

KANSAS FARMER

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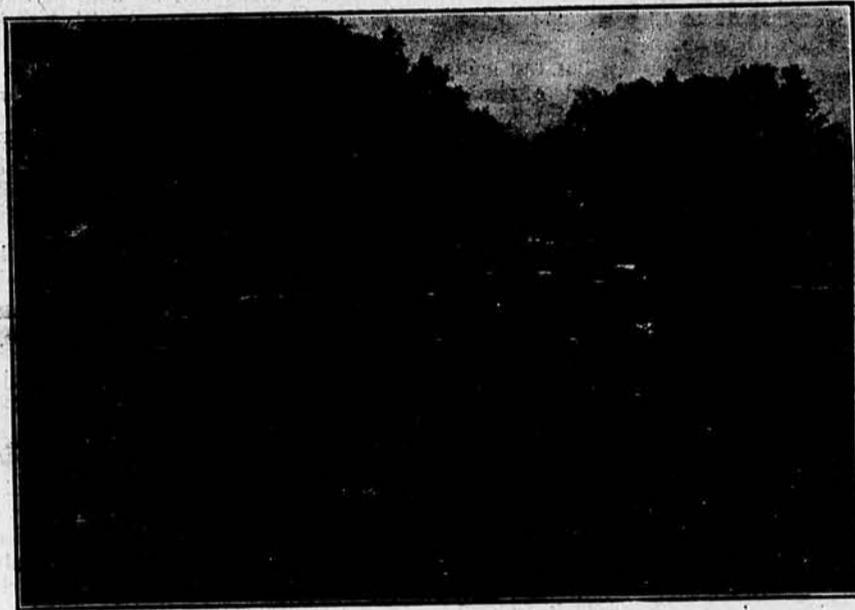
TOPEKA, KANSAS, JULY 11, 1907

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ESTIMATES OF THE KANSAS WHEAT CROP.

The question of the probable yield of the Kansas wheat crop is now an important one in the estimation of the business world. That there were during the spring and early summer some unfavorable conditions is well known. Deficiency of moisture in important portions of the wheat belt; late frosts which cut down jointed wheat; the "green bugs" whose destructive work farther

them. The green bugs were a real menace whose natural destroyer, the parasite *Lysiphebus*, was retarded in its development by the cool weather. The green bug did considerable damage and would doubtless have done much more but for the timely assistance extended to the parasite by Professor Hunter, of the Kansas University. Finally, this last enemy of the wheat disappeared and the recuperative powers of nature were left free to do



Some of the Matrons in the Famous Shorthorn herd of T. K. Tomson & Sons, Dover, Kans., to which has recently been added the Valley Grove Herd of T. P. Babst & Sons, Auburn, Kans.

south was a warning of what was to be feared in Kansas; these conspired to reduce the prospects which had promised a greater crop than Kansas has ever produced.

The rains came too late to produce a great growth of straw but in season to promote the formation of well-filled heads and plump grain. Under the favoring influence of growing weather the famous Red Turkey wheat demonstrated its ability to recover from the effects of frost, and even after the principal stems had jointed and had been killed, this wheat sent up its branch stems vigorously and developed plenty of good heads on

the magical work of restoration. The change has been marvelous and is almost past belief.

THE KANSAS FARMER has taken pains to inquire of the various authorities who are in position to have up-to-date information on the present condition of the crop. None of these wants to be quoted on his views. It may be said, however, that the estimates on the aggregate Kansas crop for 1907 range from 50,000,000 to 70,000,000 bushels. One of the best-informed estimators who had placed the crop at 55,000,000, last Saturday raised his figure to 57,000,000. Another excellent and heretofore conservative authority took a wide

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range, on account of improved reports from sections from which the most hopeless returns had come earlier in the season, and placed the figures at 60,000,000 to 70,000,000.

THE KANSAS FARMER has been doing some observing through its representatives who travel in almost all sections of the State. The information now at hand, while far from complete and based on estimates and not measurements, points to 60,000,000 as about as close an approximation as we can make at this time.

Last year's Kansas wheat crop is estimated officially by the U. S. Department of Agriculture to have aggregated 81,830,611 bushels and to have had a "farm value" of \$47,461,754, or about 58 cents per bushel. Should this year's crop yield 60,000,000 bushels, a farm value of about 79 cents per bushel will net to the farmer the same amount as last year's wheat crop is reported to have brought him.

FIVE PER CENT—TEN PER CENT.

A correspondent in Western Kansas writes:

"In your paper of June 27, 1907, on page 752, is an article, 'Kansas Farmers in Trouble,' and the final plea is, 'Does anybody know a remedy for this kind of trouble?' I can say I do, out here in our county where everything is new, where we have to pay 10 to 12 per cent for any money we get we would be very glad to get \$2,000 for five years at 5 per cent. We can give good security on 320 acres of land. We have a homestead of 160 acres of land we have been living of two years. We have cattle and horses, calves, colts, and six children. To keep our family and pay such high rate of interest hinders us from paying the debt very fast. Our wheat was badly injured by the late freeze, May 26. Everything was injured some but the wheat worst of all. Other crops look fine. Now, if the man you spoke of will loan us the money we can give him good security. As to reliability refer to—" (Here the correspondent names three references of the highest character).

"Please let us know what you can do and we will try to help those farmers out of trouble."

This letter repeats the situation in newly developing countries. The writer "has been there" and has paid not

only 10 or 12 per cent for money, but at one time paid as high as 3 per cent per month for a short time. This seemed hard when money in some other sections was seeking borrowers at 7 per cent. But in order to be of service to this correspondent, the writer took this letter to an agency which handles 5 per cent money. It was read with interest. The references were well known and favorably commented upon. But the reply was, "We are not doing business that far west."

It must not be forgotten that "loan money" is in almost every instance the result of strenuous work and careful saving. The owner is depending upon it to make him comfortable in old age, to educate the children, or for some other worthy purpose. He would like to place it where he may know that it will be safe and where it will earn some income. He can not afford to examine a proposition like this presented by our correspondent. It is too far away. The fact that the wheat was injured by the freeze of May 26 emphasizes the need of the would-be borrower, but it also makes the prospective lender fearful. The writer once presented an application for a loan for a person who was greatly in need of money. The man in control of loan money replied that he would rather loan it to somebody who did not need it so badly.

People in Western Kansas are doing well. Their lands are increasing in value. The disposition to hold all one can get is strong. The time is probably coming when 5 per cent money will be offered in that section. But the fact that 10 to 12 per cent is now demanded illustrates, not necessarily the greed of local lenders but the lack of confidence that payment of interest will be promptly met and that the principal will be absolutely safe. Those who are making that country are, in a sense, playing a game in which they expect liberal profits on their holdings as well as liberal returns from their farming. If all goes well, they win large rewards. If reversal comes, as the history of all new countries shows to be possible, they suffer the consequences. Until the element of chance shall have been greatly reduced in the estimation of investors, those who borrow will probably be obliged to pay not only for the use of the money but also for the real or imaginary risk that arises to the view of the lender.

THE KANSAS FARMER would be glad if it were able to answer this correspondent more in accordance with his needs and wishes. But candor is to be preferred to words that might create false hopes. The editor can suggest nothing better than that this correspondent secure through the local banks or agencies such loans as he is sure he can use at a profit, but avoid involving himself in large amounts for long time for the speculative purpose of making gain on account of prospective rise in land values.

D. W. Working, a graduate of the Kansas Agricultural College, has just been elected to the position of superintendent of agricultural extension work for the University of West Virginia. The college of agriculture is a department of the university. Mr. Working is finely equipped for this work. He will find means of promoting the interests of agriculture and of agricultural education, and of creating an interest that will be reflected in the dollars and cents, in the enjoyments, and in the general uplift of the people he is to serve. West Virginia is to be congratulated on securing the services of so conscientious, so able, and so well equipped a man.

Agricultural Paper Free.

I will send an elegant monthly agricultural paper one year, free, to every farmer writing at once, giving me his experience raising alfalfa. Give number of acres, cost of seeding, cost of harvesting, amount cleared per acre best year, and average year, and price per acre you paid for your land and price per acre you want for your alfalfa land. Address Box 1107, Des Moines, Iowa.

"Why was that waitress in such a hurry to get married?"
"She said she didn't wish to wait any longer."

Miscellany

Official Call for the Fifteenth National Irrigation Congress.

To the People of the United States, Greeting: The Fifteenth National Irrigation Congress will be held in Sacramento, Cal., September 2-7, inclusive, 1907.

The four great objects of the congress are to "save the forests, store the floods, reclaim the deserts, and make homes on the land."

All who are interested in the achievement of these objects or any of them are invited to attend the congress, and, by participating in its deliberations, contribute to a wise direction of national policies and development of practical methods of conserving and developing the great national resources of the country, thereby insuring a greater stability of prosperous conditions, extending the habitable area, increasing the products of the land, and increasing internal trade and commerce.

National and State officials, irrigation and forestry experts, engineers, farmers and irrigators, manufacturers, professional and business men, industrial workers, editors, and other representatives of the press will attend the congress.

INTERSTATE EXPOSITION.

Simultaneously with the irrigation congress there will be held at Sacramento an interstate exposition of irrigated land products and forest products. The largest and finest list of trophies and prizes ever offered at any event of this kind will stimulate competition. The exhibition of irrigated products will be the finest ever assembled anywhere in this country.

CALIFORNIA STATE FAIR.

The California State Fair will follow the Congress, opening on September 7, when the joint closing and opening ceremonies will be attended by a great irrigation celebration, the day closing with a magnificent allegorical irrigation parade and electrical illumination.

IRRIGATION STUDIES.

California affords many opportunities for the study of irrigation, irrigation practices and results, irrigated crops of every kind, and irrigation opportunities. Sacramento, the capital city of California, where the Congress will be held, is situated near the center of the great valley which extends lengthwise through the State a distance of nearly five hundred miles and comprises approximately ten million acres of fertile land. Colossal plans for the construction of storage dams, and distributing canals for the irrigation of this great plain are now being made by engineers of the Reclamation Service, and money has been apportioned from the reclamation fund for the construction of an initial unit of the great system contemplated.

September is a season of fruits and grapes in California and visitors to the congress will have opportunities at Sacramento and throughout the State of enjoying the best that California orchards and vineyards yield and of enjoying it fresh from tree and vine.

ADDRESSES.

The program of the congress will consist of addresses by men eminent in this and other countries, carefully prepared papers by administrative officials and engineers of the National Reclamation Service and Forest Service, with ample provision for volunteer speeches and discussion.

MEMBERS.

The personnel of the National Irrigation Congress will be as follows: The permanent officers of the congress; the President of the United States; the Vice-President of the United States; the members of the cabinet; members of United States Senate and House of Representatives; governors of States, Territories and insular possessions of the United States; members of State and Territorial Legislatures; ambassadors, ministers, consuls, and other representatives of foreign nations and colonies;

members of State, Territorial, and Insular irrigation and forestry commissions.

DELEGATES.

Fifteen delegates appointed by the governor of each State or Territory; ten delegates appointed by the mayor of each city of the United States of more than twenty-five thousand population; five delegates appointed by the mayor of each city in the United States of less than twenty-five thousand population; five delegates appointed by each board of county commissioners or county supervisors in the United States; five delegates appointed by each State organization, having as its object the advancement of the public welfare of that State; five delegates appointed by each State irrigation, forestry, agricultural, or horticultural society or association; five delegates appointed by each National or interstate association interested in the objects sought by the National Irrigation Congress; five delegates by each State association of professional, commercial, fraternal, patriotic, religious, or labor organizations; two delegates duly accredited by each chamber of commerce, board of trade, immigration society or commercial club; two delegates duly accredited by each regularly organized irrigation, agricultural, horticultural, or forestry club, association, or society in the United States; two delegates duly accredited by each irrigation company; two delegates duly accredited by each agricultural college, and by each college or university having chairs of hydraulic engineering or forestry in the United States; two delegates duly accredited by each regularly organized society of engineers in the United States.

MAKE APPOINTMENTS EARLY.

Appointment of delegates should be made as early as possible, and notice of appointment with full name and postoffice address of delegates forwarded without delay to the National Irrigation Congress Headquarters, Sacramento, Cal.

Delegates appointed to this congress should communicate with the board of control at Sacramento, in order that accommodations may be reserved.

ENTERTAINMENT.

The board of control, consisting of prominent citizens of California, supported by unanimous sentiment throughout the State, and aided by committees representing various portions of the State, have arranged a splendid program of entertainment, and will accord delegates a cordial welcome.

SPECIAL RAILWAY RATES.

Special railway rates have been made for delegates to the congress and will prevail over all trans-continental lines.

All tickets will include a free trip to San Francisco, where rebuilding operations are being carried forward on a scale so vast as to render that city today the greatest and most interesting exhibition of man's constructive genius, civic pride, and commercial enterprise ever witnessed in the world.

EXCURSIONS.

Special excursions will enable delegates to see California. These will cover the Sacramento and San Joaquin Valleys, with their great farms, vineyards, orchards, and irrigation districts. They will penetrate the mountains, pass through magnificent pine forests to the great mining districts of the Mother Lode and to the famous copper belt of the north and rich gold mines of the Siskiyou.

These excursions will extend to the famous vintage district and giant redwoods of the north coast counties, to the beautiful Santa Clara and other delightful valleys of the south coast, to sea coast resorts of world-wide fame, to the palatial hotels and beautiful landscapes of the southern counties, to the Yuma project and Imperial Valley, where the border land between the United States and Mexico has been transformed from a desert to a garden. They will extend to the Klamath country where the National Government is building in California and Oregon a great irrigation system, to

Truckee-Carson irrigation project Nevada and on to the great mining districts of Southern Nevada, where the fabulous wealth are attracting the attention of the civilized world.

TRAVERSE THE COAST.

Tickets may be purchased via Los Angeles, the splendid Southern metropolis of California, via Portland, Rose city of the Northwest, or via bustling and rapidly growing cities the shores of Puget Sound. Delegates who desire may come via the northern line and return via the southern, or vice versa, and thereby traverse the entire Pacific Coast of the United States, a territory rich in natural resources and scenic beauty.

INFORMATION.

Information relative to the congress, interstate exposition, and program will be furnished upon request from the Irrigation Congress Headquarters, Sacramento, Cal.

W. A. BEARD,
Chairman Executive Committee.

GEO. W. PELTIER,
Chairman Board of Control.
Sacramento, Cal., July 3, 1907.

Oil in the Improvement of Roads.

OF ALBERT DICKENS, IN BULLETIN 142.
INTRODUCTORY.

At the meeting of the board of regents of the Kansas State Agricultural College, held in July, 1905, the writer was instructed to take charge of the experimental road work, authorized by the Legislature of 1905 in section 74, of Senate Bill 664, as follows:

"74. For the State Agricultural College, to make experiments with crude oil for the improvement of the public roads of the State, one-half to be extended west and one-half each of the sixth principal meridian, and the report of the results to be made to the Governor for publication: For the year 1905 and 1906, \$1,250; and the year 1907, \$1,250, or so much thereof as may be necessary."

Acknowledgement is due my assistant, Mr. Robert E. Eastman, for careful work in constructing and observing the road at Manhattan; and Mr. J. L. Pelham, student assistant, for efficient and conscientious work done at Maple Hill and Garden City. Acknowledgement is due also Supt. E. E. Marshall and the board of managers of the State Reformatory at Hutchinson; County Clerk W. McD. Rowan, and the board of commissioners of Finney County; Vice-President H. U. Mudge, of the Rock Island Railroad; and General Manager Hurley and Industrial Commissioner Wesley Merritt, of the Santa Fe Railroad, for valuable cooperation and assistance.

The work in testing the value of Kansas oil in road improvement began with some preliminary laboratory tests of samples of oil of different grades and from various sources. These tests indicated that the residuum from the refineries was much superior to the crude oils. The value for road-making seems to depend upon the amount of asphaltum and similar substances that the oil contains. The laboratory tests indicated that one gallon of the residuum was equal in road-making qualities to from two to four gallons of the various crude-oil samples. The board of regents having directed that the two roads built in 1905 be located at Hutchinson and Manhattan, the matter of freight charges was important and the residuum was selected for the test.

THE HUTCHINSON ROAD.

A road one-fourth of a mile in length just west of the reformatory was selected for the test. The soil is a very fair sample of the sandy loam of the Arkansas Valley. At the date of its selection, August, 1905, no rain had fallen for ten days, and the sand was several inches deep. Loads, consisting of fifty bushels of grain, made an exceedingly heavy load for a heavy draft team. A good carriage team required considerable urging to pull the carriage faster than a walk. In constructing this sample road the city of Hutchinson established a uniform grade, set the grade stakes, and furnished a road grader and teams for operating it. The reformatory officials furnished men and teams for hauling

soil for finishing the grade and for applying the oil.

Superintendent E. E. Marshall has recorded data as to the condition of the road. After the grading was completed and the road bed, where fills were required, was well firmed, the entire road—a fourth of a mile in length, and thirty feet wide—was plowed to a depth of about four and one-half inches and thoroughly pulverized with a harrow and disk. A disk (set straight) was run before the sprinkling tank to open small furrows, and a harrow followed the sprinkling tank to thoroughly mix the soil and oil.

The residuum could not be readily applied with the common sprinkling device of the street sprinkler, but a simple arrangement consisting of a curved piece of four-inch pipe attached to the tank and connected at a right angle with an eight-foot piece of similar pipe, in which were drilled, at a distance of one and one-half inches, holes three-eighths of an inch in diameter, worked very satisfactorily. A common gate valve in the T coupling gave control of the supply.

The oiling was done the first days of October, and the oil was not heated.

This road is at the present time a most excellent one. The grade is good: slightly over an inch to the foot; and so well-rounded that all water runs off quickly. At the time the section begun in 1905 received the second application, another section of this road was oiled. This was so deeply worked by the traffic that no plowing was required, the disk and harrow sufficing to put it in good condition for oiling. At the time of application the weather was hot and dry, so slightly more than one gallon per square yard was required to saturate the four or five inches of dry, sandy soil. This was harrowed and floated, but lacked the rolling, and has not yet reached the degree of excellence the first section has maintained since the second oiling.

A section of road consisting of two blocks of fairly well-graded street and of a considerably heavier soil was given a coating of oil with no preparation except smoothing it with the float. Less than one-half gallon per square yard was used, and the road was very considerably benefited; the dust was not troublesome during the summer and fall, and the rainfall was well car-

gallon to the square yard was applied on this section. The second section oiled was not worked so deeply. It has been very firmly packed by heavy loads during the oiling of the first section, and was worked only about two inches in depth. Six-tenths gallon per square yard was applied. Both sections have been greatly improved by oiling, but the first section has been uniformly better than the second.

In May, 1906, the second section became very dusty. Before oil was secured it was so coated with deep dust that traffic shunned it. Even at its worst it did not blow badly, and when in June a second application was given it soon became a very fine road. The first section was somewhat dusty, but the oiled crust had not been cut through in any place.

Traffic over this road has been exceptionally heavy. The coal for the college is hauled by heavy teams, and although the contractor's wagons are, by agreement, equipped with wide wires it often happens that the arrival of a number of cars at once compels them to hire extra teams with narrow-tired wagons. During the week between December 28 and January 4 the weather was the most trying, nearly the entire week being damp with five-tenths inch of rain. The heavy loads, many weighing three to three and one-half tons, did not seriously injure the road; in no case was the crust on the first section cut through. The output of a stone quarry, and the cement, sand, and other material used in college buildings, has all been hauled over this road, making as severe a year's test as could well be given. The soil below the oiled layer was thoroughly wet by heavy rains immediately preceding the oiling, and some heaving was noticed when the ground thawed in the spring. The crust was not frozen hard, but the under-soil froze to a considerable depth. A floating and rolling after the ground thawed served to put the road in good condition. The road has been given some considerable attention; after each rain it has been smoothed with the drag; and because of streets opening upon the road it has sometimes been necessary to reverse the drag and float the collected mud to the side of the road.

