.....		100	
Squashes, melons, and pumpkins.....		100	
Grain in the sheaf.....		100	
Miscellaneous, embracing varieties of all other farm products not enumerated in this schedule.....		100	
Taste and display in arrangement of exhibit.....		100	
Greatest number of varieties.....		100	
Total number of points.....		1600	
Total number of points scored.....			
Score of exhibit.....			

Every county taking a premium in this competitive contest will be accredited with the same when exhibited at the World's Fair in 1904 and each individual contributor making up this sum total will be given credit by name and location where each article is grown.

Each exhibit should embrace at least ten samples of all the cultivated products of the farm, orchard, and garden—cereals in grain and in the sheaf, grasses, textile and forage plants, and vegetables, wild and tame grasses, nuts, and all kinds of fruits and other useful products to be included.

It is preferred that county exhibits be made in the name of the county, but where a county does not make an exhibit, individuals or local societies may compete in the name of the county. These exhibits should be representative of the counties' agricultural production, indicating both the excellence and variety of the products grown.

Each sample should be plainly and correctly labeled, giving name and postoffice address of the producer, and a full catalogue of the samples composing the exhibit should be placed with the superintendent when the exhibit is installed.

Exhibits of seed and shelled grain should consist of one-half bushel of each variety of samples; 10 samples, corn in ear, 12 ears of each variety; tobacco, 5 pounds in hand, of each variety; 10 samples turnips, potatoes, etc., one-half bushel; cabbage, celery, etc., 6 samples each; squash, pumpkins, melons, etc., 10 samples each.

Small grains must also be shown in straw in bundles not less than three inches in diameter and 10 bundles of each variety.

Grasses, clover, alfalfa, and forage plants in bundles of three inches each and 10 of each variety.

Ten samples of corn on stalk, broom-

## Uncle Sam Knows a Good Thing



When he sees it, which is the reason he takes so much pride in the

### U. S. CREAM SEPARATOR

The U. S. has many points of superiority, but the following three are sufficient to make it

The most desirable to own:

- Clean Skimming.**—Holds the World's Record.
- Safety.**—All gears entirely enclosed in iron case.
- Durability.**—Most thoroughly and substantially made.

For further information, write for illustrated catalogues.

For Western Customers, we transfer our separators from Chicago, La Crosse, Minneapolis, Sioux City, and Omaha. Address all letters to Bellows Falls, Vt.

**Vermont Farm Machine Co., Bellows Falls, Vt.**

corn, sorghum, cotton, etc., not less than 6 stalks of each.

All samples of straw or stalk must be cut close to the ground, cured in the shade, and carefully wrapped, tagged, and packed.

Every exhibit should be tastefully arranged, as this feature will be considered by the judges.

All conditions in this class must be rigidly complied with in order to obtain the premiums offered.

For the benefit of western and newer counties, fruits are not counted in this scale of points. The exhibition of fruits, however, is invited.

No premium to an exhibit scoring less than 800 points will be considered.

#### A Great Stock Remedy.

Lorah, Iowa, February 18, 1902.  
I used Watkins' Vegetable Anodyne Liniment and find it one of the greatest remedies for stock in the world. I cured a cow with dry bloat in just a few minutes by giving it one-third of a bottle. I also cured two sick hogs, and would not be without it for ten times the price. Whenever any stock gets sick, I give it a dose and it gets well. NICK KESSLER.

#### The World's Fair, 1904.

Is of especial interest to every one. To give an idea of the buildings as they will appear when completed, we have published a Bird's-Eye View, 31 by 42, which will be mailed on receipt of 10 cents (silver or stamps) to prepay postage. Address GEORGE MORTON, M., K. & T. Ry., Box 911, St. Louis, Mo.

The News, published at Rexford, Thomas County, Kansas, makes the following interesting statements which are valuable at this time in view of the fact that Hiland P. Lockwood, 103 Bryant Building, Kansas City, Mo., is agent for a large amount of land in Thomas County and is able to furnish detailed information to interested parties. Mr. Lockwood's card appears on page 711 and the remarks by the editor of the News are as follows: "With harvest only a few days off the crop prospects are exceptionally good, and the gentle showers of the past few days have broadened the smile on the farmer's face and they now look forward to a record-breaker. They are already advertising for men and teams to help take care of their crops, which will require from 100 to 200 more men and a number of teams. It seems strange, but nevertheless it is true, that many a farmer will sell his crop for several hundred dollars more than the land is worth on which it grew. This will not always be so. Land is being rapidly picked up by enterprising business men from the East, and any one wanting farm land in what promises to be one of the finest farming countries to be found anywhere had better get a hump on themselves and get in on the ground floor."

### DIETZ LANTERNS


are everywhere noted for shedding strong, clear, white light. Hand lanterns, street and driving lamps, etc., many sizes and styles for all purposes. Send for free illustrated catalogue.

**R. E. DIETZ COMPANY, 95 Laight St. NEW YORK.**

## TIFFIN WAGONS

rank first because they are best. They are scientifically modeled, made of the finest, selected stock and built by skilled labor. They haul heavy loads easily. Insist that the dealers show TIFFIN WAGONS.

**Tiffin Wagon Co., TIFFIN, OHIO.**



Lightning Got There First.

Homestead, Live Stock Indicator, Wallace Farmer, of Des Moines, Ia., (Cashier of Bank of Topeka, Kan., and The Mail and Breeze.

### DODD, DOOLEY & CO


A. J. DOOLEY, Manager, Topeka, Kansas.

Manufacturers of PURE SOFT COPPER CABLE

### Lightning Rods

Endorsed by the Farmers' Mutual Insurance Company of Kansas. Prices the very lowest. Send for free booklet on the Laws and Nature of Lightning and how to control it. A good man wanted in every county to handle our goods. References—100,000 farmers in Iowa and adjoining states, and the Kansas Farmer, Topeka, Kans., Iowa

Dodd, Dooley & Co. Got There First.





## The Young Folks.

Conducted by Ruth Cowgill.

### THE WHISPERY BIRD.

When daddy and I go a walking in spring,  
We listen and listen to hear the birds  
sing.  
The robins and finches and kinglets I've  
heard,  
The warblers and thrushes, but never a  
word—  
No, never a chirp from the "whispery  
bird."

I've often thought over the birds that I  
knew  
To see if there's one that would probably  
go  
And whisper to mama of me on the sly,  
But not one would do it; they all are so  
shy.  
Though I creep to them softly, away  
they all fly.

Yet each of the secrets that my mama  
knows  
A little bird told her; now which do you  
suppose?  
Unless it's a real little whispery bird,  
Who has to go tattle whatever he's heard  
And can't keep a secret, not even a word?

I think he's a creature who never goes  
south  
And has for a beak just a commonplace  
mouth.  
With ears grown so big he can use them  
for wings.  
He's not a nice birdy that chirrups and  
sings,  
But just stays in corners to listen to  
things.

If ever I find him, I'm satisfied that  
It wouldn't be naughty to call for the  
cat.  
But while I am looking the very best way  
Is just to be good as I can every day  
So the whispery bird can have nothing  
to say.

—Mabel I. Eaton, in New York Express.

### Grandfather's Visit and How He Caught Six Bears.

I remember when I was a little girl a good many years ago, one bright day in April my mother received a letter from grandfather, and what do you think he said?

"I am coming to make you a long visit, so meet me at the station, May 1." How our hearts bounded with joy to think of grandfather coming to see us. We smaller children had never seen him, and it seemed as though the first of May would never come. We counted the days and the hours until the time finally came.

No one had to be called to get up the second time that morning. All were up and had their chores done (for every child knew his work must be done before he went) and we were off in due time.

As we rode along in the big lumber wagon each one told what he or she was going to do for grandfather.

We got to the station just in time to see grandfather step out of the car. He was real glad to see us, but he did not have scarcely anything to say to us children, but gave all his attention to father and mother. We began to whisper among ourselves and say we didn't like grandfather nearly so well as we thought we would. One said, "He looks so cross." Another said, "I don't believe he likes children." Some one else said, "I'll bet he will be the boss for he never says anything funny nor even smiles at anything we say to him," and so we all had our say. But we all changed our minds before we went to bed that night, and we thought grandfather was the best man on earth to tell stories.

As we sat out on the kitchen porch waiting for the men to do their evening chores, grandfather said, "Well, children, don't you want me to tell you a true bear story?" We all jumped with delight and gathered close around his knee to hear how he had caught six bears, and this was the way he told his story:

"Well, children, you know up in Iowa the winters are long and cold, and I am so rheumatic anyway I thought I could never stand the cold weather there, and so I decided I would go to Arkansas and spend the winter trapping and hunting, as I thought I would have better health. So I made me a nice boat, got me a tent, and everything I needed to make me comfortable in the big forest, and bought a lot of traps and some provisions and I was ready and gone before my folks fully realized I was in earnest about going.

"Early one chilly November morning I bade my loved ones goodbye and set out on my journey in my boat down the Mississippi River. On and on I drifted down the river, each day taking me farther from my loved ones, each day bringing me nearer the woods I had always longed to explore. After several days of drifting I came to the Arkansas line; and one evening about sundown I saw a good, secluded place to tie my boat. I soon had it unloaded and began looking about for a good

place for my tent close to the river but yet out of sight from the other boats that were continually passing up and down the river. I soon had my tent pitched, ate a lunch and laid down on my cot to sleep, but I couldn't help feeling lonesome all alone in the woods with no companions I knew of except the bears, panthers, or wildcats. I did not sleep very much, and made up my mind I must be braver than that.

"I arose early next morning and ate my breakfast and was ready to begin setting the traps as soon as it was light enough to see well in the woods. I had a good many to set, so it took me until about dark that day, hunting for good places where I was most likely to find a bear.

"When I returned to my tent about dark I had my lantern lit and could see my tent door was not as I had left it, and some corn-meal was spilled on the ground in front of the door.

"At first I was scared a little and wondered if any one could be camping near by, or thought perhaps my tent had been discovered by some one going down the river and they had been curious to know who it was and had stopped to see. As I opened the door a little I could see my box of provisions was upset and my sack of meal gone, but everything else was as I had left it. So I soon made up my mind Old Bruin had found my quarters before I had found his. But I said to myself, 'Never mind, Old Bruin, I'll get even with you.'

"I sat down on my camp-stool nearly tired out and ate my lunch and was soon sound asleep dreaming of the bears I was going to catch.

"As soon as I could see next morning I was out tracing Old Bruin by the meal he had spilled as he dragged the sack over the stones and brush.

"Finally I came to a big rock and there was a big pile of meal spilled on the ground. I soon had my traps set and climbed up in a tree to wait until Old Bruin came out of his hiding-place.

"About 10 o'clock I heard a grunting and yawning sound, as though he was just awakening from a good night's sleep, and in a moment here came crawling out a big black bear and the first thing he did was to put his fore foot down in my trap. Ah, how I laughed to myself to see the old fellow step in the trap! But such whining and crying soon brought the old mother-bear to see what the trouble was all about. She didn't get in any of the traps, but took hold of the chain and tried to pull the trap off her mate's foot. Old Bruin would slap her away and she would look so pitiful as if to say, 'What can I do to help you?' I watched them for quite a while and leveled my gun at old Mrs. Bear and she never knew what struck her. Then I shot Mr. Bruin and climbed down from my hiding place to skin my prizes. While I was skinning them I thought I heard a noise away back under the rock as if there were young cubs under there. I set four traps, all I had with me, around the opening in the rock, and returned to my tent feeling well paid for my day's work. Next morning when I went to see to my traps there were four cubs securely fastened in my traps crying like good fellows for their mother to come and help them out of their trouble.

"Again I had to laugh and guess I laughed more this time than before for I had found bear-meat to be excellent to eat, and I very well knew their hides were valuable. I felt well paid for the sack of meal they took if it was all I had. These were not all the bears I caught during the winter. I had such good success I may go again sometime."

Of all the stories grandfather used to tell none was so interesting as the bear-story.

Many years have gone by since we gathered around his knee to hear the good stories he had to tell, and many changes have taken place; and as we sit in the twilight two little boys come and climb on my lap and say, "Please, mama, tell us about grandfather and the bears." It is their favorite story as it used to be mine.

Mrs. C. A. SPROUL.  
Shawnee County.

### Our Story Contest.

Good nature stories are coming in in abundance now. We hope to receive many more that are both instructive and interesting. We desire that they be mainly the results of your own observation, for surely young people on Kansas farms have ample opportunity to watch all sorts of woodland romances and prairie adventures develop.

Kerosene was first used for lighting in 1826.

### An Afternoon Ride.

On Sunday afternoon our whole family were driving around looking at the country. We went to grandma's and on our way back we were all looking for different kinds of birds. We found turtle doves, blackbirds, sparrows, king-birds, orioles, mocking-birds, bobolinks, blue jays, and several others, over twenty all together. When we were within about two miles of home we saw a meadow lark fluttering over the grass. It looked as if it was fighting something. It would fly up and then dart down again. Then we saw something raise up and strike at it. We knew then it was a snake. We had driven past it when we saw it, but we turned around and drove back to where it was. Just as we got back the snake caught the meadow lark and wound itself around the bird. Papa got out and killed the snake, and then took a stick and unwound the snake and threw it across the road. The bird then flew off into the pasture and began to sing. When it shook it self some of its feathers fell out. Papa just glanced down at the ground nearly under his feet and there he saw a nest of young birds, four or five. We have heard of snakes charming birds. At first we thought the snake had the bird charmed, but after we found the nest of young birds, we thought it was just fighting for its young. We drove down the road a little way and stopped to watch the bird to see what it was going to do. In just a little while it flew back close to its nest. It would stand up as straight as a stick, then it would take another step or two and stop and look as if it were looking for its enemy. We then drove off and left it.

Last winter we got some cocoons and this spring they hatched. We called them butterflies until we read two or three different articles and each one described ours perfectly and called them moths. So that is what I shall call ours. We had two and gave one to our neighbors. It is about six inches from tip to tip, and has two feather horns. It stayed around on the flowers. After we had had it for several days I went to look at it and it was sitting in the window dead. On the flowers that it was close to there was a large bunch of eggs hanging. I found one or two in another place. The egg is about the size of a radish seed which they resemble. They are hard. I don't know whether it lived its whole natural life or whether it starved to death. We tried giving it different things to eat but never discovered that it ate anything. The door was open a good deal but it never went out. We are going to watch the eggs to see if they hatch and learn all we can about them.

LOTTIE REXROAD.

Darlow, Kans.

### Insect Intelligence.

During the recent high water along the Neosho River I was traveling over my clover-field in a boat. Noticing a lot of clover leaves floating, I investigated to find the cause, and to my surprise I found each leaf covered with bugs. On further investigation I found that as the water was rising very fast the bugs would crawl to the very top of the clover-stalks, and when the water was in danger of covering the leaves the bugs were on, a bug or bugs would cut the stem of clover and allow the leaves to float and thus the little creatures were endeavoring to save their lives. The water was back-water and as the boat passed through the water, knocking off the bugs they would start after the boat; one large spider followed for two or three rods when we stopped the boat and allowed him to climb in, which he did without ceremony.

ONLY A SUBSCRIBER.

### A Children's Farm.

Last summer a children's school farm was opened in one of the most crowded districts of New York. An unimproved site on West Fifty-third Street, reserved for a future park and long used as a dumping-ground, was chosen for the experiment. The story of this farm is told by Miss Fannie G. Parsons in The Outlook.

"The question of how to control an unruly mob of children of various ages promised difficulties, but as soon as the children ceased to be onlookers and became workers, there was no trouble. The park department gardeners who prepared the ground were Swedes, and as in their own country they had enjoyed school gardens, they entered into the spirit of the farm and let the children help.

"The farm grew to perfection from the suggestions of these men, the parents, and police; one of the latter say-

ing, 'These children will never obey until the tent is made more beautiful than anything they have ever seen.' Following this suggestion, a floor was laid, and a box of blooming plants was placed around the whole tent, twenty-five feet by thirty-five feet. The effect was magical.

Once a week in the tent a round tub was filled with water, on whose bosom floated a mass of water-lilies in all their rich, cool, native beauty. Their subtle influence seemed to reach all. Making a beautiful park or making a beautiful garden with the 'Don't touch' sign is like eating luscious fruit before hungry children; they want some, too. So, at stated times a basketful of cut flowers was distributed in the tent, so satisfying the wholesome longing aroused by the boxes of plants, which were to be respected."—From the July Current Literature.

### Observations Among Orioles.

The oriole is a bird of dark-brown color, iris in appearance, with legs, feet and claws of a blueish black. There are two varieties of orioles,—the orchard and the Baltimore. They are both similar in color, but the orchard oriole is more active than the Baltimore. Both are found in Kansas.

The oriole is a summer resident in Kansas. It arrives here about the last of April and begin laying about the last of May.

Its nest is a cup-shaped structure, woven of hair and strings and lined with some soft substance, and is suspended from twigs at the end of a branch of a tree by a stream or in an orchard.

Orioles are very careful about what they get to make their nests of. No half-rotten strings are used. I have often seen orioles hopping around in the yard hunting for strings. One day I saw an oriole trying to get a string which in some way had gotten tangled in a tree. He worked for about ten minutes, but could not get the string. After having made this fruitless attempt, he flew away, but soon returned with an assistant. With his help he got the string.

The oriole lays from four to five eggs of a bluish white color.

HJALMAR E. HEDINE.  
McPherson, Kans.

### Mr. Opossum.

One of the interesting animals of the woods is the opossum. It lives in hollow logs and trees, but seldom in the ground. Some of its habits are peculiar and to study them is worth while. When eating it may often be found hanging head down suspended from a tree by its tail which it curls tightly around the limb. It propels itself from tree to tree by making a swinging motion, and on relaxing the hold which it has with its tail it then flies from one tree to the other and catches hold with its claws. It lives on fruit and small animals but if these are scarce will partake of the farmer's "hen roost." When caught it feigns death and no amount of beating will make it quit. It would make a nice pet and this would give an opportunity to study its habits.

B. P. WAGNER.

La Belle, Mo.

### The King Bird.

The king bird's wings are a dark brown with small white flecks through them. The back is a bluish tinge. The breast is white, and the top of the head is red. This bird destroys asparagus-beetles, rose-beetles, flies injurious to stock, also other insect pests not usually molested by birds, and while it also kills honey-bees, it almost invariably selects worthless drones. It also saves grain, game, and poultry by driving away the sharp-shinned hawk, Cooper's hawk, and other notorious plunderers of the farm. About 50 per cent of the food of the young nestlings consists of grasshoppers and the remainder is divided among spiders, flies, and other miscellaneous insects.

Blaine, Kans. EDYTH QUIGLEY.

## For the Little Ones

### FISHING.

Quietly, quietly,  
Watching, they wait  
For a pull at the line,  
And a bite at the bait.

Quietly, quietly,  
Swimming away,  
The bright little fish  
Do frolic and play.

Quietly, quietly,  
Patience and time,  
For "Try again, try again,"  
Saith the old rhyme.

—Anon.



## The Home Circle.

Conducted by Ruth Cowgill.

### THE AMERICAN FLAG.

When Freedom, from her mountain height,

Unfurled her standard to the air,  
She tore the azure robe of night,  
And set the stars of glory there!  
She mingled with its gorgeous dyes  
The milky baldric of the skies,  
And striped its pure, celestial white  
With streakings of the morning light;  
Then, from his mansion in the sun,  
She called her eagle-bearer down,  
And gave into his mighty hand  
The symbol of her chosen land!

Majestic monarch of the cloud!

Who rear'st aloft thy regal form,  
To hear the tempest trumping loud,  
And see the lightning lances driven,  
When strive the warriors of the storm,  
And rolls the thunder-drum of heaven—  
Child of the Sun! to thee 'tis given  
To guard the banner of the free,  
To hover in the sulfur smoke,  
To ward away the battle-stroke,  
And bid its blendings shine afar,  
Like rainbows on the cloud of war,  
The harbingers of victory!

Flag of the brave! thy folds shall fly,  
The sign of hope and triumph high!  
When speaks the signal-trumpet tone,  
And the long line comes gleaming on,  
Ere yet the life-blood, warm and wet,  
Has dimmed the glistening bayonet,  
Each soldier's eyes shall brightly turn  
To where thy sky-born glories burn,  
And, as his springing steps advance,  
Catch war and vengeance from the glance.

And when the cannon-mouthings loud  
Heave in wild wreaths the battle shroud,  
And gory sabers rise and fall,  
Like shoots of flame on midnight's pall,  
Then shall thy meteor glances glow,  
And cowering foes shall shrink beneath  
Each gallant arm that strikes below  
That lovely messenger of death.

Flag of the seas! on ocean wave  
Thy stars shall glitter o'er the brave  
When death, careering on the gale,  
Sweeps darkly round the belled sail,  
And frightened waves rush wildly back  
Before the broadside's reeling rack,  
Each dying wanderer of the sea  
Shall look at once to heaven and thee,  
And smile to see thy splendors fly  
In triumph o'er his closing eye.  
Flag of the free heart's hope and home,  
By angel hands to valor given!  
Thy stars have lit the welkin dome,  
And all thy hues were born in heaven.  
Forever float that standard sheet!  
Where breathes the foe but falls before us?

With Freedom's soil beneath our feet,  
us!  
And Freedom's banner streaming o'er  
—Joseph Rodman Drake.

### The Moqui Snake Dance.

Much has been written regarding the Moqui Snake Dance and the work, meaning, and influence of their secret orders. But the half has never been told and much more will of necessity be written before the reading public has any well-defined ideas of the story of this ancient race or the historical value of their traditions. The seemingly awful orgies of the snake dance alone, which is but a demonstrative feature of their religion, has been frequently described by gifted writers who have been permitted to witness it, as that particular portion of their ceremonies is of a public character and therefore can be seen by all who will take the trouble to journey to their villages at the proper time.

But to the student and the thinker who has learned to look beneath for ideas, who cares for the philosophy of a people rather than their ceremonials, the Moqui customs present a field of research as yet but scarcely entered upon, and, what is more disheartening, the difficulties to be overcome are so great that none but those deeply interested will attempt to surmount them. Dr. J. Miller, superintendent of the Arizona Insane Asylum, is well known as a student of ethnology and archaeology, and has made two trips to the Moqui villages having for his purpose scientific investigation rather than the gratification of idle curiosity. He had previously made the acquaintance of some of the important personages of the tribe, and was promised admission into their secret orders. Accordingly on July 29 he left Phoenix accompanied by a Moqui Indian youth named Frank Teu-a-wheel, a student of the Phoenix Indian School, as interpreter, and in due season they arrived at the village, about eighty miles north of Holbrook.

There are seven villages located on three different mesas known as the East, Middle, and West Mesas. There are three villages on each the East and Middle and one on the West Mesa. The political government of the villages is strictly under the United States Indian agent's direction, as he appoints the different chiefs of the villages, and all the peculiar customs talked and written about pertain entirely to the religion of the people with which the Government has made no effort to interfere.

The tribe is divided into different

gens, of which it is believed there are about twenty-three. The priests hold their religious offices solely by virtue of the gens to which they belong, and their dignified position are attained through what might be called a system of royalty.

It was Dr. Miller's intention on leaving Phoenix to obtain, if possible, the ritual work of the gens, as he supposed at that time that the Snake gens was the controlling order of their faith. On his arrival, however, he ascertained that the Antelope gens was the dominating power in the tribe, and being given the opportunity he chose to take the secret work of that first, trusting to future fortune to receive the Snake gens. In this connection there is no more fitting place to remark that these two gens, being the chief orders in the tribe, have a great deal in common, and, though distinct in their membership certain ceremonials are performed in conjunction as in the public Snake Dance. The two orders, for illustration, bear a similar relationship to each other as that existing between a Blue Lodge and the Royal Arch Chapter of Masonry.

The ruling officer of the Antelope gens is an aged chief, very deaf and well along toward the day when he will be gathered to his fathers. He bears the euphonious title of Wi-ki, the letter "i" being pronounced like the letter "e" in English, the same as in the Spanish language. Wi-ki is by birth a member of the Snake gens.

Another peculiarity in the tribal customs is that no man can marry in the same gens to which he belongs, and the children of the marriage all belong to the gens of the mother. The secret orders of the different gens are carefully guarded so that the members of each may know nothing of the councils of the others. They are especially guarded from the white man, not so much for the fear of the white man's use of the information for their own purposes as for fear the white men will divulge their information to native members of other gens, thus disorganizing tribal relations.

The lodge room in the Moqui tongue is called "Kiva." Each gens has its kiva and the Snake chief and Wi-ki, who is by birth a Snake, are the only two of that gens who have access to the Antelope kiva.

Dr. Miller feels considerably honored by his admission into the Antelope order, as he is only the seventh white man who has been thus favored, and some of his predecessors are now dead. In due time he hopes to be also admitted to the Snake kiva. During the ceremonials of the Antelopes he was christened Le-Mok-Ko-Hi, which, being interpreted, means "good fire," or "the cheer and comfort of a good fire," and the title was bestowed on account of his many kindnesses to them in the past. Another restriction placed on the relationship of the gens is that a member of the Antelope kiva can never become a chief of the Snake gens, though he may become a priest of that order.

Though the doctor is bound by solemn oaths not to give away the secrets of his kiva, he gives some valuable and interesting points relative to their customs that are not necessarily of a secret nature. For instance, their secret work and their religious theories are founded on astronomical deductions, of which more will be said later. Their lodge room is constructed in conformity with the cardinal points of the compass as religiously as the lodge room of the Masons, with this difference: Owing to the fact that they take their observations in the summer time when the sun is farthest north, their north is 30° west of north as calculated by white men. Their tradition also is that the race originally came from the under world and emerged through a hole in the ground, which is believed to be in the Grand Canyon of the Colorado. Their lodge room, therefore, is north and south, and north is to them what the east is to a Mason.

The northeast of the cardinal points is always left open, the idea being that the path of life is from the southwest to the northeast and that after death the spirit passes out in that direction. Baptism, consecration, etc., are but mile-posts along the road of those who follow faithfully the royal path of life.

Their story of the creation is similar to that of the white man. God had a son, who is called Esaw-uh, who killed a virgin and the body of the virgin lay four days in the grave. In line with this tradition their pottery and decorative work very frequently are adorned by four parallel lines symbolical of this event. As to the creation of material things, while God was

thus engaged His son told Him to scatter all to the four winds of heaven, which suggestion being acted upon, the seeds, grasses, flowers, etc., were scattered promiscuously over the earth and even the heavenly bodies were distributed throughout the firmament seemingly with lack of order or plan.

The Snake ceremonials are, concisely stated, a series of prayers for general prosperity, including special requests for an ample supply of rain and an increase of population as well as an increase of wealth. Though they may appear to be, and in many respects are, an ignorant race, it is nevertheless proved beyond peradventure that they have a considerable knowledge of astronomy or astrology. This is the more remarkable when it is remembered that they have no instruments with which to aid them in the interpretation of the stories of the stars. The Snake ceremonials do not begin on the same day each year, but the date is fixed annually by an astronomical deduction in which figures the relationship between Orion, Pleiades and Milky Way. This is a fact that has not been noted by previous investigators. Just what this relationship is, or the peculiar auspicious situation of these heavenly bodies desired, the doctor is at present unable to determine, and is now engaged in making calculations in the hope of ascertaining by rules how this date is annually fixed. One thing, however, seems to be apparent. That is that the native priests desire as propitious an occasion as possible on which to offer their prayers, believing, reasonably, that they will be of more practical effect.

The stars are watched faithfully during the summer season and when the proper time arrives the observation is taken by the chiefs between the hours of 12 and 2 o'clock in the morning, and the date of the Snake Dance is then set twenty days thereafter. The next night after the setting of the date of the dance a priest named Han-yi, in the capacity of town crier, goes on the housetop and makes public announcement of the date.—Phoenix (Arizona) Republican.

### A Plea for Humanity.

What seems to us rather a remarkable document has recently come to our desk—a printed letter from the Society of Friends in England, which is, in effect, a protest against something which we ourselves recognize as a very serious wrong, yet which seems to be growing in frequency of occurrence, namely, the resort to lynch law.

Our readers are thoughtful men and women, whose interests reach beyond the confines of the kitchen and the corn-field, and we present the letter entire, feeling sure that it will be read and intelligently discussed.

A Letter, from the Society of Friends in England, to their fellow Christians of all denominations in the United States of America.

Dear Friends: We venture to address you in the name and on behalf of the religious Society of Friends in Great Britain, a body of men and women who are earnestly desirous that the practice of Christian living, among themselves and others, should be brought into harmony with the teaching and example of our Lord Jesus Christ.

Our hearts have been deeply pained as we have had our attention drawn to the lynching of persons, both white and colored, with the terrible scenes of lawlessness and cruelty that frequently accompany them, in some of the States of your Union.

From trustworthy records it appears that in the past ten years many hundreds of persons in the United States of America have been thus, without legal trial, put to death. Many of these have been burnt alive, or otherwise tortured; and we have sorrowful evidence that in some districts such doings have been condoned, and even actively applauded, by those who in others respects are right-thinking citizens. In addition to this, there is the demoralizing effect of such spectacles on the men, women, and children, large numbers of whom sometimes witness them.

We earnestly desire to avoid falling into a spirit of hasty or harsh judgment on these matters. We recognize with humiliation that there are grave faults in the conduct of our own people that need correcting, and we welcome with the utmost thankfulness the evidence that many among you are fully alive to the claims of humanity, and are doing all they can to remedy the evils alluded to. We leave out of consideration altogether political and racial problems, and difficulties which, at this distance, we can very imper-

fectly understand, and appeal to you on the broad and simple grounds of Christian principle and human justice.

Our Lord Jesus Christ, in the days of His earthly ministry, when the zealous performance of outward forms of religion was receiving more attention than the practice of love to men, quoted with approval the words of an ancient prophet, "I desire mercy, and not sacrifice." In direct anticipation of His teaching was the saying of another prophet, that what the Lord requires of us is "to do justly, and to love mercy, and to walk humbly with our God." He said that the sons of God must be "merciful, even as the Father who is in heaven is merciful;" and declared that those who refused to act kindly to one of the least of His brethren were refusing kindness to Himself. In full accord with this spirit, His great Apostle urged that, "Love is the fulfilling of the law."

As Christians, we believe that it is this spirit of love and tenderness which has so largely removed the barbarous cruelties and the lawless injustice of the dark ages, and, in proportion as it has had free play in any country, we trace to its influence the development of an ordered commonwealth, in which to the weakest members are granted the inalienable rights of life, liberty, and justice.

In the name of Christ, who died for all men, regardless of name or wealth, race or color, let us, both in England and America, do what we can to form a public opinion based on the principles of His life and teaching.

We are, in Christian love,

YOUR FRIENDS.

Signed, on behalf of the "Meeting for Sufferings," representing the Society of Friends in Great Britain,

Henry Lloyd Wilson, Clerk.

12, Bishopgate Without, London, England, May, 1903.

## Club Department.

### Our Club Roll.

Mutual Improvement Club, Carbondale, Shawnee County (1895).  
Give and Get Good Club, Berryton (1902).  
Osborne Woman's Literary Club (1902).  
The Ladies Reading Club of Darlington Township (1902).  
Woman's Club, Logan (1902).  
Domestic Science Club, Osage, Osage County (1888).  
Ladies' Crescent Club, Tully (1902).  
Ladies' Social Society No. 1, Minneapolis (1888).  
Ladies' Social Society No. 2, Minneapolis (1889).  
Ladies' Social Society No. 3, Minneapolis (1891).  
Ladies' Social Society No. 4, Minneapolis (1897).  
Chillico Club, Highland Park (1902).  
Cultus Club, Phillipsburg (1902).  
Literatae Club, Ford (1903).  
Sabeau Club (188).  
Star Valley Woman's Club, Iola (1902).  
[If mistakes are made in the above roll, please inform us at once. Let each club look for its name, and see that all information concerning it be correctly given.]

From this time on throughout the summer, when club work is mostly suspended for the time, the Club Department in KANSAS FARMER will be carried on only intermittently. Whenever any one has a matter of interest to club women, she will write to us about it, and it will be passed on. Or if we should chance to learn of anything in this connection that would be of advantage to our readers, we shall hasten to communicate it.

Our wish for our circle of club women is that the summer may be a pleasant one, and that September may find each member with enthusiasm high, and club spirit undiminished, ready for a year of earnest, systematic work.

The editor of the Wichita Eagle on reading that the Eldorado high school had graduated nineteen young women and only four young men, wrote: "Heaven preserve 75 per cent of those fair daughters from the club mania. Let us pray." Ed. Hoch, of the Marion Record, in commenting on the item says to pray for the boys. "And as to the club mania, don't worry about that, old bird! Women of intelligence will go right on organizing literary clubs, church societies, and other enterprises for the improvement of themselves and the world, and the home will not suffer because of this fact, either. The man who thinks woman has no other 'sphere' except to sew on buttons and wash dishes and be both servant and doll for so called 'lords of creation' is a back number. The intelligent club woman is the best wife and mother and housekeeper and companion in the world."

The record yield of timber from one tree is eighty thousand feet, from a redwood twenty feet in diameter, cut last year in California.



## Horticulture.

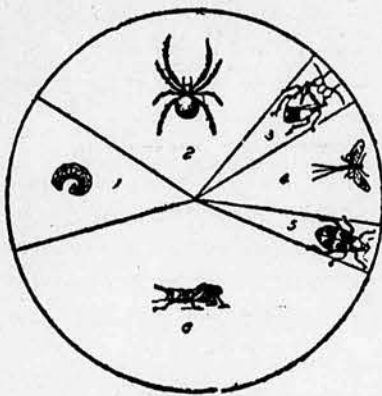
### Birds and the Farmer.

Few appreciate the value of birds—some kinds of birds—as destroyers of harmful insects. In a discussion of this subject in the Chicago Record-Herald, Mr. Edward B. Clark, associate member of the American Ornithologists' Union, makes plain the value of some birds and the uselessness of others. Of the robin he says:

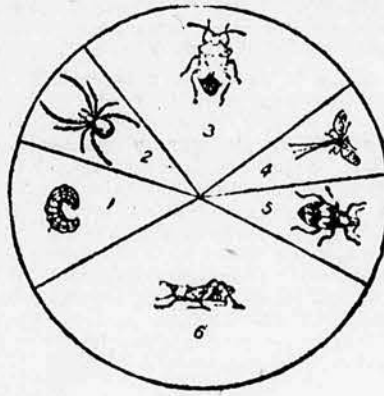
With the exception of a few berries and cherries, the food of the common robin consists entirely of insects. The robin at certain seasons of the year eats about double its weight in insects every day. At first glance, the robin being comparatively small, it may not seem that this gustatory performance is anything remarkable, but stop a moment to make a comparison. A man, in order to satisfy an equally well-developed appetite, would have to eat about 300 pounds of food all told at his three daily meals. To have the capacity to care for this amount of provender he would need to be thirty feet high, ten feet thick from front to back, and five feet broad across the shoulders. If he were to remain as thin as he is to-day, his stature would have to be increased until he towered above the Washington monument in order to give him room within his body to put the food which it would be necessary to eat to sustain life.

It must be borne in mind that the robin and its brother birds breakfast, dine, and sup largely upon noxious insects. Man, if he were to play his proper part in doing the robins duty by his fellows, would serve at his table such creatures as rattlesnakes, gophers, and other small "cattle" whose living is supposed to be a menace to the world.

Look at the accompanying cut to see what the midgut of a house-wren (Troglodytes aedon) does for man in the way of checking the plague of creeping



NESTLING.



ADULT.

FOOD OF THE HOUSE WREN.

and flying things. You will search the record of the house-wren in vain to find any evidences of fruit-stealing. He dearly loves grasshoppers, cut-worms, weevils, and the unpleasantly named stink-bugs. The wren loves spiders, too, and, while spiders have a use, they are not over-pleasant companions, and there be few men or women who will blame Jenny Wren for depopulating the webs.

The wren, small as it is, raises a large family. I once watched the departure of a family of wrens from the nesting-box. The father and mother stood perched on the roof and encouraged the fluffy youngsters one by one to take their first flight in life. One little one poked its bill out of the entrance to the nest and fluttered to the ground. A brother or a sister quickly followed. And then they "followed fast and followed faster" until nine little gray and brown birds were blinking in the sun. The parent wrens had fed this family and themselves for two weeks. There are some millions of house-wren families scattered all over the United States. A thought will show that the insects that they destroy are in numbers almost beyond calculation.

There is another bill of fare on the printed page. It is that of the English sparrow. In a chapter on necessity of the preservation of the birds it may seem strange to read the recommendation that one wide-spread species of birds be condemned to death and executed as rapidly as means may be found. A glance at the daily food-list of the English sparrow (passer domesticus) gives sufficient reason for his death sentence. As a matter of fact, however, the bill of fare does not tell half the tale. The sparrow, not content with being almost wholly a grain-eater, does its best to kill off the tribes

of birds that, ignoring grain, seek as food the pests which prey upon vegetation.

Friends of the sparrow may say that its grain is largely the waste grain of the city streets, but the sparrow is today spreading all over the face of the land and is becoming the dread foe of the farmer in the fields of corn and wheat.

Within a month a pair of house-wrens started to build a nest in a box which had been nailed on the top of a post in the rear of a city residence. The person who put up the home for Jenny and her husband made the mistake of cutting too large a hole for an entrance. After the nest was completed and the eggs were laid two English sparrows came along during the temporary absence of the wrens, broke all the eggs and threw a large part of the nest out of the box. The wrens are fighters and would have thrashed the sparrows if they had caught them at their tricks. They viewed the destruction of their home with dismay and anger, but soon started in to build again. A cleat was nailed over a part of the entrance hole by the owner of the yard, making it so small that the sparrows could not enter, while the wrens had no difficulty in slipping in. They now have a second nest full of eggs.

This instance is given simply to show the nature of the sparrow and to point out what it is doing to our native insectivorous birds all over the United States.

Until comparatively recently the farmer and the fruit-grower looked upon nearly every species of birds as his enemy. Sentiment is changing, and there are birds whose appearance a few years ago was the signal for taking down the shotgun whose coming now is hailed and whose companionship is cultivated. The kingbird (tyrannus tyrannus), once killed on sight by every farmer who had a hive of bees on his place, is now allowed to

perch unmolested above the dome-shaped homes of the honey-makers.

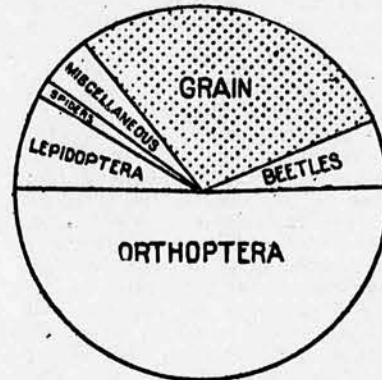
The kingbird, called in some parts of the country the tyrant flycatcher, lives almost wholly on winged insects of the injurious kinds. It also has an appetite for bees, and it was this marked taste that made trouble for the bird. Its numbers began to diminish under persecution, and then some of the members of Uncle Sam's biological survey who had a suspicion that the kingbird was being treated badly, began an investigation. It was necessary to be cruel to some hundreds of individuals in order to be kind to the entire family. Kingbirds were killed and their stomachs were examined. It was found that nearly everything they ate was something which, living, was inimical to the farmer's interest. Bees were found in the stomach, but strangely enough the kingbirds had distinguished between bees and bees, so to speak, and had left the workers alone to dine off the worthless drones.

When this statement of the authorities was published in bulletin form by the Government the bee-keepers thought the matter was a huge joke and laughed at the investigations of the scientists. The beemen were induced to do a little investigating themselves, and after a few months' close observation they were willing to let Tyrannus stay unmolested on his perch above the hives. The kingbird is the farmer's policeman. He is the deadly enemy of the thieving crow and the marauding hawk. He fearlessly attacks and drives away the corn-field pest and the poultry-yard assassin.

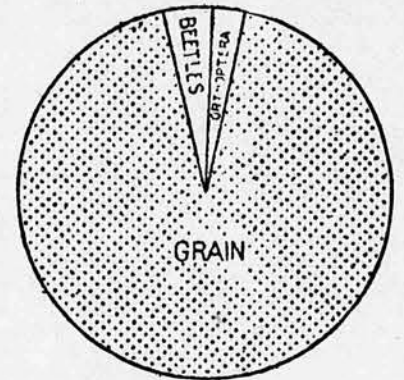
There is a bird of the sky which the Government of the United States regards so favorably that there recently has been issued and sent broadcast

through the land a special plea for its protection. This bird in the Northern States, for practically the whole breadth of the continent is known as the nighthawk (chordeiles virginianus), while in the South it is called the bull bat. The nighthawks are residents both of the city and country. They may be heard after sundown emitting a peculiar squeaking note far up above the office buildings of the great busy towns. It is only within comparatively recent years that the nighthawks have shown a liking for city life. They have found in gravel-covered roofs a fair substitute for the stony country field in which in former years they made their nests.

The nighthawk zigzags its way across the sky in a flight that it makes the head swim to watch. It has long wings and is thickly feathered, a circumstance which gives it an appearance of size that is not real. It is the nighthawk's stomach and what goes



NESTLING LESS THAN ONE WEEK OLD.



ADULT.

THE SPARROW'S DIET.

into it that brought the bird to the favorable notice of Uncle Sam. In capacity the stomach equals that of the domestic pigeon, whose body is at least twice as large as that of the nighthawk.

In reporting on this bird the Government expert said: "This enormous stomach must be kept filled to supply motive power for the long wings, which are kept in motion so many hours. The food consists of insects taken on the wing and the bird fills its great stomach almost to breaking. The wholesale killing of the nighthawks entails an almost incalculable injury upon the agricultural interests."

The instances which have been given are sufficient to show the necessity for the preservation of certain forms of the bird life of the United States. The examples of the birds' usefulness to man might be extended until they comprise nearly every family of birds on the continent. There are of course some injurious species, but these all taken together would number, as some one has put it, but few more birds than were found in Lord Dundreary's famous flock.

### Vegetables in Intensive Cultivation.

To get the greatest possible returns from a given piece of land is the object and aim of every man worthy the name of "gardener." Restricted in space, every foot of soil must be kept constantly at work doing something, in order that the garden will accomplish the purpose for which it is intended.

In the wood plants appear and disappear in rapid succession. Change is a daily manifestation. It is a great pleasure in riding through woods and uncultivated lands to watch the daily change in the flora. But the lessons to be learned are the most important. The wild wood produces a great variety, and as great an amount of vegetable matter as the cultivated field during the season, and that because of the rotation of crops. The one is not only the food of its successor, but it furnishes suitable mulch so essential to the growth of all vegetable forms.

Our market-gardeners have become fully convinced that nature abhors a vacant space, and the moment one crop is taken off another is in readiness to take its place, and, as far as practical, of an entirely different nature and habit. They find a rotation of crops furnishes the soil all the repose it needs. Certain it is the more frequently we change the productions of a given plot, and the less frequently we return a given class of vegetables to the same soil the better we get.

To more fully appreciate what can be done by intensive cultivation, let us look over one of the small farms or large gardens within a hour's drive of the City Hall, New York. One of these, a farm of ten acres, is managed,

and has been for the past twenty years, as follows:

The first work in spring, as soon as the soil is fit to work, is to apply well-rotted manure, at the rate of \$50 per acre. The soil is plowed and harrowed as finely as possible—fully three times as much labor is employed in this work as is usually considered necessary. As soon as finished the setting of plants, which have been grown in hot-beds, commences.

### CABBAGES, LETTUCE AND RADISHES AT ONE TIME.

The first crops are cabbage, cauliflower and lettuce—the plants of which are set in the following manner: Rows are marked off three feet apart, and the cabbage and cauliflower plants are set fifteen inches apart in the rows, and between each two plants is one of lettuce, making the plants in rows 7½ inches apart. Then between the rows is a row of lettuce plants, set six inches apart, making the rows of these

eighteen inches apart; after which a row of radish is sown—between each row already there—so the ground is covered with plants but nine inches apart.

In some cases the radish is sown in a wide, but shallow trench, so that when growth commences there is but four inches space between the rows. The plants soon commence active growth (as they ever do with the proper care and attention). The radishes make a quick growth, and are soon marketed, which leaves room for the lettuce, now required.

This crop will be taken off by the first of May, and the cabbage and cauliflower will have full sway. These will be ready for the market by the middle of June.

By the middle of July the ground is all cleared, and the plow and harrow again do their work as thoroughly as before. Again there is the same application of manure—at the rate of \$50 per acre—which is thoroughly incorporated. It is well to say that recent experience has proven that the best results are obtained by using both stable manure and commercial manures in equal quantities, so far as cash values are concerned.

### PLANTING CELERY.

The midsummer planting is usually celery, the plants of which are set in rows four feet apart, with two rows of lettuce and three rows of radish between. The last two are by-products, but usually pay the whole expense of growing the main crop.

### THE BIG PROFITS.

By this method the soil is constantly at work along the line of reproduction in the best possible way for extreme results. This little farm has netted its owner during the past ten years an average of \$100 per acre, after paying all expenses, including household expenses, taxes, etc. The owner assured the writer that he had laid away \$1,000

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per year for the last ten years—the net profits from his ten-acre farm.

#### KEYNOTES OF THE SUCCESS.

These results are due to several causes, or we might, with propriety, say to the methods of cultivation in the following order:

First—The preparation of the soil. Here tilth is absolutely perfect. All the labor along these lines is employed before the seed is sown, and the plants are set. From the time this work is finished the horse never enters the field until the crops are ready for the market. The surface of the soil is frequently stirred to prevent evaporation. The cultivator is not allowed to do its deadly work of cutting off the roots of the plants as fast as they appear and checking growth—a fatal custom common to every farm.

Second—The plants set are grown in such a manner that they are never injured in removal. Each and every plant is pricked out from the seed-beds twice before removal to the field. By so doing each has formed a solid mass of roots that are so little disturbed in removal that a check in growth is scarcely noticeable, which is a most important consideration, as crop-failures are more frequent to this than to all other causes combined.

Third—The most important feature of intensive cultivation is that the plants are set so closely that the soil is so shaded by the growing plants that it is always moist and cool, necessary conditions for plant growth.

We regret that space will not permit of our taking up this, the most important consideration in relation to plant-growth, which we hope to do at some future date.—C. L. Allen, in American Gardening.

#### In the Rose Garden.

Roses may be struck from cuttings either in summer or fall. For summer propagation a cheese-box, filled with sand, is suspended in tub of water kept sufficiently full to always reach the bottom of the box, which should be perforated with holes. This is placed where it can have the full heat of the sun. The cuttings are stuck into the sand and root readily in a few weeks, when they are transplanted.

For fall propagation of roses from cuttings a hot-bed is prepared in the usual way, with fresh horse-manure, then six inches of good soil and on top of that six inches of sand, all well firmed and watered. Cuttings are made in November from ripe wood, about six inches long, plunged into the sand, leaving two buds out. The sash is raised every day until hard freezing weather sets in, when it is closed and sealed tightly with dirt and allowed to remain so until March, when air is given on mild days until danger of frost is past, when the sash is left off entirely. By May 1 these cuttings have made a good root-growth and some leaves. They are then carefully removed to a specially prepared bed or planted in small pots.

With reference to the little "mailing" plants, which are advertised, I have seen a bed of such plants so small that when set one could scarcely perceive them in the rows, a short distance off, which yielded an average of from one to two buds a day from July 1 on, and by fall have thrown up canes four feet high as thick as one's finger.

#### DISEASES AND INSECTS.

Insects and fungus diseases give me little trouble, as my experience is that they only attack weak and poorly nourished plants. However, if any appear, strong spraying with a hose in the early morning, before the sun is up, will discourage the former, and a few applications of flour and sulfur or soot will remedy the latter.

#### HYBRID TEAS.

This is a class of roses which I am now trying to grow as a garden rose, although but few of them will stand the cold in this section, with so little protection as given to the Hybrid Teas. I refer to the Noisette class, and Climbing Teas having some of that blood in their constitution; La Marque, Cromatella, Solfaterre, Marechal Niel, etc. Gloire de Dijon and William Allan Richardson have stood the last three winters with no protection, except a screen of boards on the south and east to protect them from the hot March sun, and have come through the winter bright, excepting the tips of the new growth, and bear flowers every year. From what I have noticed, I believe that as they become more established and mature they are harder and better able to stand a low temperature, less and less of the wood being winter-killed each year. A Marechal Niel, too, which had been laid down, covered with soil, and so protected, was caught

by the early cold snap last December unprotected, and was killed back to the older wood, but is now putting forth new growth from that, although the thermometer fell to nine degrees. A younger plant of Marechal Niel set out last spring was killed completely. It should be said that, after experiencing this temperature, both roses were laid down and protected in the usual manner.

Another sample is a Safrano, the last survivor of a dozen planted five years ago, now grown to be as thick as a broom-stick at the base, and three feet high, which stood the low temperature of the two winters, with no more protection than given the Hybrid Teas, and yet the canes are winter-killed but a few inches. I am further encouraged in this undertaking from the fact that Robert Buist in his "Rose Manual" cites a case of a La Marque growing on the north side of a fence in Philadelphia where it has been for several years with no protection.

Mr. Samuel B. Parsons, too, writes of a Cromatella or Cloth of Gold as growing on his grounds on Long Island with no protection which bore an abundance of flowers.

It seems a pity to me that these beautiful roses, once so popular, should be neglected in these days of novelties. For I am convinced that vases of well grown Roses of La Marque, Marechal Niel, Cloth of Gold and others of this class would attract as much attention at our flower-shows as many of the sensational novelties of the day.

Later on I hope to exhibit some of these varieties from plants recently set out, which I am going to protect during the winter by a novel method, concerning which, if successful, I may have something to say in the future.—James M. Chapman, in American Gardening.

#### What Shall Be Done With the Sanded Areas?

EDITOR KANSAS FARMER:—The flood has worked serious changes in the valley of the Kansas and other rivers. Leaving out of consideration the losses due to shiftings of the channel, another effect, less striking, but in the aggregate more managing, consists in the covering of extensive areas with sand. To those remote from the region, the origin of so much sand may be mysterious; to those on the ground it is clear enough. For all the areas so covered, there are corresponding areas that have been denuded or excavated. The excavations vary from a few feet in diameter and depth, to many acres in area washed out to a depth of thirty or forty feet. The latter are deeper than the wells of the vicinity, and will remain as permanent lakes. The beginning of these excavations seems to have been due to the presence of something that caused a waterfall, it may have been but a few inches in height, or it may have been several feet. Hedges against which cornstalks had lodged acted as dams and produced this effect. The falling water drilled a hole in the soil; the flowing water carried away the loosened material, and under favorable conditions a considerable depth was attained. Where the subsoil was sandy it washed out easier, and undermined the surface, thus accelerating the work of destruction. The sand, fine earth, organic matter, driftwood that may have been buried for centuries, coarse gravel from abandoned creek beds, and whatever else may have been there, started down stream.

The distance that the several kinds of material were carried depended on their specific gravity, and on the depth and velocity of the water. A sorting of it thus ensued; the gravel was dropped first, the coarse sand next, then finer and finer, the very finest particles being carried on to the delta of the Mississippi. The effect on lands is thus very diverse. In the extreme cases instead of land worth \$50 to \$100 an acre, a lake is left of questionable value. In others, a field may be nearly ruined by dozens of holes dotted over it. Adjacent to these excavations we have the deposits of gravel and coarse sand. These and the other deposits are not evenly spread, but drifted in bars like snow-drifts, to the down-hill side of obstructions. They vary in depth from a few inches to several feet. Farther along where the finer parts are deposited sufficient soil may be included so as to make land suitable for sweet potatoes; still farther on a fine mud of great fertility is found. In any given bend of the river, other things being equal, the tendency is to injure the upper parts worse, the lands receiving the mud being positively benefited, while those getting the coarse sand and gravel are injured most.