The oiled road has been compared with a well-graded, well-dragged earth road built of a better draining soil. The oiled road has required less care than the earth road, and there have been several days after each heavy rain when the earth road has been far from good while all the time the oiled road has been in such condition that heavy carriages and light loads have been drawn at a good trot. The worst condition that has been observed during the year has been following the light snowfall which melted the following forenoon. The water standing on the surface and mixing with the surface dust made the road disagreeably sloppy until the wind dried out the road, but all the time the bed was firm and hard. Somewhat the same conditions have followed after long continued drizzling rains. Heavy rains have been quickly drained from the surface.

A short section of road built on a clay hill that has always washed badly has tested the value of oil in preventing washing. In June, 1906, this was plowed to a depth of six inches and several applications of oil, amounting to nearly three gallons per square yard, were thoroughly worked in. It has proved satisfactory in every way. After rolling and floating July 1 it has been in constant use and is in every way a very fine road. The following copy of notes may be of interest:

NOTES ON BEHAVIOR OF OILED ROAD AT MANHATTAN.

November 20, 1905—Road in good condition, fairly compact; sharp-shod horses leave distinct mark of caulks, unshod horses only light mark.

November 27—Road in fine condition. November 23, 1.1 inches of rainfall, nearly all drained off road; gutters showed some oil. The afternoon of November 25 the road was well dragged with King drag and rolled with the horse roller weighted to about three tons. Heavy teams with

ried off; but after continued wet weather heavy traffic cut this road quite badly; whereas the sections where the oil was worked in to a depth of four or more inches were not injured.

THE MANHATTAN ROAD.

In August, 1905, the road east and extending south of the Agricultural College to the Manhattan City Park was prepared for oiling. This road is built of heavy black soil for the greater part of the length, one block of the road being noticeably lighter. In front of the college grounds the road, or many years, has been notoriously bad in wet weather. This road was well rounded, with wide and shallow ditches, and the center rising thirty inches above the inside of the ditch. The section for oiling was twenty-four feet wide; the grade was two and one-half inches to the foot, which was slightly reduced by heavy rolling and frequent dragging. It was a matter of frequent comment that this road was "too round." This road has proved very satisfactory; all sorts of heavy traffic, including many loads of loose hay, has gone over it constantly.

In the laboratory tests this black soil did not seem to mix well with oil and it was coated with sand an inch in depth. In order to accommodate traffic this road was oiled in two sections. The first oiled was the heavier soil; and this was well worked to a depth of nearly four inches. The disk and harrow were used, as at Hutchinson, and the road was well rolled with a heavy horse roller before it was opened to traffic. Nine-tenths of a



Mr. L. E. Job, carrier on Rural Route No. 3, Wellsville, Kans., and his motor cycle on which he makes daily mail deliveries over 25 miles of dirt road that is kept good by use of a King drag.

The tank used held 500 gallons, and with the teams walking at a moderate gait, the tankfull would cover the road, about 8,800 square yards, once. The harrow followed each application; and when one gallon to each square yard had been applied the soil seemed nearly saturated to the depth of plowing—4½ inches. After harrowing the last time a heavy float was used to smooth the surface, and in a week the road was sufficiently firm to allow rolling, a 12-ton paving roller being used, and going over the road several times until it seemed to be thoroughly firm. The road was closed for a week after the rolling and was then used by all kinds of heavy traffic. It was firm but not hard. A sharp-shod horse left the caulk marks plainly outlined, but did not tear up the soil, even when driven at a quick trot. November 1 this road was very good, at a time when the adjoining road was very sandy.

One reason for building the sample roads the fall of 1905 was in order that the effect of freezing weather might be noted. The Hutchinson road was not noticeably affected; it would seem that the coating of oiled soil kept the underlying soil sufficiently dry to prevent serious heaving by frost.

In June, 1906, the surface of the road, on becoming dry, carried a coat of dust, varying from one-half inch in the place where the grade required cutting to an inch and more in places where a fill was required. Another application of oil was made, varying in amount with the depth of dust, but averaging about one-half gallon per square yard. This was lightly harrowed, and after two days was floated well.

narrow tires cut in two inches morning of November 25, dragged ruts well filled. Road in fine condition for light driving.

December 31—Tests made with heavy load; 6,000 pounds of stone on oiled road show slightly heavier draft than on smooth, unrolled dirt road. The greatest difference in the record is at the start. Less difference in draft where wide-tired wagon was used.

January 19, 1906—Sleet on January 13, two-tenths inches of rain. Road in use; sleet cut up and ground into surface. When sun came out the road became very sloppy, and very disagreeable for one day, after which the drag put it into excellent condition.

February 10—After a light snow but a very sunny morning the water stood in large drops on the oiled surface; road did not become sloppy.

February 18—After one inch of rain on February 14 and 15 the road was dragged, and on February 17 was in excellent condition; was slightly muddy on February 16, but carriage teams trotted without apparent effort and loads did not cut badly. February 18, in good condition.

March 7—After ninety-five hundredths inch of rain on March 5, road in good condition without the drag; drag put in good, smooth surface; very little mud.

April 10—After fifty-five hundredths inch of rain on April 8 the road was not at all muddy; heavy loads of stone—one 7,000 pounds—cut through the crust and necessitated some dragging to fill the ruts.

May 10—Road quite dusty. Fair crust below dust; three places cut through with pick showed crust two to three inches evidently well saturated with oil. Dust probably an inch deep.

June 1—Dust very bad on south end, where about six-tenths gallon was applied; less dusty on north end. Dust apparently heavy; does not blow so far as the dust on unrolled roads.

June 25—One gallon per square yard applied to the south section; slightly over one-half gallon per square yard applied to the north section. Both sections harrowed and floated.

July 1—Road in very fair condition, slightly oily.

July 10—Road in very fine condition, hard and smooth.

August 5—Rain of 1.95 inches yesterday. Road in fine condition; earth roads adjoining very muddy; much too wet to drag.

August 25—Rain of 1.15 inches yesterday; road in fine condition; load of stone hauled by heavy team on narrow tires, did not cut through except in a few spots where mud from side street had accumulated (load weighed 6,500 pounds).

September 18—Rain yesterday—3.1 inches; seemed to run off as fast as it fell; road in fine condition this morning.

November 19—Twenty-four hundredths inch melted snow; road quite sloppy where side streets join and some water standing on surface of the best section; road hard; teams trotting without apparent effort.

November 25—Rainfall one inch yesterday; road in good condition today.

December 30—Three-tenths inch rain yesterday; misty for three days; road slightly sloppy but firm and good, while earth road is too wet to drag.

THE MAPLE HILL ROAD.

The board of regents having decided that the roads built in 1906-1907 should be located at Maple Hill and Garden City, one-half mile of road south and west of Maple Hill, in the Mill Creek valley, in soil that is frequently called "gumbo" and which has been very bad in wet weather, was selected. The grading and preparation was done by the township and the Maple Hill Commercial Club. The oiling was done the first week in September, 1906; the oil was well worked in to a depth of about four inches, about 1.4 gallons used per square yard, rather more than the average being put in the center of the road. Traffic was kept off for ten days. Since that time the road has been subjected to heavy traffic. October 17, when inspected, it was a very fine

piece of road, and January 1, after a week of moist weather, it was in particularly good condition. No work of any kind has been done on this road since its completion, early in September, and it has evidently borne all traffic without cutting through the crust of oiled earth. This half-mile was built at less cost than roads at other points; it was nearer the point of unloading and the weather being fine and warm the oil was easily pumped from the tank car to the sprinkler. The residuum used cost 90 cents for a 42-gallon barrel f. o. b. Maple Hill, amounting in all to \$150. The cost of sprinkling, working in, floating, and supervision, including board of team and teamsters, cost slightly less than \$100. This oiled road, 16 feet wide, cost at the rate of about \$500 per mile besides the grading. A member of the Maple Hill committee on good roads, who has been interested sufficiently to make frequent observations, reports under date of January 5:

"Maple Hill, Kans., January 5, 1907. "Albert Dickens, Manhattan, Kans.

"Dear Sir: The half-mile of oil road that Mr. Pelham put in here last fall according to your directions is in elegant condition and has been tested thoroughly this winter, and has never been touched since Mr. Pelham left it last fall. I consider it by far the best piece of road for the money I ever saw.

"Yours very truly,
"R. T. UPDEGRAFF."

THE GARDEN CITY ROAD.

The "sand-hill" road south of the Arkansas river, near Garden City, is probably as bad a stretch of road as can be found anywhere. The sand is rather coarse, and when dry works up to a considerable depth. In the summer of 1905 the county commissioners used one car-load of crude oil on a section of this road. When I visited the road early in the spring of 1906 the effect of the oil was apparent; it had to a degree kept the sand moist and the road was somewhat less bad than the other sections. Compared with the residuum afterward used, the crude oil evidently lacked the binding properties of the residuum. On this first trip to Garden City I met Mr. Bullard, who informed me that some three years previous a Colorado refinery had sent him ten gallons of residuum and asked him to use it in road experiment. He leveled a space ten feet square and poured the residuum upon it, taking no pains to work it into the sand. Guided by Hon. Wm. Kinnison I found the place where the residuum had been applied and we found a considerable section which, though undermined by wind and sand-rats, was of the consistency of a soft sandstone. The appearance of the sand indicated that a much greater quantity of oil would be required than at any other location where we had built experimental roads, and the appropriation being small the County Commissioners agreed to bear one-half the expense of a trial mile, located about three miles from town. This is about the center of the strip of sand-hills and the worst of the strip. Considerable temporary improvement has been made at both ends by hauling old hay, straw, or manure upon the sand. This mile had had but little of these. The road was built of the clean sand, and the quantity of oil required was very much greater than had been used elsewhere. The oiling was done in sections a quarter-mile in length, the quantity varying with the condition of the sand. In one place the oil penetrated sixteen inches, and in many places twelve to fourteen, being absorbed by the sand until a layer of moist firm sand was reached. The quantity used varied, the north section, 400 yards long by 4 yards wide, receiving an average of 3.7 gallons per square yard.

The second required 4.3 gallons per yard. This section was graded before being oiled; the sand was dried to a greater depth than the section that had been oiled and worked in. The sand floated upon the surface and the road again was oiled to secure a grade.

The third section received an average of 4.7 gallons per square yard. The fourth or south section was the deepest and coarsest sand on the road. The oil penetrated to an average depth

of 8 inches—6.06 gallons per square yard was applied. It was found to be practically impossible to close this road to traffic. It was clearly better than the unrolled track, and the temporary fences were of no avail in keeping off the heavily loaded wagons. The oiling was completed October 20, and December 15, when the road was last inspected, it was vastly better than other portions of the road, but was badly cut into ruts. The horse tracks were quite firm and some teamsters insisted that even with ruts and all it was a "mighty fair road." Driving horses and saddle horses traveled easily. In some few places an excessive amount of oil had been applied, but this was remedied by floating dry sand into these spots. A road drag was built and the filling of the ruts was begun. It seems now highly probable that even with constant teaming, by keeping the ruts filled, this will ultimately become a very fair road.

THE MANHATTAN DRIVING CLUB TRACK.

During the winter of 1905-'06 the owners and drivers of roadsters in and near Manhattan came to appreciate the excellence of the half-mile of oiled road. For a considerable time it was the only half-mile in the vicinity where a horse could be driven at a fast gait.

The directors of the Manhattan Driving Club early announced their intention of oiling their track. The soil of which this track is built varies from a fairly heavy loam to a very sandy loam, and in some places a light silt, deposited by the river at high water, is present. Before oiling, the track was so poor that no horses were trained there. The only assistance the college rendered was in an advisory way; but the effect of the oiling has been watched with interest. About 270 42-gallon barrels were used, which allowed somewhat less than one gallon per square yard. The oil was harrowed in and the track afterward well rolled with a heavy roller. The rolling was finished July 2, and July 4 a matinee was held. The track was not in good condition; it was somewhat "cuppy," and considerable quantities of the oily soil were thrown over the drivers. August 22 to 24 the club held a race meeting and the track was in very fair condition. The opinions of drivers varied somewhat as to the quality of the track. Some thought it rather slower than hard clay tracks, but practically all agreed that it was a good track, so far as keeping horses' feet and legs in condition was concerned. The track had continued to improve. Quite recently Mr. C. B. Michael, a well-known trainer of long experience, said in an interview: "It is a first-class training track; the cushion is always there; and there is no danger of the dust cushion being blown away by the first high wind; and it does not require floating after every rain to renew the dust cushion. It is especially good, I believe, for winter and early spring training. Last Friday, after it had been raining all week and the roads were too sloppy to allow jogging, the track was in fine condition. Soon as it stopped raining we could drive as fast as we cared to hurry them. I am not sure as to the chance for breaking records; it may not be quite so fast as a harder track, but I believe it will give less trouble for trainers in keeping their horses' feet, legs and muscles in condition." It is my opinion that this track will require another application of oil the coming spring. I think one-half gallon per square yard will be ample. It is the only oiled road that has had no heavy traffic over it in bad weather, and it is very fine for driving; it is firm and somewhat elastic.

OILING MACADAM.

One of the most satisfactory uses made of oil has been the oiling of one of the macadam drives. The limestone of which the college drives are built is quite soft and wears badly. Rains and winds remove dust, and ruts form. In preparing one part of a drive for oiling the teamster misunderstood directions and used a harrow instead of a float. The result was a surface of small stones, and harrow working the binding course in below the surface. Sand was used to level the surface and

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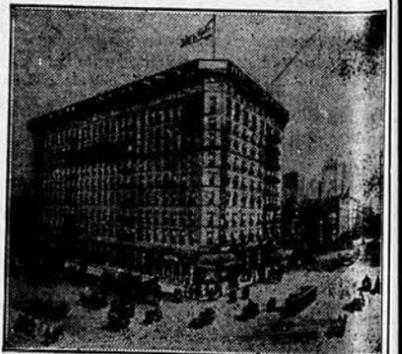
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was well oiled, slightly more than gallon per square yard being used. It is a very satisfactory surface; it is less noisy than the macadam...

SUMMARY.

The durability of oiled roads and their need of further applications must be learned by further observations. I believe that the object lessons derived by the samples built will be a considerable factor in advancing the use of good roads. It seems to me

heavy traffic, not less than six inches is desirable; for light driving, three or four inches should be sufficient.

Oil roads will probably require some future application, but it now seems that the amount required will decrease annually as roads become smoother. The use of oil for city streets might occasion some dissatisfaction because of oil sticking to shoes, but careful cleaning of shoes will obviate this trouble.

The residuum first used in 1905 cost one and one-half cents per gallon at the refinery, freight making it cost nearly three cents at Manhattan. Residuum used in 1906 varied from eighty-six cents to one dollar per barrel f. o. b. Maple Hill, Hutchinson, Manhattan, and Garden City. Cost of applying varied with distance, price of labor, temperature and convenience in unloading from fifty to one hundred dollars per car. Cost of road varied from \$525 to \$1300 per mile.

ESTIMATE.

One mile, 1760 yards by 6 yards wide (10,560 square yards), at two gallons per square yard (506 barrels at \$1 per barrel), \$506. Cost of application within three miles of railroad, \$154. Total, \$660.

Range Improvement.

Overcrowding of the grazing lands of the public domain of the West before the creation of the National forests, brought many of the ranges into very poor condition, and many stockmen have requested advice on possible methods of increasing the forage. The Bureau of Plant Industry of the Department of Agriculture, and the Forest Service has joined in cooperative work in investigating the best means to develop an increased forage crop in the evergrazed National forests.

Frederick V. Coville of the Bureau of Plant Industry has been placed in charge of the work of making these investigations and will report to the Forester in the matter. The fields in which these investigations will immediately begin are located as follows: Imnaha National Forest, Oregon; Sawtooth National Forest, Idaho; and Pikes Peak National Forest, Colorado. The work in each forest will be in charge of a special inspector or special agent reporting to Mr. Coville.

Mr. Coville is well fitted to conduct these investigations in reseeding the ranges as he has had extensive experience in much other work along the same line. In 1898 he compiled a report on sheep grazing in the Cascade Mountains of Oregon for the Forest Service and in 1904 in the service of the Public Lands Commission investigated and made a report on grazing under State lease laws. He is a director of the botanical experiment station of the Carnegie Institution at Tucson, Arizona, and is lending valuable service in the Bureau of Plant Industry of the Department of Agriculture.

All grazing tends to change the character of the forage, generally for the worse, just as timber cutting tends to change the character of the forest for the worse by taking out the most valuable trees and leaving the poorer kinds to take their place. One of the first results of overgrazing is seen in the increase in the number of weeds, which stock either refuse to eat or avoid as long as anything better can be found, and which therefore go to seed. If the natural grazing land of the West is to be made the most of, it must grow the kinds of forage plants which will give the range the highest value per acre to the stockmen. It is therefore a fact of considerable interest to the stock industry that the matter is to be taken up scientifically, to find out in the light of full knowledge of the requirements and the feeding value of all kinds of plants what it will pay to try to introduce.

In the management of grazing on some of the ranges the Forest Service has found it necessary to greatly reduce the number of stock in order to stop the damage from overgrazing of the land.

In attempting to increase the amount of forage by artificial seeding, if possible, the principal questions to be settled are whether it is practicable to seed these ranges or any portion

of them with seed of either native or cultivated grasses or other forage plants, and what system of range management of both cattle and sheep will best permit the valuable native grasses to reseed themselves and thus increase the carrying capacity of the range. If the problems can be solved in the ranges where the investigations are about to begin other experiments will naturally follow in practically all of the National Forests which contain range lands.

The plans which shall be found practicable on these forest range lands will doubtless be applicable on other grazing lands. Let Uncle Sam proceed with the experimenting.

What the Split-Log Road Drag Has Done.

In this issue we present a picture of Rural Route Carrier L. E. Job, of Wellsville, Kans., who makes his daily delivery of mail over his 25-mile route on a motor cycle in three and one-half hours. Every foot of this route is over a dirt road, and Mr. Job makes his daily trips on his cycle regardless of weather conditions. When the writer last saw him, just before the photograph was taken, he was starting over his route on Monday morning. On Sunday evening there had been a heavy rain which had rendered other dirt roads in the vicinity almost impassable. Every foot of this mail route had been dragged at least three times since January 1, and this country road, located in the muddiest part of Kansas, was in better condition for travel, even after the heavy rain, than are some of the paved streets in Topeka.

Other roads in the vicinity of Wellsville are constantly being dragged and the town profits by it. It is actually drawing trade away from other towns by reason of its fine roads while the farmers have the satisfaction of being able to go to town on a trot any day of the year.

All this road improvement is the outgrowth of the work done by the Santa Fe Good Roads Train which held one of its biggest and most enthusiastic meetings at Wellsville. Mr. Job was among the enthusiasts and his personal work has been worth thousands of dollars to this neighborhood.

The Topeka Chautauqua.

Preparations have been made for a delightful Chautauqua meeting among the beautiful trees of Garfield Park, Topeka. Tenting in the woods, boating on Soldier Creek which passes around one side of the park, visiting, courting, and sight-seeing at and around the capital city will supplement the regular exercises.