In studying the possible ways of utilizing these sanded areas, two factors must be taken into consideration, i. e., the character of the original soil, and the depth and composition of the deposit. If the soil was sandy and poor, and a layer of nearly pure sand was laid over it, injury must be the result, the degree of which depends on the depth of the sand. A few inches of sand on such land may be regarded as nearly ruining it. The best treatment of such cases is not within the scope of the present article.

Where the original soil was very heavy, a light deposit of sand when plowed in may even be an improvement. Such cases in the river bottoms are probably not common, however, and, for the most part, the addition of the sand must be regarded as a greater or less injury which is to be minimized to the greatest extent possible. Where the sand is shallow enough to allow its incorporation with the soil by deep plowing, the condition is as favorable as could be expected, and with a few years of careful treatment the soil can be used for ordinary farm crops as before. To go to the other extreme, there are areas of good soil covered so deep in sand that no system of tillage can reach it. Such land is ruined for any immediate use. With the lapse of years, the soil-making processes of nature, assisted by man, will to a certain extent redeem it, but it will always be poor land.

But in addition to the two extremes just referred to, there are large areas covered say from five to fifteen inches deep, not so deep as to make the case hopeless, but too deep to allow one to expect to ameliorate the condition to such an extent as to make the land available for general farming. The main purpose of this article is to present a suggestion in respect to the utilization of such land. It would seem that the conditions dictate the establishment, if possible, of some permanent deep-rooting crop. Possibly an orchard or forest plantation may be best in some instances, but to the writer it seems of more general usefulness to suggest seeding the land to alfalfa. This suggestion, it must be understood, is supposed to be applicable only to such sanded areas as are underlaid by deep, rich soil. To establish the alfalfa it will be necessary to bring up at least enough of the good soil to the surface to form a seed-bed, the more the better. When once started the roots of the young plants will go down through the sand into the soil below, and to the indefinite distance therein that alfalfa roots are famous for. The entire fertility of the land will thus be practically as completely available as before the flood. The applicability of this plan is limited only by conditions that will prevent the preparation of a seed-bed. Where the sand is deep, as

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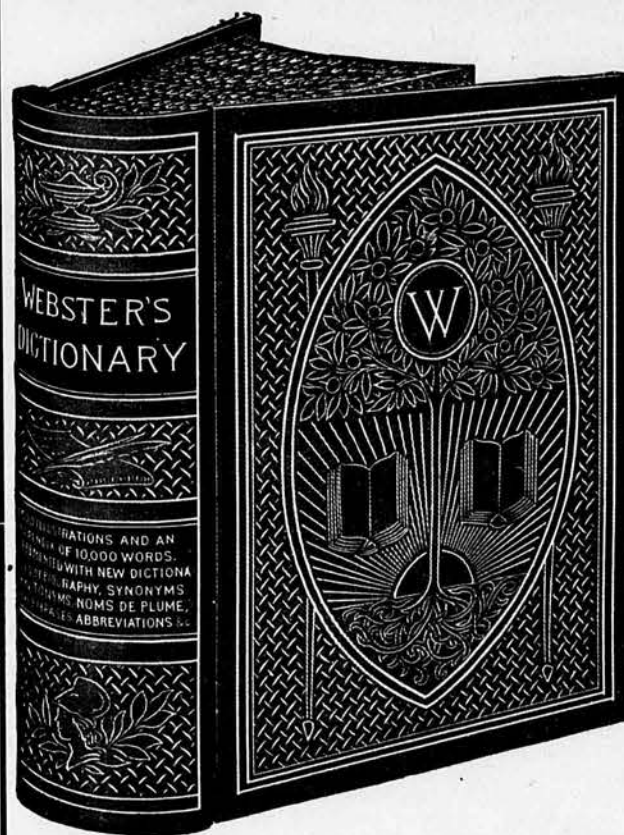
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deep a furrow as possible may be turned and then a second one be brought up from the bottom of the first. If in this way a certain amount of good soil can be brought to the surface there is no reason why success should not be attained.

In the more extreme cases it may be necessary to give the soil one or more years of preliminary cropping to plants that can be grown on sandy land, such as sorghum or cow-peas, turning the crop under to a shallow depth and thus incorporating organic matter that will modify the texture and composition of the surface so as to enable the alfalfa to start.

The cultivation of alfalfa on such land need not be looked upon as the only crop that can ever be grown there. As the years go by earth-worms, gophers, and other animals will gradually bring up the soil to the surface. The alfalfa roots will fill the sandy as well as other portions, and bring up mineral matter from the depths below. The leaves falling will deposit this at the surface. By these and other means the upper portion of the new soil will become so modified that it can be used for general cropping, after breaking up the alfalfa sod. The length of time required will evidently depend very much upon the depth of the sand, and the extent to which the underlying soil is brought up by the preparation for the alfalfa. **J. T. WILLARD,**  
Chemist and Director, Kansas Experiment Station.

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## KANSAS' GROWING CROPS.

OFFICIAL REPORT OF THE STATE BOARD OF AGRICULTURE FOR DATE JUNE 20, 1903.

Reports of correspondents from well-nigh every township in Kansas to the State Board of Agriculture relating to the growing crops, based on conditions existing June 20, summarized, indicate that the area of winter wheat that will be harvested aggregates 5,709,485 acres, or 94.6 per cent of the total area sown, and the general average condition of this on the eve of harvest is 89 per cent, calling 100 an entirely satisfactory condition. Besides rating high in the more prominent wheat-producers, many counties with lesser acreages report correspondingly high averages, thus indicating that wherever there is wheat to harvest its condition is quite uniformly excellent. At approximately the same stage in the plant's development that year, the general average condition of the State's winter wheat in 1901 was 82, on 5,248,547 acres, which bore the largest crop in the State's history. This year's area that will be harvested, much of which is now cut, is greater, and its average condition seven points higher. Weather conditions for the past ten days have been favorable for its rapid reaping. No thrashing as yet has been done, and it is too early to definitely determine quality, but with few exceptions here and there the heads are reported as well developed and filled. Cool, wet weather delayed ripening, and to that extent harvest is correspondingly late, beginning in some of the more southern counties only last week, while the harvest for the State is three to four weeks backward.

Conspicuous for their high conditions are Scott County, 105 per cent; Decatur, 103; Lane, 102; Phillips, 102; Sheridan, 102; Smith, 102, and Finney, Greeley, Meade, Ness, Norton, Rawlins, and Rooks, each, 100. Twenty counties in the "wheat belt," so called, average 91 per cent on 3,087,010 acres, or over 50 per cent of the total area to be harvested.

It is noteworthy that adjoining counties, comprising slightly more than the northwestern quarter of the State, excepting three or four bordering on Colorado, present a most promising showing, twelve reporting average conditions of 100 to 103, and ranging from that to 970, in Jewell and Ellsworth.

Assessors' returns of acreage from sixty-five counties bear out the estimate of the board's correspondents last fall, that the area of winter wheat sown then was three to four per cent less than that from which the 1902 crop was taken, and these official figures substituted for the preliminary estimates in their respective counties make the State's total area sown 6,031,422 acres. Reporting earlier in the season, the prospect was represented as almost perfect, but the same correspondents now say that 5.4 per cent, or 321,937 acres, has been so damaged from various causes that it will not be cut. By far the greater part of this is in the flooded districts, and the injury wrought in most instances is directly charged to high water and continuous excessive wetness, increased in some localities by rust, Hessian fly, and weeds, the latter two particularly causing a considerable proportion of the reported damage, especially in fields where seed was sown on stubble ground. With few exceptions, counties reporting the largest losses from these sources and lowest conditions are those traversed by the Kansas River, and ranging from Saline on the west to the east and south boundaries, Cherokee in the extreme southeastern corner of the State reporting the lowest condition, 55, followed by her neighbors, Crawford with 59, Montgomery 65, Labette 66, Neosho 66, and Wilson 70—the other counties in this section ranging from that to 92 in Osage. As a whole, however, it would seem that Kansas is reaping a prodigious wheat crop, and every energy is now bending to safely place it in shock and stack.

The spring-wheat area is comparatively small and confined principally to the northwestern counties, as usual, and its general average condition is 95.

## CORN.

The situation as to corn has been most complicated. Much of that planted early, probably thirty-three per cent, was replanted, necessitated by the superabundant rainfall, washing out of seed in places, too deep covering and rotting in others, and weeds where too wet to cultivate. That of the first planting which withstood adversity, and has been properly cultivated, is well advanced and prospering. On account of the almost incessant rainfall, however, all farm work has been much

delayed, and by far the greater part of the corn was planted late (mainly with listers), being finished only within the past week. Correspondents estimate the total area planted to be 6,374,335 acres, which is less than last year by 616,429 acres, or 9 per cent. The condition for the entire State is 73.3 per cent. Recent warm, sunny weather, favorable to growth and cultivation, has put the ground in excellent tilth, and late-planted seed promptly germinated. As the present report is based on conditions found June 20, the average for the State probably might now be safely advanced several points, owing to the improved situation since that date. Dividing the State in halves diagonally from northeast to southwest it is seen that most of the counties north of such division have either maintained or slightly increased their corn areas, excepting a few of the larger wheat-producers, while the counties south unanimously report more or less decrease in acreage, barring a few exceptions in the west.

The following table shows, by counties, the area of winter wheat that will be harvested, together with its general average condition in each, and the condition of corn:

Counties.	Winter wheat. Acres.	Condition.	Condition of corn.
Allen	6,893	92	71
Anderson	2,271	86	59
Atchison	23,840	90	81
Barber	54,172	85	84
Barton	249,375	91	71
Brown	5,790	81	68
Butler	41,915	85	66
Chase	23,875	79	75
Chautauqua	4,624	71	65
Cherokee	16,688	71	60
Cheyenne	36,208	55	60
Clark	3,863	76	77
Clay	6,049	95	80
Cloud	56,960	87	75
Coffey	102,436	90	85
Comanche	3,773	88	68
Cowley	13,845	97	76
Crawford	87,508	75	74
Decatur	27,238	59	62
Dickinson	81,538	103	76
Doniphan	92,951	73	74
Douglas	37,836	72	83
Edwards	22,415	85	71
Ellis	87,597	85	67
Ellsworth	11,193	80	66
Finney	173,526	90	77
Ford	129,768	90	69
Franklin	54,231	100	65
Geary	4,702	84	70
Gove	13,490	81	89
Graham	28,654	100	81
Grant	78,776	100	77
Gray	11,050	92	70
Greeley	9,289	100	100
Greenwood	2,519	77	72
Hamilton	226	95	75
Harper	153,854	90	80
Harvey	79,931	72	75
Haskell	2,646	87	82
Hodgeman	38,397	83	82
Jackson	4,490	87	70
Jefferson	12,898	92	78
Jewell	46,404	90	83
Johnson	18,916	79	65
Kearny	276	99	82
Kingman	139,943	92	76
Kiowa	43,463	85	77
Labette	41,760	86	70
Lane	11,019	102	83
Leavenworth	30,553	90	72
Lincoln	100,699	94	76
Linn	8,229	80	59
Logan	19,149	91	69
Lyon	2,523	77	71
Marion	75,675	77	82
Marshall	49,125	72	74
McPherson	168,788	77	74
Meade	11,375	100	82
Miami	7,608	84	84
Mitchell	132,315	98	82
Montgomery	34,274	65	65
Morris	2,823	72	72
Morton	10,786	76	70
Neosho	13,445	66	64
Ness	87,201	100	78
Norton	66,539	100	67
Osage	2,771	92	62
Osborne	124,593	93	80
Ottawa	95,922	92	78
Pawnee	135,853	98	71
Phillips	97,088	102	83
Pottawatomie	3,848	87	77
Pratt	135,720	91	78
Rawlins	64,597	100	79
Reno	191,452	85	85
Republic	43,343	95	78
Rice	166,798	93	73
Riley	1,059	80	77
Rooks	159,035	100	83
Rush	182,315	92	66
Russell	133,264	96	83
Saline	110,262	78	72
Scott	5,872	105	83
Sedgewick	153,504	78	65
Seward	770	78	87
Sheridan	4,772	82	67
Sherman	59,685	102	82
Smith	3,307	76	97
Stanton	99,351	102	77
Stevens	170,110	93	72
Sumner	150	73	82
Thomas	290,301	81	68
Trego	49,057	96	80
Wabunsee	63,723	99	75
Wallace	9,732	86	68
Washington	88	87	81
Wichita	52,283	90	75
Wilson	15,392	94	73
Wyandotte	11,548	70	63
	3,077	87	72
	8,548	87	75

## OATS.

Assessors' returns from two-thirds of the counties indicate that the State's area has been substantially increased, and the outlook reported is uniformly promising, especially in counties having large acreages. Exceptions are in the southeastern corner of the State. Average condition 88. Eleven counties report a condition of 100 or more.

## FLAX.

Because of too much moisture this spring, and last year's unsatisfactory experience, the acreage of flax is considerably less, and the State's total

approximates 198,000 acres. Flax is not generally grown in but about one-third of the 105 counties, principally in the eastern third of the State, and the decrease is quite evenly distributed among these. Condition on the whole, 78.

## POTATOES.

The area planted to potatoes, in the aggregate, was approximately the same as last year, and for the State at large the prospect is most promising for an excellent yield. Practically all the plantings, however, on the "bottoms" in the potato-growing section, especially in the Kaw River valley, where potato raising is a leading industry, have been destroyed by the flood, and scarcity of seed will prevent replanting to any marked extent. This includes a large per cent of the potato land planted for commercial purposes, and, deducted from the States total, will considerably reduce the present actual acreage. General average condition for the State on the area now growing is 85 per cent.

## SORGHUMS.

Interest in the various sorghums has been unabated, as indicated by the returns from all portions of the State. The estimated area in Kafir-corn is about the same. Owing to wet weather, extending late into the season, the area that would otherwise possibly have been devoted to this crop and Indian corn probably will be sown to the saccharine sorghums, as the estimated increase in the latter makes a total of 570,749 acres. The combined areas of sorghums for forage and grain aggregate 1,331,724 acres, and the average condition of that now growing is 82. Reports indicate that a considerable per cent of sweet sorghums is yet to be sown.

## ALFALFA.

Continued interest in this wonderful plant is evidenced by the increased acreage, an annual occurrence since its introduction. General average condition 90, although the progress in many fields sown last fall was temporarily checked by the late spring freeze. The first cutting in older fields yielded heavily, but was delayed by wet weather. Counties having highest conditions are: Mitchell, 105; Rice, 105; Rush, 105; Hodgeman, 102; Rooks, 101; Cloud, 103; Barber, 100; Miami, 100; Osborne, 100; Smith, 100; ranging down to 70 in Cherokee.

## PASTURES, GRASSES, AND LIVE STOCK.

Probably never before throughout the State have pastures and grasses surpassed their present excellence, vigorously responding to the favoring conditions, affording abundant, luxuriant grazing and assuring a bountiful yield of hay of finest quality. All tame and native grasses are flourishing, and pastures in the grazing section are reported the best in years. No disease among live stock is reported prevalent, and all seem to be in a healthy state. From their enforced rest and sumptuous rations, work animals especially are in unusually excellent condition.

## OTHER CROPS AND FRUIT.

Rye, condition, 89; broom-corn, 90; barley, 92; castor-beans, 87; apples, 35; peaches, 30; grapes, 42; cherries, 39.

While individuals whose lands are adjacent to streams which recently overflowed their banks have suffered severe losses, it should be remembered that the devastated area is but a small proportion of the whole, comparatively insignificant, and outside the "bottoms" inundated the general agricultural situation is promising, although the season is extremely backward.

Following is a brief synopsis, by counties, of the general agricultural conditions in each June 20, with detailed information regarding crops in counties especially noted for their production:

Allen.—Fifteen per cent of winter wheat will fall of reaping because of high water; that on upland is fine. Area in corn less than last year, on account of the backward spring; conditions rapidly improving. Area of flax less by one-third; broom-corn about the same.

Anderson.—Corn planting just finished, and in early planted fields cultivation is being pushed. Small acreage of wheat promises well. Large increase in oats, but flax has fallen off 25 per cent. All grasses excellent. Atchison.—Corn acreage about the same as last year, and soil now in good condition for cultivation. Wheat excellent, and nearly all will be cut. Tame grasses flourishing. Potato area about the same, with condition of 70. All forage crops prospering.

Barber.—Practically no wheat damaged, and it is now being cut. All crops are excellent. "Wheat, oats, rye and alfalfa never in better condition, and corn has a good color and is growing finely." Soil in good condition for tillage. Pastures and forage crops never better. Oats increase probably 100 per cent.

Barton.—Wheat on a large area promises well, but much of that sown on stubble-ground will not be cut, probably in all about 3 per cent. Some damage by Hessian fly. Corn area is the same, and growth in the past ten days has been favorable. First cutting of alfalfa is all in stack in good condition. No diseases among live stock.

Bourbon.—Season very backward, and corn

planting on a diminished area just finished. Wet weather has retarded all farm work. Flax acreage considerably less. Tame grasses are excellent, especially timothy.

Brown.—Ten per cent of the wheat will not be cut on account of excessive wetness. Corn area is about the same as last year, but planting is just now finished; weather in the past ten days has been favorable to growth; fields now being cultivated. Potatoes in fair condition. Timothy and blue-grass excellent. Late frost severely injured fruit. Oats acreage large and prospect pleasing.

Butler.—Some damage to wheat by Hessian fly and wet weather, 12 per cent not being cut for that reason. Corn acreage about the same as last year, although considerable had to be replanted. Oats promise well. Flax acreage reduced 13 per cent. All forage crops doing finely, particularly alfalfa. Oats area increased; condition, 88.

Chase.—Probably 20 per cent of the wheat area will not be cut on account of overflow and continued wetness. Corn has made good progress in the past two weeks, and the acreage is about the same. The area in sorghums largely increased. Alfalfa doing well. Not so much flax as last year.

Chautauqua.—Wheat on bottom lands destroyed, and it is estimated that 12 per cent of the total area will not be cut on account of being flooded. One-third of the early planted corn has been replanted; the past ten days weather has been favorable for growth, and the soil is now in good condition for tillage. An increased acreage of sorghums will be sown. Flax area less by 25 per cent.

Cherokee.—Twenty per cent of the wheat destroyed by high water, and in many places the ground is too wet to work; hence the area in corn will be less than last year, and 60 per cent of the early corn replanted. Soil condition only medium. Large increase in oats area. Flax has probably fallen off 30 per cent.

Cheyenne.—"Spring wheat never better, and the same as to barley and oats." Corn now doing well; acreage is increased about 12 per cent. The area in sorghums is also larger. Weather and soil conditions very favorable. Broom-corn acreage much reduced.

Clark.—Wheat area limited, but its condition is much better than usual. "Conditions of the various crops are very promising at this time." The acreage of the sorghums will be about the same as one year ago. Abundance of first-class grazing.

Clay.—A small part of the wheat area will not be cut on account of damage by high water. Corn acreage probably less than last year, because ground was too wet; about 25 per cent of the early was replanted. Oats and hay promising. The area in sorghums is likely increased. "The past ten days have been excellent for growing crops; peaches and grapes injured by the late freeze."

Cloud.—Wheat harvest is backward, but the crop is good. Late soil and weather conditions have been fine for corn, and the area is slightly increased. Oats area large and prospect pleasing. First cutting of alfalfa delayed by wet weather.

Coffey.—Probably one-third of the wheat was damaged by high water; the area was not large. Corn is the principal crop, but this year's planting is less on account of wet ground. The past ten days have been favorable to its growth; 25 per cent of the early corn was replanted. Tame grasses promise well, as do potatoes on the upland.

Comanche.—Corn and sorghum areas about the same, and the weather, in the past ten days has been favorable to both. Prairies affording abundant grazing.

Cowley.—Considerable wheat damaged by flood and fly. Soil in good condition for tillage. Weather in the past two weeks has been very favorable for corn, the acreage of which is about the same; 10 per cent of the early corn was replanted. Oats area is large and prospect excellent. Sorghum not all in yet, but the acreage will be more. Tame grasses O. K.

Crawford.—Twenty per cent of the early corn replanted; total area about 20 per cent less, on account of continued wet weather. Growth slow. Past ten days much more favorable. Seven per cent of the wheat will not be cut, because of too much water.

Decatur.—"All wheat is fine, and weather all that could be desired to finish the crop;" acreage large. "Corn good stand, but small and off color. Generally free from weeds." Rye filling nicely. Prairie grasses luxuriant. The late snow and freeze this spring put alfalfa back, and the first crop will be short.

Dickinson.—Probably 17 per cent of wheat will not be harvested, because of corn, frost, fly and flood; the remainder is "filling rapidly and promises a heavy yield." Thirty per cent of the early corn was replanted; acreage about the same as last year. Uneven stand and size. Soil not in the best condition for cultivation, but the past few days have been favorable for all crops. Oats area large; corn, 93. Alfalfa and prairie grasses fine. Potatoes on the higher lands promise well. Sorghum acreage will be increased.

Doniphan.—Wheat fair. Ten per cent of early corn replanted; total acreage about the same. Ground in fine tilth. Fruit badly damaged by the late freeze. Tame and prairie grasses perfect.

Douglas.—Practically all crops in the "bottoms" destroyed by the flood. Seventeen per cent of wheat will not be cut. One-fourth of the corn replanted, and the total area is somewhat reduced. The weather in the past ten days has been O. K., but the soil is yet too wet. A large acreage of sorghum will probably be planted. Most of the potatoes destroyed by the flood, but those on uplands are excellent. Flax acreage about the same. Tame grasses good. Fruit only fairly promising.

Edwards.—Practically all wheat will be cut, and is uniformly good, except that sown on upland ground. Twenty-five per cent of early corn was replanted, and the total acreage is less; ground in good condition for the cultivation it needs. More sorghum will be planted than usual. All grasses good.

Elk.—Corn area less by about 15 per cent on account of wet weather. For the same reason about 25 per cent was replanted, and one-tenth of the wheat will not be cut. Some Kafir-corn is up; looks fairly well, but most of the sorghum is just now being planted. Ground not in extra good condition, although the weather during the past two weeks has been very favorable for crops. Corn uneven and poor stand.

Ellis.—Large acreage of wheat; that on plowed ground easily 100 per cent; where sown on stubble it is not so good, and some fields will not be cut. Corn acreage about the same; soil in excellent condition, and weather favorable for the plant's growth. The area to be devoted to sorghum will be somewhat increased. Barley, average acreage and fair condition.

Ellsworth.—Wheat is filling well and promises a good yield; some complaint where sown on stubble; weather very favorable. Thirty per cent of the corn was replanted; total area is reported 20 per cent less on account of wet weather. Alfalfa thrifty. Fruit damaged by the freeze, and yield will be small.

Finney.—"This has been an exceptionally good season, except a little too cold for corn and Kafir-corn." Oats area increased and prospect good. An enlarged area will be put in sorghums. Wheat acreage small but condition high. Alfalfa and prairie grasses O. K.

Ford.—Outlook for wheat excellent; heads well filled. Corn area possibly larger; soil in fine condition and weather favorable. Acreage of sorghums increased. Grasses good. "Owing to late frost, first cutting of alfalfa was not over 60 per cent of the usual crop. The wheat is unusually fine, and will be the best this county has raised since 1892."

Franklin.—Small per cent of the wheat will not be cut on account of excessive moisture.



For the same reason corn area is less; 25 per cent of the early replanted; weather favorable for its growth, but soil not in good tith. Flax less by one-third. "Never had as fine prospects for oats." Tame grasses of all kinds are flourishing. The late freeze damaged fruit of all kinds, and yields will be light.

Geary.—Considerable wheat will not be cut on account of high water, and corn acreage likely greater; 25 per cent of the early replanted. Soil and weather favorable. Crops in the "bottoms" destroyed by the flood. On the high lands conditions are excellent. Abundance of grasses. "Will be but little fruit."

Gove.—"Wheat never looked better," and all will be harvested. Corn planted late looks O. K. but is small; considerable was replanted. An increased acreage will be devoted to the sorghums. Alfalfa and millet are in good condition.

Graham.—"Corn is growing rapidly; fair stand and reasonably clean." In per cent was replanted. All crops look fine, and wheat prospect above the ordinary. Broomcorn less.

Grant.—No wheat, but an unusually large area planted to sorghums. Corn came up well; needs warmer weather for growth. Pastureage excellent.

Gray.—Experiments with macaroni wheat are proving satisfactory, although the season was probably too wet for its best development. But little corn. An increased area devoted to sorghums. Alfalfa satisfactory. Twenty per cent more barley; condition good.

Greely.—Weather excellent for all crops. Areas devoted to corn and sorghums each probably 20 per cent greater. Season backward.

Greenwood.—Corn area perhaps a little less on account of too much water; weather past ten days very favorable to growth, but soil a little too wet for tillage; 20 per cent of the early replanted. Sorghums greater by 10 per cent. Flax acreage less. Millet promises well, and tame and prairie grasses thrifty.

Hamilton.—But little corn or wheat, but a third more sorghum than usual will be put in. First cutting of alfalfa somewhat inferior, owing to excessive rainfall. Broomcorn area less.

Harper.—Practically the entire area of wheat will be cut; the harvest began in the week ending June 20; heads are found well developed and filled. Corn area is probably 15 per cent less, largely owing to the increased wheat-sowing. Twenty-five per cent gain in oats; condition, 100. More of the sorghums will be planted than usual. Alfalfa thrifty. "Fruit of all kinds good."