Following is the official program:

- Monday, July 15. 2.30 p. m.—Kilties band. 3.00 p. m.—Opening address, Capt. J. G. Walters. Flag raising exercises, in charge of Lincoln Post, Capt. P. H. Coney, past department commander of Kansas, presiding. 8.00 p. m.—Kilties band. Tuesday, July 16. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, Dr. W. M. Patten, "Bible Land," Council tent. 10.00 a. m.—Mrs. Margaret Hill McCarter, "Summer Mornings with the Poets," Council tent. 11.00 a. m.—Domestic Science, Miss Margaret Haggart, lecture and demonstration on cooking "Vegetables, Cereals, Fruits," Council tent. 2.00 p. m.—The Wilbur Star Concert Company, Auditorium. 2.30 p. m.—Col. H. W. J. Ham of Georgia, "The Snollygostic in Politics." 4.00 p. m.—United Mission Study, Mrs. John P. White, "The Triumph of Missions," Council tent. 5.00 p. m.—C. L. S. C. Council Hour, in charge of W. C. T. U. 7.30 p. m.—Wilbur Star Concert Company. 8.00 p. m.—Dr. Thomas E. Green, A lecture-drama, "The Templar Knights." Wednesday, July 17. PATRIOTIC DAY. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, Dr. W. M. Patten, "The Land of the Book," Council tent. 10.00 a. m.—Mrs. Margaret Hill McCarter, "Summer Mornings with the Poets," Council tent. 10.30 a. m.—Address by Senator Chas. Curtis of Kansas, "A Trip to Panama," Auditorium. 11.00 a. m.—Domestic Science, Miss Margaret Haggart, "Batters and Dough Mixtures," Council tent. 2.00 p. m.—Wilbur Star Concert Company. 2.30 p. m.—Addresses by Col. Wm. Warner, senator from Missouri; Dr. B. F. Boyl, of Atchison; Congressman D. R. Anthony; Mrs. E. E. Forter, Marysville. 4.00 p. m.—United Mission Study,

- Mrs. John P. White, "Methods of Modern Mission," Council tent. 5.00 p. m.—C. L. S. C. Council Hour, in charge of Women's Auxiliaries G. A. R. 7.30 p. m.—Wilbur Star Concert Company. 8.30 p. m.—Nat. M. Brigham, "The Apache Warpath," Illustrated. Thursday, July 18. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, by Dr. W. M. Patten, "The Old Testament and Its Writers." 10.00 a. m.—Mrs. Margaret Hill McCarter, "Summer Mornings with the Poets." 11.00 a. m.—Domestic Science, Miss Margaret Haggart, "Eggs and Meats," Council tent. 2.30 p. m.—Midland Jubilee Singers. 3.00 p. m.—Dr. Elliott Boyl. 4.00 p. m.—United Missions Study, Mrs. John P. White, "Educational Missions." 5.00 p. m.—C. L. S. C. Council Hour, "Present Day Aspects of Mormonism," Miss Edith Hughes. 7.30 p. m.—Midland Jubilee Singers. 8.30 p. m.—Nat. M. Brigham, "The Grand Canyon of Arizona," Illustrated. Friday, July 19. MISSIONARY DAY. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, Dr. W. M. Patten, "The Old Testament—the Gathering of the Books." 10.00 a. m.—Dr. John P. White, Lecture with charts, "Immigration," Auditorium. 11.00 a. m.—Domestic Science, Miss Margaret Haggart, "Cakes, Pies, Puddings," Council tent. 2.00 p. m.—Midland Jubilee Singers. 2.30 p. m.—Captain R. P. Hobson, "America's Mission as Peacemaker Among the Nations." 4.00 p. m.—United Mission Study, Mrs. John P. White, "Woman's Work for Woman." 5.00 p. m.—C. L. S. C. Council Hour, "World Wide Missions," In charge of Mrs. J. R. Madison. 7.30 p. m.—Midland Jubilee Singers. 8.30 p. m.—Thomas Gray, "Micronesian Islands," Illustrated. Saturday, July 20. FARMERS' INSTITUTE DAY. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, Dr. W. M. Patten, "Between the Testaments." 9.00 a. m.—Retz-Nehrbas combination. 10.00 a. m.—Prof. J. H. Miller, superintendent of farmers' institute, Kansas State Agricultural College, "The Relation of Improved Agriculture to Permanent Prosperity," Auditorium. 11.00 a. m.—Domestic Science, Miss Margaret Haggart, "Breads, Cakes, Pies," Council tent. 2.00 p. m.—Prof. J. T. Willard, Kansas State Agricultural College, "Why Legislate for Pure Food." 3.00 p. m.—Spillman Riggs, "Musical Fits and Misfits." 4.00 p. m.—United Mission Study, Mrs. John P. White, "Medical Missions." 5.00 p. m.—C. L. S. C. Council Hour, Y. W. C. A. conference, in charge of Mrs. Norman Plass, president of the State committee. 7.30 p. m.—Retz-Nehrbas combination. 8.30 p. m.—"Boy Blue," children's opera in three acts. Cast of 60 persons. Sunday, July 21. 2.00 p. m.—Prelude Howe Company. 2.30 p. m.—G. A. Gearhart, "Dangers that Threaten Civilization." 5.00 p. m.—"What the Young People Are Doing to Evangelize America," Miss Edith Hughes, field secretary for women's board of home missions. 7.30 p. m.—Vesper service. 8.00 p. m.—Gospel service, in charge of Young People's Local Union. Monday, July 22. TEMPERANCE DAY. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, Dr. W. M. Patten, "The New Testament and Its Writers." 10.00 a. m.—Mrs. Margaret Hill McCarter, "Summer Mornings with the Poets." 11.00 a. m.—Domestic Science, Miss Margaret Haggart, "Salads." 2.00 p. m.—Dr. Thomas McClary, "The American Home." 3.00 p. m.—Temperance address, John Marshall. 4.00 p. m.—C. L. S. C. Council Hour, in charge of Robert Norris, secretary State Temperance Union. 5.00 p. m.—United Mission Study, Mrs. John P. White, "Industrial Missions." 7.30 p. m.—Prelude Howe Company. 8.30 p. m.—Moving pictures. Tuesday, July 23. WOMEN'S CLUB DAY. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, Dr. W. M. Patten, "The New Testament—the Gathering of the Books," Council tent. 10.00 a. m.—Women's Federated Clubs, Mrs. Margaret Hill McCarter, Topeka, presiding. Address, Mrs. Eustace Brown, Olathe. 2.00 p. m.—Meistersingers Quartette. 2.30 p. m.—Dr. Wm. J. Dawson, London, "Robert Louis Stevenson." 3.00 p. m.—Women's Federated Clubs, Mrs. W. A. Johnston, Topeka, presiding. Address, Mrs. James Humphrey, Junction City, "Kansas in Song and Story," Council tent. 5.00 p. m.—United Mission Study, Mrs. John P. White, "Philanthropic Missions." 7.30 p. m.—Meistersingers' Quartette. 8.30 p. m.—Richie, the Magician, "Shadowgraphy." Wednesday, July 24. 8.30 a. m.—Devotional hour. 9.00 a. m.—Bible lecture, Dr. W. M. Patten, "The English Bible." 10.00 a. m.—Mrs. Margaret Hill McCarter, "Summer Mornings with the Poets." 11.00 a. m.—Domestic Science, Miss Margaret Haggart, Subject to be announced. 2.00 p. m.—Meistersingers' Quartette. 2.30 p. m.—Dr. D. F. Fox, Chicago, "A Neglected Cavalier." 4.00 p. m.—United Mission Study, Mrs. J. P. White, "Missions and Social Progress." 5.00 p. m.—C. L. S. C. Council Hour, in charge of W. C. T. U. 7.30 p. m.—Meistersingers' Quartette. 8.30 p. m.—J. Lorenzo Zwickey, "The Philosophy of the Beautiful."

TABULAR SUMMARY OF OIL ROADS.

Table with columns: Kind of Soil, Preparation, Date of oil, Amt of oil per sq. yd., Cost per sq. yd., Date of oil, Amt per sq. yd., Cost per sq. yd., Condition 1 year after oiling, Condition 6 months after oiling, Cost of application wide of road, Cost of application 18 feet wide of road, Cost of grade and prep. application.

advisable that sufficient funds be provided to secure definite information concerning the durability of the roads now made.

The residuum from the refinery contains the roadmaking material and has been more successful than crude oil. The thorough mixing of the earth and oil to a sufficient depth to form a waterproof crust is necessary. For

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PURE-BRED STOCK SALES.
Shorthorns.

Oct. 23.—A. C. Shallenberger and Thos. Andrews, Alma, Neb.
 Nov. 5.—E. D. Ludwig, Sabetha, Kans.
 November 6 and 7—Purdy Bros., Kansas City.

Herefords.
 February 25, 26, 27—C. A. Stannard, Emporia, Kas.
 February 25-28—C. A. Stannard and others, Kansas City, Mo.

Aberdeen-Angus.
 July 10.—Thos. J. Anderson, Gas City, Kans.

Poland-Chinas.

September 19—J. T. Hamilton, So. Haven, Kans.
 October 3—M. Bradford & Son, Rosendale, Mo.
 October 7—T. S. Wilson, Hume, Mo.
 October 12—D. C. Stayton, Independence, Mo.
 October 12—Sam Rice, Independence, Mo.
 October 14—E. E. Axline, Oak Grove, Mo.
 Oct. 15.—John Blain, Pawnee City, Neb.
 October 15—Bernham & Blackwell, Fayette, Mo.
 Oct. 16.—Geo. Hull, Burchard, Neb.
 October 17—Charlie W. Dingman, Clay Center, Kans.

October 17—J. T. Ellerbeck, Beatrice, Neb.
 October 18—C. A. Lewis, Beatrice, Neb.
 October 19—Geo. Falk, Richmond, Mo.
 October 21—F. D. Winn, Randolph, Mo.
 October 22—F. A. Dawley, Waldo, Kans.
 October 22—W. N. Messick & Son, Piedmont, Kas.
 October 22—Jas. Mains, Okaloosa, Kans.
 October 23—John M. Coats, Liberty, Mo.
 October 23—A. P. Wright, Valley Center, Kans.
 October 24—G. M. Hebbard, Peck, Kans.
 October 24—J. R. Triggs, Dawson, Neb.
 October 25—W. J. Honneyman, Madison, Kans.
 Oct. 25.—H. G. Chapman, Dubois, Neb.
 October 25—Martin Lents, Atherton, Mo.
 October 26—A. E. Hoffman, Reese, Kans.
 Oct. 26.—L. T. Boner, Lenora, Kans.
 October 28—Howard Reed, Frankfort, Kans.
 October 28—Bolin & Aaron, Leavenworth, Kans.
 October 29—Leon Calhoun, Potter, Kans.
 October 30—H. B. Walters, Wayne, Kans.
 October 30—The Big 3, Centerville, Kans.
 October 31—L. C. Caldwell, Moran, Kans.
 November 1—Harry E. Lunt, Burden, Kans.
 November 2—C. E. Shafer & Co., Erie, Kans.
 November 2—Thos. F. Walker, Alexandria, Neb.
 November 2—Dietrich & Spaulding, Richmond, Kans.

November 4—C. S. Nevius, Chiles, Kans.
 November 5—Lemon Ford, Minneapolis, Kans.
 November 5—E. L. Calvin, Bolcourt, Kans.
 November 6—W. R. Crowther, Golden City, Mo.
 November 7—T. P. Sheehy, Hume, Mo.
 November 8—D. E. Crutcher, Drexel, Mo.
 November 8—U. S. Ison, Butler, Mo.
 November 9—H. H. Harshaw, Butler, Mo.
 November 11—Adams & Lorance, Moline, Kans.
 November 12—W. N. Messick & Son, Piedmont, Kans.
 November 12—I. E. Knox and Wm. Knox, Blackwell, Okla.
 November 13—J. C. Larrimer, Wichita, Kans.
 Nov. 13—W. H. Bullen, Bellville, Kans.
 November 14—C. W. Dingman, Clay Center, Kas.
 November 15—C. G. Mills, Pleasant Hill, Mo.
 November 15—J. J. Ward, Belleville, Kans.
 November 15—A. & P. Schantz, Alma, Kans.
 November 15—J. E. Tennant, New Hampton, Mo.
 November 20—Bert Wise, Reserve, Kans.
 November 20—R. E. Mauplin, Pattonsburg, Mo.
 November 21—F. D. Fulkerson, Brimson, Mo.
 November 21—Everett Hayes, Hiawatha, Kans.
 November 22—C. E. Hedges, Garden City, Mo.
 November 23—F. F. Orelay, Oregon, Mo.
 December 4—Geo. Null, Odessa, Mo.
 January 30—H. B. Walters, Wayne, Kans.
 February 5—C. E. Tennant, New Hampton, Mo.
 February 6—R. E. Mauplin, Pattonsburg, Mo.
 February 7—F. D. Fulkerson, Brimson, Mo.
 February 8—Wm. Wingate, Trenton, Mo.
 February 8—Thos. F. Walker, Alexandria, Neb.
 Feb. 25—L. D. Arnold, Abilene, Kans.
 Feb. 26—W. H. Bullen, Bellville, Kans.

Duroc-Jerseys.

Oct. 1—W. H. Halth, Tecumseh, Neb.
 Oct. 2—W. M. Putman, Tecumseh, Neb.
 Oct. 3—Elmer Lamb, Tecumseh, Neb.
 Oct. 4—E. F. Miner, Tecumseh, Neb.
 Oct. 5—F. C. Crocker, Filley, Neb.
 Oct. 15—Jno. W. Jones, Concordia, Kans.
 October 16, 1907—Ford Skeen, Auburn, Nebraska
 Oct. 16.—G. W. Colwell, Summerfield, Kans.
 October 22—J. E. Jones, Clyde, Kans.
 Oct. 30—Rathbun & Rathbun, Downs, Kans.
 Oct. 31—D. O. Bancroft, Downs, Kans.
 Nov. 1—R. G. Sollenbarger, Woodston, Kans.
 November 2—Jos. Lynch, Independence, Mo.
 Nov. 5—J. C. Logah, Havensville, Kans.
 November 26—Geo. Hannon, Olathe, Kans.
 November 28—Marshall Bros. & Stodder, Burden, Kans.

January 21—Jas. L. Cook, Marysville, Kans.
 Jan. 22—E. H. Erickson, Olsburg, Kans.
 Jan. 23—Samuelson Bros., Bala, Kans., bred sow sale.

February 4—Chester Thomas, Waterville, Kans.
 February 5—C. G. Steele, Barnes, Kans.
 February 6—J. F. Chandler, Frankfort, Kans.
 February 7—Joseph Reist, Frankfort, Kans.
 Feb. 18—John W. Jones, Concordia, Kans.
 Feb. 19—T. P. Peagarden, Wayne, Kans.
 Feb. 27—D. O. Bancroft, Downs, Kans.
 Feb. 28—Rathbun & Rathbun, Downs, Kans.
 Feb. 29—R. G. Sollenbarger, Woodston, Kans.

O. I. C.
 October 17—Frank Walters, Rockport, Mo.

Berkshires.

August 15—Black Robin Hood Berkshires at Kansas City, T. F. Guthrie, Saffordville, Kans.
 August 16—Black Robin Hood Berkshires at Lawrence, Kans., Chas. E. Sutton, Lawrence, Kans.

Percherons.
 Feb. 22—D. E. Reber, Morrill, Kans.

Combination-Sale.
 February 18, 19, 20, 21—Percheron, Shorthorns; Herefords, Poland-Chinas at Wichita, J. C. Robison, Towanda, Kans.

Pigs on Alfalfa.

I am feeding out 100 head of shoats that now weigh 50 pounds per head. For a period of 21 days we fed them 3 bushels of corn per day and they had the run of the alfalfa-field and the bunch made a gain of 1,200 pounds in the 21 days. Now what I want to know is, what is the most economical amount of corn to feed, or can I add swill to an advantage? That is, can I economically add it? But leaving out the swill can I increase the corn ration

to an advantage, and if so what amount should I feed?
 R. O. STEWART.
 Rice County.

If Mr. Stewart has an abundance of alfalfa pasture, he will probably find it more economical to allow these pigs to make as much gain as possible from the alfalfa, for gains can be made cheaper from grass than from grain, and unless he is anxious to get these pigs on the early market, I would suggest the feeding of a pound to two pounds of soaked corn per day, as long as the pasture is good and the pigs seem to be making satisfactory gains; that is, allow them to make their growth from alfalfa. Then when they are well grown put them up and crowd them as fast as possible for market on a full grain feed, and for this feeding would suggest corn chop, meat meal, and tankage. As long as the pigs are making good, satisfactory gains from the light grain ration which they are receiving, and the alfalfa pasture, I would not recommend heavier grain feeding.
 R. J. KINZER.

Management of Swine for Profit in the Southwest.

BY W. J. SPILLMAN, U. S. DEPARTMENT OF AGRICULTURE.

Swine-raising is a very profitable type of forming, requiring comparatively little labor. It is, therefore, adapted to farmers like myself, who like a good income for little work. The writer and his brother are conducting a farm of this type in Southwest Missouri. For many years it was the custom in that section to depend almost exclusively upon corn as a feed for hogs. Farmers long ago learned that this was not a very profitable business. Corn is excellent when fed in small quantity to young hogs that have abundant green pasture, and it is also an excellent feed for finishing hogs for the market, even when fed alone, though better when fed with it a small quantity of some nitrogenous material, such as alfalfa hay or linseed-meal. When corn is fed alone it will make about ten or twelve pounds of gain per bushel of corn. With hogs at four cents a pound this gives a return of about forty to fifty cents a bushel for the corn. It is easy to see that such business is not very profitable. But when hogs are run on first class pasture, particularly if that pasture consist of clover or alfalfa, or even on good bluegrass, ten bushels of corn will make a 200-pound hog by the time the hog is nine months old. These ten bushels of corn are worth, say, \$4.00. This leaves \$6.00 profit from each hog to be credited to the pasture. Now, on good pasture one can raise ten head of hogs, thus making the pasture return \$60.00 an acre per season. There is no kind of farming that returns such profits as this with so little labor. One can run five head of hogs per acre on an alfalfa or clover field and cut hay as often as if the hogs were not there, though of course not so much hay. In Northern Kansas it is customary in many localities to run five head of hogs per acre on alfalfa fields and then cut three crops of hay a year.

The one drawback in hog-raising is the danger from cholera and swine plague. These diseases are undoubtedly responsible for the fact that hogs bring such high prices on the market. Hogs can be produced at a cost of two to three cents a pound by those who understand hog-raising. If it were not for cholera it is probable that so many hogs would be raised that the price of live hogs would seldom exceed three cents a pound. It is possible to greatly minimize the danger from cholera. It is a contagious disease, produced by a microbe which will be found abundant in the surface soil in enclosures where hogs are afflicted with this disease. The disease is usually carried from one herd of hogs to another in the dirt which adheres to men's shoes. In some cases it is thus carried through thoughtlessness, and doubtless in many cases through ignorance. The farmer who would keep his hogs free from cholera must keep them carefully quarantined when there is any cholera in the neighborhood, and even then some stray dog may carry the germs from another hog to his

own. In the State of Missouri a dog running around without a master is an outlaw. The law on this subject has been of great benefit to the farmers of that State. It ought to be adopted by every State in the Union.

To show that care will at least sometimes enable the farmer to keep his hogs free from disease, I may state that just a year ago cholera broke out in its worst form in the vicinity of our farm in Lawrence County, Missouri. Every one of our neighbors lost the greater portion of their herds. By keeping our own hogs carefully quarantined and keeping ourselves and our hired men away from other herds, we passed through the epidemic without a sick hog. This is not saying, of course, that we shall never have cholera on our place, but it shows that the careful methods I have outlined are worthy of trial.

METHODS OF SWINE-RAISING IN NORTHERN KANSAS.

A good many farmers are making good money from hogs in Northern Kansas. In that section two general practices prevail. One is to run about five head per acre on alfalfa fields that the cut for hay, feeding a little corn regularly, and increasing the amount at the end of the season, until the hogs are ready for the market. The other method is to run ten head to the acre, and perhaps cut a small crop of hay in the early part of the season, feeding grain as before. As already stated, hogs handled in this manner will, by the time they reach 200 pounds, consume about ten bushels of corn. In winter in that section the hogs are carried through largely on alfalfa hay supplemented in some cases by grain, especially when there is a litter of fall pigs to carry over to spring.

AN ILLINOIS HOG FARM.

As a good many readers of the New Southwest live in sections where alfalfa has not become established, it would be of interest to notice briefly the methods pursued on one of the most successful hog-farms in the State of Illinois. These methods are adapted to all parts of the country where clover can be grown. A field of 80 acres is divided into four equal fields, which corner at the center of the farm, where there is a well and a shed for storing grain for feed. On these four fields is run a rotation of corn, oats and clover. In the first year corn field one-fourth of the land is seeded to soy-beans instead of corn, the soy-bean hay being cut and fed to the hogs in winter. During the summer the hogs run on twenty acres of clover. Only spring litters are produced on this farm. Fifteen sows and one hundred and twenty pigs are put in one end of the clover field containing eight acres, where they are kept during the summer, small houses being provided for shelter. Water is brought to them on small sleds on which a barrel is arranged with self-watering device. The top of the sled is a box four inches deep and just large enough for a barrel to stand in. A large hole is made in the top of the barrel, and a small one about three inches from the bottom on one side. The small bung is stopped, the barrel filled with water, and then the stopper is inserted in the large opening at the top air tight. On removing the small stopper, water runs out in the box until the box is filled to the level of the top of the opening in the barrel. Then, as the hogs drink the water they let in air and the water runs out, keeping the water at the same level in the box until the barrel is empty. It is then drawn to the well, filled, and drawn back to the field. Two of these barrels are provided for the fifteen sows and one hundred and twenty pigs. During the summer these hogs are fed a small quantity of corn and some ground oats. By fall the pigs weigh 100 to 125 pounds. They are then confined on about four acres of the clover field next to the well, where they are kept during the winter, the sows being removed to a two-acre bluegrass pasture on another part of the farm. Both sows and pigs are provided with small movable buildings for shelter. During the winter they are fed soy-bean hay from four acres of land, grain enough to keep them growing, so that by spring they weight from 200 to 225

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pounds. The pigs are then given twelve acres of the next clover field, the sows and the next crop being given the other eight acres. The hogs are provided with small movable shelters and temporary straw sheds to furnish shade and remain on the clover until about the 1st of August, when they are sold, receiving meanwhile enough corn to keep them growing vigorously. At the time they are marketed these hogs weigh from 325 to 350 pounds each. They are, of course, well bred and a uniform lot, and always bring top prices for hogs of their class. The owner of this farm, which is one of the most successful hog-farms in the country, has been following this system for about ten years and in that time has been able to buy and pay for another 80-acre farm of high-priced Illinois land. His land has increased in fertility to such an extent that for the past four years his average yield of corn has been a little over 80 bushels. The oat crop, however, he finds unsatisfactory. His land has been so stocked with nitrogen that the oats fell down, and he is seeking some crop to take their place, but has not found anything that is entirely satisfactory. Now in Southern Missouri and Northern Arkansas, where oats are not very reliable, a modification of the system just described can be used. Make a three-year rotation of corn, clover corn, showing the clover in the second year corn at the last cultivation. This is perhaps the best place to sow clover in that section of the country. The soy-beans may be planted on part of the first year corn field, though if there is a field of wheat available for winter pasture, the soy-beans will not be necessary. In the system above described an 80-acre farm produced 120 head of hogs per year, weighing 325 to 350 pounds. The number of hogs is limited by the area of clover pasture, which on the farm described is 20 acres. Now in a three-year rotation there will be nearly 27 acres of clover. This would permit 140 hogs to be sold each year, that is, hogs weighing over 300 pounds each. With hogs at five cents a pound this would be an income of \$2,300.00 from 80 acres of land per annum. Of course returns like this would only be possible to good farm managers in years when there was no cholera.

SOUTHERN KANSAS AND OKLAHOMA METHODS.

In Southern Kansas and Oklahoma methods of hog-raising similar to those described for Northern Kansas prevail for the summer months, but in winter the hogs are run on wheat for pasture. They can be left on the wheat until the alfalfa is green in the spring without serious injury to the wheat as a grain crop, so that in that territory it is possible to produce two crops of 200-pound hogs a year. In some sections this type of farming prevails very generally, and the farmers have made good money. That far South if it is necessary to provide a little sorghum or some other green feed so that in case dry, hot weather prevails in summer, resulting in slow growth of the alfalfa, there may be abundant feed without injury to the alfalfa fields. An acre of sorghum will carry twenty-five head of hogs for several months, if necessary. It is not as good feed as alfalfa, but by increasing the corn a little the hogs can be kept growing nicely, even on sorghum.

In the northern half of the State of Texas alfalfa furnishes more or less feed at all times of the year when the season is favorable, but as the growth of alfalfa is liable to be checked in summer by drought and in winter by cold, it is desirable to provide supplementary crops for hog pasture both for summer and winter. For winter, oats and wheat are excellent; for summer, sorghum, cow-peas, goobers and Bermuda grass can all be made available. In fact, there is no section of the country in which hog-raising can be carried on more profitably than it can in the northern half of the State of Texas.

I would not urge any farmer to go into the business of raising hogs on a large scale on account of the risk in the business, but I think that every

farmer is justified in devoting at least a part of his farm to this type of farming.

Kansas Berkshire Breeders' Association Will Meet at Lawrence August 15.

A meeting of the Kansas Berkshire Breeders' Association will be held at Lawrence, Kans., Thursday, August 15th at 8:30 P. M. Every Berkshire breeder residing in the State is cordially invited and urged to attend and this invitation is extended to breeders residing in other States. Kansas breeders have enjoyed a large share of the splendid trade in Berkshires. While the Berkshire hog is growing in popularity throughout the country, a large number of prominent herds owned by Kansas breeders are attracting unusual attention. Kansas has produced Berkshires that command admiration everywhere the hog is grown, and that has done much to enhance the popularity of the breed in other States. Many of the best herds in the United States are founded on Kansas breeding and headed by sires that were bred in Kansas. Breeders are enjoying a great period of prosperity with prospects for a most active trade in the future. Following the session that will be held by the Kansas Berkshire Breeders' Association, Mr. Charles E. Sutton will hold a public sale of Berkshires at Sutton Farm on Friday, August 16th. Breeders who attend the sale that will be held by Mr. T. F. Guthrie, at Strong City, Kansas on August 15th, can leave Strong City at the close of Mr. Guthrie's sale and arrive at Lawrence in time to enjoy the program. Those who attend the session at Lawrence on August 15 and 16 are assured of a most enjoyable meeting with the large company of breeders who are expected from all parts of the country. GEO. W. BERRY, Sec.

Geo. B. Ross & Sons' Shorthorns and Poland-Chinas.

The representative of THE KANSAS FARMER visited the herds of Geo. B. Ross & Sons at Alden, Kans., recently, and found everything in a flourishing condition. They have the finest crop of spring pigs they have ever raised, the majority of these came early, and are among the best the writer has seen this year. The spring farrow numbers 85 pigs, and among these are a number of show litters. The sows in the herd are all of high quality, there being a number of show animals among them, and they have not disappointed their owners in the results obtained this spring. Ross & Sons also have some very fine fall stuff. Among these are some very choice gilts and a few tippy boars. Their Shorthorns have also done well, and they have an increase of 20 fine calves this year. Their cattle are all pure Scotch or Scotch tops of good quality. Geo. B. Ross, the senior member of the firm, is a director of the Hutchinson State Fair Association, and has been appointed to judge the swine at the Stafford County Fair, which will be held at St. John this fall. Ross & Sons have made a number of valuable improvements on their fine farm which joins the townsite of Alden. This includes a large hay and cattle barn and a large amount of fencing. Their entire farm is now fenced and cross-fenced with the best quality of woven wire, suitable to turn any kind of stock. Ross & Sons will be on the market with anything you may need in their line after September 1. Everything will be priced worth the money, and will not be lacking in quality. Watch for their advertisement which will soon start in THE KANSAS FARMER.

Improving Their Herd.

A. & P. Schmitz, of Alma, Kans., have been improving their herd by the purchase of a number of valuable brood sows combining some of the best blood lines of the breed, and they are as good individuals as they are well bred. These have all been bought at long prices from some of the best herds in the country. Among these are sows by Mischief Maker, On & On, Perfect Perfection, Prince Darkness, and other noted sires. These were all bought bred to some of the great prize-winning boars of the breed. One of these sows has a show litter of seven pigs by the great Mischief Maker; another one has a litter by Perfect Challenger among which are two boars that are fit to win in any company. Another fine litter is by Masticator, and Peggy S, a remarkably fine sow, is bred to Meddler 2d for an early fall litter.

Schmitz Brothers will hold a sale of young stuff this fall, and a bred sow sale in February, 1908. These sales will be held at the farm as usual, two miles from Alma, Kans., in their new sale barn, which they have recently built. Their offerings will be good ones, and these sales should be largely attended by breeders.

Gossip About Stock.

The Kansas State Agricultural College has just received the two pure-bred Percheron mares recently purchased of O. L. Thisler, of Chapman, Kans. The mares are excellent specimens of the breed and will make a valuable addition to the college herd.—Students Herald.

C. M. Albright, Overbrook, Kans., breeder of Polled Durham cattle, reports that THE KANSAS FARMER has given splendid results in the way of sales and inquiries, and that later he will have some choice cows and heifers ready for sale which will be advertised in the "Old Reliable."

Watch out for announcement of a great Berkshire sale to be held by Chas. E. Sutton, Lawrence, Kans., on August 16. This sale has the promise of being one of the most important to the Berkshire fraternity held in recent years, because of the very high class

and exclusive offerings of a line of breeding to be secured no where else in America. Further announcement will appear in this paper.

Manwaring Brothers, owners of the Ridgeview Herd of Berkshires, Lawrence, Kans., report that stock is doing well. They also report recent sales of ten boar pigs to J. K. Hunnewell, Lincoln, Neb., and one to Will A. Morris, Chillicothe, Mo. They have several yearlings and a fine lot of spring pigs for sale.

Another valuable addition to the list of pure-bred stock at the Kansas State Agricultural College was recently made in the purchase of a Duroc-Jersey boar. He is a grandson of Ohio Chief, grand champion Duroc-Jersey at the World's Fair, St. Louis, and was procured from the farm of Grant Chapin, Green, Kans.—Students Herald.

We are in receipt of a communication from James B. McLaughlin, from France, to the firm at Columbus, Ohio, that their horses purchased for importation won the first, second, third, and fourth prizes in the aged class and the herd the championship collection. These were the winnings at Nogent-le-Rotrou. This bunch of horses will be included in their next importation.

J. W. Reid, owner of the Crimson Herd of Duroc-Jersey swine, Portis, Kans., writes telling of a notable sale of a bred gilt which he shipped to Oklahoma last week. Mr. Reid also reports that he has among his spring pigs a larger per cent of tippy-bred boars than he ever raised before. Mr. Reid has selected his breeding stock with care and his mating has been with a view to producing size and quality, combining all the leading and popular strains of breeding, more attention being given to quality than to pedigree. The pigs are mostly the get of Red Perfection, Red Pathfinder, and Allen Goldust.

G. W. Colwell, Route 2, Summerfield, Kans., says his little Duroc-Jerseys are coming along in fine shape and that he now has about 80 of them. Among the June gilts that he now has are some that it would be hard to beat. One litter is from the Addy Wonder gilt that he lately bought and that were sired by a grandson of Tom Watson 21105. He says they are the best pigs he ever saw for their age. Mr. Colwell's herd-boar, A. B. Top Notcher, promises to make trouble for some one in the show ring this fall. Some of his fall gilts now on the farm were bred to Addy Wonder 2d and will be sold cheap to make room for the new litters provided they are taken before August 1. These are of the large, heavy-boned kind, that develop early and just suit Western farmers and breeders. Drop a line to Mr. Colwell about these pigs and see if he doesn't please you.

Mr. and Mrs. Henry Shrader, of the White Plume Poultry Farm at Wauweta, Kans., have a fine lot of Duroc-Jersey gilts, both bred and open, which they offer for sale. Also a number of tried sows bred to Missouri Wonder King 52903 by Mc's Pride 29277, he by Gold Finch out of Wonder Ideal 113614. Missouri Wonder King is one of the largest boned hogs of the breed. There are also for sale some sows bred to Crimson Meddler by Crimson Wonder 38755, known to every breeder. This boar has very fine head and ears, is square as a brick and will make a whopper when mature. A number of young boars sired by Missouri Wonder King and two by Crimson Meddler are for sale. Crimson Meddler is also for sale, and this announcement will be interesting to those wanting a herd-header. Visitors are always welcome at this farm. If you can't go to pick out what you want just write and you will be treated honestly.

R. O. Stewart's Durocs.

R. O. Stewart, of Alden, Kans., the veteran breeder of Duroc-Jerseys, reports a fine business, and a very satisfactory increase in his herd this spring. He has made one sale in Texas of 100 head, besides a number of other good ones in the same State. Mr. Stewart's Durocs combine the best blood lines of the breed. They are way up in quality and he knows how to mate them and grow them to obtain the best results. Mr. Stewart's farm joins the town of Alden, and his herd can be inspected by visitors, without any loss of time although Mr. Stewart has made those big sales in Texas he has plenty of good stuff left, and can supply your wants in his line. Mr. Stewart is a regular advertiser in THE KANSAS FARMER and reports most satisfactory results from his advertisement. Write him your wants, for he is prepared to supply them, and will always give you a square deal. In writing please mention this paper.

Accident Board of Inquiry on Union Pacific.

The Union Pacific has heretofore investigated rigidly all of its accidents that occurred by a Board of Inquiry of its officers and employees but it has decided, in addition to its own Board of Inquiry, as an experiment, to invite outsiders of local reputation, standing or integrity, to be present at and join in such findings, either in a majority or minority, as the facts develop from the results of the investigation.

The purpose of this is an innovation of present practices but it is desired to fully establish in the public's mind the past and future sincerity of the Railway Company to reach the exact cause of the trouble regardless of the responsibility, and it is hoped that the public can have no question as to the findings of such tribunal and it is further hoped that the tendency heretofore to employ unfair and unjust criticism because of corporate connection will hereafter make necessary the attack of other people's reputation besides that of the employees who could have no purpose to conceal mistakes directly attributable to the employees and officers of the company.

Therefore it is hoped that before the press arrives at conclusions that they will await facts as to the responsibility which will be promptly furnished.

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IOWA DAIRY SEPARATOR CO.
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 Drexel Mo., Route 2, Jan. 24, 1907.
 F. J. TAYLOR CO.,
 Bag of Tonic received and I put it in box as directed. My hogs eat it fine and I think it has done them good from the worms I see scattered over the feed-lot. I believe it is all right, especially for hogs. Will let you hear from me when it is all gone. I remain yours for a fair trial.
 W. G. BINKLEY.
 Taylor's Stock Tonic does more than drive out the worms. It puts your hogs, cattle and horses in the pink of condition, makes them grow faster and stronger, prevents cholera, black-leg and all diseases arising from imperfect digestion.
 We want you to know all about our Stock Tonic so we will send you 50 pounds on trial if you will send us this advertisement.
 In 30 days you will send us \$2 for the tonic, or return the empty bag if it is not satisfactory, and there is no charge. We are sending out thousands of bags on this basis and practically every one is paid for. It shows the merit of the goods and the honesty of the farmers. Cut out this ad to-day and send it to us.
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 The Myers Pumping System designed to automatically supply fresh water as needed in feed lots, barns and under pressure, in house. No Tank; No Stagnant Water. Great demand for machines everywhere. Agent wanted in each county. For information write or call
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SORE SHOULDERS
 I would like very much to personally meet every reader of this paper who owns any horses that have sore shoulders and tell him about Security Gail Salve. This is impossible so I am going to tell you through the paper.
 You and I both know that horses working with sore shoulders are in pain, and that they can't do as much work without running down as when they are free from pain. I also know perfectly well that Security Gail Salve will cure these shoulders, but you do not know it. If you did you would buy a box of your dealer at once and cure them up. For you have no doubt often wished that you knew of something you could rely on. You can rely absolutely on Security Gail Salve. It will do its work every time, or if you prefer to try it first I will mail you a sample can free. Just write for it—it will go to you on first mail.
 Also I want to tell you that Security Antiseptic Hensler is as good for barb wire cuts as Security Gail Salve is for harness galls. Dealers carry them in 25c, 50c and \$1.00 sizes. Use them for your needs; I guarantee you perfect satisfaction.
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Horticulture

Ray-Grass.

Herewith I hand you some heads of grass grown on my lawn. I would be pleased to know the name of the grass, and if it is adapted to Southeastern Kansas soil and climate?

M. WOODWORTH.

Montgomery County.

The grass you send is *Lolium perenne*, or ray-grass, and is adapted to Southeastern Kansas. It is fairly good hay-grass, but so far as I know it is not superior to other kinds and is not equal to timothy or redtop, where these grasses can be grown. It is not poisonous, although it is not very desirable. This grass is related to the well-known darnel-grass.

BERNARD B. SMYTH,
Curator of State Herbarium.

A Medicinal Plant.

Would you please identify the plant I am sending you under separate cover? I should also like to know if it is of value as a medicine or if to your knowledge it has been experimented with?

The plant commonly grows on high pasture land where grass is dead from tramping. In rich soil it grows to height of three to four feet. Blooms and leaves somewhat resemble plant known locally as healdown mint. I think the plant lives three years but it may live longer. I am sending root with this season's growth and portion of dried seed stem. HERMAN ALLEN.

Lyon County.

The plant is a verbena: and while it is not in bloom so as to make the identification sure, since there are several tall verbenas that are much alike in habit and foliage, yet I think this is *Verbena stricta*, the common tall verbena, a plant frequently found in dry soil and waste places from Ohio to Minnesota and southward to Texas and New Mexico. Its height is from three to six feet. The flowers are in solid, compact spikes, bluish or reddish purple, though sometimes pinkish or even white. The leaves are usually in twos, on opposite sides of the stem, though occasionally three or four are found in a whorl arising from the same node.

It has long been noted as a medicinal plant. "Sudorific, diaphoretic, emetic, expectorant, tonic," are properties ascribed to it. Whether it has any commercial value as a drug in Kansas may be determined by corresponding with some of the manufacturing chemists of the East. From them one may learn the price paid, the method of collecting for shipment, etc. It is abundant enough and almost any quantity of it can be collected in a short time. BERNARD B. SMYTH,
Curator State Herbarium.

Topeka, Kans.

[For information as to market value if any write to The Parke-Davis Manufacturing Company, Detroit, Mich.—EDITOR.]

How the National Forests Serve the Public.

"The Use of the National Forests," a publication just printed by the Department of Agriculture, is a brief, clear manual for public information as to the forest policy of the National Government.

It is too true, as the short preface to the public says, that "many people do not know what National forests are. Others may have heard much about them, but have no idea of their true purpose and use." It is the object of this publication to explain just what the National forests mean, what they are for, and how to use them.