Harvey.—Probably 11 per cent of the wheat will not be harvested, principally on account of damage by Hessian fly. Corn is backward because of cool weather, but the acreage is probably increased; 10 per cent of early replanted; weather satisfactory and soil rapidly improving. A large oats acreage promises well. Millet and alfalfa prospering.

Haskell.—About 30 per cent gain in the acreage of sorghums. Prairie-grass was never better at the time of year. Small grain promises well. "Barley is grand."

Hodgeman.—Wheat and rye excellent. Increase in corn 10 per cent; in sorghums, 20 per cent. Weather too cool, but soil in excellent condition for tillage and growth.

Jackson.—Corn area probably slightly less, but there will be more than usual in sorghum. Twenty-five per cent of the early corn replanted; weather favorable for growth. Fifteen per cent of the wheat was drowned out. Oats strong. Flax considerably less. Too wet for potatoes. Fruit not promising.

Jefferson.—Corn area about the same; 20 per cent of the early replanted on account of flood. Soil is yet quite wet; the weather during the past ten days has been favorable. Thirteen per cent of the wheat damaged by overflow; the remainder presents a fair promise. Large increase in oats; condition, 96. Sorghum about the same. Flax 10 per cent less. Potatoes in the "bottoms" were destroyed, and very little seed available for replanting. Tame grasses extra good. Apples and cherries in fair condition.

Jewell.—Twenty per cent of the early corn was replanted; total acreage 10 per cent greater; color and stand good; weather favorable to growth, and soil in good condition for cultivation. Practically all the wheat will be harvested. Oats probably less than last year; outlook good. Increase in potato-planting and condition, 100. "Quantity of alfalfa is immense but the quality is not so good, owing to the heavy rains delaying cutting." Slight increase in saccharine sorghums. Kafir-corn less.

Johnson.—Nearly 20 per cent of wheat damaged by flood, which also caused 50 per cent of the early corn to be replanted; total corn area will be considerably less. Oats quite promising. Potatoes in the "bottoms" destroyed. Tame grasses superb. Flax less. Fruit only medium.

Keary.—But little wheat and corn; what there is "looks very fine and promising at this date." Kafir-corn and saccharine sorghums each will be increased by about one-fourth. Pastures affording abundant grazing. Alfalfa area probably increased and the first cutting was of good quality.

Kingman.—Practically all wheat will be harvested, although that sowed in stubble-ground is not so good. Corn acreage is increased at least 10 per cent, and soil is in good condition for tillage and growth; plant is small, "but looks well and the ground is generally clean." Nearly 50 per cent increase in oats acreage and condition reported 103. Kafir-corn and sorghum about same as last year. Prairie grasses above the average.

Kiowa.—"Corn is late and small but doing well," and the area is about the same as last year; weather and soil favorable. Considerable Kafir-corn, of which there is a larger area, was replanted on account of washing and wet weather. Wheat promises well and is filling satisfactorily. Fruit injured by late frosts. Grasses luxuriant.

Labette.—On account of continued excessive rainfall and its abrupt termination, followed by warm, sunny weather, the surface soil is "baked," greatly interfering with growth and cultivation. Area of corn is less; 15 per cent of the early replanted. Fifteen per cent of the wheat will be cut, principally on account of the flood. Oats fine thus far, but needs another rain. Flax acreage less. Millet about the same, and tame grasses promise heavy yields.

Lane.—All wheat will be harvested; "is double as good as it ever was heretofore; stands four feet high." Corn, on an area increased by 15 per cent, is a good stand but backward. Sorghums will be more. Barley acreage about the same. Prairie grasses thrifty, and abundance of stock water.

Leavenworth.—Corn area probably slightly decreased; weather favorable, but soil not good for tillage, being too much compacted by recent heavy rains; fields needing cultivation. Oats perfect. Potatoes on "bottoms" destroyed by high water; on higher ground promise well. Tame grasses superb. But little fruit, largely on account of late freeze.

Lincoln.—Four per cent of the wheat area was overflowed and will not be harvested; reports on the remainder indicate that the heads have properly developed and satisfactorily filled; cutting now in progress. Corn area probably 25 per cent less, owing to the increase in wheat; needing cultivation; 25 per cent of the early replanted. Sorghums will probably be increased. Alfalfa is excellent and was not injured greatly by high water. All grasses flourishing.

Linn.—Corn area is considerably less; 30 per cent of the early replanted; warm, dry weather after excessive wetness has hardened the surface on ground not well drained—such fields in poor condition for tillage and growth; cultivation being rapidly pushed. Large area in clover and timothy; ready for cutting. Wheat area not large, and 11 per cent of that will fall

of reaping, principally on account of wet weather. Flax area less by one-third.

Logan.—Practically all wheat will be cut, and the "prospect for a record-breaking harvest was never equaled in this section." Not much corn; 15 per cent replanted. Twenty-five to 30 per cent more sorghum than last year. Weather and soil favorable for all crops. Increased area in barley and condition good. Pastures affording excellent grazing.

Lyon.—Much tillable land was overflowed, destroying crops thereon. Conditions rapidly improving, however, and 30 per cent of the early corn has been replanted; total area less probably than last year; is backward, but expected to make fine progress, owing to the favorable circumstances during the past week. Flax area 25 per cent less. Millet and sorghum will be increased. Blue-grass and alfalfa excellent. Potato area probably less.

Marion.—Probably 12 per cent of the wheat will not be cut, owing to damage by flood and fly. The heads seem to be filling all right. Harvest greatly delayed by wet weather; will probably begin about July 1. Corn area about the same; 20 per cent of the early replanted; "never saw a better stand than at present," although growth is small. Weather favorable, but soil in many places too compact for cultivation. Oats area large, and "looks fine;" condition, 100. Increased areas of sorghums and millet. Continued interest in alfalfa and acreage increased. Pastures good. Potatoes on upland prospering. Broomcorn area is slightly less. Situation is generally improving.

Marshall.—Ten per cent of early corn replanted; total area probably slightly increased, partly owing to the small area sown to wheat last fall. Recent weather favorable; soil rapidly improving, but in places ground is "baked," because of too much rain immediately followed by warm sunshine. Practically all wheat will be harvested, and heads are well filled. Oats area probably about the same; condition, 90. Sorghum area will also be maintained, as will millet. Potatoes about the same; condition, 78. Fruit prospect not the best, but all grasses are superb.

McPherson.—Nearly 10 per cent of the wheat will not be harvested on account of fly and flood. The remainder has developed well, and harvest will soon begin; outlook "much better than ten days ago." Corn 10 per cent less; 20 per cent of the early replanted. Weather the past ten days favorable, and soil in only fair condition. Flooded "bottom" lands largely planted to corn and broomcorn, causing an increase in the latter of possibly 20 per cent. Oats, enlarged area; average condition, 90. Potatoes slightly increased, and give promise of a good crop.

Meade.—"Ninety per cent of the wheat is the best ever raised in the county, and promises our bumper crop; not an acre plowed up; not a fly." Corn good stand and fields clean, but growth backward. Small-grain outlook very promising, one reporting "rye and barley best I ever saw anywhere." Sorghum area increased, and looks fairly well. First cutting of alfalfa hurt by late frost; prospect favorable for an excellent second crop. Pastures never better.

Miami.—Thirty per cent of the early corn replanted; total area may be 15 per cent less, on account of backward spring. Weather and soil favorable to tillage and growth, although ground too compact in places. Large areas of timothy, clover, and blue-grass are above the average in promise. Flax acreage 20 per cent less; condition, 75. Large increase in sorghums. Potatoes injured by excessive wetness. Oats looking well. Small fruits are fine. Wheat that will be harvested promises well.

Mitchell.—Wheat seems to have well developed, and practically the entire area will be cut, harvest beginning about July 1. Thirty per cent of the early corn will be replanted; total area will approximate last year's. Weather and soil now favorable for tillage and growth, and cultivation is being pushed. First cutting of alfalfa heavy. Sorghum is reported less than 1902. Pastures have probably never been excelled.

Montgomery.—Much damage to wheat on low lands by the flood and one-third will not be cut. Injury from Hessian fly also reported. Twenty-five per cent of early corn was replanted; total area about the same as last year. Weather favorable to growth; soil not good for cultivation, but improving. Condition of oats 75 per cent. The area in sorghums will be increased. Grasses flourishing. Flax acreage 25 per cent less; condition, 75. Only a fair prospect for fruit, late frost caused much damage.

Morris.—Crops in low lands destroyed by floods. Corn-planting is yet in progress; total area will be less probably by 15 per cent; 40 per cent of the early was replanted. Substantial gain in sorghums will be shown. Tame and prairie grasses prospering, alfalfa especially. Much fruit destroyed by the late freeze.

Morton.—Acreages of corn and wheat small. Sorghum area maintained, and all forage crops in prospering condition. Grasses fair.

Nemaha.—Fifteen per cent of the early corn replanted; total acreage probably 10 per cent less; weather in the past ten days has been conducive to growth and soil in good tith. Oats on a large area promising. Clover, timothy, and blue-grass prospering, and a large area in each. Millet about the same as last year. Potatoes the same; condition, 76. Fruit unpromising.

Neosho.—A large per cent of the wheat is on low lands, and it is estimated that one-third of the entire crop was destroyed by the flood. Harvest will soon begin; heads fairly well filled. Forty per cent of the early corn was replanted; total acreage less by 15 per cent; weather favorable, but soil is too compact. Over 25 per cent gain in oats area. Flax less by 25 per cent; condition, 70. Tame grasses quite promising. Sorghum area slightly decreased. Fruit damaged by late freeze.

Ness.—No wheat damaged; all will be cut. "The prospect for all small grains is simply immense." Another reporter says: "It is the best crop county ever had;" harvest begins July 1. Millet and the sorghum areas will be increased, though there is yet some to sow. Grasses superior. Barley crop increased and prospect excellent.

Norton.—All wheat will be harvested; heads properly developed and satisfactorily filled. Ten per cent of the early corn had to be replanted on account of wet weather. Soil and weather now favorable for tillage and growth. Sorghums increased. Pastures fine. A large area in alfalfa, and making good progress toward a second crop. No disease among live stock. Fruit damaged by the late freeze.

Osage.—About one-third of the early corn replanted. Total area 10 to 15 per cent less; first planting is now six inches high, while second is just coming up; weather and soil favorable for tillage and rapid growth. A big gain in sorghums on account of the backward season. All tame grasses prospering; millet satisfactory. Potato crop about the same. Fruit not especially promising.

Osborne.—Conditions favorable for the best filling of the heads, and all wheat will be cut, harvest beginning July 1. One correspondent says that "the wheat is the finest, taken as a whole, that I have ever seen in the fifteen years I have resided here." Corn area about the same; 15 per cent of the early replanted because of excessive rains; good stand, but cool weather retards growth; early planted ten inches high; weather and soil conditions very favorable. Area in sorghums will be greater. Pastures excellent.

Ottawa.—Probably 6 per cent of the wheat was destroyed by high water. In other fields the plant has made good growth, and heads well filled. Corn acreage practically the same as last year, although 20 per cent of the early was replanted. Much of the sorghums was replanted also on account of washing and

excessive wetness, and for that reason other crops will probably not be increased. Alfalfa O. K., but wet weather delayed first cutting. Pastures excellent.

Pawnee.—"Wheat on plowed ground was never better, but that on stubble is less promising;" practically all will be cut; heads well developed and filled. Barley 10 per cent increase; condition, 98. More will probably be in sorghums, but less corn. Ten per cent of the early corn will be replanted on account of the cold weather. Pastures excellent.

Phillips.—Thirty per cent of the early corn replanted; acreage about the same as last year; weather and soil favorable for tillage and growth. Wheat will all be cut; heads properly developed and well filled; prospect unsurpassed. Oats prospering. "Potatoes the best ever seen." Not so much sorghum as last year, but alfalfa acreage increased. Broomcorn area less. Pastures perfect.

Pottawatomie.—Possibly slight increase in corn area; weather and soil favorable; stand rather uneven; 20 per cent of the early replanted. Thirty per cent of the small wheat acreage was damaged by the flood and will not be cut. Rye in fair condition. Oats, 97. Sorghums and millet probably somewhat less than last year. Acreage of potatoes about the same; condition, 85.

Pratt.—"Wheat is fine and would be 100 per cent but for the area sown on stubble-ground;" outlook indicates that Pratt County will have the largest yield in its history; "practically the entire area will be harvested; heads properly developed and well filled. Rye condition, 95. Increase in corn; coming up nicely and growing fast; weather and soil favorable. Less Kafir-corn, but other sorghums have held their own. Ten per cent of the corn replanted on account of too much water. Grasses flourishing.

Rawlins.—Spring wheat well-high perfect, and all will be cut; "never was so good." Corn acreage increased; 25 per cent of the early was replanted; needs warmer weather for its growth. Soil in excellent tith. Sorghums substantially increased in area. Barley also more; condition, 95. Grasses luxuriant. Alfalfa superb. Broomcorn 30 per cent less.

Reno.—Possibly a small part of the wheat will not be cut, but that will probably be confined to fields sown on stubble-ground; heads have properly developed and satisfactorily filled. One reporter says: "I have farmed here in Reno County for thirty years, and I never saw better prospect." Corn is backward, but the area is increased; 15 per cent replanted on account of high water; good stand on upland; planting yet in progress on the "bottoms;" weather and soil conditions favorable. Alfalfa flourishing, although first cutting was delayed by wet weather. Sorghums will be increased. All grasses superior. Broomcorn acreage probably 10 per cent less; condition, 90. Fruit not especially good. Oats on a larger area promise well.

Republic.—Corn area the same; 20 per cent of the early replanted because of excessive wetness; weather in the past ten days favorable; soil in good tith; where cultivated, corn is doing particularly well. Small proportion of the wheat was drowned out; the remainder promises well, and harvest will begin about the 1st of July. Large area in oats; condition, 90. Alfalfa flourishing.

Rice.—A small part of the wheat will not be cut—damaged by high water; heads have developed and filled well. Area in corn slightly less; 15 per cent of the early was replanted; weather and soil favorable for tillage and growth. Sorghums also less. Oats probably increased; condition, 95. Broomcorn less by 15 per cent; condition, 75. Alfalfa flourishing; first cutting delayed by wet weather, but fair prospect. Fruit outlook unfavorable.

Riley.—"Bottom" lands devastated by the flood, most of which will be replanted in corn and forage crops. One-third of the early corn replanted; total acreage a little less than last year; weather favorable to growth; soil rapidly improving; early planted corn, where cultivated, making fine progress. Sorghums about the same. An increased area in oats promises well. Twelve per cent of the wheat will not be cut because of damage by flood; the remainder fairly prosperous; acreage small. Alfalfa on the high lands unimpaired.

Rush.—Wheat sowed on plowed ground "is the best for many years and never had a better prospect," but much of that on stubble will not be harvested, possibly approximating 10 per cent, but "barring calamities, more wheat will be harvested in this county than ever before." Sorghums probably increased. Pastures excellent.

Russell.—Correspondents with much unanimity report wheat on stubble-ground as very poor, and considerable that will not be cut; wheat on plowed ground "was never better;" heads well developed and filled. Much corn, Kafir-corn, sorghums, and millet were replanted because of excessive wetness. Area in corn about the same, and likewise the sorghums; weather favorable to growth and soil in good tith. Grasses thrifty.

Saline.—Fifteen per cent of the wheat was destroyed by the flood; Hessian fly also did some damage and rust is not infrequently mentioned; however, wheat on the higher lands is quite promising. Corn is backward; 35 per cent of the early replanted; total acreage about the same. Much of the area overflowed being put to corn and the sorghums, the latter showing an increase. Weather is favorable for the growth of all crops, but soil is not yet in extra good tith. Alfalfa on the uplands excellent.

Scott.—Wheat good and will all be cut. Sorghums are considerably increased. Corn is less, owing to the late season. Barley 10 per cent greater; condition, 95. Abundant grazing.

Sedgwick.—Five per cent of wheat will not be cut because damaged, principally by fly; on the area that will be harvested the outlook is encouraging; heads well developed and filled; "never had a better prospect for wheat and oats;" condition of the latter 96. Alfalfa thrifty. Corn slightly less than last year because of backward spring; plant is small but good color; now being cultivated. Sorghum increased. Excellent prospect for hay. Fruit crop will be light.

Seward.—Very little wheat or corn. Sorghums probably increased and grass affords abundant grazing. No diseases reported among live stock.

Shawnee.—Fifty per cent of the early corn was replanted because of excessive wetness and the flood; total area probably 15 per cent less; weather in the past ten days fairly good for growth, but the soil in poor condition for tillage. Potatoes on the higher lands are very promising, but fields in the Kaw valley were destroyed; but little replanted, on account of scarcity of seed. Outside of flooded areas conditions rapidly improving. Clovers and alfalfa prospering, but the first crop of the latter was somewhat injured by delayed cutting. Not much wheat, and 15 per cent of that will not be cut.

Sheridan.—"Best prospect for wheat we ever had; good stand, well headed, strong straw;" practically all will be harvested. Corn about the same; soil in excellent tith. Sorghums increased; weather favorable; plenty of moisture. Broomcorn decreased probably 30 per cent. Barley made substantial gain; condition, 98. Alfalfa flourishing and grasses O. K.

Sherman.—"Wheat will make a good crop;" heads well developed and filled. Corn acreage

increased; growth slow, but good stand and color. "Very promising outlook for crops of all kinds." Barley acreage somewhat less; condition, 95.

Smith.—Scarcely any wheat will fall of harvesting; heads properly developed and well filled; prospect flattering. Oats condition 86. Substantial increase in corn; 15 per cent of the early replanted; small growth; ground clean; weather for the past ten days has been very favorable for growth and soil in good tith. Alfalfa and grasses are extra fine. Probably not so much sorghum as last year.

Stafford.—Wheat could scarcely promise better; strong, vigorous growth, and heads well filled; probably all will be cut, harvest beginning about the latter part of June. Corn acreage likely 25 per cent less; weather favorable for growth and soil in good condition. Sorghums somewhere near the same. Grasses flourishing.

Stanton.—Very little wheat or corn. Sorghums and broomcorn are the main crops; increase of the former, 25 per cent, of the latter, 5 per cent, and condition 80. Oats correspondent says: "Our forage crops are now assured, and a most remarkable crop of grass."

Stevens.—A little cool for all crops, although areas of corn and wheat quite limited. Sorghums largely increased; soil and weather conditions favorable for growth. Broomcorn is greater. Grazing excellent.

Sumner.—Some wheat will not be harvested (approximating 7 per cent) on account of damage by fly and excessive wetness; heads well filled and berry plump; a large area promises well. Oats condition 84. Corn acreage about the same; weather favorable and soil rapidly improving. Sorghums increased. Hay prospects exceedingly flattering.

Thomas.—No drawbacks discernible in wheat; strong growth; heads well developed and filled, and all probably will be harvested. Corn acreage at least maintained, and the past few days have been conducive to growth. Seed rotting in the ground because of cold weather caused considerable replanting of Kafir-corn; its area is 15 per cent greater. Saccharine sorghum is 20 per cent more. Grasses luxuriant. Barley has gained in acreage 10 per cent; condition above the average.

Trego.—Wheat strong and healthy; practically all will be cut; good heads and well filled. Corn 15 or 20 per cent greater; soil in excellent condition and weather warming. Sorghums 10 to 15 per cent more. Grazing never surpassed.

Wabunsee.—Much damage to crops in the "bottoms" by the flood as well as excessive wetness; flooded areas largely unwanted to corn; 25 per cent of the early was replanted; total acreage 10 to 15 per cent less. Substantial increase in sorghum. Weather past ten days very favorable, and soil on the uplands in good tith. Not much wheat in the county, and 15 per cent will not be cut, having been drowned out; the remainder presents a pleasing prospect. Grazing excellent.

Wallace.—"Best prospect for small grain since 1892." Too cold for corn. Sorghums increased 30 per cent; soil and weather favorable for growth. Grazing never better.

Washington.—Fifteen per cent of the early corn replanted because of excessive wetness; total acreage will at least be maintained, if not increased; plant is backward and needs cultivation; weather in the past week has been quite favorable for growth, and soil is fast improving. Sorghums not all planted yet; area likely one-fifth less. Oats on a large area promises well. Small per cent of the wheat will not be cut, because damaged by too much water; the remainder strong and well developed. All grasses uncommonly good.

Wichita.—Pastures excellent; grazing never before surpassed in quantity and quality. Never saw finer barley than this year; acreage increased 20 per cent; condition, 105. All wheat will be cut, and "prospect for the best crop in many years." Sorghum and corn areas increased, but weather too cold for their best growth. Soil excellent.

Wilson.—Thirty per cent of the early corn replanted; total acreage probably 20 per cent less, because of too much water; weather in the past ten days conducive to growth; soil not in good tith; too compacted by heavy rains. Sorghums may be increased. Flax acreage reported 25 per cent less; condition, 70. Nearly one-fourth of the wheat will not be harvested, because damaged by water and fly; remainder now being cut; heads fairly filled. Prospect for hay never better.

Woodson.—Corn acreage 15 to 20 per cent less on account of backward spring and too much water; 20 per cent of the early replanted; weather during the past ten days excellent for growth and soil improving. Sorghums will be increased possibly 25 per cent, and an exceedingly large acreage of millet will be sown. Flax acreage somewhat less; condition, 75. Wheat badly damaged by high water, and perhaps one-fifth will not be cut; fields uninjured promise well; heads fairly filled. Grasses and pastures are excellent and "big hay crop assured."

Wyandotte.—All crops in the "bottoms" destroyed by flood. "Potatoes on higher lands are nearly as good as last year," but comprise only a small proportion of the total area. Corn acreage possibly less; 25 per cent of the earlier was replanted; weather favorable to growth; soil in fair tith and improving. Sorghums will be increased. All the wheat sown last fall will be harvested, but the acreage is limited; too much rain probably prevented its filling properly. Grasses promise heavy yields. Fruit prospect not especially flattering. Grapes 78 per cent; cherries 64.

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## Miscellany.

### Over the Golden Belt to Saline County.

The KANSAS FARMER of July 3, 1878—a quarter of a century ago—contained the following characteristic editorial from the pen of Major—now General—J. K. Hudson who then presided over its columns:

A fairer scene than Kansas presents at this season of the year, and especially this year, would be hard to find. Journeying up the Kaw valley for two hundred miles, with no care but to take in as much as possible of its vastness, its fertility and its beauty, is like a dream of Elysian fields and eternal summer. From Topeka westward, broad fields of ripening wheat are interspersed with broader fields of corn in all stages of vigor and forwardness, showing the thrift of the good farmer; and all degrees of sickly green and foul fields proving the slipshod grumblers who write "back east" that "Kansas is not what it is cracked up to be." One wonders that some of the fields can be gotten over at all, and many of them are in excellent condition, and then when he comes into the neglected one adjoining, he wonders how one man can do so little, particularly with such a good example before him. To be sure, many farmers have been prevented from working their corn by frequent rains, but instances are not rare where fields that lay side by side, the same kind of land at the same elevation, were, one good, clean, rich-looking corn, and the other pale, weak, uneven, and foul, but showing a difference no less between owners than crops; the evident lesson was that no more ground should be planted than could be taken good care of. Forty acres of good corn are more profitable than eighty acres of poor; and yet this is the hardest lesson to learn where land is cheap.

After crossing the Big Blue and passing Manhattan, we had a glimpse of the Agricultural College buildings which make a fine appearance from the railroad.

Farther on, just before reaching Fort Riley, we saw the old capital buildings, erected twenty years ago, of the white stone so abundant in that part of the State. Representative Hall is on the south side quite near the track, yet a substantial-looking structure, two stories high and probably fifty feet long; the "upper house" is north of the track, a few hundred yards westward, a similar building not quite so large.

At Fort Riley station everybody was trying to see the fort, and we heard one man say he had passed there a number of times and had never had a glimpse of it. It is situated on a bluff just above and to the right of the train going west, but the best view of it can be had by looking out of the windows on the left of the train after crossing the Republican River; the road makes a bend there and one can look back and across it and have a pretty view of the fort between the trees. Not much can be seen of Junction City from the train, nor of the Solomon valley from the north of that fork which we cross between there and Abilene, but everybody has heard of its beauty and productiveness, and all look out with interest and amazement that the borders of so small a stream should have been heralded so far. Before reaching Abilene we pass through the great wheat-field belonging to Mr. Henry, which lies on either side of the K. P. road, and is one of the wonders of Kansas. To a New Englander who has never seen anything larger than a ten-acre meadow, this sea of grain, covering 36,000 acres, is a sight worth coming so far to see. This is the center of the wheat region of the State, and the crop is of about the same relative importance that corn is in the counties east of Manhattan.

At Salina we were met by the hospitable carryall belonging to the Hon. Thos. H. Cavanaugh, Secretary of State, premium Hereford cattle breeder, and were driven to his ranch, six miles east, through the dusk of one of the balmy, midsummer evenings that ever shaded a prairie. The breeze that wafted to the odor of the bountiful harvests, told also of good times coming, when debt and mortgage for the husbandman, and cold and hunger for his children shall be known no more in Kansas. Those white-faced cattle were models of beauty, and Tom tell us they are models in every way, quick growers, easy to fatten and gentle in disposition. At the hospitable home of Mr. Cavanaugh, we were entertained during our visit, and are under many obligations for courtesies extended by himself and lady. This

stock farm is destined to be one of the useful institutions of which Kansas will be proud. A magnificent view of that and portions of several other counties, can be had from the top of Iron Mound, one of those peculiar abrupt elevations common in that region; this one is half a mile high and covered with a stone that is impregnated with iron. The panorama that stretches out toward every point of the compass is beautiful beyond description, and we believe can not be surpassed in the State. Three rivers, the Kansas, the Saline, and the Smoky Hill, with their skirting timber can be seen, and the intervening stretches of space are mosaic of golden grain, flower-decked prairie, corn, and the rich brown of the upturned sod. It is a hard acknowledgement for those of us who live in the eastern part of the State to make, but it is too true to be ignored, that the orchards are more numerous and the farms closer together than with us, and the hundreds of dollars that even a small farmer must put on fences, in the eastern counties, he can put on house, barn, and stock.

The evening of the 15th, we rode five miles further east, where we could overlook the gypsum valley, which seemed to be the price of that neighborhood, and spent the evening with the Gypsum Valley Farmers' Club, at the residence of Wm. Pettis, Esq., an honored member of that community and a valued correspondent of the FARMER. This is supposed to be the oldest farmers' organization in the State, and is now in a flourishing condition, having been organized more than five years since, if we remember correctly. And we can testify that it shows no signs of disintegration yet, on the contrary, the members all seem alive to their own, each other's and the Club's best interests. They meet monthly at the residences of the different members; and by the way, it strikes us that this will be found to secure and to retain the interest of the members much better than the weekly or fortnightly meetings at a schoolhouse; that is rather a dreary place for a social gathering and too frequent meetings lose their charm.

Members came many miles from every direction, and a number of visitors from the city of Salina, ten miles away, and all talked about it as if it was a joyously anticipated event. The club was called to order by the president, Mr. Post, the business of the evening disposed of, and your humble servant was cordially invited to be present and address a basket meeting of the club, to be held in August, for which courtesy the club will please accept his grateful acknowledgements. The first literary exercise was an essay by Mrs. Manchester, and was an effort that would be creditable to any college lecture. Next was an essay by Mr. McQuary, one of the model farmers of Gypsum valley, and one whose delightful home and hospitable family we shall long remember. His subject was temperance, and his thoughts were remarkable for good sense and sound logic. Dr. VanEaton edited the paper that evening, and it certainly proved a treat of witty and entertaining literature. Usually they spend some time in debate on a subject relating to literature, but that was dispensed with. On the conclusion of this paper, the club adjourned for supper; that is always brought along, except the coffee and sugar, for the purchase of those articles a collection of one dollar is made at each meeting, and among from 75 to 150 that is not a very severe tax. The young people seemed to enjoy it as much as the older ones, and we are told never fail to attend. We were surprised to find it so late when we said goodnight to the charming hostess and started on our homeward drive.

Just at midnight we crossed the old Santa Fe trail, now deserted and in many places obliterated by overlying farms, but still suggestive of the tide that knows no turning. Of the many tragedies and romances that have transpired along its path, few will be known to the busy people who are soon to bury it from sight forever.

### A Giant Cement Silo.

The silo is circular in form, 36 feet inside diameter and 52 feet in height, the walls one foot thick, with four doors, the bottom of the first one being about six feet from the ground, and a space of about four feet between the top of one door and the bottom of the one above it. The material used was Portland cement, sand and screened gravel in parts of one, three and five respectively, the sand and cement, thoroughly mixed dry and the coarse material added at the time of wetting.

The bottom is of earth. The foundation for the wall was dug one foot wide and three feet deep. A pole about 65 feet in height, made by splicing three heavy telephone poles together, was erected in the center of the foundation and securely staid with guy wires. A swinging arm was attached to this pole at 50 feet, to the outer end of which arm and to the bottom of the pole were attached blocks and ropes which were used in elevating the material by horsepower. The foundation trench was first filled with mortar to the level of the ground. The mould for the wall consisted of two circular hoops two feet wide made of half-inch oak boards nailed onto the lower portion of studding 2 by 4 by 3 feet and two feet apart, the hoop for the inside of the wall being 36 feet in diameter and for the outside of the wall being 38 feet in diameter, which left a circular space between the hoops of one foot. The boards of the inside hoop were nailed on the outside of the studding and the boards of the outside hoop nailed on the inside of the studding in order to make a smooth surface for the mould on both sides of the wall. The studding on the two hoops were fastened together by short 2 by 4 pieces bolted to them at the top. These hoops were built right around the edges of the foundation after it was filled to a level with the ground.

This mould was then filled with mortar and the first two feet of the wall thereby made. In order to provide for loosening the hoops from the wall and to permit the mould being raised, each hoop was cut into three sections and a piece about six inches long taken out of the inside hoop at each point where cut. Draw and extension lugs were fastened to each hoop at each point where cut. By tightening the lugs on the inside hoop and extending them on the outside hoop each hoop was easily pushed or pulled off from the wall. The mould was raised in a body by five or six men stationed about the wall and lifting at one time with improvised jacks placed under the cross pieces at the top of the studding and resting on boards placed on top of the wall. After the mould was raised each side thereof would be brought to place by extending the lugs on the inside hoop and tightening those on the outside one, when filling would again proceed, the mould being held in place by upright pieces set under it at several points around the wall. The wall was built about six feet high without scaffolding.

A scaffold was made by spiking onto the studding of the inside rim of the mould inverted triangles made of 2 by 4 pieces, the perpendicular of the triangle extending down the side of the wall and the base upward, to which the scaffolding boards were nailed securely, the scaffold being cut in sections the same as the inside mould in order to permit extension and contraction. The scaffold and mould were both raised together after each filling, in the manner above stated.

A temporary door was left at the bottom of the wall large enough to admit a man and wheelbarrow, and the mortar was wheeled into the silo and raised to the scaffold in the barrow by means of three loops of wire fastened to the lower block, one of which was thrown over the wheel of the barrow and the other two over each handle. The swinging arm permitted the mortar to be landed at any point on the scaffold, and it was dumped directly from the wheelbarrow into the mould. OO wire, which is about three-eighths of an inch thick, and has a tensile strength of 8,000 pounds, was placed in the wall six to eight inches apart in the form of hoops extending clear around the wall, the ends passing and being doubled back on each other. At the doors the wall was reinforced by placing a number of strands of the wire both immediately above and below each door and extending 6 or 8 feet into the wall. The hoops which would have otherwise passed through the doors, were also bent above and below the door frames. The doors were made by setting a frame of the desired size and shape into the mould and filling the mortar around it. After the wall was finished it was heavily coated on the inside with coal tar applied at hot as possible.

We put into this silo about 175 acres of average corn and about 50 acres of soy-beans last year and it kept perfectly, there not being a particle of spoiled ensilage either at the edges of the wall or at the bottom. The wall has become as hard almost as flint and shows no sign whatever of cracking. We commenced filling the silo last fall before it was entirely finished, and, as a precautionary measure, thinking that the great strain to which the wall would



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be subjected while green might be too heavy for it, put about fifteen iron hoops on the outside. These we shall of course remove now, as there is no further need for them, if there ever was any, which I much doubt.

This silo was erected with our ordinary farm labor, and by reason of using a mould rather than continuous cribbing, about four months' time was occupied in building it. We could only fill the mould twice a week and only made two feet of wall at each filling. If one were employing special labor to erect a silo it would possibly be preferable or necessary to use continuous cribbing unless the labor could be otherwise employed while waiting for the wall to sufficiently harden, to permit raising the mould. The cribbing, however, would add materially to the cost of the silo.

We expect to build more cement silos but shall only make the walls four to six inches thick and will use a greater amount of wire. I am convinced that six inches is abundantly strong for any sized silo.—Humphrey Jones, Fayette County, Ohio, in Rural World.

The continuous and straightforward advertising of pure-bred live stock is a guaranty of the good quality of the animals and of the fair dealing and honesty of the breeder. Our advertising columns are full of such.



## In the Dairy.

Conducted by George C. Wheeler, Kansas Experiment Station, Manhattan, Kans., to whom all correspondence with this department should be addressed.

### The Milking Sheep of Larzac, France.

Some considerable interests have been taken of late in regard to the special breed of sheep known as the sheep of Larzac, which is one of the picturesque districts of eastern France, not far from the Alps, and close on the borders of Italy. There is a sort of ridge, or mountain, of which the highest point is known as the Puy de Dome, and a few lower ones of which the curious Roquefort—in English rock fort—noted for its winding caves and passages through the solid rocks, stands almost as a solitary cliff. All around and on this mountain is a dense, sweet, short pasture, on which sheep are fed, and kept for milking, along with a few goats for company, and for their instinctive habit of pasturing closely together, and coming home at a stated time, as regularly as the clock points the hour. The goats, however, are only an incident in the business, the sheep are the main supply of milk for making the most delicious cheese in the world. This is due to the richness of the milk, which averages fully twice the quantity of fat as that of the best cow's milk. It is supposed by some not well-informed persons that the milk of goats is mixed with that of the sheep, but this is different from the facts, and while a special locality in France, and some in Italy near by, are devoted to goat's-milk cheese, the Roquefort cheese is specially a sheep's-milk product.

The quality of the cheese depends not only on the rich milk of the sheep, but quite as much on the intricate method of curing it, in the caves and winding passages between them of this curious mountain, which is the final results of hundreds of years of experience and skill. Indeed this industry has been in existence since the time of the Roman Empire, and it supplied the markets of ancient Rome with cheese as it now supplies the chief cities of all the countries of the world, the demands of which are such as to keep up the high price of it. Indeed, it is the probability of competition in due time in this business by our own people which gives a special point to this interesting story.

When the writer visited this locality nearly forty years ago at least four hundred thousand sheep contributory to this business were kept in the district of Larzac. Since then the demand has increased steadily, and the sheep supplying the dairies are probably doubled in number. Of course the business is confined to the summers, when the ewes are milking, and this fact necessarily has much to do with the adaptation of the caves and galleries in the heart of the mountain for securing the even temperature and steady proportion of moisture in the air for the curing of the cheese, which in fact are the most important points in the manufacture of it. And in addition to this the atmosphere, the very substance of the rocks themselves as well, which are charged with the spores of the various molds upon which the curing depends, are indispensable to the curious process by which the special flavor of it is developed. The sheep pasture in the summer on the sweet grasses of the rich valleys, with which the mountain sides and slopes are covered. Among these grasses are various aromatic weeds; the sweet mellilot, a kind of mint; the monarda, also a kind of mint, which is also gathered when in bloom for making perfume—and sainfoin and luzern (our alfalfa); but doubtless the rich limestone soil and the sweet, pure

springs and rivulets have something to do with the final result. In the winter, in addition to the pasture, which is perennial, the sheep are fed on hay of the plants mentioned, and barley-meal is also given daily, morning and evening, every day in the year. This high feeding has much to do with the large and rich milk product of the sheep.

The lambs are born in January and February, and the milking begins when the lambs are a month old. For each hundred ewes seven milkers are employed, which calls for all the help, men, women, girls, and boys; the younger are early trained to the work, and at 7 years old are accomplished milkers. The milkers have the curious habit of dividing the work, the older ones draw all the milk possible, and then the younger ones finish, imitating the bunting of the lambs by punching the udders with their soft hands, by which process the last drop of the milk, then almost pure cream, is secured.

### MANAGEMENT OF THE MILK.

It is not so much the character of the milk, however, which gives the exquisite flavor to the cheese, but the curious process of curing it. This is done by means of a variety of molds which grow in cheese, and with which the cheese is inoculated. The milk is curdled by rennet in the usual manner, but is first heated to the boiling point to destroy all other germs but those added to the curd, and by which the flavor and rich consistence are given, and these are carefully collected from the ripened cheeses, and preserved for use in the making of the new ones. The evening's milk is skimmed in the morning and then mixed with the fresh, new morning's milk. The milk is then heated to the right temperature, and cooled down to 90° when the rennet is added in the proportion of one tablespoonful to 100 pounds of milk. The curd is formed in an hour, when it is cut so as to separate the whey. The curd is dipped out into earthenware molds, which are pierced all over with small holes through which the excess of whey drains off. The curd is heaped above the top of the molds a little, and a light weight is put on the covering board, to press down the curd as it shrinks in drying. The curd is put into the molds a little at a time, and each layer is sprinkled with bread crumbs which have been inoculated with the mold, and this mold thus spreads through the curd and forms those blue, green, and yellow spots and patches through the cheese, which are one of the distinguishing marks of it. Salt is also sprinkled through the curd. One hundred pounds of milk makes fourteen pounds of this green cheese, which loses two or three pounds of its weight during the curing. The molds are eight inches in diameter, and about four inches in depth. The finished cheese weighs two pounds and a half. They are worth at the dairy twenty cents a pound, but retail for thirty cents in Paris, and in New York brings forty cents a pound. When they have drained sufficiently the cheeses are moved to the caves for final curing, which occupies several months.

These caves are very interesting parts of the whole business. They run through the whole mountain, mostly on the level of the ground outside, although there are deep passages and higher ones which are not used, but they are skillfully utilized by means of walls, and openings which may be shut in part or wholly to regulate the temperature and degree of dampness or dryness which serve to control the curing. In these caves—also separated by walls and doors—there are ranges of stone benches on which the cheeses are arranged, while they become covered with the special molds on which the curing depends. The effect of these molds is to mellow the cheese, and to reduce the sharp flavor by converting the curd into a soft buttery substance resembling what the chemists call adipose, a sort of soft, fatty matter, through which the various molds run in veins and patches, green, blue, yellow, and with some reddish spots.

The first mold is a blue color and grows on the cheese like moss. This is scraped off and sold for eating by the poorest people in the neighborhood. As the cheese is scraped it is washed in warm salt water, and this process is continued until the mold changes color and a green one grows on the cheese. The final quality of the cheese is determined by the appearance of this first mold and they are sorted into three classes, choice, firsts, and seconds. The firsts and choice

sell for two or three times the value of the seconds, which are exported. The others are under continual contract with the Paris dealers, who sell at a dollar or over a pound to the wealthiest purchasers. It is rarely that a foreigner can get a smell or taste of the best cheeses, except at the highest class Paris hotels, where the fare is of the very best and obtained only at a very exorbitant price.

As soon as the blue mold begins to change to a green and yellow, the cheeses are moved to another cave, which is most carefully ventilated day and night by shutters, which open and shut little or more as the condition of the cheeses calls for. Here the cheeses stay two or three months more, the mold being scraped off and sold as before, and the cheeses are bathed in water at varying temperatures to encourage or retard the curing, which must go on only slowly, so that the whole mass of the cheese may be subjected to its influence.

Finally, red spots appear on the cheeses among the green and yellow patches, and these indicate the finishing of the curing. The caves are now ventilated more and more, until the cheeses slowly dry, and are ready for packing away. They are then wrapped in tin foil, very carefully, to preserve the moisture and avoid all contact with the air. The inferior cheeses are now marketed, but the finer and finest ones are stored until at least a year old, when they too are sold.

The most interesting question to the shepherd is, if it is possible to make this lucrative addition to the profits of the flock available here. We think that all experience goes to show that the American people, of all industries, may compete on the very best terms with all the world. A large number of foreign cheeses are made in the United States, as that exceedingly odoriferous kind, the Limburger—which is extensively made in Wisconsin—the Brie

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and the Neufchatel cheeses are made in New York; several other kinds are made elsewhere; the Edam—a round, spherical, small cheese—is made in Illinois, the Swiss Schabzeiger is made in New England under the anglicized name of the sapsago. The English Stilton is made in several places, New York and Ohio specially, and there is nothing in all the foregoing description to prevent this addition to our sheep industry; for the sheep is so easily adapted to circumstances that the milking quality may very soon be developed and cultivated, so that we can do very much as we please with them by a few years' training.

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## Blue Valley Creamery Co.

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There is a lot of real difference in the two kinds and it amounts to big money in a year's time. Investigate. Separators are different. Free Catalogue No. 105. P. M. SHARPLES, West Chester, Pa. THE SHARPLES CO., Chicago, Ill.





## The Poultry Yard.

### Practical Poultry Raising.

Mr. W. P. Gray, Katonah, N. Y., writes American Poultry Advocate:

At this season of the year many are contemplating, if they are not already in the poultry business, going in on a large or small scale. With this in mind I would be glad to furnish the following from my experience in the poultry business, hoping it may be a help to some in starting right.

We hear many and varied opinions of the profit or loss from the poultry business. As a usual thing the beginners will consider only the glowing accounts of the profit to be derived from poultry without at all considering the chances of loss.

From my observations in different sections, I honestly believe that half the people who are raising poultry in the United States to-day, do not realize enough profit from it to really pay for the time spent in caring for the birds. But let me ask, should this be laid to the business? I think not. The fault is largely with the poultry-keepers themselves. That the business is profitable can easily be proved by referring to the many, like myself, who are making a living from a few hundred hens, with no other income whatever. Many who have not been able to make their poultry remunerative might well profit from those who have. I find it is the poultry-man who is particular about the little details who is making the business profitable. I know of no other stock that will show the results of neglect quicker than poultry, nor do I know of any whose productiveness will respond quicker to an improvement in care.

Not many years since the hen's diet was found about the barnyard and she roosted in the trees, except when in severe weather she was allowed to perch on the farm machinery which had been put under shelter. Fresh eggs under such management, of course, were not known from late summer to early spring. What a contrast with present-day management on an up-to-date poultry plant. Now, the well-bred hen has a comfortable roost in a roomy house, with food that is sweet and clean, and quite often, I believe, in too large an abundance for her well being. Where she used to lay eighty eggs in six months, and then loaf the other six in the year, we now have many 200-egg hens that will lay twelve months in the year. And this all, from improvement in care together with breeding for a purpose.

To get back to the novice in poultry culture, I am not one who would discourage any one from going into the poultry business, as long as they were level-headed and in earnest about it. There is room for more, and the more beginners we have, the larger will be the demand for birds for breeding purposes. But I would warn the beginner that most of the stories that appear in regard to the wonderful profit made by some one in the poultry business are usually pretty far fetched, and can not be substantiated by the actual facts. My experience with all branches of stock raising and general farming as practiced in Eastern New York, has proved to my own satisfaction that poultry paid the best profit of all, and poultry has been my exclusive business for the past six years. I did not go into it with the idea of making a fortune in a year. After experimenting a number of years I came to the conclusion that poultry could be made to pay a fair profit; as I said above, a better profit than other branches of farming in this part of the country.

Six years ago when I went at the poultry business in earnest to make it my exclusive business, my stock at the start was fifty common hens, which I marketed in the fall of the year, as I had raised a much larger number of thoroughbred pullets to take their place. To-day I have 400 head of old stock and 600 pure-bred chicks in the brooder house. The advice to start small which is given so often to beginners is worth repeating here.

Not all who go into the poultry business are fitted for it, although, they may on the start think that they are. They are the ones who give up in a year or two and then tell you that the poultry business and all concerned with it are gigantic frauds.

You must have a liking for the work. All work will prove monotonous if a person's heart is not in it. It is the little details that count either for success or failure, and only the poultry-keeper who is ever on the alert, will foresee trouble and plan to avoid it.



### The American Hen.

George Fayette Thompson, formerly of Kansas, now of the U. S. Department of Agriculture, has written a treatise on the American hen and her products. Among other things Mr. Thompson says that in the city of New York each family of five persons consumes on an average four eggs a day. In Chicago if it is accepted that the city has reached a population of 2,000,000, the ratio of egg consuming is higher and every person in the city manages to consume one whole egg each day in the year. The production of poultry and eggs is the most profitable of all industries. Mr. Thompson estimates that a thoroughly modernized hen can realize 400 per cent profit for her owner. The egg-product in the United States amounts to more, when measured by dollars and cents, than the combined gold and silver production. This does not take the poultry into account at all.

The value of the combined poultry and egg product would be nearly double that of the precious metals. The value of the industry is just six times that of the wool product.

The grand total value of the annual output of eggs is now \$145,000,000, while that of poultry aggregates \$139,000,000. Iowa leads the States in the production of eggs, the yearly product of that State being 100,000,000 dozen. Ohio comes next with 91,000,000 dozen, Illinois is third with 86,000,000 dozen and Missouri fourth with 85,000,000 dozen. With the exception of Alaska and Hawaii, Montana pays the highest price for eggs, the average price being 20 cents a dozen. They are cheapest in Texas, where the average price last year was 7½ cents a dozen. The average price for the 16,000,000,000 eggs which were marketed in the United States last year was 11.15 cents a dozen.

Prof. Thompson resorts to the railway illustration as a means of impressing upon the mind the enormous proportions of the egg industry. The annual output fills 43,121,272 crates, holding thirty dozens each. An ordinary refrigerator car, which has an average length of 42.5 feet, holds 400 crates. He maintains that a train of these cars sufficient to carry the annual product would be 866 miles long, or long enough to reach from Washington to Chicago and have several miles to spare.

### Hot Weather Work.

The first and most important points of growing chicks are plenty of free range, coupled with plenty of good shade and good fresh water; exclusive dry grain ration, with the exception, however, of what green food, nature supplies during the summer months. For my use, I find the common old sumac bush and elder bushes make an excellent shade for the little fellows during the hot days, and also, for shelter during the showers. The above shrubs were on my farm naturally, and for my purpose I find them excellent. Later on, when the sumac bushes go to seed they furnish a good change in food for poultry of all kinds. For feed I use a mixture of corn-chops, wheat screenings, millet seed and grit, and try to keep it before the chicks at all times. I do not mix it myself, but let the little fellows do their own mixing, which they seem to enjoy. After the chicks cross the danger line, I give them Kafir-corn in the head, and it is great how they do work after what they get. The exercise being the important part; the fact is they are still hungry when they get through with the corn. I believe a great many poultrymen make a mistake in keeping young chicks too warm for the first few days, in the brooder. I always manage to keep it warm under hover, but have a free circulation in other parts of the brooder; I think 70 degrees under the hover is plenty warm, or at least I work on that principle. My first hatch was in an outdoor brooder, during three days' snowstorm, and at no time was the hover heat above 70, and those same chicks seemed to be in excellent health, and are now ready for the frying-pan. After the chicks are a week or ten days old, I use no artificial heat whatever, and at as early a date as possible I transfer them from brooder to small colony house, fifty in each house, and keep them there until winter begins, and then transfer them to a warm house.

Now, dear reader, I may have gotten this mixed considerably. I could have probably made it more readable, by beginning with brooder chicks first, but it is all up to you, take it as it comes, not as it ought to be.—Dr. J. B. Douglas, Harrisonville, Mo., in Poultry Topics.

### Water-Glass for Preserving Eggs.

We have more than once directed the attention of our readers to the remarkable preserving properties of soluble glass or silicate of soda, and it is surprising that this solution is not used more generally for the preservation of eggs. It is confidently stated that a newly laid egg will keep for many months when completely immersed in a 10 per cent solution of the silicate, and will then be indistinguishable as regards appearance and taste from an absolutely fresh egg. \* \* \* We have ventured to give an explanation of this remarkable preserving effect by assuming that the soluble silicate forms a hard, glassy, impermeable mass with the lime salts in the substance of the shell, a real insoluble glass, so that the contents are literally hermetically sealed against external influences. That is a remarkable enough fact, but it is now reported that chickens have been hatched from eggs preserved for twelve months in this way. \* \* \* The recently reported success of this method, by which life would appear to be suspended so to speak, would seem to open up many possibilities in regard to the transportation and supply of food.—Lancet.

### Look for Lice.

A safe rule during the summer especially is to look for lice on old fowls and on the young chicks.

There will be lice if you do not fight them, that is certain.

Lice do more damage than dampness, rats, bad food and about everything else combined.

They kill chickens directly and are also the cause of a variety of diseases.

Fighting lice is not always pleasant nor easy, but it pays to do it.

There are a number of good lice-exterminators.

Dirt and lice are twin evils. They are usually found together, and the first does only less harm than the second.

Dirt and lice are not so difficult to fight if we are after them all the time. Once a month will not do.

### Those Small Blackbirds.

EDITOR KANSAS FARMER:—The blackbirds, mentioned by W. G. Shelley in a recent issue of this paper, were quite numerous here during the last three weeks of May. They disappeared very suddenly.

They were about one-half as large as the yellow-breasted blackbird and the white on their wings was plainly visible when the birds were at rest.

They were capable of mocking several other species of birds but had a peculiar way of doing so. They would rise in a zigzag course to a height of one hundred or two hundred feet and sing while slowly descending, varying the song at short intervals and ceasing a few moments after alighting.

Lane County. CHAS. M. JENNISON.

The distance between the man you are and the man you ought to be is your opportunity. The same is true of your herd.

### The Great Parks of Colorado

Constitute one of her chief glories. They contain fields, forests, and plains; they are watered by creeks and rivers, and contain villages and farm-houses; they have springs and lakes where hotels and other places of entertainment are found for those seeking health and recreation.

To enable people to reach these favored localities without unnecessary expenditure of time or money, the Union Pacific has put in effect very low rates and splendid train service from Missouri River to Denver.

Accommodations are provided for all classes of passengers on these trains, the equipment including free reclining chair cars, dining cars, buffet smoking cars, drawing-room sleepers, day coaches, etc. Full information cheerfully furnished on application to

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BARRED ROCKS ONLY—Heavy boned, vigorous stock, unlimited range. Eggs carefully and securely packed. 100, \$4, 15, \$1 Adam A. Wier, Clay Center, Neb.

SUNNY NOOK POULTRY YARDS—S. C. B. Leghorn eggs, from vigorous, good layers, \$1 per 15. John Black, Barnard, Kans.

PURE S. C. B. Leghorn eggs, 30 for \$1; \$3 per 100; entire new blood. Orders promptly filled. F. P. Flower, Wakefield, Kans.

FOR SALE CHEAP—Pedigreed Scotch Collie pups. W. H. Richards, V. S., Emporia, Kans.

BARRED PLYMOUTH ROCK EGGS—From fine stock Hawkeye strain, 15 for \$1.50; 45 for \$3. Annie Wynkoop, Bendena, Doniphan Co., Kans.

EGGS FROM GEM POULTRY FARM are sure to hatch high-scoring Buff Plymouth Rocks. No other kind kept on the farm. 15 for \$2.30 for \$3.50. Satisfaction guaranteed. M. B. turkey eggs, 11 for \$2. C. W. Peckham, Haven, Kans.