It is explained how the forests are created and how their boundaries are drawn. Next, their direct use and value are shown from the point of view of the homeseeker, the prospector and miner, the user of timber, the user of the range, the user of water, and other users of forest resources. Third, it is shown how the forests are intended for use, for production of usable products, and for the establishment and

maintenance of homes; how on all of them the timber is protected from fire, the water flow is kept steady, the forage on the range is increased and guarded from abuse; and how, in addition, they serve as great public playgrounds and as breeding places and refuges for game. Finally, the management of the National forests is described.

Here it is that the great usefulness of the forests is brought out most clearly and strikingly; for the forests are managed by the people in their own interests, and every means is used to meet the desires and wants of all forest users half way by dealing with them in the main directly on the ground and in all cases with the utmost practicable dispatch and freedom from red tape.

The special interest of this manual lies in its showing that the forest policy of the Government, both in principle and in practise, is for the benefit of the ordinary man, for the benefit of every citizen equally. There is still a tendency to think of the National forests as "preserves" closed to use, and to leave the public lands exposed to unregulated individual exploitation. Where these misapprehensions still prevail "The Use of the National Forests" will go far to correct them.

The book is written by Mr. Frederick E. Olmstead, whose intimate knowledge of conditions in the West and the policy under which the National forests are managed especially fits him to deal with the subject.

Chinch-Bugs.

Chinch-bugs are in my corn, which is 6 inches high. The damage is not very noticeable yet. Will cultivating the corn be of any advantage to help destroy them? A SUBSCRIBER.

Woods County, Oklahoma.

Plow a deep furrow between the field infected and the field, or fields, not yet injured, and drag a log through this furrow several times a day. This will pulverize the soil and keep the chinch-bugs from crossing. That is, they will be unable to climb up the steep side and will be crushed as the log comes along each time.

A still better means is the throwing up of a ridge between the fields, pouring a good line of coal tar along the top of the ridge. This will prevent their crossing. Post holes dug at intervals along the tar line will serve as traps to catch the bugs. S. J. HUNTER,
Head Dept. Entomology, Kansas State University.

Computing Water.

The following data will be helpful in computations: One miner's inch, equals 0.146 gallons per second; 8.976 gallons per minute; 538.56 gallons per hour; 12,925.44 gallons per day; 0.02 cubic foot per second; 1.2 cubic feet per minute; 72 cubic feet per hour. One acre-inch of water (that is, 1 inch in depth over an acre of surface) equals 27,152 gallons, or 3,630 cubic feet, and one miner's inch will supply this quantity in about 50.4 hours. Thus a simple calculation shows that a little stream of 5 miners' inches will supply enough water to cover an acre 2.3 inches deep in about 23 hours—a fair amount for one irrigation of soil of average character if it has not been allowed to become too dry before the application; in fact, this is an average amount actually used for an irrigation of shallow rooted plants like most field and garden crops.

Machinery for Unloading Ear Corn and Small Grains.

A piece of small machinery that is rapidly coming into general use is the grain elevator, for the rapid unloading of wagons as they arrive from the corn-field or the thresher. It is something of a wonder, seeing that the putting away of ear corn and small grains is done so much more rapidly, so much cheaper and it so much easier for the help that such machines were not in general use long ago.

Take, for example, the dumping of the wagon and the elevating of ear corn into the crib. Corn-huskers do not need to be reminded that cribbing the corn the old way, with scoop shovel, is no small job. With the up-to-date machinery or to-day it is all done by horse power. No more than one man is required, and he does nothing more than drive the wagon into the proper place and set the machinery going. The largest load will be dumped, elevated

and carried by conveyors where it is wanted in the crib, in from three to five minutes.

This relieves the huskers from a much dreaded task. Scooping up corn into a high crib is in reality harder work than husking. The tired huskers do not relish this job when they return to the crib at noon or at the close of the day's work. If the unloading is done with a dump and elevator the force can remain in the field at least an hour longer every day, and not a man among them but would much prefer to do it. Men will take more kindly to the work and the question of help at husking time will, in a short time, not be so much of a problem at it is now.

There are others reasons for using the dumping and elevating machinery. From the owner's standpoint they are better reasons. Undoubtedly the corn can be husked at least a half cent cheaper per bushel. The price per bushel for picking can be lowered and yet the men will receive just as much for their day's work. They will have the extra hour in the field. They will prefer to continue for that hour rather than take up a much more laborious task at what they like to consider the end of the day's work.

Again, with the elevating machinery, an excellent opportunity of sorting out wet and musty corn, is afforded. And it is an excellent place to pick seed corn. Many of the large seed corn-growers make their first selection by standing by the elevator, picking out the choice ears as they are being moved up. Every ear is in plain view, right under the hand. The choicest for seed, the wet and moldy thrown aside, the body of the load going right on to the spot wanted, and yet inside of five minutes the whole load is disposed of. If a wet load comes in, the conveyor can be instantly shifted so it will be carried to a separate apartment or a particular corner of the crib.

What has been said of cribbing corn applies in a general way to small grains. But there are perfect working machines on the market and are already largely used. They all make unloading much lighter work and they cut down the expense. With a fair crop of corn or grain, one of these machines will save its cost the first year. The machinery is not complicated or frail. Some that we have in mind are most durably built and are good for many years service. In our opinion, the installation of such a machine is as wise a permanent investment as a farmer can make.

About Fall Seeding.

Right now is the time to get ready for fall seeding. Beginning in August and running through the fall season, farmers will have all they can do harvesting their spring crops and doing their fall seeding. They will not have time to inspect their seed to see whether the wheat has full round kernels that mean a crop weighing 60 pounds to the bushel or whether there is a plentiful sprinkling of weed seeds or even other grain. The best method of insuring a big crop is to use a fanning mill, one that will give you clean seed, enabling you to do away with weeds and giving promise of good graded crops that will bring the highest prices.

In one of the advertisements appearing in this issue, you will find this splendid advice "You ought to own a first class, high grade fanning mill. It will save you lots of money and make you a lot of money. We ask our readers to find this advertisement and read the statement it contains on this important subject of fanning mills."

We knew a good, thrifty Pennsylvania farmer who always ran his seed twice through a fanning mill and it was a well known fact that when he took his wheat to market, it went right into the hopper to be ground up into flour. Needless to say, that man always received the highest price for his grain. If this man had owned a Chatham with bagging attachment, he would not have found it necessary to run his seed twice through the fanning mill. The Chatham is guaranteed to give perfect separation, cleaning and grading all kinds of seeds, taking out the weed seeds and all kinds of foreign matter. The Chatham separates the seed with more than human intelligence. It does not make a mistake.

There are today more than a quarter of a million of these excellent fanning mills on American farms. Notwithstanding their wide fame and general popularity, Mr. Manson Campbell, the president of the company that bears his name, has determined this year to make a special offer to our readers who will take the trouble to send him a postal card asking for facts. In addition, he will send them a free book on cleaning seed and doing away with the weed crop. It tells you the best way to make money out of your grain and how to grade up your crop and shows that by following grain and how to grade up your crop and shows that by following his method it is just as easy to raise good graded crops that bring the highest prices as it is to raise poor, uneven crops.

The Manson Campbell Co., Ltd., has its main office in Detroit, Mich., with branches in Topeka, Kans., St. Paul, Minn., Albany, N. Y., and Nashville, Tenn. A letter to any of these houses will bring the book and any desired information.

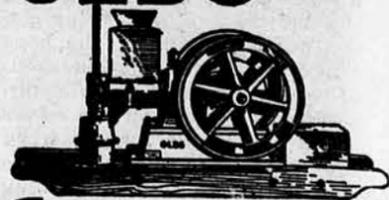
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The doctor publishes a magazine descriptive of his method, which is sent free on application. Address Dr. C. H. Carson, Temple of Health, Twelfth and Washington Streets, Kansas City, Mo.

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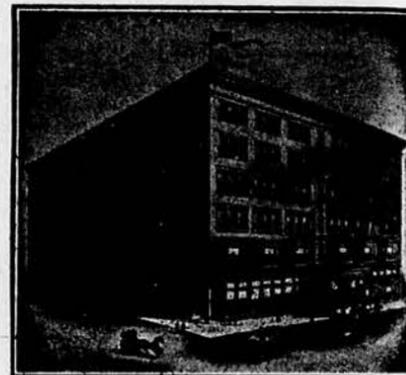
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Agriculture

Seed Wheat.

What is your price per bushel for seed wheat? We have noticed that on an average the bearded varieties have yielded the best here, and would like to know your experience.

Can I get alfalfa seed from you for fall seeding? Also advise how to seed timothy, and when is the best time. Where may good timothy seed be purchased. I would like to get seed as free from weeds as possible.

We have cut our wheat on the ground we wish to put into alfalfa, and would like your advise in preparing the soil. Would it be advisable to spread fresh barnyard manure before plowing, or should the manure be well rotted? How many loads will it require per acre with a fifty-bushel spreader. How many acres will a bushel of alfalfa seed sow, to be sure of a good stand? Have you any beardless spring barley, and how does it yield as compared with the bearded varieties?
FRANK FREIDLING.

Montgomery County.

The soft red varieties of wheat would do well in your section of the State, especially on bottom-land, such varieties as the Fultz, or Zimmerman. We have a considerable supply of the Zimmerman wheat but little pure seed of the Fultz. We will have 2 or 3 bushels each of two or three other varieties of soft wheat, such as the Fulcaster, Harvest Queen, Currell, and Gold Coin. These all appear to be good producing varieties.

Of the hard bearded wheats we have a supply of the Kharkof, Malakoff, Red Turkey, Bearded Fife, Defiance, and Red Winter. The Bearded Fife is one of our best producing varieties and is better adapted for growing in eastern Kansas than in the central portion of the State. The Kharkof I consider one of our best varieties of hard red winter wheat, adapted for growing in any section of the State where hard red winter wheat succeeds well.

We are selling our seed wheat at \$1.75 per bushel, sacked, f. o. b. Manhattan. The wheat is fanned and graded, and shrunken and light wheat is removed. I shall be pleased to receive your order for seed wheat.

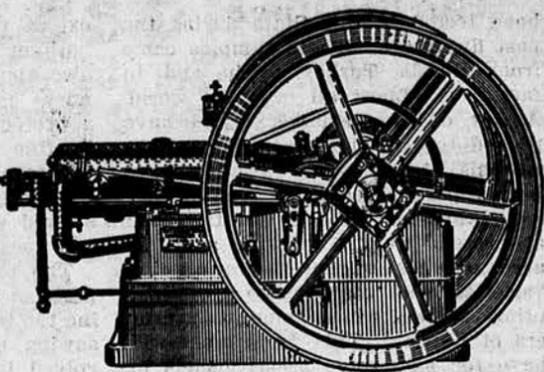
We have no alfalfa seed for sale.

Timothy may be seeded either early in the fall or early in the spring. If clover is sown with the timothy it is better to seed in the spring, since clover sown in the fall is very apt to winter-kill. You may secure good timothy seed from almost any reliable seed firm.

If the wheat stubble ground is free from weeds I would prefer to disk the ground at once and continue to disk or harrow it at intervals, in order to keep down the weeds and maintain a soil mulch, until about the last week in August or the first week in September, when the alfalfa should be sown. Or you may plow the land rather shallow as soon as possible, when it should be harrowed or disked occasionally to destroy the weeds, conserve the soil moisture, and pulverize the soil, putting the land into good seed-bed condition by September 1 or earlier. As a rule I would prefer to give the surface a dressing of manure after plowing and mix the manure with the soil by disking and harrowing; or if you do not plow, apply a surface dressing of manure as early as possible and mix it with the surface soil of the field by disking and harrowing. It is preferable to use well-rotted manure; however, fresh manure that is not too coarse may be used with good results. It is not necessary to apply a heavy dressing; a light dressing may give as much benefit and will be less troublesome in preparing the seed-bed—say 8 or 10 loads per acre evenly spread.

Twelve pounds of good alfalfa-seed per acre is sufficient to sow in a well-prepared seed-bed; some large alfalfa-growers sow less than this amount. In a well-prepared seed-bed I would not advise to sow more than fifteen pounds of good seed per acre. At this rate a bushel would sow four acres. I

How do you Shred Fodder—Grind Feed—Pump Water—Saw Wood—Shell Corn?



Do you do it in the old slow hand-power way, or do you do it up in a hurry with a gasoline engine?

The easy way, the cheap way, the quick way, and the labor-saving way, to do these jobs and many others on the farm is with gasoline engine power.

It will cost you but 5c an hour to run an I. H. C. gasoline engine generating three horse power. The engine is always ready when you want it—right when you want it—you don't even need to light a fire to start it. Just close the switch, open the fuel valve and give the fly-wheel a turn by hand—that's all.

It's so easy to start and to run; it is so simple an operation that before you've had one a month you will be using it for all sorts of things.

A gasoline engine is almost indispensable on the modern, up-to-date farm, but be careful when you buy. Some gasoline engines are better than others, and it will pay you to do a little investigating.

- Learn all about I. H. C. Engines.
- About their simple construction.
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- How little fuel they use and

how they waste none.

- How easy it is to operate them.
- How much power they furnish.

I. H. C. gasoline engines are made in two styles and several sizes:—Vertical, 2 and 3 horse power, Horizontal (portable and stationary), 4, 6, 8, 10, 12, 15 and 20 horse power. Ordinary stove gasoline is used for fuel and there is no danger whatever.

Go to our local agent for a talk about power for the farm, or if this is not convenient, write for catalog.

INTERNATIONAL HARVESTER COMPANY OF AMERICA, CHICAGO, U. S. A.
(INCORPORATED.)

have mailed copy of circular No. 10, giving further information regarding the seeding of alfalfa.

We will have no seed of beardless spring barley for sale. At this station the best-producing bearded varieties have outyielded the beardless barleys several bushels to the acre on an average for the last four years. The bearded barleys also produce a better quality of grain. You can secure seed of beardless barley from almost any seed firm; the Success Beardless is one of the best-producing varieties of beardless.

We will have a small amount of seed barley of the following varieties for sale this fall or next spring, namely: Common Six-Rowed, Bonanza, and Mansury. A. M. TENEYOK.

Will Alfalfa Impoverish Land?

I would like to ask the "Old Reliable" for some information. Will alfalfa impoverish land? That is, sow a piece of ground to alfalfa, cut and haul off the crop for ten years; will it improve, or diminish the fertility?

Marion County. J. B. DOBBS.

Alfalfa belongs to the class of plants known as legumes. Such plants, when supplied with the proper bacteria, which grow on their roots, secure their supply of nitrogen from the air, which supply is sufficient not only to produce a large growth of foliage above the ground, but also to produce a large growth of roots in the soil. Thus alfalfa and certain other crops, as clover, cow-peas, field-peas, soy-beans, etc., may actually increase the nitrogen supply of the soil. The roots of alfalfa, also, as they decay furnish a large amount of humus, which really contains the nitrogen, and the humus also has a beneficial effect by improving the texture of the soil, giving it greater capacity to hold water, making it more porous and mellow.

Again the roots of alfalfa will penetrate hard subsoils and when these roots die the openings remain serving as pores through which the water may percolate and allowing for better ventilation of hard, compact soils. On the whole, therefore, for a period of a few years the alfalfa will actually improve the fertility of the land. Perhaps this improvement might go on for ten years or more.

It is true, also, that alfalfa takes out large amounts of the mineral elements of plant-food, potash, phosphoric acid, and lime, and if the alfalfa is cut and removed from the field year after year and no manure or fertilizer is returned to the land, the soil may become deficient in the mineral elements of plant-food. Since alfalfa is a very deep feeder the first effect of the crop on the land is to really increase the supply of the available mineral elements of plant-food in the surface soil. The deep alfalfa roots draw their food supply from the subsoil where roots of ordinary plants do not penetrate, and the large growth of alfalfa roots

in the surface soil may store up a considerable quantity of the mineral elements of plant-food which becomes available to crops which are grown after the alfalfa is plowed up. From the fact, therefore, that alfalfa takes out of the soil, in a year, two or three times as much potash, phosphoric acid and lime as wheat and corn, it does not necessarily follow that the part of the soil through which the roots of corn and wheat feed becomes deficient during the interval of ten years growing of alfalfa. However, the time must come with all soils when the supply of mineral plant-foods may become deficient. As to just how long the alfalfa may be grown on any land before it impoverishes the soil in this respect, depends somewhat upon the soil. Some soils are rather deficient in lime, and some have a smaller supply of phosphoric acid than others. It is even advisable on some soils which are rather deficient in lime to supply lime before the alfalfa is planted or while the alfalfa is being grown upon such land. I send under separate cover to you an article on "The Fertilizing Value of Alfalfa," which discusses this subject in further detail.
A. M. TENEYOK.

Seed Wheat from Canada.

Do you consider it advisable to use seed wheat raised as far north as Alberta, Canada, for seeding purposes in this locality?
T. W. HURST.

Woodston County.

I do not know positively, but believe that seed wheat shipped from Canada to the United States is exempt from duty. I have had other letters on this subject and shall write immediately to the Secretary of Agriculture, Hon. James Wilson, regarding the matter.

Some little trial has been made with seeding Alberta wheat in this State, with favorable results so far as reports have been made. I have never made an experiment with sowing Alberta wheat at this station but shall do so this fall. I have been appointed by the board of regents of this college to visit Alberta this summer and make an investigation regarding the growing of wheat in that province, with the purpose of securing seed for growing in this State. It seems to me advisable to test the planting of this wheat on rather a large scale before making large shipments into this State for general seeding. At present I can not recommend the purchase of Alberta seed wheat in preference to good seed wheat of the best-producing varieties grown in this State.

The agronomy department of the Kansas State Agricultural College and Experiment Station has tested a large number of varieties of wheat during the past few years, and a large number of varieties have been tested also at the Fort Hays Experiment Station in Ellis County, and at the McPherson Station in McPherson County. Some 400 different varieties of wheat have

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Look at the picture. Drive on the Dumping Jack, the jack may be set on either side of feeder, start the horse at the power, the gear will tilt the wagon, you simply stand and watch it unload in less than five minutes.

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Wagon Dump and Grain Elevator
the machine of simplicity and strength. You will not be troubled with breakages, we have learned to make every part equal to the duty required. Power is triple geared. Elevates to any required height. Shifting conveyors or stationary drag will carry to every part of crib or bin, leaving no unfilled corners. There will be no choking. You may pick seed corn or sort out bad ears as it goes up the elevator. Why not have a Little Giant on your place? One will last you your lifetime. Write for catalog and full particulars.
PORTABLE ELEVATOR MFG. CO.,
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THE LARGEST AND BEST LINE OF WELL DRILLING MACHINERY in America. We have been making it for over 20 years. Do not buy until you see our new Illustrated Catalogue No. 41. Send for it now. It is FREE.

Austin Manufacturing Co., Chicago

been tested in this State during the past five years. These samples came from Russia, Turkey, Spain, and in fact from almost all over the world. A few of the varieties tested have proved to be superior to the others. At this station such varieties have been separated, carefully bred and selected, and increased in quantity until at present we are growing some 80 acres of wheat of these best-producing varieties, with the purpose of distributing the seed wheat among the farmers of Kansas. This department will have for sale some 2,000 bushels of the Kharkof wheat, a Russian variety of hard red winter wheat very similar to the Red Turkey. Others of the best-producing varieties of hard red winter wheat are the Malakoff, Bearded Fife, Red Turkey, Red Winter, Crimean, and Wiesenberg. Of the soft wheats the department is growing several acres each of the Zimmerman, Fultz, and Curell. At the present writing (June 25) the harvest is just beginning, with the promise of a very fair yield of wheat of good quality. The department will grade this wheat, sack it, and offer it for sale, f. o. b. Manhattan, at \$1.75 per bushel.

In my judgment Kansas can grow just as good seed wheat as can be grown in any other country, when we have secured the best-producing varieties. There is little object in sending away for seed wheat of the same varieties which we are already growing. By careful breeding and selection we find that the varieties received may be improved by growing at this station, at least there is little question but that the improved seed wheat which this department will be able to sell this fall is superior to the average wheat which the farmers of the State are growing.

The agronomy department has just published a bulletin, No. 144, on small grain, which includes a discussion of the experiments in the growing of wheat. A copy of this bulletin may be secured by addressing Prof. J. T. Willard, acting director of the Experiment Station, Manhattan, Kans.

A. M. TENEYCK.

Sowed Corn Compared with Sowed Cane.

Is it too late to plow under corn or plow land and harrow in corn? How does sowed corn compare with sowed cane? B. F. GEHMAN.

McPherson County.

Sowed corn makes a fair yield and a fair quality of hay, but I would much prefer cane or Kafr-corn. Sowed sorghum, especially, makes a more valuable hay than sowed corn, and the production per acre will be much greater with sorghum than with corn.

If you sow the corn rather thickly, say 1½ bushels per acre, the stalks will grow fine enough so that the crop may be cut with the mower and put up like hay. The same plan should be practised with sorghum or Kafr-corn. To make the best quality of sorghum or Kafr-corn hay requires the planting of about one bushel of seed per acre—less seed will produce as large a growth but of a coarser grade of stalks.

We still have on hand some Kafr-corn and cane-seed, which we are selling at \$1.25 per bushel of 56 pounds. Can sell you a little second-grade seed at 75 cents per bushel, if ordered at once. Our supply of the sorghum-seed, however, is nearly exhausted.

A. M. TENEYCK.

Alfalfa in Indiana.

A. T. WIANCKO, AGRICULTURIST PURDUE EXPERIMENT STATION.

The increasing interest in alfalfa culture among Indiana farmers and the many failures in attempts to establish the crop have brought a constant stream of inquiries to the station concerning time and methods of seeding. The common practise was to sow the alfalfa in the spring of the year, either with or without a nurse crop of oats or barley, and it was observed that the majority of the failures were due more or less directly to the presence of large numbers of spring and summer weeds, which gradually crowded and choked the alfalfa plants to such an

extent that they dwindled away to nothing as the summer advanced. It also appeared that in many cases the nurse crop was of doubtful value as a protection against weeds, and that it often did positive harm by shading the young alfalfa too much. It seemed therefore, that the question to be answered was how to avoid both weeds and nurse crop.

The most practical solution of the problem seemed to lie in first destroying the weed seeds in the soil and then sowing the alfalfa alone. This involved late seeding in order to give time to get rid of the weeds, which could be practically done only by plowing the ground early and harrowing it every ten days or two weeks for a period of several weeks, until all the weed seeds in the surface soil were sprouted and destroyed. By this method the ground might be expected to be in good condition for seeding by the early part of June, and since it is not usually advisable to take a hay crop or pasture the field the first season, there appeared to be no serious objection to even later seeding so long as sufficient growth to thoroughly establish the plants could be secured before winter.

While this method was generally conceded to be safe and practical, two objections were against it, namely; the extra labor of preparing the ground for sowing and the sacrifice of a year's crop from the land. To avoid these objections, late summer seeding, after a small grain or other early harvested crop had been removed, was suggested. To determine the value of this suggestion an experiment was undertaken on the university farm in the summer of 1905. Ground was prepared in early August and seeded to alfalfa on the 17th day of the month. This seeding was in every way satisfactory. A good stand of plants was secured and the fall growth was sufficient to thoroughly establish the plants and they passed through the winter in good condition. It was observed, too, that weeds were not nearly so troublesome as with spring seeding on the same ground. A seeding made at the same time by Mr. Ellis House at Blacknell, Indiana, was also highly satisfactory.

After these encouraging results, it was determined in the summer of 1906 to further test the practicability of such late seeding by similar experiments in various parts of the State. A letter stating the problem and outlining the plan of the experiments was sent to about seventy-five farmers with a request for their co-operation. Arrangements for sixty-one experiments were completed about the middle of July. Five pounds of alfalfa seed to be sown on a quarter acre plot was sent to each experimenter with the understanding that he would sow it according to instructions and report the condition of the plot before winter and again in April. The instructions for soil preparation and seeding were in part as follows:

"Any well drained piece of fallow or stubble ground will do for the experiment. Prepare the ground as you would for a good corn crop and do it as soon as possible. If the ground is at all hard or inclined to break up cloddy, double disk it once or twice before plowing, and again right after. Go over the plot with a harrow at intervals often enough to keep a loose mulch on top to preserve moisture for seeding. It will be necessary to be very careful in preparing the ground at this season of the year in order to get a sufficiently moist seed-bed. Sow all the alfalfa seed we shall send you on a quarter acre plot, as soon after the first of August as the moisture conditions will permit. In northern sections the seeding should in no case be delayed later than August 10, and in southern sections not later than August 25. Cover the seed with a smoothing harrow.

The tests reported were conducted on 57 different farms located in 42 different counties.

A report covering a list of questions concerning the soil, time of seeding, stand secured, weather conditions, presence of root nodules, amount of fall growth, and general thriftiness of



Manson Campbell

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the plot was secured in November, and another report concerning winter-killing and spring condition was secured in the latter part of April. A summary of 57 such reports, covering the principal points of interest, is presented herewith:

ANALYSIS OF THE REPORTS.

In studying the reports herein presented, it must be remembered that the experiments covered a period of only one year and that, therefore, too much dependence should not be placed upon them. Both the conditions and the results varied very widely, and it is not safe to draw hasty conclusions. Both good and poor results were secured under almost every combination of conditions, except where standing water and ice existed; what one experimenter found to be a good thing to do another found to be useless, and all through the series we find many apparent contradictions. Just what it is that makes the difference between success and failure can hardly be determined from these reports, and it is quite evident that we shall have to look further for the real causes that produce failure. Except in the case of drouth, weeds and standing water, it does not matter which one we take of the factors on which reports were received, we find that where one man failed another succeeded. It may be safe, however, to conclude that since so many succeeded, the late summer seeding in itself cannot be held responsible for the failures to any great extent. This is further borne out by the facts that the amount of fall growth made does not appear to bear any relation to the condition of the crop in the spring, and that while much winter-killing occurred in one place there was none in the next, although the two cases appear to be quite similar.

Concerning the time of seeding, the reports show that good results were secured with various dates of seeding all through the month of August. Of three seedings made in early September, two gave fair results and one poor. Out of 38 plots sown between August 7 and 15, thirty four (90 per cent) gave satisfactory fall growth, and nineteen (56 per cent) of these were in good or fair condition at the end of April this spring. Of the 19

plots sown later than August 15, twelve (63 per cent) gave satisfactory fall growth, and ten (83 per cent) of these were in good or fair condition at the end of April this spring. These data indicate that the date limit for successful seeding has scarcely been reached in these experiments, and it seems fair to conclude that with reasonable soil and weather conditions it would be safe to delay the sowing of alfalfa as late as the middle of August, at least, especially when we remember that in the fall of 1906 the growing period was considerably curtailed by the heavy frosts in the early part of October. Sowing about the middle of August would give from four to six week's time during which to prepare the seed-bed in cases where it is desired to sow alfalfa after a small grain or other early harvested crops, and ordinarily it will be possible to do it satisfactorily in this time in spite of considerable dry weather which often occurs at this time of the year.

Concerning the weather conditions it may be said that the late summer and fall weather was on the whole a little better than usual as regards moisture supply, but there were some important exceptions, as may be seen in the column of remarks. As regards the length of the fall growing period, the conditions were unfavorable all over the State and growth was checked considerably earlier than usual on account of the severe frosts in the early part of October. The winter and early spring were unusually severe, and judging from the effect on clover caused considerably more damage than would have been the case under ordinary conditions.

Of the fifty-seven reports received, thirty (53 per cent) state that the fall weather was, on the whole favorable. In the other cases (47 per cent) the fall weather was more or less unfavorable at one time or another. Of the forty-four (77 per cent) who report good stands, sixteen (36 per cent) say the fall weather was rather too dry, and in five cases very dry. Of the nine (16 per cent) who report medium stands, four (44 per cent) say the weather was too dry, two had good weather, two do not state, and the other sowed the alfalfa too thin. The four (7 per cent) who report poor

Home Departments

CONDUCTED BY RUTH COWGILL.

A Boy That I Knew.

A boy that I knew, when skies were all blue,
And fields of the morning were sparkling with dew,
With a smile on his face and a smile in his heart,
He walked from the phantom of trouble apart;
And his laughter was sweet as the lilt of a song,
For he knew not the care of the world, or its wrong;
The past and the future might bury their rue—
The day was enough for that boy that I knew.

A youth that I knew, as he stood where the way leads down to the mists and the toll and the fray,
Bore a smile on his face, and kept faith in his soul;
And Hope, with her promise, "For you is the goal!"
Though others were crushed, and though others might wear
On their foreheads the emblems of doubt and despair,
He would win in the strife, standing stalwart and true,
For "Achieve" was the word of that youth that I knew.

A man that I know, worn, weary, and old,
Looks backward on years that his failure have told;
Looks backward to hope, with a promise no more,
To the faith, like a wraith from the country of yore;
To the visions that faded, the faltering feet,
The wall of the bugle that called to retreat;
And 'tis O for the morning, the sheen of its dew!
And O to go back to the boy that I knew!

—Alfred J. Waterhouse.

The Training of the Human Plant.

It is unnecessary to explain that Luther Burbank is a noted flower and plant specialist, for he is worldwide known, as also are his wonderful plant improvements. He has written a little book, "The Training of the Human Plant," in which he applies his knowledge and experiences of plant life to the human plant and in a clear and forceful manner tells of the possibilities of the human race through right crossing, careful selection, and patient cultivation. He shows that the United States possesses the very best material for the making of a great nation; that immigration is bringing to our shores vast numbers of various types from which to make selection, such as will produce the finest race ever known. He would make the nation responsible for the training of children, the orphans, and those whose parents are irresponsible and seemingly unable to rise to their opportunities and possibilities and properly nourish and train them. He would have the nation foster these outcasts and feed, clothe, and train them, as much as we cultivate plants, and do it in such a way that no loss of self-respect will follow or idleness be encouraged. The nation, he holds, should do this for self protection, and do it at once. Rightly cultivated, these children will become a blessing to the country, neglected, they will become a menace and a curse. They may become useful plants and flowers or if left to themselves and chance, worse than weeds and thorns.

Mr. Burbank makes no guesses about the subject in hand, but from his experience with plants, he is sure of what he affirms. He asserts that there is not a desirable trait, which, lacking in a plant can not be bred into it by proper crossing, selection, cultivation, and persistence. So in the normal child, by surrounding him with the sunshine of the sky and from your own heart, by giving him the communion with nature and feeding him nourishing and well-balanced food, you can with patience and loving persistence fix in him any attribute, honesty, purity, industry, thrift, or what not? Some of the strongest points of his arguments are that the child is the most sensitive and impressible of all living things. Even with their strong wills children are easier influenced than any plant; the plant being more stubborn than a child and harder to change from its natural bent though he says, "A

plant may be said to be a harp, with a few strings as compared with a child." Love, happiness, and beautiful surroundings are all necessary to the child's moral growth and development as sunshine and air are to the plant, and proper food and nourishment for him, morally and physically, as is the right kind of soil and moisture for the plant. The child's moral nature is greatly affected by the kind of food he eats and by the way his body is nourished. The first ten years of the child's life is the time to do the work, and the country is the place for him. "The country is the only fit place for a plant or a boy," says Mr. Burbank.

Burbank deprecates the cramming system of education and that of "running them all through the same mill in a lot," without regard to their different tastes, their health, and individuality. A child should not see the inside of a school-room before he is ten years old, but should live close to nature. He maintains that he will not lose much time by waiting because of the strength of body and mind which he has gained, and if he should lose a year or two, what of it? "Do we expect a moral plant to begin to bear fruit a few weeks after it is born?" He says, "Any form of education which leaves one less able to meet everyday emergencies and occurrences is unbalanced and vicious, and will lead many people to destruction. Every child should have mud pies, grasshoppers, water-bugs, tadpoles, frogs, mud-turtles, elderberries, wild strawberries, acorns, chestnuts, trees to climb, brooks to wade in, water-lilies, woodchucks, bats, bees, butterflies, various animals to pet, hay fields, pine cones, rocks to roll, sand snakes, huckleberries and hornets and any child who has been deprived of these has been deprived of the best part of his education."

The book from first to last, emphasizes over and over again the importance of love, of untiring devotion, in all dealings with the child, and urges upon parents and those who are in charge of children, the necessity of perfect honesty, honesty in thought and deed, as the child is a keen discernor and sees deeper into the soul than one sometimes suspects. He affirms that the present wave of dishonesty that seems to be sweeping over our land—graft if you please—is the result of improper training in childhood. As in plant training, one must repeat over and over again to fix a trait, so in child training, repetition is essential. Mr. Burbank makes one see the truth in these words, "Repetition is the best means of impressing any one point on the human understanding it is also the means which we employ to train animals to do as we wish and by just the same process we impress plant life. By repetition we fix any tendency, and the more times any unusual environment is repeated the more indelibly will the resultant tendencies be fixed in plant, animal, or man, until, if repeated often enough in any certain direction, the habit becomes so fixed and inherent in heredity, that it will require many repetitions of an opposite nature to efface them."

Home and Its Queen.

There is probably not an unperverted man or woman living who does not feel that the sweetest consolations and best rewards of life are found in the loves and delights of home. There are very few who do not feel themselves indebted to the influences that clustered around their cradles for whatever good there may be in their characters and condition.

Home, based upon Christian marriage, is so evident an institution of God that a man must become profane before he can deny it. Wherever it is pure and true to the Christian idea,

there lives an institution conservative of all the nobler instincts of society.

Of this realm woman is the queen. It takes its cue and hue from her. If she is in the best sense womanly—if she is true and tender, loving and heroic, patient and self-devoted—she consciously and unconsciously organizes and puts in operation a set of influences that do more to mould the destiny of the nation than any man, uncrowned by power of eloquence, can possibly effect.

The men of the nation are what mothers make them, as a rule, and the voice that those men speak in the expression of power is the voice of the woman who bore and bred them. There can be no substitute for this. There is no other possible way in which the women of the nation can organize their influence and power that will tell so beneficially upon society and the State.—Scribner's Monthly.

Four Notable Women.

There are four women who ought to be brought to public notice while they are still in active life, says The Delineator. One is the mother of the Dr. Osler who, already a celebrated physician, became famous by reason of being credited with the statement that man does not grow in power after forty and that his usefulness ceases at sixty. Mrs. Osler has just celebrated her one-hundredth birthday. She has reared four very distinguished sons and one daughter, has twenty-six grandchildren and one great-grandchild and is still leading a useful and comparatively active life. Another is Mrs. Mary E. Farrell, who has just ended her one-hundred-and-third year. She has reared eleven children, has fifteen grandchildren and twelve great-grandchildren. She has never been ill a day in her life, is still a daily worker about the house, active in body and witty in mind. A third is Mrs. Susan Askey, who on her one-hundred-and-first birthday went to church in an automobile, made an address to the audience, and held a reception in the evening. She also has borne eleven children. The fourth is Mrs. Franklin Cottle, who at ninety-eight years of age went through thrilling experiences at the late San Francisco disaster, arrived fresh and strong in New York a week or two later, and now, as erect as at twenty and as alert as at sixty, she is about to start on a two-hundred-mile automobile ride from New York to Boston.

Elbert Hubbard's Favorite Recipes.

The Delineator has been giving some favorite recipes of famous people and the following ones are very simple and nutritious:

"The tastes of Elbert Hubbard, the famous leader of the East Aurora Roycrofters, do not run to complicated and savory dishes. As one would naturally imagine, he lives simply, his one requirement being that the food he eats shall be of the best quality and properly prepared. Not infrequently he himself projects his individuality into the affairs of the domestic cuisine, and here is one recipe which he very much enjoys working out: Take fresh celery and snow apples, cut them carefully into cubes, or symmetrical pieces, and see that the most equal proportions are maintained. Chill, and serve with a mayonnaise. The result will be a most delicious salad. In the morning Mr. Hubbard's favorite dish is one that he calls the 'Roycroft Breakfast Food.' To make it, a sufficient quantity of whole wheat is carefully steamed for not less than twelve hours, and, at about the last moment before it is served, chopped nuts and dates cut in small pieces are added, the proportions being about one part fruit and nuts to nine parts of the wheat. When this dish is ready for the table it is both a palatable and a nutritious food upon which to begin the labors of the day."

"The fellow Pecksniff certainly has got his fancee hypnotized. She thinks he's too good for this world."

"And she's right. The proper place for him is a certain locality in the next world."—Catholic Standard.

Watch Your Thirty Feet of Bowels!

YOU have thirty feet of Intestines. What makes food travel through them?

A set of Muscles that line the walls of these Intestines or Bowels.

When a piece of Food rubs the walls of the Intestines these Muscles tighten behind it, and thus it starts a Muscle-wave which drives it through the whole length of the Bowels.

It should take about 12 hours to do this properly, so that nutritious parts of the food may have time to be digested and absorbed.

* * *

But,—if it takes twice or three times that period the food spoils in passing, and becomes as poisonous as if it had decayed before being eaten.

Now, the cause of delay (Constipation) is simply Weakness, or Laziness of the Bowel-Muscles.

Want of Exercise, Indoor Employment, weakens these Bowel-Muscles, just as it weakens Arm and Leg Muscles.

* * *

"Physic" like Salts, Calomel, Jalap, Phosphate of Soda, Mineral Waters, simply flush-out the Bowels for the one occasion only.

They do not remove the Cause of Constipation.

But this is different with Cascarets. Cascarets act on the Muscles of the Bowels and Intestines. They act just as Cold Water, or Exercise act on a Lazy man. They act like exercise.

A Cascaret produces the same sort of Natural result that a Six Mile walk in the country would produce.

The Vest Pocket Box is sold by all Druggists, at Ten Cents.

Be very careful to get the genuine, made only by the Sterling Remedy Co., and never sold in bulk. Every tablet stamped "CCC."

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The Young Folks

A Boy's Song.

Where the pools are bright and deep,
Where the gray trout lies asleep,
Up the river and o'er the lea,
That's the way for Billy and me.

Where the blackbird sings the latest,
Where the hawthorn blooms the sweet-
est,
Where the nestlings chirp and flee,
That's the way for Billy and me.

Where the mowers mow the cleanest,
Where the hay lies thick and greenest,
There to trace the homeward bee,
That's the way for Billy and me.

Where the hazel bank is steepest,
Where the shadow falls the deepest,
Where the clustering nuts fall free,
That's the way for Billy and me.

-James Hogg (The Ettrick Shepherd.)

A Morning Prayer.

Weary of dogma, ritual and
creed,
Father, thy children would their
weakness plead;
Feed us within with all the
strength we need,
To do thy will.

Feed us within with all we need
of peace,
To make all harsh, vindictive
feelings cease,
And from besetting sins to give
release,
To do thy will.

Feed us within with all we need
of joy,
Not simply happiness, with
earth's alloy,
The joy of Jesus, heart and
hands employ
To do thy will.

Feed us within with all we need
of love,
Wise as a serpent, harmless as a
dove,
Cleansing us here for purer life
above,
To do thy will.

-Retta Long.

SKETCHES FROM LIFE.

The Invalid.