COLLIE PUPS AND B. P. ROCK EGGS—I have combined some of the best Collie blood in America; pups sired by Scotland Bay and such dams as Handsome Nellie and Francis W. and others just as good. B. P. Rock eggs from exhibition stock; none better; 15 years' experience with this breed. Eggs \$1.50 per 15. Write your wants. W. B. Williams, Stella, Neb.

SCOTCH TERRIERS—Finest bred in this country. Heather Prince, the champion of Scotland, and sire of Noreggy Foxglove, one of the champion imported Romya Ringlet, best service at our kennels. G. W. Bailey, Beattie, Kans.


### Rose Comb Brown Leghorns

Exclusively. Farm raised. Eggs per setting of 15, \$1. Incubator users write for special prices in 100 lots. P. H. MAHON, R. D. No. 3, Clyde, Cloud Co., Kans.

### Sunny Summit Farm Pure-Bred Poultry.

Silver Spangled Hamburgs, American Dominiques, S. C. and R. C. Brown Leghorns, Barred and Buff Rocks, S. C. Black Minorcas, Mammoth Bronze Turkeys. Eggs \$1 per 15; turkeys \$2 per 9.

VIRA BAILEY, Kinsley, Kans.



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During the summer months we will sell all our fine breeders, consisting of over 400 one-year-old birds, from our breeding pens of this season. Birds costing us from \$5 to \$25 will all go at from \$1.50 to \$5 each. We will also sell spring chicks all summer. Our stock can not be excelled by any in standard requirements and hardiness. Barred Plymouth Rocks, White Plymouth Rocks, Buff Cochins, Partridge Cochins, Black Langshans, Light Brahmans, Silver Wyandottes, White Wyandottes, Silver Spangled Hamburgs and S. C. Brown Leghorns. Single birds, pairs, trios and breeding pens. Circulars Free. Write your wants.

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## Miscellany.

### Is Our Wheat Supremacy Passing?

Both sides of the controversy about the wheat supply and the demand for bread continue to flourish so far as assertions go.

An editorial writer in the New York World says: "Notwithstanding the damage from floods, Kansas promises to turn out this year the greatest wheat crop of her history. It will help us to retain a little longer our place as the granary of the world. Our hold on that place can be only temporary. Aside from any attempt on the part of England to stimulate artificially the rival wheat-belt in the Canadian Northwest, our own growth must soon take us out of the list of grain-exporting countries. Even now our place in that list depends on three Northwestern States. Cut off the crops of Minnesota and the two Dakotas and we should have no wheat for export—the rest of the country would just supply its own needs. In the entire region east of the Mississippi the only States that produce any considerable surplus of wheat above their own needs are Ohio and Michigan, and their balance goes only a very little way toward supplying the requirements of their neighbors. Our home consumption of wheat is increasing now at the rate of nine million bushels a year. If we should have such a crop now as the one of 1893 we should have to import wheat to avert a famine, and even the crop of 1896 would barely meet our needs."

To this the Cincinnati Price Current replies:

"There is a good deal of talk in this without reason. Something over a dozen years ago it was declared with great assurance that by 1894, which was then a few years in the future, this country would need to be importing wheat to meet its needs. But not only have the home wants been steadily met but the exportable surplus has been greatly increased. And now it is mere assumption without reason to declare that 'our own growth must soon take us out of the list of grain-exporting countries.' You might as well say this of cotton, while the untilled area in Texas alone is more than five times as great in extent as all the area in the country now devoted to cotton culture. No man can estimate with any degree of reliability the limitations of wheat-production in this country for the near future nor for generations hence.

"There is no evidence of declining tendency in wheat-production in this country. Go back thirty years, to 1873. For the ten years, 1873 to 1882, inclusive, the population applied to the quantity of wheat production in this country shows an annual average of 7.99 bushels per capita; for the ten years from 1883 to 1892, inclusive, an annual average of 8.02 bushels; for the ten years from 1893 to 1902, inclusive, an annual average of 8.00 bushels. For this season the present position may be accepted as justifying a promise of about 740,000,000 bushels, which would be the equivalent of about 9.30 bushels per capita of population. Take the three States in the Northwest mentioned by the World writer, and only 27 per cent of the area will be found as representing improved lands, implying a large margin for extension of culture in that region."

A member of the Chicago Board of Trade offers the following reasons why wheat may advance:

"1. The world's visible is the least per capita since statistics have been kept.

"2. The American visible is about 15 per cent less than June 12, 1897, when Leiter advanced the market 36 cents between the middle of June and the middle of August of that year and to \$1.85 the following May.

"3. There are more statistical reasons now for a large advance than then and fully as many bears to defeat.

"4. It is conceded the world's 1902 wheat crop was the largest ever grown and that the present visible and invisible supplies are the smallest.

"5. The London Statist, under the date of June 6, 1903, says, 'Great Britain has but 2½ weeks of visible wheat and flour supplies.' That paper admits Europe's crop this season will be at least 10 per cent less than last year. I think it will be 15 or 20 per cent less and that the world's crop will be 10 to 15 per cent less than harvested in 1902.

"6. I further believe that a wild scramble for wheat bread will soon break out all over the world, while visible and invisible supplies are the smallest.

"7. The price is around low average

and our growing crop late and not likely to be an average one.

"8. Consumption has overtaken supplies.

"9. The speculative masses still cling to the old idea, there is too much wheat and it is grown to eat and sell short.

"10. That does not hold good now.

"11. Spot wheat commands a premium in every market of the world from one to ten cents per bushel over the July futures. September is two or three cents discount and therefore a very inviting purchase."

### The True Spirit.

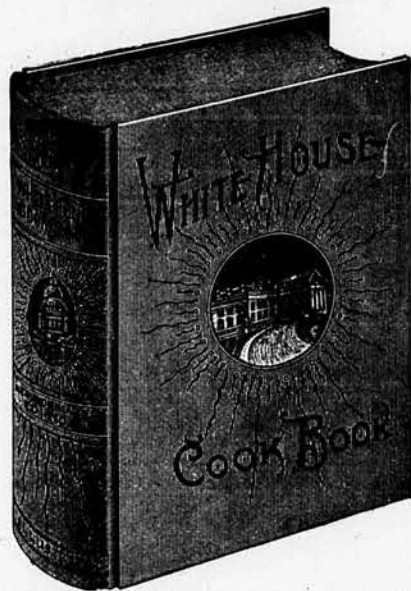
Replying to a letter from the KANSAS FARMER in which reference was made to his losses from the flood, J. G. Peppard, seed merchant of Kansas City, said:

"I thank you for your kind wishes and expressions of good will. While my loss has been a heavy one it probably is less than any of the wholesale merchants in the bottoms, due to the fact that apparently we are on the highest ground in the flooded district. Had only 13 inches of water in my office and 15½ inches on front of first floor in warehouse. Did not have a pound of seed in my cellar. The stock on the first floor was in bags piled eight high. In many instances the two lower ones were wet and contents destroyed. This seed I threw off my rear dock while we had a current there sufficient to carry it away. As the seed had been soaked so long there was no hope of saving it and I did not want to be put to expense of hauling it out in wagons. On Saturday noon of the week of the flood my house was cleared of the wet seed and we were entirely free of it. I had large stocks of cane, millet, and Kafir-corn on my second floor.

"The loss in stock is insignificant compared to the loss caused by interruption of business; the inability of the railroads to handle either incoming or outgoing freight. This is especially critical to the seed-trade as the season is so near its close and there is an urgent demand for late sowing seeds to replant corn-ground. I think the roads are now getting in fair shape.

"My building stood the tremendous strain of a frightfully swift current against its walls for three days, with no apparent ill-effects to foundation or wall. For this I am more than grateful. We now have engine, elevator, and machinery in operation and feel as if we could see daylight. We had between 650 and 700 yards of mud to remove from the cellars."

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The White House Cook Book, 590 pages, comprehensive treatise on cooking. All kinds of cooking and baking. Everything from soup to nuts. Cooking for the sick. Health suggestions. Kitchen utensils. Family recipes. Toilet items. Dyeing and coloring. Measures and weights, etc. Prepared by the former chef of the Hotel Splendide, Paris. Regular price \$2. Our price with the KANSAS FARMER for one year \$2. The two for the price of one, delivered to you.

Address, Kansas Farmer Company, Topeka, Kans.

### Some Amusing Letters.

Platte City, Mo., January 25, 1903. Gentlemen:—The wheels I got of you carried an old Spanish cannon from Tracey to Platte City over a turnpike road with rocks sticking above the surface four inches. The cannon weighed 14,000 pounds and people expected to see the wheels break down but they didn't. I broke two axles and pulled the tongue out once, but the wheels did not break and if in 1,000 thousand years from now any one visits Platte City, the old cannon

## Beautiful Memorial Crayon Engraving Free to Our Readers

The publishers of the Kansas Farmer have made arrangement with the International Art Company whereby we are able to present to our subscribers this beautiful memorial crayon of our Martyr President, a cut of which is shown herewith.

In the center is full length portrait of our beloved President; on his right and left hands portraits of his wife and mother, all of them excellent reproduction from recent photographs. In the two upper corners are his birthplace and Canton residence. The reproduction gives some idea of the general effect, but cannot bring out the beautiful effect of the full sized memorial picture, which is 22 inches wide and 28 inches long engraved on heavy plate paper. It is a beautiful work of art which everyone will want and appreciate. It would be valued at any art store at \$2.

They will also inclose with each picture their beautiful memorial sheet music, containing the beloved President's two favorite hymns, "Nearer My God, to Thee" and "Lead Kindly Light" and a sketch of his merit-crowned life. This beautiful music should be in every home.

We trust every subscriber to Kansas Farmer will take advantage of this unprecedented offer. Read attached coupon carefully and send at once. No picture will be sent unless coupon is received. Twenty-five cents in coin can be sent by mail without danger of loss.



### ART COUPON.

This is to certify that I am a reader of Kansas Farmer. Enclosed find 25 cents in silver, to cover cost of wrapping, mailing, etc., for which please send me copy of McKinley Memorial Engraving and one copy of the Memorial Sheet Music.

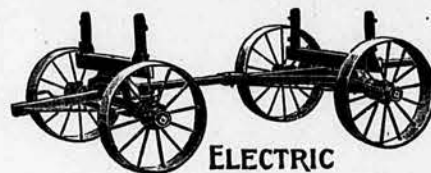
NAME.....

ADDRESS.....

Fill out this coupon and mail to the International Art Co., Dept. M., St. Charles, Ill

will still be standing and people will tell about the little spindling wheels that carried it there. Yours truly, J. C. H.

Eureka Springs, Ark., Feb. 1, 1901. Dear Sirs:—Mr. Graves bought a steel-wheeled wagon, front wheels 24 inch, rear 30 inch, and put it into service at a saw-mill. We put on a log scaling 400 feet, came down a mountain road where in some places it dropped 8 inches on solid rock. Graves swore he would smash it if



ELECTRIC

he could. A large hook on a half-inch chain swung round and caught in one of the spokes. Of course, the wheel stopped, but the descent was so great that the load slid on the rocks, dropped off a ledge 8 inches, there was a crash, a bang, the hook tore off and no man could tell what spoke that hook caught on. Mr. Graves said he had tried hard to smash those wheels in some way, but he did not know anything that would do it but dynamite. Respectfully, B. A. D.

Dover, N. H., April 6, 1902. Dear Sirs:—From your catalogue I believe you sent me stronger wheels than I ordered. You must have thought I was looking for a bargain and I certainly got one, as they are as good to-day as when they left the shop and run one-third easier on smooth hard road and two-thirds easier on a soft or sandy road. We would have better roads with less expense, could draw the same load easier, have fewer balky horses and our chance of reaching Heaven would be increased 25 per cent if we all used wide-tired metal wheels.

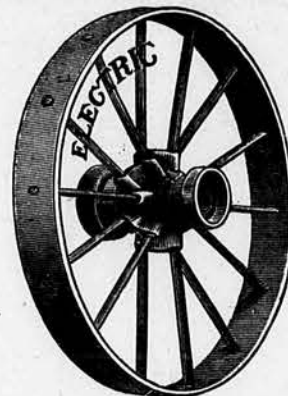
Thanking you for the new catalogue and booklet, I am

Very truly yours, C. E. H.

Augusta, Mont., March 4, 1902. Gentlemen:—Will tell you the same I tell everybody else—you make the best wheel I ever saw stuck on a wagon. My wheels are one-half inch tires, five inches wide and will bet money they will carry 3,000 pounds on fair roads. When I unloaded your wagon there (Appleton City, Mo.) I put on a four-horse load of hog wire from Chicago and drove up-town to hear remarks. The only serious objection I heard was that those five-inch tires would not cut down into the mud properly. Very respectfully, J. V.

Justus, Ohio, December 9, 1901. Dear Sirs:—I must tell you about the wheels purchased of you. You had guaranteed them to carry two tons but they carry a great deal more. A neighbor of mine who is operating several coal mines had two boilers to haul which weighed five tons each. He had employed a man to haul them, but when the time came

he could not get a wagon they thought would carry the load, so I told them I would help them and take my wagon with the steel wheels. Why, gentlemen,



those wheels never quivered under that five-ton load. The distance we hauled those boilers was fourteen miles, and we passed over some very hilly and stony roads, but the wheels came out alright. I am not afraid of breaking them now. Some of the men around the mines made the remark that those boilers would have smashed any wooden wheels in the country, as the ground was so sloping that it took about a dozen men with ropes and levers to keep the wagon from turning over. I would recommend the steel wheels to anyone who uses a wagon. Yours very truly, L. G.

Evansville, Ind., April 21, 1902. Gentlemen:—Some time ago I bought a set of metal wheels of you and like them very much. I have trouble in keeping my wagon at home as my neighbors have bothered the life out of me ever since I got it. I would not do without it and never use my high wagon at all, except when my neighbors have my little wagon. As ever, I remain, Yours respectfully, C. H.

The original of all these letters can be seen at the office of the Electric Wheel Co., Quincy, Ill., to whose wheels and wagons they refer. Better send for their free catalogue and know more about their wheels and wagons.

### The Kansas Wesleyan Business College.

Largest and best equipped Business College west of the Mississippi; highest standard, national reputation. Seventeen professional teachers. Positions guaranteed to all competent Stenographers and Book-keepers from our school. Graduates sent to all parts of the world. Tuition low. Board cheap. For Journal address

T. W. ROACH, Supt., Salina, Kans.

## Kansas State Agricultural College

Four-year Courses of Study—Agriculture, Domestic Science, Mechanical Engineering, Electrical Engineering, General Science. Short Courses—Open to students of mature age who can not, for lack of time or money, take one of the four-year courses—Domestic Science, Dairying, Agriculture. Preparatory Department for Students over eighteen—Tuition free. Expenses low. Catalogue or other information free.

President E. R. Nichols, Box 50, Manhattan, Kans.



## Gossip About Stock.

T. F. B. Sotham, of Chillicothe, announces a public sale of Herefords by Geo. H. Adams, of Linwood, Kans., on July 23 and 29. Further announcements will appear in the Kansas Farmer.

M. D. Henderson, of Topeka, has announcement of interest to parties who expect to do fencing, as he has 50,000 white oak posts for sale. See his advertisement in the "Special Want" column this week.

Ideal Sunrise, a valuable Poland-China hog, owned by Mino Lukens, of Disco, Ind., was sold recently at Mack to a stock company for \$15,700. Ideal Sunrise took the first prize at the World's Fair at Chicago in 1893.

On June 16, Springer & Richards held a sale of pure Bates Shorthorns at Fairfield, Iowa, which resulted in a general average of \$122.25 for fifty-four head. The thirty-seven females averaged \$138.50, and seventeen bulls averaged \$86.75.

Mr. Jas. P. Lahr, Sabetha, Kans., announces a public sale on October 9, 1903, to be held at Sabetha under the auspices of the Sabetha Combination Sale Company. The sale is of Duroc-Jersey hogs. J. B. Davis, Manager of Fairview.

The sheepmen are taking interest in the American Royal for 1903, and the South-down, Cotswold, Oxford Down, Shropshire, and Rambouillet Associations have already accepted the offer of the management and made arrangements to enter sheep and offer special premiums at this great show.

On June 17 and 18 was held a combination sale of Aberdeen-Angus cattle at Chicago, which was contributed to by nineteen breeders. A total of 131 head were disposed of for \$19,290, average \$147.25. Eighty-eight females sold for \$13,605, average \$154.60. Forty-three bulls sold for \$5,680, average \$132.20.

A farmer who has been raising Plymouth Rock chickens remarked that his birds were always in demand because they were so uniform in quality. Breeders of cattle and swine have the same experience. Hence the results attained by breeders who have followed line breeding have placed them in the van of their kind.

The lightning-rod manufacturers of Topeka, Dodd, Dooley & Co., are doing a rushing business and are kept quite busy filling orders not only in the country but the city as well. They have just completed a job for the big lumber merchant, Jonathan Thomas, for both his residence and barn and also the Presbyterian church.

On June 25 and 26, Geo. E. Ward, of Sioux City, Iowa, held a dispersal sale of his LeMars Farm Herd of Shorthorn cattle. Seventy-seven cows and heifers averaged \$186.62. Nineteen bulls averaged a trifle over \$100. The ninety-six head of Shorthorns sold for \$16,285, a general average of \$169.63. The highest price realized at the sale was for the 7-year-old roan cow, Senora, and a heifer calf by Lord Banff, which went to Thomas H. Stanfield, of Lake Park, Minn., for \$750.

The great Wichita fair, which has been held under various names but always with success, is now to be incorporated under the name of the Southern Kansas Fair. In our list of Kansas fairs, published on page 712, the name is given as the Wichita State Fair Association with H. G. Toler as secretary. This is as it was furnished us by the State Board of Agriculture, but is incorrect. Mr. H. L. Resing is the present very efficient secretary and all communications, entries, etc., should be sent to him.

Secretary L. P. Slisdon, of the American Devon Cattle Club, Newark, Ohio, sends us the club year-book for 1903, as prepared by J. E. Gifford, Sutton, Mass. It contains the constitution of the club and the list of its members, together with articles on the scale of points for Devon cattle, the red letter registry, report of the annual meeting of the club, a report of experiments with Devon cattle as compared with other breeds at the Rhode Island Experiment Station, together with the address of welcome by the president of the club and a number of interesting letters from breeders. Interested parties may have copies sent them by remitting 25 cents to the secretary.

The seventeenth annual meeting of the Dutch Belted Cattle Association was recently held in New York City. The report of the secretary showed that the total number of cattle now recorded in their herd-book is 476 males and 1,064 females. The financial affairs of the association were reported in good shape and the meeting decided to offer a handsome prize cup at the St. Louis World's Fair. The officers of the association are John MacMinnes, Worcester, Mass., president; D. B. Wilson, Waterbury, Conn., vice-president; H. B. Richards, Easton, Pa., secretary-treasurer.

D. L. Taylor & Son, Sawyer, Kans., owners of the Sunflower Herd of Hereford cattle, have lately presented the Agricultural College at Manhattan with the splendid young Hereford heifer, Miss Gibbs. While we have not her number or breeding at hand, we know her to be an individual worthy of the great herd whence she came and a credit to the great institution where she now makes her home. This heifer, together with the young bull sired by Columbus 17 (who was really the champion Hereford bull at the Chicago International), and which was given by F. Rockefeller, Belydere, Kans., to the Agricultural College, gives that institution a long start toward having what it ought to have, namely, the best herds to be found in Kansas.

A recent telegram from Colby, Thomas County, Kansas, states that the entire area of Thomas County was visited by a big rain, which insures a bumper wheat, rye, and barley crop this year. Farmers are now buying headers and preparing for the harvest, which will begin in about two weeks. Estimates on the wheat yield range from twenty to thirty-five bushels per acre in Thomas County. The rye crop is immense—samples are on exhibition in Colby measuring six and one-half feet high, and barley will make 35 to 45 bush-

els per acre. Corn is looking nice, but is backward. Thomas County will need several hundred harvest hands from abroad to help take care of the crop. Wages will be good. See Hiland P. Lockwood's card on page 711.

A recent trip into Missouri showed a new plan of operations among the breeders of the famous Missouri mules. Heretofore it has been their custom to breed heavy mares of the draft type for the mule crop. Lately many breeders are using standard-bred and trotting mares for dams, with the result that they get foals which are fast travelers on the road and good walkers in the field. The writer had the pleasure of riding behind a span of mules bred in this manner which were much better as trotters and a great deal better as walkers than the average roadster team. While the trotting-bred and the standard-bred horses have so long been the adjuncts of gambling operations as to bring them into disrepute with the agricultural community, it is still true that the bottom, wind, and speed which characterizes them are extremely valuable when injected into the all-around, useful farm horse.

The Glenwood herds of Cruickshank cattle and Poland-China hogs are preparing to make things happen in the show circuit this fall. They have a show herd of ten head of Shorthorns that are pronounced by the owner to be a great deal better than they ever had before and from our knowledge of the breeding lines and individuality of the animals, together with the successes attained in the past, we predict a successful campaign for these herds. Mr. C. S. Nevius, Chiles, Kans., is the owner and is a young man who is "on to his job" both as a feeder and breeder, and those who attend the shows and fairs this fall will hear from amount of the land in Thomas County and him. They still have a few of these splendid Shorthorns by Victor of Wildwood 126054 and a few of the big, heavy-boned smooth Poland-Chinas of such breeding as that represented in Glenwood Chief Faultless 27315 for sale. Mr. Nevius' card is on page 715.

One of the handicaps with which cattle-men are confronted and, it may be said, a severe one, is the screw-worm. Various as have been the remedies prescribed, but few have stood the test of time and varying conditions and the list of absolutely reliable preparations is exceedingly small. There are many things which will kill these pests, but will injure or poison the animals treated; hence, a successful and popular remedy must be non-poisonous at the same time it destroys the worms. Again, it should also be healing and fill the bill as a high-class liniment. In Cremlone has been found the ideal preparation; it is highly concentrated, to be diluted as required; is sure death to screw-worms (as well as to ticks, lice, fleas, etc.), and is unsurpassed as a healing lotion. Very many stockmen in this State have used Cremlone and sales are large and increasing. Readers are asked to note the advertisement of Cremlone in this issue, read the testimonials therein, and it is likely they will want to use it on their stock.

One of the best haystackers we have ever seen is the Buchey stacker, and we are glad to know that arrangements have been completed by which the manufacture of this valuable farm implement has been turned over to the old reliable Currie Brothers, of Topeka, who have been so long and so favorably known for the excellent windmills, feed-grinders, etc., which their factory turns out. While the Currie Bros.' factory is located in the manufacturing district of Topeka it was not in the least injured by the flood and they are running full time in their efforts to supply the demand made upon them for their windmills. With the addition of the manufacture of the Buchey haystacker they contemplate the increase in their manufacturing establishment necessary to the supply of their growing trade. Currie Bros.' card is now on page 716 and a letter to them will bring full information about this haystacker as well as about the very perfect windmill which they continue to make.

The president and trustees of Fairmount College, Wichita, are making strenuous efforts to have a Government agricultural experiment station established in connection with that college. It has been reported on the streets of Wichita that they have been successful in securing a promise that such a station will be established and Wichita is accordingly jubilant. We very much doubt the wisdom of multiplying experiment stations unless they can be managed by men who are experts and can be supported by funds other than those now provided. The present station at Manhattan and the one at Hays City, together with the Oklahoma Station at Stillwater, would seem sufficiently well if they only had the means with which to operate. The Manhattan Station has been doing a great work for many years past with only a meager appropriation of \$15,000 per year, with which to bear all expenses, including salaries of officers, and the division of this fund for the purpose of maintaining branch stations would be simply suicidal.

Just at this time when the demand for good hogs promises to be great it is a pleasure to introduce to the breeding public a Berkshire man who can supply the best. The East Reno Herd of Large English Berkshires is headed by Elma King 60056, who is a little brother to the two pigs which won the State championship at the American Royal at Kansas City in 1902. They are out of Elma Lady 4th 4668, an imported sow that sold to Will Rhodes, Tampa, Kans., at Kansas City in 1902 for \$150. This is the highest priced Berkshire sow ever sold in Kansas City. His grand-sire was Lord Premier 50001, who won first as yearling at St. Louis and for whom N. H. Gentry, president of the Missouri State Board of Agriculture, refused \$1,000. The other herd-boar, Rutger Judge 2d 62687, was bred by Chas. E. Sutton, of Russell, and is described as one of the best Berkshire boars his owner has ever seen. The fact that he was bred by Sutton, who is president of the Kansas Improved Stock-Breeders' Association, is recommendation enough for any boar. Mr. Willems is now in shape to furnish some fine pigs of February, March, April, and May farrow, sired by Elma King, and he can also spare some bred sows and

gilts bred to this boar and due to farrow in July, September, and October. There is no hogpen in Kansas that is poor enough to make it pay to raise scrub stock. Look at Mr. Willems' new card on page 711.

## A Hurry-Up Order.

One day last week a prominent railroad man of Austin, Texas, stepped into a restaurant for quick lunch. Soon after taking his seat he noticed one of the judges of the Court of Appeals come in and take a seat on the opposite side of the room. The waiter soon appeared and took the judge's order and delivered it to the kitchen in the rear of the building as it was given him. He followed it up by calling out, "One Katy Flyer!" The railroad man was naturally interested in this and asked the judge what was up—how it was that he was ordering a whole railroad train for lunch. The judge seemed as puzzled as the railroad man, and, in consequence, the waiter was called upon for an explanation. His answer was: "The judge wanted his dinner in a hurry, so I gave him a 'Katy Flyer.'"

## Great Cure for Running Sores.

Newport, Wash., March 11, 1903. Dr. B. J. Kendall Co., Enosburg Falls, Vt. Gentlemen:—Enclosed find a two-cent stamp, for which please send me your valuable "Treatise on the Horse and His Diseases," in English. I have used your Spavin Cure with the greatest success on a horse with a running sore on his leg. Yours with respect, DAVID W. E. DAVIES.