"I have been in a sanitarium up in
the mountains for two years tryin' to
get well. I lived in a tent house all
by myself and had to eat raw eggs and
rare beefsteak and milk. I never
want to see beefsteak and eggs again.
It was terribly lonesome so far away
from home and all my friends. I was
very gay before I got sick and went to
lots of parties and dances—maybe I
would be well now if I had not loved
those things so much."

I turned to see the speaker and it
would be a hard heart that did not
pity her. Thin and pale she leaned
against the pillows and the quick
breathing and short, dry cough told
plainly that she was in the last stages
of consumption. I watched her as day
by day her strength failed, but not so
her courage nor her hopefulness. Oth-
ers complained sometimes of one
thing, sometimes of another, and al-
ways of the tedious, tiresome journey.
She was always bright and cheer-
ful and patient. Suffering had made
her so, perhaps—perhaps it was nat-
ural. She was generous with her
lunch and fruit, saying, "I can't eat it,
I am tired of it. Please take it." I
noticed that she was neither eating of
her lunch, nor was she going to the
diner. On the morning of the second
day's journey I passed her and in-
quired if she had been to breakfast.
She replied that she did not want any-
thing to eat. She was sick of the
sight of her lunch and only longed for
some "home cookin'," which she hoped
soon to enjoy. I told her she ought
to eat to keep up her strength till she
could get home even though she did
not care for it, and persuaded her to
go the diner. It was necessary for
some one to watch her and insist upon
her eating all along the journey and to
procure at the stopping places fresh
milk for her to drink as that was the
one thing she relished. She was an
orphan but was cared for by a lady
who was as good to her as a mother
and had done all she could to restore
her to health. When we parted, she
to go her way and I mine, she said,
"I'll soon be at my 'old Kentucky
home' again and get to eat the good
home cookin'—beaten biscuit and
chicken like they cook it in the South.
I have not had any like that since I

left. I know I shall get better then.
It is in the country and I can have all
the good new milk I want and I can
milk the cows to if I want to. I am
going to have the big porch screened
in and sleep there and I can do as I
please. I shall never go away again."

I said goodby, hoping that she might
realize her wish and reach her Ken-
tucky home and enjoy the "home
cookin'." R. H. C.

The Boy who is Faithful.

It is all right to be smart, but it is
all wrong to be smart in the wrong
way. I have seen boys who think that
they are smart in ordering others
around and boasting of what they are
to do. If I had any work to be done
I'd never hire a lad like that to do it.

It is true that some employers are
in need of smart boys and ever on the
outlook for them; but there are thou-
sands of positions where boys of only
ordinary ability are wanted. Boys
that are too smart are often not de-
sired, since they too, often want to
dictate and can not be dictated to;
they try to run the business to suit
not their employers, but themselves.

There is a greater demand for faith-
ful boys than for smart boys. There
is nothing that one more appreciates
in one under him than faithfulness. I
once heard a gentleman say that he
asked a friend why he paid his secre-
tary such a very large salary when he
could secure one for a much smaller
sum. He replied that he could secure
one for a less amount, but not one who
would do the work as did this one.
"When I am gone," said the friend,
"everything goes on just as if I were
here." Now if this secretary had been
smart, rather than faithful, his employ-
er might not have been able to say of
him what he did. He might have been
obliged to have said, "I can't leave
him, for when I'm gone he tries to run
matters to suit himself and to improve
upon my methods, and it is not a part-
ner that I want, but a secretary."

Where one succeeds because of his
smartness, ten succeed because of
their faithfulness.

And not at the boy's faithfulness
alone does a would-be employer look;
he desires a boy who is an all around
moral boy. He knows that it is no use
to hire one who smokes cigarettes, for
these muddle the brain, cause heart
trouble and kill the smoker at so early
an age that he will be obliged to soon
secure another lad. Nor does he care
for a boy who gambles, for his funds
would be too handy for such and the
temptation to borrow them too great.
Nor does the employer desire a boy
who drinks intoxicants even in the
slightest degree, for he thinks there
will be a possibility of his making a
mistake.

It may be that the man who is thus
critical indulges himself in all of these
vices, but he wants the boy he em-
ploys to be free from them. He knows
more than any other to what they will
lead, and it is probable that a boy who
is inclined to them would obtain a
position with a good man rather than
from a man like this, for a good man
would think that he might assist the
lad to give up his evil ways.—Alice
May Douglas, in the American Boy.

Take Care of the Nickels.

"Careful saving and careful spend-
ing invariably promote success," says
Marshall Field, "It is not what a man
earns, but what he saves, that makes
him rich. John Jacob Astor once said
that the saving of his first \$1,000 cost
him the hardest struggle." As a rule,
people do not know how to save. The
average young man of today when he
begins to earn is inclined to habits of
extravagance. He gets the idea that
he must indulge in habits correspond-
ing to those of some other young man,
without regard to what he earns; and
he imagines he cannot be manly with-
out. The 5, 10 or 15 cents a day he
squanders, while apparently a trifle,
would if saved in a few years amount
to thousands of dollars; and go far to-
ward establishing the foundation of
his future career. Too few realize that
in order to acquire dollars one must
take care of the nickels. The young
man should begin to save the moment
he begins to earn, be the saving ever

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so little, and if he does so the habit will be of incalculable benefit to him in after life."—Frank Carpenter, in the Record-Herald.

When Lost in the Woods.

When a man goes out hunting where he never has been before, he very often gets lost. When you find you have lost your way, don't lose your head; keep cool, try and not let your brains get into your feet. By this we mean, don't run around and make things worse, and play yourself all out. First, sit down and think, cool off, then climb a hill or tree and endeavor to locate some familiar object you passed, so as to retrace your steps. Should it get dark, build a rousing camp-fire. Ten to one you will be missed from camp and your comrades will be searching for you and your fire will be seen by them. Give distress signals, but don't waste all your ammunition thus. It is probable that in the morning, with a clear head, after a comfortable night, if you make it so, you will discover the fact that your camp is closer to you than you imagined.

I have seen men lost within rifle-shot of camp. A cool head can accomplish much, a rattled head nothing.

To locate your position note the limbs and bark of trees. The north side of trees can be known by the thickness and roughness of the bark. Moss is generally found near the roots on the north side. Note also branches, which generally are to be found longer on the south side of trees, while the branches exposed to the north are generally knotty, twisted and drooped. In the forest the tops of the pine trees dip or trend to the north.

If you find water, follow it; it generally leads where civilization exists.

The tendency of people lost usually is to travel in a circle. By all means keep cool and deliberate. Blaze your way by leaving marks on trees to indicate the direction you have taken. If you keep a cool head and a stout heart you will find that to be lost from camp is really a comedy.—Walter El Bergman in the North American Trapper.

The Little Ones

The Cloud.

I bring fresh showers for the thirsting flowers,
From the seas and the streams;
I bear light shade for the leaves when laid
In their noonday dreams.
From my wings are shaken the dews that waken
The sweet buds every one,
When rocked to rest on their mother's breast,
As she dances about the sun,
I wield the flail of the lashing hail,
And whiten the green plains under,
And then again I dissolve it in rain,
And laugh as I pass in thunder.

—Percy Bysshe Shelley.

How Gareth Became a Knight.

ELVIRA LEE.

A long time ago there lived a great and loving king and with him lived strong gentlemen who were ready to go out to help any one who needed them. These men were called knights and the king was called King Arthur. Not so very far from the king's palace lived a little boy whose name was Gareth. His father was dead and he had no brothers nor sisters. His mother loved him very much and wanted to keep him with her always. But Gareth wanted to go to King Arthur's palace and be a knight. Every time he would speak of it his mother would say: "My dear, sweet son, you must wait until you are older."

But one day when he had grown to be very tall he went to her again and asked her to let him go. He would not go unless she said he could because he loved her very, very dearly and would not disobey her. His mother thought along time and then she said: "My dear boy, you may go if you will go as a kitchen servant and work in the kitchen for a year." She thought that would keep him at home, but he put his arms around her and said: "My dear mother, if you wish it I will do so."

So he went to King Arthur's palace

and served in the kitchen and did his work so well that the king and his chief knight, Sir Lancelot, noticed it and praised him.

His mother loved him so well that she could not bear to have him unhappy so she wrote to the king and to Gareth telling them that she released him. Then Gareth was very happy and the king told him he should be sent to help the first person who was in need. This happened to be a young girl who came to ask Sir Lancelot to help her sister who was shut up in a palace by four wicked men. But the king sent Gareth to help her. This made the girl, whose name was Lynelle, very angry because she thought he was just a kitchen boy and she was very unkind to him all the way and teased him about smelling of the kitchen. But Gareth did not say a thing back to her but was always kind to her.

He overthrew three of the bad men and sent them back to the king's palace, but before he came to the last one, Sir Lancelot, who had been riding behind him all the way to take care of him, if he needed it, came up and wanted to fight him to see how brave he was. Gareth's horse was tired and so was he and Sir Lancelot was the greatest knight in the kingdom, so he overthrew the young knight. But Lancelot told him he had done well and that he was a brave and gentle knight. He told him, too just how to meet his last foe, which was said to be the worst of all, and gave him his shield and his horse. Gareth went bravely forward and saw the fiercest looking man he had ever seen, all covered with steel and heavy skins. Gareth fought well and tore off the covering of steel and heavy skins and what do you think, he found he was fighting with a boy about as old as himself, who was just dressed up to scare people. This young man went to the king's palace too and Gareth became a noble knight.

How Fishes Breathe.

By means of their gills fishes breathe the air dissolved in water. The oxygen consumed by them is not that which forms the chemical constituent of the water, but that contained in the air which is dissolved in the water. Fishes transferred to water from which the air has been driven out by a high temperature, or in which the air absorbed by them is not replaced, are soon suffocated. They require aerated water to maintain life, and they take it in constantly through their mouths and expel it through their gills, retaining the air. It follows that if the water in a lake should be completely cut off from contact with the air long enough to exhaust the supply of air, the fish in the lake would die.—St. Nicholas.

Mother Stewart, the founder of the Women's Christian Temperance Union, recently celebrated her ninety-first birthday anniversary. She was postmistress under President Jackson, being the first woman known to hold a federal office. She began the temperance crusade in Springfield, Ohio, in 1873, singing and playing in the saloons. She has written four books, the last one in her eighty-ninth year.

Highland Park College, Des Moines, Iowa.

In another column of this paper will be found an advertisement of the Highland Park College, Des Moines, Iowa. This school has grown to be one of the largest institutions of learning in the West. Nearly 2,000 have been enrolled in the various departments of the school this year. The school has nine college buildings and is thoroughly equipped to teach almost any subject any young person would care to pursue. Beside the regular college and preparatory courses it offers a regular normal course, courses in all branches of engineering, a pharmacy course, a business course, courses in shorthand and typewriting, telegraphy, and pen art, and has one of the largest and best-equipped colleges of music in the West. Young people seeking a first-class institution in which to prepare themselves for life's duties will hardly be able to find a more reliable institution than the Highland Park College, Des Moines, Iowa.

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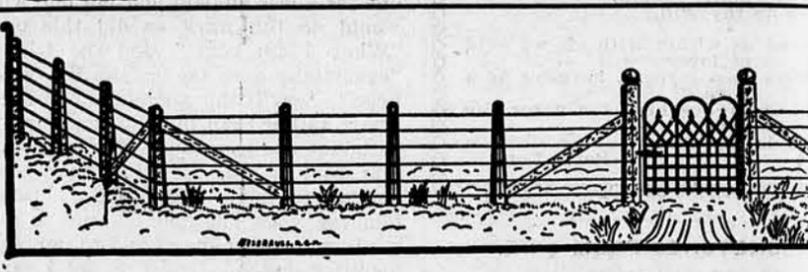
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One of the most important movements which has occurred in American agriculture is the general introduction of alfalfa as a hay and pasture crop. While formerly it was considered that alfalfa could be grown profitably only in the irrigation sections of the country, the acreage devoted to this crop is rapidly increasing everywhere. Recent experiments have shown that alfalfa has a much wider usefulness than has hitherto been supposed and good crops are now grown in almost every state. No forage plant has ever been introduced and successfully cultivated in the United States possessed of the general excellence of alfalfa.

The introduction of this plant into North America, although known in the Old World hundreds of years before Christ, occurred only during the last century, yet it is probably receiving more attention than any other crop. When once well established it continues to produce good crops for an almost indefinite number of years. The author thoroughly believes in alfalfa; he believes in it for the big farmer has a profit bringer in the form of hay, or condensed into beef, pork, mutton, or products of the cow; but he has a still more abiding faith in it as a mainstay of the small farmer, for feed for all his live stock and for maintaining the fertility of the soil.

The treatment of the whole subject is in the author's usual clear and admirable style, as will be seen from the following condensed table of contents:

I. History, Description, Varieties and Habits	XIV. Alfalfa for Horses and Mules
II. Universality of Alfalfa	XV. Alfalfa for Sheep-Raising
III. Yields, and Comparisons with Other Crops	XVI. Alfalfa for Bees
IV. Seed and Seed Selection	XVII. Alfalfa for Poultry
V. Soil and Seeding	XVIII. Alfalfa for Food Preparation
VI. Cultivation	XIX. Alfalfa for Town and City
VII. Harvesting	XX. Alfalfa for Crop Rotation
VIII. Storing	XXI. Nitro-Culture
IX. Pasturing and Soiling	XXII. Alfalfa as a Commercial Factor
X. Alfalfa as a Feed Stuff	XXIII. The Enemies of Alfalfa
XI. Alfalfa in Beef-Making	XXIV. Difficulties and Discouragements
XII. Alfalfa and the Dairy	XXV. Alfalfa in the Orchard
XIII. Alfalfa for Swine	XXVI. Practical Experiences with Alfalfa

The book is printed on fine paper and illustrated with many full-page photographs that were taken with the especial view of their relation to the text. 336 pages (6 1/2 x 9 inches), bound in cloth, with gold stamping. It is unquestionably the handsomest agricultural reference book that has ever been issued.

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Dairy Interests

Selecting a Breed.

PROF. OSCAR ERF.

One of the great problems with most of our young men at the present day is, what breed should he select? This is largely a matter of choice. There are good individuals in every one of the dairy breeds that have been bred for that purpose. It would indeed be one of the grandest things, if it were possible, to localize the breeding of animals to special sections and to make it compulsory to breed certain breeds for certain purposes. Some of the European countries furnish us an excellent example of this when we find that the most progressive people of this country draw their stock of cows from the countries of the Guernsey, Jersey, and Ayrshire. This is simply because the people of these particular localities are making a specialty in some definite line and are aiming at a definite purpose. If we are to gain a reputation as breeders of merit we are obliged to specialize for some definite aim and to combine all the intelligence and energy of a community, county, or State to one purpose. Even with the greatest care that can be used in selecting calves there will be disappointments. Occasionally the calf that you expect the great things from proves a disappointment. The best sires are often sacrificed before their real worth is known. Frequently the real worth of an animal is found out after he is sent to the block. We then mourn for the misfortune and would be willing to give many times what we realized for the animal. Of course this is an unfortunate condition that only time and close observation on the part of the breeder can obviate. We, therefore, say that while disappointments may come about in every breed, the best way to do is to stick to one breed, be it the Jersey, Guernsey, Holstein, or Brown Swiss, it matters not which. Time will give you a reputation if you are a good, cautious breeder and you will be repaid for your efforts. It is always desirable to practise the old proverb in this instance, to "stick to your text."

Comfort of a Cow.

PROF. OSCAR ERF.

Whatever adds to the comfort of the dairy cow increases the yield of the milk. Comfortable shelter and dry bedding and comfortable methods of fastening add to the milk yield. Frequency of feed and water, twice or three times a day, is largely a matter of habit, but regularity of feed is essential to secure the greatest yield. If feeding twice daily is the method adopted the cows should be fed the same hour every morning and at the same time selected for evening feeding every evening. The same rule holds good if the cows are given mid-day feeds. Regularity is very essential, for if the cows have to wait half an hour for their feed after the usual time it will cause them to fret and cut down the milk yield.

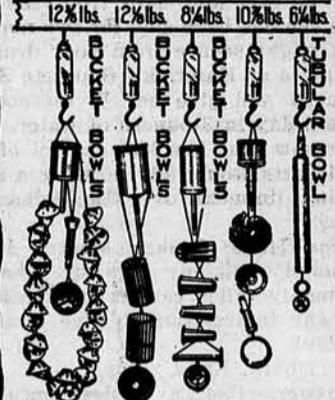
Moisture Content of Butter.

The writer has contributed, from time to time, a number of articles on the subject of moisture in butter, and he still feels that it is necessary to warn the butter-makers to be careful. Last winter when the writer went with a delegation of prominent dairymen to Washington, D. C., to protest against the fat standard in the Pure Food Bill, of 82½ per cent, which would mean 13½ per cent water for butter, some were unkind enough to impugn our motives.

We believe, however, that the testing of butter during the last six weeks has been a source of revelation to some of our creamerymen. The question now with many creamerymen is not to increase their moisture but to be able to keep within the limit of the law, 16 per cent. The writer had a conversation with one of our leading dairy professors recently and the question of moisture in butter was brought up. He said since the forepart of

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April they have had difficulty in their school in holding their butter down to the limit of the law, and his State was among those that favored 82½ per cent as a standard last winter. Since that time he has seen a light and his ideas have changed somewhat. He, like many others, had not given the moisture subject as much thought as some other phases of the dairy question.

Analyses of the butter scoring recently done by the different States in their education contests show the inconsistency of an 82½ per cent standard, which would mean about 13½ as the maximum amount of water butter should contain. According to the report of the educational contest conducted in Minnesota we find they had one sample of butter containing between 9 and 10 per cent moisture with a score of 92½; two samples between 10 and 11 per cent with a score of 94; nine samples between 11 and 12 per cent, with an average score of 92.58; thirty-six samples between 12 and 13 per cent with a score of 92.99. Between 13 and 14 per cent moisture we find 67 samples having an average score of 93.23, between 14 and 15 per cent we find 40 samples with an average score of 93.12, from 15 inclusive to 16 per cent we find 25 samples with an average score of 93.44, between 16 and 17 per cent we find 8 samples with an average score of 93.19. The above samples were all supposed to

have been taken from whole milk creameries and would naturally be a fair average of the best butter made. In the samples where the numbers of tubs were 25 and above we find that the butter running from 15 to 16 per cent moisture got the highest average score.

In the Wisconsin educational scoring contest we find two samples from 10 to 11 per cent moisture having an average score of 94.16, fourteen samples from 11 to 12 per cent moisture having an average score of 93.65, twenty samples from 12 to 13 per cent moisture having an average score of 93.51, forty-one samples 13 to 14 per cent moisture an average score of 93.84, fifteen samples between 14 and 15 per cent at an average score of 93.57, ten samples including 15 to 16 at an average score of 93.58, five samples between 16 and 17 per cent at average score of 93.48, one sample between 18 and 19 per cent with score of 92.

In the five that scored between 16 and 17 and would be classified as adulterated butter we find two tubs scoring respectively 95.16 and 95.41. We are conducting a similar contest here, but we are not publishing the names or the scores. The scores here will compare very favorably with the scores above mentioned, as will also the moisture question. We have a number of good creameries that exceeded the 16 per cent moisture limit at times. Viewing the scores from Minnesota and Wisconsin and comparing them with the scores here, it would seem that the water content of butter has no effect on the quality up to 16 per cent or a little above. Our best butter at this time of the year will contain anywhere from 12 to 16 per cent moisture.