## WEEKLY WEATHER-CROP BULLETIN.

Weekly weather-crop bulletin for the Kansas Weather Service for the week ending June 30, 1903, prepared by T. B. Jennings, Station Director.

## GENERAL CONDITIONS.

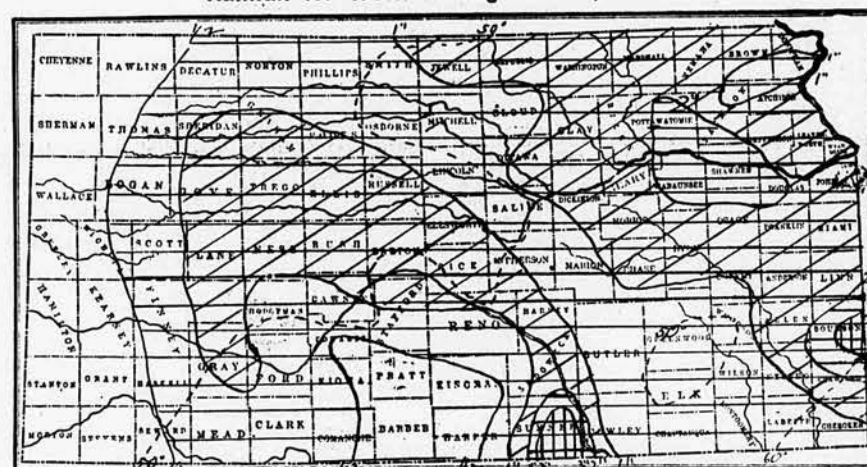
Though the temperature still remains below normal, yet the week has been much warmer, and the nights are unusually cool for June. The rainfall has been above normal over the larger part of the State, and has been ample except in Harper, Barber and Pratt and the extreme western counties. Some severe hailstorms occurred in northern and southern counties during the week.

## RESULTS.

## EASTERN DIVISION.

Wheat harvest is nearing completion in the southern counties and is progressing under favorable conditions in the central while stacking is progressing in the south; the wheat generally is of good quality and yield.

## Rainfall for Week Ending June 27, 1903.



Minimum temperature shown by broken lines.

SCALE IN INCHES.

Less than 1/4. 1/4 to 1. 1 to 2. 2 to 3. Over 3. T, trace.

Corn has grown rapidly this week, though still small for the time of year; much of it has been cleaned and the cultivators are still at work; replanting has been finished in the flooded district and the corn is coming up and being cultivated. Oats are in fine condition, and in the south are ripening. Flax is doing well. Clover is ready to cut, and in many of the counties has been cut and stacked or baled. The first crop of alfalfa has been well secured, and in Elk the second crop is being cut. Grass continues in fine condition and meadows and pastures are very good; in Franklin and Linn haying has begun. Potatoes, except in the flooded district, are good, and upland potatoes are fine and are now on the market. Apples are a very light crop in Riley but are growing nicely in Shawnee; early June apples are being marketed in the south. Early peaches are ripe in Montgomery but are a light crop. Grapes are coming out well and now promise a fair crop.

Allen.—Wheat harvest began this week, yield large; fine prospects for oats; about all corn planted now; it grows slowly and is weedy.

Anderson.—Light rains have softened the crust on the ground and helped the corn; wheat harvest begun; crop uneven and below the average; flax fine; clover and alfalfa saved in good condition; work pressing and farm-hands scarce.

Atchison.—Clover hay harvest delayed by wet weather; corn generally very small, but looking well; potatoes ready to use, and are good on high land; oats promise well; grass and pastures doing well; all vegetables growing finely now.

Bourbon.—Wheat about all cut; is well matured and of fine quality; most of the corn is very weedy; corn planting about finished; oats have deteriorated, heading out too short to harvest.

Brown.—A good week for all farm interests; good progress made with farm work.

Chase.—The rain of the 26th softened the ground nicely, so that crops generally are now growing nicely; farmers are up fairly well with their work; wheat harvest begun; considerable poor wheat is being mowed for feed; upland wheat is very good; considerable millet and cane sown; rain is needed in the southwest part.

Chautauqua.—Wheat mostly stacked in good condition; threshing will begin next week; corn growing well; some of the earlier fields are tasseling; the smaller crops are doing well also; large crop of blackberries being picked; good prospects for all farm products.

Cherokee.—Too cool for corn; wheat two-thirds harvested; berry generally well filled; ground in good condition for cultivation;

blackberries a large crop; apples poor; peaches a light crop.

Coffey.—All growing crops doing well; farm-work somewhat delayed by rain; corn is growing rapidly and being cleaned of weeds; early wheat most all harvested; blackberries and raspberries on market.

Crawford.—Wheat harvest in progress; a light crop; oats doing well; corn is improving rapidly and is generally clean; potatoes are a good crop and are being dug; grass good; plenty of fruit; blackberries abundant.

Doniphan.—Soft wheat is being cut; yield light, quality fair; corn still backward and looking poorly; oats good.

Elk.—Ground getting very dry, rain badly needed; wheat about all cut; second crop of alfalfa now being cut.

Franklin.—Another good week for growing crops; showers are needed; corn planting and replanting about done; acreage considerably reduced; farmers busy cultivating; some are beginning to put up hay.

Greenwood.—Good week for farmwork and growth of crops; corn is making good progress, the last planting up and being worked; a heavy crop of English blue-grass is being harvested; blackberries ripening, but scarce.

Jackson.—Wheat harvest begun; the yield will not be heavy and the quality seems poor; oats are doing well; farmers very busy tending corn; early corn is clean, but late planting is small and weedy; some bottoms still being planted, and some low ground has been abandoned; meadows and pastures good.

Jefferson.—Too much rain; corn very weedy; wheat harvest has begun.

Johnson.—Wheat harvest and clover cutting in progress; hail on the 21st did some damage; flooded bottoms being planted to corn; most corn fields are very weedy; oats will be a light crop; timothy, clover, and English blue-grass good.

Leavenworth.—Cold week with but little rain; corn grows very slowly; wheat ripening well; oats are fine; pastures very fine and stock doing well; new potatoes being used.

Linn.—Wheat harvest has begun; farmers are also putting in a good crop of hay; corn is growing rapidly and is being put in good condition.

Marshall.—Good growing weather; corn is very late, but is making good growth now; ground in fine condition to cultivate; wheat and oats are good; grass grows rapidly and pastures are good.

Montgomery.—Wheat harvest generally finished; oats ripening; corn cultivation in progress; some corn laid by; stock in good condition; early peaches ripe, a light crop.

Morris.—Heavy rains in east half of county, with light showers in the western half; wheat harvest ready; is a poor crop on most fields; oats promise a large crop; early corn waist high, and mostly of a good color; potatoes where clean look fair, some in market.

Pottawatomie.—A growing week; wheat harvest begun; corn planting continues in flooded district; first crop of alfalfa secured; early potatoes good.

Riley.—A good growing week with too much rain for farmwork; corn doing nicely; second planting up with a good stand; wheat harvest has begun; oats unusually good; good yield of potatoes; apple crop very light.

Shawnee.—A good crop of wheat is now being harvested; oats fine; potatoes being used; corn growing well and being cultivated with all vigor; meadows and pastures good, and cattle doing well; apples growing nicely; raspberries and blackberries are abundant.

Vaughan.—Good local rains over the county put ground in good condition to work; corn doing well; early potatoes good; wheat harvest under way and better than expected; grapes trying to make a second growth.

Woodson.—Wheat harvest progressing; corn is doing well but needs rain and warmer nights; stock looking well.

Wyandotte.—Wheat harvest in progress; corn is looking well; oats fine; timothy and clover ready to cut.

## MIDDLE DIVISION.

Wheat harvest is progressing in the southern and central counties and has begun as far north as Ottawa. May wheat is being stacked in the south, the yield is fair and of good quality; the wheat is ripening in the west and north. Corn though small for last of June is growing rapidly and is being cultivated.

Oats are very promising, and with few exceptions are in fine condition. Rye is in the shock in McPherson, is being harvested in Clay, and is ready to cut in Cloud. Barley is lodging badly in Barton—also wheat. Alfalfa is making rapid growth in Ottawa; in Jewell only about half the crop has been cut on account of scarcity of hands; in Saline some of it was flooded but is giving fair promise of recovery; in Washington the second crop is growing rapidly. Apples are abundant in Cowley, with a fair amount on the trees in Jewell. Peaches are ripening in Cowley and blackberries are plentiful. Potatoes are a fine crop and are being marketed. Grass very good, pastures are fine, and an abundance of hay is promised. Stock are in good condition.

Barton.—Wheat cutting will begin Monday with binders; oats, barley, and some wheat is lodging badly; growing crops damaged by heavy rain and high wind on the 24th; farm-work at a standstill during the last four days.

Butler.—Very favorable weather for wheat and early oats; late oats need rain, and corn needs rain and warmer weather; wheat harvest begun; yield light; quality good; small crop of late cherries ripening; other fruit very scarce.

Clay.—Harvest delayed by rains; wheat still in good condition; the oats crop promises to be unusually large; rye is being cut; corn growing slowly.

Cloud.—Good growing week for all crops; wheat and rye harvest will begin next week; some rust in wheat; oats promise a good yield; corn growing rapidly.

Cowley.—Another fine week for harvest;



early cut wheat going into the stack in good condition; oats promise a heavy yield; apples and blackberries plentiful; peaches ripening.

Harper.—Harvest well under way; soft wheat cut; fair yield and good quality; oats unusually good; corn doing well.

Jewell.—Corn growing nicely; early planting is being cultivated, late planting is all up and doing well; wheat is fine and almost ready to harvest; only about one-half of alfalfa harvested on account of scarcity of help; oats improved much during the week; fair amount of apples on the trees.

Kingman.—Early wheat being harvested; late wheat ripening slowly; good outlook for a fine crop both as to quantity and quality; corn growing well; grass in fine condition, promising a large crop of hay.

Lincoln.—Wheat on the uplands in fine condition and ripening; harvest will be in progress next week; hands and time very much needed; replanting of corn nearly finished; upland corn growing much faster since the showers and warmer weather; some fields being cultivated the second time; potato crop good; fruit of all kinds nearly a failure.

McPherson.—Rye cut and shocked; wheat harvest begun; most fields are good; corn clean and looking well; rain needed.

Osborne.—Wheat in fine condition; farmers preparing for harvest; corn growing rapidly; local showers have been helpful to all growing crops; garden stuff and potatoes yielding well.

Ottawa.—Wheat harvest begun, a good crop; corn in good condition and growing rapidly; oats unusually good; potatoes are plentiful and a good quality; pastures good and cattle doing well; alfalfa making rapid growth; gardens fine.

Phillips.—Crops of all kinds in good condition; but little harvesting will be done before July 4.

Reno.—A cool week; wheat harvest begun; generally a fair crop; corn fields are clean and the corn looks well; oats look fine.

Republic.—Corn cultivation progressed rapidly the fore part of the week, but the latter part was too wet; corn small for the time of year; some damaged by hail; a heavy hailstorm on the 25th destroyed the wheat and oats over an area of six or eight square miles.

Russell.—Wheat ripening slowly; corn being cultivated and doing well; oats in fine condition; potatoes fine and in market.

Saline.—A week of favorable weather with plenty of moisture; corn growing slowly; wheat harvest begun; oats generally promising well; some alfalfa thought to have been ruined by flood will recover.

Sedgewick.—Wheat harvest in progress; a fine crop of oats and corn are fine.

Smith.—Wheat ripening, and some is being harvested; prospects for a good yield; corn growing rapidly.

Stafford.—All crops doing well; wheat in fine condition; harvest will begin next week.

Summer.—A fine growing week; soft wheat is all cut and hard partly cut in the eastern part, but in the southern part the ground is too soft and wheat down badly; some damaged by hail; corn small and weedy; oats good.

Washington.—A good week for growing crops; corn a little yellow and some fields very weedy; wheat doing well; oats very good; second crop of alfalfa growing rapidly; potatoes good; stock on grass look well; good prospects for prairie hay.

#### WESTERN DIVISION.

Wheat harvest is progressing in the south and is nearly ready to begin in the central counties; wheat is in very good condition, though in Trego much has lodged. Corn is improving, and is being cultivated. Oats are in full head in the south, and are very promising in the central and north. Rye is well headed and turning in Morton will be ready to cut next week in the south and is ripening in the north. Barley harvest is progressing in Clark and the barley is heading in Hodgeman; it is in full head in Finney and very promising in Ford. The first crop of alfalfa is in the stack and the second crop is growing rapidly, and in Ford is being cut. Potatoes are fine, and are being marketed as far north as Sheridan. Forage crops are growing well south, more slowly central and north. Range grass is fine, and cattle are doing well.

Clark.—Wheat and barley harvest on; everything doing well; first crop of alfalfa all cut; Kahr-corn growing well.

Decatur.—Rye ripening and will soon do to cut; wheat coming on slowly with prospects of a good berry; good week for corn; cultivating well under way.

Ford.—Rain and cool weather have delayed wheat harvest a week with great benefit to the berry which will be large and fill the head; corn improving and growing; oats and barley very promising much alfalfa ready for the second cutting; grass fine.

Finney.—A fairly good growing week; first crop of alfalfa in stack; second crop growing rapidly; barley and oats in full head; wheat and rye will be ready to harvest in about ten days; forage crops growing slowly; pastures fine.

Hodgeman.—Corn is doing well; barley beginning to head; some fields of wheat are turning; rye nearly ready to cut.

Lane.—Wheat is filling and some fields beginning to turn; considerable of sod is being broken to be disked for wheat this fall; the ground in fine condition for cultivation, and weeds well under control.

Morton.—A week of growing weather; planting and cultivating in progress; rye and wheat well headed and beginning to turn.

Sheridan.—All small grain in fine condition; harvest will probably begin July 6; corn clean but backward; potatoes fine and in market; alfalfa is partly stacked, but cures slowly.

Thomas.—Early wheat and rye are turning and ripening; corn does not grow very fast.

Trego.—Wheat lodged to quite an extent; there is a large acreage of grain and only a few men have their harvest crews engaged.

Wallace.—A fine growing week; first crop of alfalfa stacked and second crop looking fine; corn growing well; oats, wheat, rye, and barley looking fine; range grass fine and cattle doing well; some are still planting forage crops; potatoes and all garden truck good.

#### THE MARKETS.

##### Kansas City Live Stock and Grain Markets.

Kansas City, Mo., June 29, 1903.

There is a good assortment of beeves on sale here to-day, total receipts amounting to 6,000 head. The quarantine yards reopened for business to-day for the first time since flood and this brought an influx of supplies, the Southern run aggregating 50 cars. The cattle market averaged about steady with last Friday. Tops brought \$5.15 and the bulk of the choicer grades of steers readily commanded \$4.75 @ \$4.90. Last week fat cattle advanced about a dime and this was fully maintained to-day. Heifers and cows were in better demand than at the close of last week but at an average decline of 25¢ @ 40¢ from seven days ago. The supply of stockers was moderate and the market on the same averaged steady. More choice thin steers than are arriving could be handled to advantage. Quotations for cattle range as follows: heifers, best, \$4.25 @ \$4.50; plain to good, \$3.75 @ \$4; cows, best, \$3.25 @ \$4; fair, \$2.75 @ \$3; bulls, \$2.50 @ \$3.75; best stockers, \$4 @ \$4.50; feeders, \$4.25 @ \$4.40; plain stockers, \$3.50 @ \$3.75. Sheep opened strong to-day and closed around

steady, light Colorado lambs selling up to \$5.40. Hogs averaged 10¢ lower, with lights in the most favor. A bunch of 183-pound hogs topped the market at \$6.62½. The bulk of sales ranged at \$5.50 @ \$5.60.

Grains were slow and a shade lower, but still higher than a week ago. No. 2 wheat is worth 74¢ @ 77¢; No. 4, 65¢ @ 70¢; No. 2 corn, 52¢ @ 53½¢; No. 4, 49¢ @ 51¢; No. 2 oats, 44¢ @ 48¢; No. 4, 40¢ @ 43¢; alfalfa is quoted at \$5 @ \$11 and tame hay at \$8 @ \$11.50.

The hog market here and elsewhere last week was most discouraging from the shippers' standpoint. Receipts were very heavy, five Western markets getting 382,000 head. Kansas City's supply was 64,000 head, a gain of nearly 30,000 from a year ago. This run, in the fact of the crippled condition of the market (less than half the packers being ready for business) was simply too much to sustain prices and by Wednesday the market broke 25¢ @ 55¢ from the early part of the week. A reaction set in from Thursday on, however, and 20¢ @ 25¢ of the loss was put back. This left a net decline of 20¢ @ 25¢ for the week. Those posted on the hog situation claim the big runs were the result of pent-up supplies occurring through the closing of the yards for a week or two because of the big flood. Another factor to be taken into consideration is that this is the time for the annual summer run of hogs, a period when the feedlots are being cleaned of winter's holdings. The feeling prevails that the worst break of the season has been experienced, and while no decided advance is counted on, it is thought the critical time has passed and steady values will prevail during the next month or so. Some traders profess to see higher prices before fall.

Last week's sheep receipts amounted to only 5,900 head, about a quarter of the supply received the same time last year. Although the buyers were not out in full force, they were in position to handle more stock than that and accordingly the market ruled steady to firm throughout the week. Native muttons closed stronger and lambs quit 15¢ @ 25¢ higher. Texas grass sheep were pounded to the extent of a 15¢ @ 25¢ decline on Wednesday, but a better feeling prevailed on such stock at the close. It looks like next week or the week after will be a good time to run in fat natives for the last of July and the fore part of August will see the advent of Westerns which always mean lower mutton values. Best lambs brought \$5.75 last week, but at the close were worth \$6.

The horse market reopened last Monday with 200 head in the auction. The demand was somewhat larger than expected but values ruled on a lower basis than prior to the flood. Compared with the high point of spring, the horse market averaged 15¢ @ 25¢ per head lower. Top drafts brought \$225. Mules sold about steady with values current the latter part of June.

Among those on the market with toppe steers last week were: G. W. Robinson, Eldorado, Kans., \$4.85; C. A. Duvall, Simpson, Kans., \$5.10; J. A. Yankee, Strasburg, Mo., \$5.00; J. H. Babst, Lebo, Kans., \$4.85; J. O. Gibson and Taylor, Aldrich, Strasburg, Mo., \$4.80; George Minor, Liberal, Mo., \$5.00; W. J. Hiltgen, Greenleaf, Kans., \$4.95; Otis Lasswell, Adrian, Kans., \$4.95; William Schultz, Admire, Kans., \$4.80; Chas. Myers, Augusta, Kans., \$4.85; Kirk Hall, Clay County, Mo., \$4.80; J. E. Ferrell, Valley Falls, Kans., \$4.90; W. F. Kurzen, Lyon, Kans., \$4.95; G. J. Zech, McPherson, County, Kans., \$4.90; E. D. Edwards, Butler County, Kans., \$4.95; J. D. Glenn, Miami County, Kans., \$4.90; Henry Schalleha, Emporia, Kans., \$4.85; J. M. Eagon, Overbrook, Kans., \$4.90; Will Gordon, DeSoto, Kans., \$4.85; J. M. Dutton, Cloud County, Kans., \$4.80; H. P. Lind, Chase County, Kans., \$5.10; A. Lind, Chase County, \$4.80; E. McDonald, Manhattan, Kans., \$4.95; and T. B. Townsend, Zanesville, Mo., \$4.80. Among those topping the hog market during the week were: W. H. McCoy, Valley Falls, Kans., \$5.55; A. A. Thomas, Rice County, Kans., \$5.75; and J. D. Hays, Manhattan, Kans., \$4.77½.

The Kansas City Live-Stock Exchange held its annual election of officers last week. Churchill G. Bridgeford, of the Crider Bros. Co., was made president for the ensuing term. F. L. Harris was named vice-president and Fred Ehrke, J. G. Forrest and M. J. Verner, members of the board of directors. A new rule regarding the employment of solicitors and requiring that they all take membership in the exchange was adopted.

The produce market last week showed a decline in potatoes after a period of inflated values. Eggs and poultry held steady to firm with a strong inquiry. Choice berries continue in request. The local consumption of eggs is said to be the greatest on record. Eggs were worth 11¢ @ 12¢ to-day; hens 8½¢; broilers 14¢; turkeys 8½¢; roosters 20¢ to 25¢; berries 1.25¢ to 2.50¢ per crate. H. A. POWELL.

##### South St. Joseph Live Stock Markets.

South St. Joseph, Mo., June 29, 1903.

Receipts of cattle last week numbered 17,621; previous week, 28,684; year ago, 5,897. The trend of prices was higher early in the week, but, owing to the excessive supplies east and sharp break in values, the market ruled lower in the middle part of the week. The close, however, was stronger and the light and medium weights showed an advance of 10¢ @ 15¢, while plain, coarse, heavy kinds and in-between grassers declined 10¢. Cow stuff made up a moderate quota of the receipts and the demand was good. Light and medium weight heifers sold 10¢ @ 25¢ higher, good heavy grass cows and heifers steady to strong, but common and medium kinds and canners declined 10¢ @ 15¢ in most cases, with the latter grades 25¢ in several instances. Owing to the good pastures country buyers and order buyers kept the yards well cleared of stock cattle from day to day, which, with the strong demand from the regular dealers, enabled sellers to advance prices 10¢ @ 20¢.

Supplies on the quarantine side were comparatively liberal, or the largest since the opening up of the season, with Texas a liberal contributor and Oklahoma and Indian Territory sending in increased shipments. The demand was strong and steers sold on a firm basis with the close of the previous week. Cows and heifers and bulls were also of ready sale and values advanced 10¢ @ 15¢. Owing to local prices being out of line with the range of values East buyers pounded the market generally 50¢ @ 75¢ for the better grades of calves and around \$1 for the heavier kinds.

Offerings of hogs totaled 51,665; preceding week, 71,914; year ago, 40,904. The trend of prices was lower for the first four days of the week, which was in sym-

## Special Want Column

"Wanted," "For Sale," "For Exchange," and small or special advertisements for short time will be inserted in this column without display for 10 cents per line of seven words or less per week. Initials or a number counted as one word. Cash with the order. It will pay. Try it.

#### CATTLE.

AT BEULAH-LAND FARM—Red Polled bulls, 8 months old, \$75; 5 months old, \$60. Fat and fine; choice and cheap. A litter of handsomely marked fox terrier pups, 3 months old; males, \$5; females, \$3. Wilkie Blair, R. R. 1, Girard, Kans.

FOR SALE—Registered Aberdeen-Angus cattle. Fifteen bulls of serviceable age, 9 from 18 to 24 months old, also my herd bull for sale or exchange, and a number of young cows with calves at side. I am making special prices to reduce herd on account of shortage in pasture. A. L. Wynkoop, Bendena, Kans.

FOR SALE—60 head good grade Hereford 2-year-old heifers. Evans Wilkoff, Leoti, Kans.

FOR SALE—Five head of pure bred Hereford bulls of serviceable age. Address, A. Johnson, Clearwater, Kans., breeder of high-class Herefords.

FOR SALE—A few choice Shorthorn heifers and young bulls. M. C. Hemenway, Hope, Kans.

FOR SALE—Guernsey bulls from best registered stock. J. W. Perkins, 422 Altman Building, Kansas City, Mo.

#### SWINE.

DUROC-JERSEY PIGS—Recorded; also herd boar, Victor Chief. L. L. Vrooman, Hope, Kans.

FOR SALE—Duroc-Jersey boar, ready for service. He is from the famous Blocher-Burton stock. February pigs now ready for sale. J. P. Lucas, 113 West 23rd St., Topeka, Kans.

FOR SALE—A few nice young boars of October farrow, bred by Kansas Chief, a son of Chief Tecumseh 8d. C. M. Garver & Son, Abilene, Kansas.

#### POULTRY.

BLACK MINORCAS—World's greatest laying strain, beautiful in shape, color, and comb, grand winter layers. Eggs \$1 per 15, \$4.50 per 100. George Kern, 817 Osage st., Leavenworth, Kans.

#### SEEDS AND PLANTS.

MILLET SEED—Siberian, \$1 per bushel, f. o. b. Omaha. D. C. Patterson, Omaha.

FOR SALE—Golden Yellow popcorn, very productive, excellent for popping, very tender. Packet 6 cents; 7 pounds 50 cents. J. P. Overlander, Highland, Kans.

200,000 FRUIT TREES! Wholesale prices; new catalogue. Baldwin, Nurseryman, Seneca, Kans.

#### FARMS AND RANCHES.

FREE Farm list, information; Sales, trades, State map 10c. Buckeye Agency, Agrícola, Kans.

DO YOU WANT THIS—320 acres; 120 acres cultivated, balance pasture in good condition; good unfailing water, nice improvements. Cost \$5,000, and they are in good condition. Price \$6,000, your own terms. Any sized farm cheap. Try us. Garrison & Studebaker, Florence, Kans.

\$3000 LIVERY STABLE AND LIVERY STOCK—Good Indiana town, doing nice business. I would like to trade for a farm with crop, stock, and farm tools, poultry, etc.; or western land of equal value. A. D. Roberts, Greensburg, Kans.

FOR SALE—A 39-acre suburban tract two miles from state capitol building, near electric car line, Topeka. Surrounded with good homes. Frank J. Brown, 17 Columbian Bldg., Topeka, Kans.

IF YOU WANT a farm in eastern Kansas, let us figure with you. Write us what you want. No trouble to show our farms, and they sell themselves. Good farms for from \$10 to \$20 per acre. Garrison & Studebaker, Florence, Kans.

FOR SALE—320 acre farm, improved, lays nice, and good land, grove around buildings, 11½ acres alfalfa started, 5 miles northwest Ellis, Kans. Write J. D. Rippey, Ellis, Kans., Box 115.

RANCH FOR SALE—1360 acres, 1120 acres of creek bottom, with model improvements, 140 acres alfalfa, 600 acres pasture, balance number one farm land. For further information address G. L. Gregg, Real Estate Dealer and Auctioneer, Clyde, Kans.

SOME BARGAINS in farm lands in Anderson County, Kansas, in farms ranging from 80 acres up to S. B. Hamilton, Welda, Kans.

FOR SALE—Farms and ranches in central and western Kansas. We have some great bargains in western ranches. Write us. R. F. Meek, Hutchinson, Kans.

NO FLOODS, no failure of crops, seldom a drought, in the Northern and Central counties of Wisconsin, Clay and clay loam top soil, clay sub-soil. Fine crops. Fuel cheap. Water plentiful. These cut-over hardwood timber lands make the best of farms. Hiles & Myers, 460 Matthews Bldg., Milwaukee, Wis.

pathy with the bad conditions at outside points. The demand was good at the lower range of values. Not only did the quality average only fair to good, or not as good as for the past several months, but the average weight showed a decrease, which indicates that corn is getting scarce and that feeders are not prone to put 40¢ @ 45¢ into hogs with the market on the toboggan.

Arrivals in the sheep department amounted to 14,802; former week, 17,354; year ago, 7,016. The bulk of the offerings ran to Texas sheep, which, aside from a few straggling lots, are practically all in. Native-fed and western stock was scarce. Under adverse conditions in the East again, prices here for Southwest sheep broke around 50¢ and fed sheep and lambs lost most 25¢. The demand was good at the lower trend of prices. With Southwest grassers about in and the movement of Western range stock not expected to assume any marked degree before the middle of or towards the latter part of July, traders are advising their customers who have good stock on hand to get them in before the advent of the latter shipments, that their stock will not have to compete with them.

FRIDLEY.

#### HORSES AND MULES.

STRAYED OR STOLEN—One bay mare, 4 years old, about 14½ hands high, cut on forehead leaving a small lump. Notify or return to Monthell Planning Mill, 214 Jackson st., Topeka, Kans.

MULES FOR SALE—A car-load of 1- and 2-year-olds; willing to take part pay in trotting-bred stallions. Address Otto D. Stallard, Sedan, Kans.

WANTED—To buy or trade, a Clydesdale stallion for a span of good mules. H. W. McAfee, Topeka, Kans.

PROSPECT FARM—CLYDESDALE STALLIONS, SHORTHORN CATTLE and POLAND-CHINA HOGS. Write for prices of finest animals in Kansas. H. W. McAfee, Topeka, Kans.

#### PATENTS.

J. A. ROSEN, PATENT ATTORNEY  
418 Kansas Avenue, Topeka, Kansas.

#### MISCELLANEOUS.

50,000 Choice White Oak Fence Posts for sale in car-lots only. Write for special price (giving number desired). M. D. Henderson, Topeka, Kans.

AGENTS—One good, industrious man in each county to sell Medicines, Stock and Poultry remedies, Flavoring Extracts, Ground Spices, etc., to farmers for cash or credit. Pay for goods by sending us one-half of your cash collections each week. Can make from \$600 to \$1500 each year. This is the best season to commence work. Don't answer this unless you mean business and can give personal bond and reference. Marshall Medicine Co., Kansas City, Mo.

WANTED OIL AGENTS—Good, reliable, energetic men to sell our high grade line of Lubricating Oils, Greases, Belting, also Roof, Barn and House Paints, White Lead, etc., either exclusively or as a side line, locally or traveling on commission. Specially to the thrashing and farmers trade. Address The Industrial Oil & Supply Co., Cleveland, Ohio.

TWO more litters of those high-bred Scotch Collie pups, only one week old, but you will have to book your order quick if you want one. Walnut Grove Farm, H. D. Nutting, Propr., Emporia, Kans.

WANTED WOOL—Send us samples of your whole clip, we will pay market price. Topeka Woolen Mill, Topeka, Kans.

CREAM Separators Repaired at Gerdon's Machine Shop 820 Kansas Ave., Topeka, Kans.

WANTED—Money to get patent on a quick-selling toy. Will give 25 per cent of what it sells for. Henry Boite, Webster, S. Dakota.

## The Stray List

#### Week Ending June 18.

Wabunsee County—Simeon C. Smith, Clerk.  
COWS—Taken up by G. M. Morrison, in Kaw tp. (P. O. Belvue), May 23, 1903, one red cow, valued at \$30; also a red cow, with mottled face, valued at \$30.  
MULE—Taken up by Frank Schmidt, in Alma tp. (P. O. Alma), May 9, 1903, one white mule, 15 hands high, valued at \$20.

#### Week Ending June 25.

Wilson County—J. E. Brown, Clerk.  
MULE—Taken up by E. C. Richardson in Center tp., May 27, 1903, one brown mare mule, slit in left ear; valued at \$30.  
Jackson County  
HEIFER—Taken up by John Carter, in Cedar tp., one red heifer, about 2 years old, a little white on belly and in bush of tail, crop off right ear and slit in same; no horns.

#### Week Ending July 2.

Ford County—S. P. Reynolds, Clerk.  
BULL—Taken up by F. L. Roberts, in Ford tp. (P. O. Ford), Dec. 1, 1902, one red bull, 6 years old, dim brand on right jaw, valued at \$25.  
Johnson County—J. G. Rudy, Clerk.  
CALVES—Taken up by S. C. Clinckscale, 3½ miles south of Morse, in Aubry tp. May 8, 1903, two heifers and one steer, yearlings, red, steer has white face, valued at \$30.

Ness County—Lorin Ferrell, Clerk.  
HORSE—Taken up by Cleopatra Borsh, in Bazine tp. May 13, 1903, one sorrel female horse, blaze face, valued at \$40.

Coffey County—Wm. Palen, Clerk.  
CALF—Taken up by J. Cunningham, in Ottumwa tp. May 26, 1903, one red yearling steer, with white on belly, underbit on both ears and tip of left ear cropped, valued at \$12.

Cherokee County—W. H. Shaffer, Clerk.  
MARE AND COLT—Taken up by George W. Wallas, in Baxter Springs, in Garden tp. (P. O. Baxter), May 29, 1903, one strawberry roan mare, 15 hands, wt. 850, branded with half circle on both hips, large half circle with heart in center on right hip, wire cut on left hind foot, had on small bell, valued at \$15. Also one iron gray colt, 1 year old, branded with letter P. on right hip, valued at \$25.

## 200 Per Cent Per Year.

Enormous profit is 'n't it?  
In parts of Kansas one crop pays 100 per cent on land values.

The land will increase in value 100 per cent more this year.

You can buy land that will do this at \$7 to \$15 per acre.

Near town, good schools and markets, smooth, black soil.

This is the twentieth century, the age of progress; progressive men are buying land and making fortunes.

Cheap land has made more men rich than any other investment.

The cheap land won't last forever.

An investigation by you means a sale for me.

Send for my land buyers guide which contains letters from farmers living on the land, who went there with nothing and who are now worth from \$5,000 to \$25,000 each, read sworn statement showing yield of 55 bu. of wheat per acre, and giving full information about crops, prices, etc., its free to all.

#### HILAND P. LOCKWOOD, Kansas City, Mo.

## East Reno Berkshire Herd.

Best Imported and American Blood. My herd is headed by Elma King 60056, a son of the high prices sow Imp. Elma Lady 4th 4468. Choice spring pigs by three grand boars for sale. Also bred sows and gilts. Send for free circular.

G. D. Willems, R. F. D. 3, Inman, Kans.



## Grange Department.

"For the good of our order, our country, and mankind."

Conducted by E. W. Westgate, Manhattan, to whom all correspondence for this department should be addressed. Papers from Kansas Granges are especially solicited.

### NATIONAL GRANGE.

Master..... Aaron Jones, South Bend, Ind.  
Lecturer..... N. J. Bachelder, Concord, N. H.  
Secretary, John Trimble, 614 F St., Washington, D. C.

### KANSAS STATE GRANGE.

Master..... E. W. Westgate, Manhattan  
Overseer..... J. C. Lovett, Bucyrus  
Lecturer..... Ole Hibner, Olathe  
Steward..... E. C. Post, Spring Hill  
Assistant Steward..... W. H. Coultis, Richland  
Chaplain..... Mrs. M. J. Ramage, Arkansas City  
Treasurer..... Wm. Henry, Olathe  
Secretary..... Geo. Black, Olathe  
Gate Keeper..... G. F. Kyner, Lone Elm  
Ceres..... Mrs. M. J. Allison, Lyndon  
Pomona..... Mrs. Ida E. Piler, Madison  
Flora..... Mrs. L. J. Lovett, Larned  
L. A. S..... Mrs. Lola Radcliff, Overbrook

### EXECUTIVE COMMITTEE.

Henry Rhoades..... Gardner  
J. T. Lincoln..... Olpe  
A. P. Beardon..... McLouth

Manhattan Grange at its last meeting donated \$41 for the benefit of the sufferers by the flood.

Edgerton Grange in Johnson County contributed \$10 for aid of the flood-sufferers in Johnson County.

Arkansas City Grange informs me that it has a fund subject to my order for the same general purpose.

Winfield Grange is also at work in the same line. I presume others are doing something and I wish that every grange in the State would as a body make a record upon the subject it will be glad to remember in the future. "Cast thy bread upon the waters and thou shalt find it after many days."

Gov. N. J. Bachelder, of New Hampshire, lecturer of the National Grange, was elected president of the New Hampshire Agricultural College but declined to accept the position. Governor Bachelder has been successful in every public position in which he has been placed and we feel New Hampshire has lost much in not securing the services of Mr. Bachelder in that very important office. E. W. WESTGATE.

### A Michigan Pomona.

REPORT FROM THE KENT POMONA TO OAKFIELD GRANGE.

Kent County Pomona Grange No. 18, met with South Lowell Grange at Alto, June 3 and 4. Grange was opened by Worthy Master McNaughton. After a song Mr. Curtis told us why we came. He said we read where John said, "I come, but One cometh after greater than I." This might apply to the reason why Kent Pomona came to Alto; that the subordinate grange looked up to Pomona for help; the National Grange was father, the State Grange was mother, and Pomona stood as the big sister, and in that way could help the subordinate granges.

Mr. Saunders spoke of "what we came for." The majority came to learn, but all knew he came to eat. Finally he owned that he also came to learn and to help in any way he could. Pomona should give help when needed and aid weaker granges. The members meet as farmers and farmers' wives; talk over farm business (for farm business is always Grange business) and measures for mutual aid and protection. The Grange is a school for all, and the only school farmers and farmers' wives attend. Organization among farmers is the thing, and the stronger organized the better. Meet often and work together.

Mr. Ransdell, formerly of Grattan, gave a few minutes' talk. He had lived at Grattan most of his life, but of late years had taken to wandering—so much so that he thought he must be the wandering Jew. But as he had bought a fine farm near Alto and had joined their grange, supposed he must be the Prodigal Son. He judged by the racket and odor from the kitchen they must be getting the fatted calf ready to serve soon. (By the way, they did.)

Brother Bedford, an organizer from Eaton County, next had the floor and told how they did at their grange. Rev. H. Renshaw: "What we live for or what is the real object in life." First have a purpose; for a person without a purpose is like a mariner without a chart, a ship without a rudder, and would only drift through life. Get knowledge; for that is the most important thing in life to possess. By that is meant the education in everything noblest and right to do. Have a purpose; find your place in the world and keep it. The Creator formed the world according to a plan and made man the most important factor in it. If a person can get into the place intended for him, he will be happy, contented, and useful and do the most possible

good to the most possible folks and help humanity socially, mentally and spiritually.

Worthy State Lecturer Mrs. Saunders: "Love of Service." Help humanity by love of service; be always on the watch to help your neighbor. Education, first, last, and always. Love of service brings rich rewards.

Mr. Curtis: "Who Is Our Neighbor?" One who needs our help and in the time of adversity we prove them and themselves. A little thought and kindness are often worth a great deal more than money.

Mrs. Brown thought drifting should apply to men only, for by the time a farmer's wife got up at half after 4 and did a farmer's wife's work she would generally be too tired to drift much. Another told a story of a drifter being of some use; his friends would be proud of him, he would make such a pretty corpse!

Mr. Campaw once asked, "Can a man learn without exposing his ignorance?" and had been told since then that he had learned a lot; was too old to go to dances, etc., had reformed and joined the Grange. He was trying to live up to the teachings of the ritual which said if all Patrons would place confidence in God, nurture hope, dispense charity, and be noted for fidelity, they would do all they need to do for the betterment of mankind. Brother Travers, of Irving Grange, Barry County, walked eighteen miles to attend this meeting and gave help by remarks.

Mrs. Curtis's paper, "Inspiration of Work." Have confidence in yourself and work; don't look for the soft snaps of life, but get at your work and keep at it; plan ahead. Work has made nature what it is and will help the future. To be a good Patron you will have to be a good worker. But stop work earlier on grange nights, and be on hand in time for grange, and when the worthy master says, "Take your allotted station," obey and work for the betterment of your grange. Be more united; don't neglect your grange; live as close to the by-laws as you can.

There were recitations by Rose Chalderon, Mr. Clark, Miss Johnson, and Mildred Keeler; also songs, etc. A telephone message was received from Brother Dennison, of Cascade, who has been very sick and was reported at the last Pomona meeting very ill and not expected to live to help at another meeting. He said he was better and his doctor gave hopes of recovery. A letter was read from Worthy Past Lecturer Allmand wishing he could be with us, but on account of the death of a son it was impossible.—Addie Keeler, Lecturer, in Grange Bulletin.

### Development Due to the Grange.

Here are some good thoughts from the annual report of Worthy Lecturer Buxton, of Oregon State Grange:

"This occasion marks the close of another eventful year in the history of the Grange in Oregon. The growth of the order during the year has been very satisfactory and the Grange has become a cherished household word in scores of new homes since the last meeting of the State organization.

"With the development of the Grange movement and its extension into new fields comes enlarged possibilities of usefulness to the farming interests of our State and increased responsibilities for the faithful performance of the duties thus imposed.

"Farmers are evidently realizing the need of some form of adequate organization to enable them to maintain the position in business, social, and political life of the community to which their numbers and the value of their prosperity entitle them. In seeking light along these lines farmers are first impressed with the futility of single-handed efforts, and next they begin to realize their lack of equipment. The farmer who really begins to study his surroundings and who reaches the conclusion that his condition is such as to need improvement, next inquires as to the 'how' of doing things. He finds the need of education in many lines. He sees the necessity of getting closer to his neighbors socially, of becoming better acquainted in order to understand them better. And finally in order to make possible the development in these many desired lines he realizes the necessity of first establishing his business on a more paying basis. Our later day civilization with all its blessings is an expensive commodity.

"The luxuries of yesterday are the necessities of to-day, and, with a natural decrease of production of the soil attendant upon its continued use, it is with increasing difficulty that the two ends are kept together. Hence, farmers are realizing more and more the necessity of becoming better grounded

Collier  
Missouri  
Red Seal  
Southern

**I**N painting the use of Turpentine saves labor and the use of Dryer saves time, but the excessive use of either destroys the paint.

Safety lies in using Pure White Lead and Pure Linseed Oil, and having the paint thoroughly brushed out. This may require a little more time and labor, but it will pay. The paint will be satisfactory and it will last.

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National Lead Co., Clark Ave. and Tenth Street, St. Louis.

in the principles underlying their work and of adopting new and improved methods in their farming operations. Hence, when they come to the Grange the greater portion of them come to it with a view of obtaining help in these many lines."—Grange Bulletin.

### Kansas Fairs for 1903.

Following is a list of fairs to be held in Kansas in 1903, their dates, locations and secretaries, as reported to the State Board of Agriculture and compiled by Secretary F. D. Coburn:

Allen County Agricultural Society: J. T. Tredway, Secretary, LaHarpe, September 22-25.  
Barton County Fair Association: Jas. W. Clarke, Secretary, Great Bend; August 25-28.  
Brown County—Hiawatha Fair Association: Elliott Irvin, Secretary, Hiawatha; September 8-11.  
Butler County Fair Association: J. W. Robison, Secretary, El Dorado; October 5-9.  
Chautauqua County—Hewins Park and Fair Association: P. N. Whitney, Secretary, Cedar Vale.  
Clay County Fair Association: E. E. Hoopes, Secretary, Clay Center; September 8-11.  
Coffey County Agricultural Fair Association: J. E. Woodford, Secretary, Burlington; September 8-11.  
Cowley County—Eastern Cowley Fair Association: Ed. E. Reed, Secretary, Burden; September 16-18.  
Coowley County Agricultural and Stock Show Association: W. J. Wilson, Secretary, Winfield; September 8-11.  
Finney County Agricultural Society: A. H. Warner, Secretary, Garden City; August 5-7.  
Franklin County Agricultural Society: Carey M. Porter, Secretary, Ottawa; September 15-18.  
Harvey County Agricultural Society: J. C. Nicholson, Secretary, Newton; September 22-25.  
Jackson County Agricultural and Fair Association: S. B. McGrew, Secretary, Holton; September 1-4.  
Jefferson County Agricultural and Mechanical Association: Geo. A. Patterson, Secretary, Oskaloosa; September 1-4.  
Jewell County Agricultural Association: H. R. Honey, Secretary, Mankato; September 14-17.  
Marshall County—Frankfort Fair Association: J. D. Gregg, Secretary, Frankfort; September 1-4.

Marshall County Fair Association: E. L. Miller, Secretary, Marysville; September 15-18.

Miami County Agricultural and Mechanical Fair Association: W. H. Bradbury, Secretary, Paola; September 8-11.

Mitchell County Agricultural Association: H. A. Phelps, Secretary, Beloit; September 30-October 3.

Morris County Exposition Co.: M. F. Amrine, Secretary, Council Grove; September 22-25.

Nemaha County Fair Association: W. R. Graham, Secretary, Seneca; September 1-4.

Neosho County Fair Association: H. Lodge, Secretary, Erie; September 29 to October 2.

Neosho County—Chanute Agricultural Fair, Park and Driving Association: A. E. Timpane, Secretary, Chanute; September 1-4.

Ness County Agricultural Association: I. B. Pember, Secretary, Ness City; September 2-4.

Norton County Agricultural Association: C. J. Shimeall, Secretary, Norton; September 1-4.

Osage County Fair Association: E. T. Price, Secretary, Burlingame; September 1-4.

Reno County—Central Kansas Fair Association: Ed. M. Moore, Secretary, Hutchinson; September 14-19.

Rice Agricultural Fair and Live-Stock Association: W. T. Brown, Secretary, Sterling; September 1-4.

Riley County Agricultural Society: E. C. Newby, Secretary, Riley; September 1-4.

Rooks County Fair Association: Olmer Adams, Secretary, Stockton; September 8-11.

Saline County Agricultural, Horticultural and Mechanical Association: H. B. Wallace, Secretary, Salina; September 8-11.

Sedgwick County—Wichita State Fair Association: H. G. Toler, Secretary, Wichita.

Smith County Fair Association: E. S. Rice, Secretary, Smith Center; August 18-21.

Stafford County Fair Association: Geo. E. Moore, Secretary, St. John; August 19-21.

Sumner County—Mulvane Agricultural Association: Newton Shoup, Secretary, Mulvane.

Wilson County—Fredonia Agricultural Association: J. T. Cooper, Secretary, Fredonia; August 25-28.

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## The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the Kansas Farmer. Give age, color, and sex of animal, stating symptoms accurately, of how long standing, and what treatment, if any, has been resorted to. All replies through this column are free. In order to receive a prompt reply, all letters for this department should give the inquirer's post office, should be signed with his full name, and should be addressed to Dr. Geo. C. Prichard, V. S., 110 East Tenth Street, Topeka, Kans. Telephone No. 319, either phone.

**Heaves.**—I have a horse 13 years old, of a bay color. He has a deep, hard cough that seems to hurt him. He coughs worse after drinking than at other times. It is hard for him to get his breath, and when he is coughing he holds his head to the ground. There is a discharge from his throat when he coughs after drinking, also from his nose, although not a great amount. It is of a whitish yellow color. It began about three months ago, and I have done nothing so far to cure it. The horse eats well—as much as he always did.

Lyon County.

**Answer.**—Your horse has heaves, which is a dietetic disease and can best be treated by attending strictly to the diet. Avoid overloading the horse's stomach with food or water. Feed the best of food, water often, and in small quantities. If possible, feed and water two hours before using.

**Mange.**—Lumpy Jaw.—As there is a quarantine against mange and itch, affecting the western part of the State, and as I am ignorant of the nature of the two diseases, I would be pleased if you would give me a description of them in the columns of the KANSAS FARMER.

2. What can I do to cure lumpy-jaw in a cow? It is now about as large as a hen's egg.

Logan County.

**Answer.**—Mange is a parasitic disease. The parasite burrows in the skin and produces intense itching. The itch you speak of is only another name for the same disease.

2. Have the lump dissected out by a good veterinarian.

**Hip Sweeney.**—Will you tell me through the KANSAS FARMER what causes hip sweeney. I have a mare 7 years old with colt by her side about 1 month old. I have used her only to drive in a spring wagon to town once a week since foaling, until last Friday when I plowed corn half a day, and Saturday half a day. Then I noticed she was sweeney in hip. Can I work her, and will it get well without treatment? If not, what will cure it?

JAMES BOTTOM.

Pottawatomie County.

**Answer.**—No doubt the sweeney you mention was caused by difficult labor at the time of foaling. Treatment: Clip off the hair over shrunken muscles and rub well in with the hand the following: Powdered cantharides, two drams; vasoline twelve drams; mix thoroughly. Tie up the head, and grease after thirty-six hours.

**Deranged Digestion.**—I have some March pigs which are sick and I do not know what to do for them. They seemed to do very well until they were about 6 weeks old, when they commenced to scour badly, got very thin in flesh and seemed to break out in lumps all over the body. Their flesh turns red and cracks open, also end of nose is very red. The sows run on rye pasture all winter and spring. I fed corn with a mixture of ground corn and Kafir-corn as a slop. After the pigs were weaned they were fed dry Kafir whole, and sour skim-milk. Any information will be greatly appreciated.

CHAS. D. GIBSON.

Wilson County.

**Answer.**—Evidently your hogs are suffering from some derangement of the digestive functions, which was induced by their being taken with scours. The eruptions in the skin frequently follow weakened digestion. Would advise complete change of feed, also of runs on pasture. With the change of food would advise putting plenty of charcoal in reach of them. Wash sores with weak solution of salt and water or borax and water.

**Canker in Mouth.**—I have some pigs that break out in the front part of their head and around their mouth with pimples or lumps. These pimples grow larger slowly and after they get quite large they began eating apparently from the outside, but do not seem to discharge much. I killed a hog to-day that had a large hole eaten half way through its nose. I would like to

know through your paper what it is and what to do for it. W. W. WEBB.

Rice County.

**Answer.**—Your hogs have canker of the mouth. Isolate well from those affected. Wash sores with strong solutions of alum-water, or solution of borax and water. Keep in comfortable, airy places with plenty of soft feed. Keep quarters clean, and, when necessary, laxatives should be used, such as raw linseed-oil in doses to suit size of pig.

**Diseased Cow.**—I have a cow that has been running at the nose as a horse will. I kept her from the other cattle a while and she seemed to get better, but I have detected that she is having the same trouble again, and others of the herd seem to have a slight touch of it. They have been running in pasture and are fat. The eyes are dim and swollen. A man told me that it was tuberculosis and that it would do no good to doctor them. Have had it about three weeks. What is it and what can I do for them?

Meade County. CHAS. SWERDEGER.

**Answer.**—It would be impossible to diagnose your case with any degree of certainty from symptoms given, but would advise placing those cows affected by themselves and putting them on a generous diet with the following as a tonic: Fowler's solution of arsenic, in one-ounce doses night and morning in feed. The symptoms you mention would not indicate tuberculosis particularly.

**Castrated Pigs.**—About a month ago I castrated my pigs when they were about 8 weeks old. Some of them have a hard callous lump nearly as large as a hen-egg where operation was performed which continues to grow. Some years ago I had something similar to this and the lump grew so large that the pigs finally died. I would like to know what causes this, or after appearance of the lump what could I do to get rid of it without injury to the pig.

ALEX. HUTCHISON.

Pottawatomie County.

**Answer.**—It will be necessary to remove enlargements with the knife. Make a free incision into the abscess, cleanse thoroughly, and if necessary, dissect the whole enlargement.

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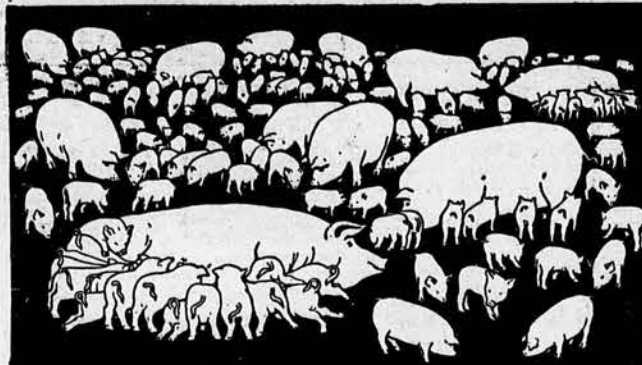
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**"Cremoline** has proven to be what it is made for; I have used it successfully on a horse that was cut by a wire fence. It not only kills Screw Worms, but also greatly helps to heal the wounds. The sale has increased greatly, as it gives satisfaction in every instance."

For Sale by General Dealers, in 25c bottles and 1, 5, and 10 gallon cans; but if not kept in stock by your storekeeper, we will ship promptly on direct orders.

Made only by: **The Cremoline Mfg. Co., 1729-31 Olive St., St. Louis.**

## CREAM

"I have found it much more profitable to sell cream to you than to make butter or to ship cream to any other creamery, and I have tried others."

**S. A. HAGUE, Lyons, Kans.**

It pays others to patronize us and it will pay you. We furnish cans free. Write for price.

**O. F. CHANDLER CREAMERY CO.,**

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