Still, it is not safe for any one to attempt to approach the limit of the law. With the activity displayed by the Internal Revenue officers I feel like sounding a note of warning to the makers. I visited a creamery some days ago where they were having trouble in keeping their moisture down to the limit of the law. I took charge of a churning, filling the churn a little more than two-thirds full with cream at a temperature of 48°. I found it took nearly two hours to churn. This butter was churned in medium fine granules and thoroughly washed with water having a temperature of 50°, then it was salted and worked, giving it 14 revolutions in the Victor churn. The maker asked me, when all was completed, how much water the butter would contain. I told him it would not exceed 13½ per cent. He insisted, however, that it would contain 15 per cent. This butter was tested with the Gray's test and to my surprise showed 15½ per cent moisture. We heard it reported frequently last winter by some of our experts that 14½ per cent was the maximum amount of moisture that could be incorporated in butter when churned in a granular condition unless resorting to artificial means.

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We believe it would be well for some of these experts to visit some of our good creameries at the present time. I have seen over 17 per cent water incorporated when butter was in the granular condition and no effort made to incorporate moisture, churning at 52° and washing with water at 50°. Locality and quality of feeds seem to have an important bearing on the moisture content of butter. Churning with the churn two-thirds or more full has a tendency to increase the moisture content. Churning at high temperatures and in large granules will greatly increase the moisture content of butter.

I recently received a letter from a large creamery in an adjoining State in which the creameryman described his methods of making, and wanted some information in regard to incorporating more moisture in butter. I answered his letter and told him there was more danger in overstepping the limit than of getting below with the methods he was pursuing. Later I got a letter from him in which he stated he had secured a moisture test and was surprised to find his butter was running nearly 17 per cent.

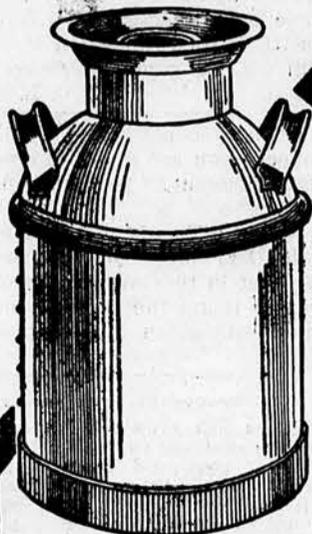
Trying to approach the 16 per cent

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We have a book, which we have prepared with much time and expense, entitled "THE SECRET OF SUCCESSFUL DAIRYING, or Cream Shippers' Guide." We believe this is the best book ever issued for instructing the farmer about shipping cream. It tells how to do less work and make more money in this branch of farming: it tells why we don't have receiving stations and local agents, and why these stations are failures; it tells of the benefit of shipping direct to the creamery, how it is economical and profitable; it tells how we want to co-operate with you and how we make payments; it tells you from what distance you can ship cream and the kind of cans to ship it in; what kind of cream to ship; in fact, it tells everything the farmer wants to know about this business. We had a man who got one of these books last year say it was worth \$100 to him. We believe it is worth that much to every farmer. If you are neglecting your farm by not developing the dairy business, this book will tell you what you are losing. It won't cost you but one cent for postal card to ask for copy of this book. We are sure you would be willing to pay 100 times more to get a copy if you were to lose the one we send you.

Send to us right away and get posted on this valuable information so that you can begin shipping cream to us and get your dairy department on the best paying basis.

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limit is a very dangerous practise and should not be resorted to. Every butter-maker should get some test to determine the per cent of moisture in his butter, not only for the sake of economy, but as a safeguard.

The writer knows of a creamery that has an irreproachable maker, and the Internal Revenue officers visited this plant three times during the last six or eight weeks taking samples, and they make the claim that one churning showed slightly over 16 per cent moisture and are trying to prosecute the creamery on that one churning, notwithstanding that the said sample showed over 82 per cent fat by the Babcock test.

No doubt after the rainy season is over and the grass gets firmer there will be less danger of excessive moisture being incorporated unawares by makers. In the meantime, I would advise butter-makers to use extra precaution and test daily.—G. L. McKay, in New York Produce Review.

A Hay Lesson.

Continued from page 803.)

acres of timothy, considering the protein alone.

"Are you going to keep on raising timothy?"

A great many farmers don't feed enough protein. "I hope these things will be taught in the schools. Every eighth grade boy ought to be taught and they ought to be taught in the high school if not before."

The following table (referred to above) taken mainly from Henry's "Feeds and Feeding" shows the digestible nutrients in 100 pounds of the foods named. The feeds here given are arranged in the order of their protein content.

	Protein.	Carbohydrates.	Fat.
Wheat straw.	0.4	36.3	0.4
Rye straw.	0.6	40.6	0.4
Oat straw.	1.2	38.6	0.8
Corn stover.	1.7	32.4	0.7
Timothy hay.	2.8	43.4	1.4
Hungarian hay.	4.5	51.7	1.3
Red clover hay.	6.8	35.8	1.7
Alsike clover hay.	8.4	42.5	1.5
Corn (grain).	7.9	66.7	4.3
Oats (grain).	9.2	47.3	4.2
Wheat (grain).	10.2	69.2	1.7
Alfalfa hay.	11.0	39.6	1.2
Wheat bran.	12.2	39.2	2.7
Gluten-meal.	25.8	43.3	11.0
Oil-meal.	28.2	40.1	2.8
Cottonseed-meal.	37.2	16.9	12.2

The Veterinarian

We cordially invite our readers to consult us when they desire information in regard to sick or lame animals, and thus assist us in making this Department of the most interesting features of The Kansas Farmer. Kindly give the age, color, and sex of the animal, stating symptoms accurately, and 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 postoffice, should be signed with full name and should be addressed to the Veterinary Department of The Kansas Farmer, Topeka, Kansas, or to Dr. O. L. Barnes, Veterinary Department, Kansas State Agricultural College, Manhattan, Kansas.

If in addition to having the letter answered in The Kansas Farmer, an immediate answer is desired by mail, kindly enclose a 2-cent stamp. Write across top of letter: "To be answered in Kansas Farmer."

Lump on Colt's Shoulder.—I have a colt, 3 weeks old, and when born it had a lump just back of shoulder blade on left side. It extends up to back bone and is about 4 1/2 inches in length and extends downward 3 1/2 inches and protrudes about 1 1/2 inches. It is rather firm but will yield when pressing on it. Four days ago I opened it with a knife, thinking there was pus in it but I didn't find any. Kindly advise me and oblige. S. H. Herkimer, Kans.

Answer.—You had better use a disinfectant in healing the wound you have made in opening your colt's shoulder.

Navel Ill.—I have a light bay colt that was born about three weeks ago. It seemed to be born all right but appeared a little stupid at first. After two days it began to run at the navel and the left hind leg began to swell and about a week afterwards the other hind leg began to swell also, only the swelling was soft where the other was hard. The swelling was at the hock joints. Her front legs are out of shape from her hoof to her pastern. She walks on her toes and muckles over. Kindly advise me what to do for her. P. C. Grof, Iowa.

Answer.—I think your colt is suffer-

ing from what is known as navel ill. You ought to cleanse the navel and use bichloride of mercury on it in 1 to 1,000 per cent solution. Open the enlargements on the legs and disinfect those. Your animal will probably need to be examined by a competent veterinarian in order to advise the proper method of treatment.

Lump on Mare's Jaw.—I have a gray mare, 3 years old, which I supposed had an ulcerated tooth. This tooth was extracted in June, 1906, by a veterinarian by boring through jaw and knocking tooth out. The lump came again nearly as soon as wound healed. It was again bored in April, 1907, and had then become as hard as bone. This latter would have not entirely healed and a discharge continues to come from it. It seems that this ulcer is not formed by a tooth as the removal of teeth does not cure it. I first noticed a discharge from left nostril in March, 1906, and treated for distemper. In about a month the lump came which is now about the size of a teacup and has the solidity of bone except where the hole with the discharge is. A READER, Oklahoma.

Answer.—If you will secure from your druggist a 4-ounce bottle of Eucalyptol and use 1/2-ounce to a quart of water and then syringe the opening Cineraria Mararima on your mfg qShfro in your horse's jaw I believe it will heal without difficulty.

Mare with Affected Eyes.—I have a young mare and about every thirty days one of her eyes inflames, either one or the other. Please advise me what to do for them. I have been told to put one of her eyes out and then the other one would be all right. I would be very much pleased to hear from you. A. P. Jamesville, N. C.

Answer.—Use a bottle of Succus Cineraria Mararima on your horse's eye that is not doing well. Put one drop daily in each affected eye.

Colt Has Lame Knee.—Will you please advise in the following cases: Colt while driven fell to his knees on cinder track and must have picked up some foreign substance in one knee. Is now sore and shows little pus (does not run) and perhaps some proud flesh. I have been using "White Lotion" (equal parts of sugar of lead and zinc dissolved in water) and seems to be helping, but I am not sure if the treatment is sufficient. Knee is swollen very little but there is no lameness. Some other places are skinned a little. C. E. H. Topeka, Kans.

Answer.—I believe if you will use a stick of silver nitrate and pencil the part that seems to be covered with proud flesh it will prove healing and your animal will make a good recovery.

Ailing Sows.—I have three young sows, 11 months old. One is down in the back or in the hind legs. I don't know which it is in. She drags her hind parts. Once in a while she gets on her feet but can't stand. The other two can walk around if they walk slowly but if they start to go fast all of their legs give way and they go down. They go over on their knees so much that their hair is worn off. Luray, Kans. A. G. C.

Answer.—I believe from the description you give of your sows that they are probably suffering from eating too much corn. If such is not the case, kindly let me hear from you again.

Leaking Teats.—Please advise me through your paper what to do for a cow that leaks her milk. We have a cow that leaks her milk from two of her teats. Would very much appreciate if you could tell me something to do. W. R. Marysville, Wash.

Answer.—I think if you will milk your cow three times a day she will not leak her milk.

Ailing Sows.—I have a sow that just lies around and will not eat and breathes very hard. Had to wean the pigs. She has been in this condition for about two months. Is very thin in flesh and will not eat and drinks only cold water. Have another sow that has lost the use of her hind parts. When helped up will walk a few steps

and then fall over. She is a large sow, in fine condition and weighs about 300 pounds. Will raise a litter of pigs in about a month. Has been in this condition two days only. Eats and drinks well. F. J. M. Englevale, Kans.

Answer.—I question very much whether you can do anything for your sow at this late date from the fact that she has been sick for two months. You might secure from your druggist 2 ounces of Hamrick's Supreme Stock Remedy and give her 1/2 teaspoonful once a day in 8 ounces of water. For your sow that has lost control of her hind parts would advise using a stimulating liniment over the loins and back.

Pigs Have Canker Mouth.—I am bothered with my pigs by what is commonly called canker mouth. Have you any information to give for such trouble? A. P. Louisburg, Kans.

Answer.—Use a tablespoonful of boric acid to two quarts of water, then heat and place solution in mouth of affected animals daily.

Heaves—Chicken's Eyes Affected.—I have a horse that is affected with heaves. Is there any cure for it? I feed him ground oats and I always moisten it good and also the hay. But some days when he has the heaves he can't stand still in the barn. He will cough and keep his head down. Then again other days he is all right and works well and is a good horse all around. He is 11 years old.

I also have some hens that are sick. First the eyes seem to water and after a few days, matter will appear all over and cover them completely. This will grow on the inside of the lower eyelid. After a few days this substance is hard and when I take it out it looks like cheese. A. W. Clear Lake, Minn.

Answer.—For your horse that is affected with the heaves, would advise you to take all the hay away from it and feed entirely grain for a month or more. You might feed a little grass if it is convenient. Make your feed largely of bran, ground oats, and corn-crop.

Put 3 grains of boric acid in 1 ounce of water and use on your chicken's eyes that are affected with some soreness.

Periodic Ophthalmia.—I have a bay mare, 7 years old, with one eye affected. It was first noticed the first of March. It is the left eye and she keeps it closed most of the time and it waters some at the corner. About three weeks ago they were both affected, but they seem to be quite well at times. At present her left eye is the only one affected. Her right eye has been affected only once. It doesn't seem to affect her sight any and the eye becomes just a little white, scarcely enough to tell it. Please advise me. Van Buren, Mo. H. H. B.

Answer.—From the description you give of your horse's eye I think it is affected with periodic ophthalmia. Would recommend that you use a shade over your horse's eyes so as to protect them. From the fact that they have been affected for a considerable length of time I question whether they will make a complete recovery. C. L. BARNES.

Friend (to newly made widow)—"I suppose you are going to erect a lasting monument to your husband's memory?"

Widow—"To his memory, no. Poor Isidor had none. It was only yesterday that in turning out one of his old coats I found the pockets full of letters I had given him to post."—Bon Vivant.

Scours in Live Stock.

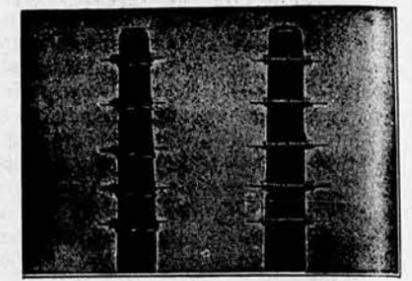
Scours has always been one of the farmers greatest sources of loss. Every litter of pigs and every calf that is born is liable to get this disease and if it does not prove fatal it causes the animal to become stunted and it never makes the development that is should. The Agricultural Remedy Company, of Topeka have a positive cure for this malady and if you try it and it does not prove satisfactory you can get your money back. Look up their advertisement in this paper and send for a box even if you have no scours in your herd at present. A box of Anti Scour is an insurance against loss and will be a valuable investment.

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The Poultry Yard

CONDUCTED BY THOMAS OWEN.

The State Poultry Show.

The State Poultry Show will be held at Topeka, January 6 to 11, 1908. It was so decided at the board of managers' meeting held at the Fifth Avenue Hotel, Topeka, June 25. Three towns contested for the honor of holding this show, Topeka, Wichita, and Newton. All of them made very flattering offers to the board, but Topeka finally won out on a close vote of 5 to 1 for Wichita.

More cash was paid out as premiums at our last State show than at any previous State show or in fact any poultry show west of Chicago, and in proportion to our entry fees, more money is paid out than in any poultry show in the United States. The same liberal premiums will be offered for the next show, namely, \$10 for the first pen, \$5 for second pen, \$2 for third pen on all varieties of Standard fowls. For first cock, hen, cockerel, and pullet \$2 will be paid, second \$1, and third 50 cents on all varieties.

In addition to these regular premiums, one hundred dollars is offered as special premiums. To the county showing the largest number of birds, first prize \$20, second prize \$15, third prize \$10, fourth prize \$5. To the breeder showing the largest number of birds of one variety, first prize \$20, second prize \$15, third prize \$10, fourth prize \$5. These liberal premiums will doubtless draw an extra large number of birds to the next show. And when it is remembered that in our Auditorium we have one of the largest, best-lighted, and most commodious buildings for holding a poultry show in the West, the next State show will be a hummer.

At this same meeting, Poultry Culture, of this city, was made the official organ of the State Poultry Association. C. C. Lindamood, of Walton, Kans., was elected superintendent of the show.

After the close of the meeting the members of the board were taken for an automobile ride around the city and suburbs by courtesy of Poultry Culture.

Poultry Notes.

Are your chicks thriving? If not, why not? Remember a few essentials that are necessary for their proper development at this time of year. Good, nourishing food, plenty of pure water, lots of shade, and freedom from lice, and the greatest of these is the latter. For if your chicks are infested with lice and mites, all the shade and all the water and all the food will do them no good.

To get rid of the lice on the chickens and the mites in the poultry-houses, we wish to recommend a liquid lice-killer that we have used with very gratifying results. It is called the Red Label Liquid Lice Killer, manufactured by the Moore Chemical Manufacturing Company, Kansas City, Mo., and advertised elsewhere in this journal. To get rid of the mites and bugs in the chicken-house, you spray it with a solution of one part of Lice Killer to twenty parts of water. This lice-killer is unlike most other kinds in that it mixes readily with water and for spraying purposes it is not necessary to be as strong as when you put it on the roosts to destroy the lice on the fowls. Simply painting the roosts will do this. One other thing about this lice-killer, that we noticed was that the gallon contained a gallon of lice-killer and not two or three quarts. The manufacturers say that if your local dealer does not keep the Red Label Lice Killer, that they will forward it to your address, express prepaid, for the regular price of \$1.25 per gallon.

Another thing about your growing chicks that you should not forget is that they need more room now in their coops at night than when they were

a few days old. It is surprising how fast they grow, and if they are crowded too much at night they will get stunted and out of shape. Give them larger coops with plenty of room for them to expand.

Another thing, when you shut the chicks up at night to prevent cats, rats, or skunks from molesting them, you should see that they have plenty of fresh air, otherwise they are apt to get ill from breathing vitiated air, or even suffocated if shut up perfectly tight.

There is probably no animal on the farm that is capable of making more economical use of food consumed than is a young pullet or a cockerel. As a general rule farmers market their pullets and cockerels before they are in the best condition for marketing. They should be fed for at least three weeks prior to shipment. In the corn belt there is probably no grain better adapted for fattening than corn. During two weeks of the fattening period it is well to mix with it more or less of animal food. Some of the large poultry-feeders use as much as 20 per cent of animal food mixed with the grain ration. It is questionable whether such a large quantity can be used with economy on the average farm, for the reason that intensive feeding is seldom practical and the consequent needed care is not usually given, but as much as 10 per cent of animal food mixed with the corn ration should give good results. For fattening purposes it is better to feed ground corn and if possible moisten it with milk. Milk is rich in protein matter and helps balance the ration. If you have lots of old lard or tallow it is a very good thing to mix with the meal. Bear in mind that when you feed chicks for market they should not have too much exercise. During the first two weeks they may run about in a comparatively small yard, but during the last week or ten days, better results will be secured if the chicks are penned up in very small pens where they can practically secure no exercise at all.

Ailing Hens.

Our hens' eyes close, their necks become weak, mouth slimy, heads pale. They have no appetite. They do not move any but sit with bills on the ground. There is no swelling in head or body, and we can find no lice or other cause. We feed grit, Kafr-corn, tame grass, and they have the run of the farm. They are attacked suddenly and two days after are unable to move. We would like to know the cause and a preventive and cure.

Montgomery County, SUBSCRIBER.

Answer.—At this time of the year hens become debilitated and act pretty much as yours do. There may be several causes for this. They may roost in a draft and have caught cold or their house may be infested with red mites. These prey on the fowls at night and suck out all their vitality and then they very susceptible to disease. You can not find them on the hens, for they leave them before they get off the roost and hide in the cracks ready for them next night. A thorough spraying of the house with lice-killer will remedy this.

Wigwam Wisdom.

CHARLES STOW.

Medicine finds a home in every mouth.

Heavy-Hand sometimes confers a lasting blessing.

Once evil is your guest it owns your wigwam.

The sadness of a smile may drown that of a tear.

Scars don't always like to answer questions.

Longest words are shortest in sense.

The best wrestler may be tripped up by his tongue.

Failure does not give success a chance to talk much.

Bad-Habit does not have to knock a second time at many doors.

Public-Opinion embodies resistless force in invisible form.

BUFF ORPINGTONS.

BUFF ORPINGTONS—State show first prize winners. Breeders, eggs and baby chicks. \$2 page illustrated catalog free. Prices for June, July and August reduced one-half. S. C. BUFF LEGHORNS. Eggs now, \$4 per 100. Scotch Collie and Fox Terrier dogs. W. H. Maxwell, 1996 McVicar Ave, Topeka, Kans.

S. C. BUFF ORPINGTON EGGS—Extra fine flock, headed by an 11-pound cockerel. 15 eggs \$1.25. C. B. Owen, Lawrence, Kans.

CHOICE Buff Orpington and B. F. Rock cockerels, Collie pups and bred bitches. Send for circular. W. B. Williams, Stella, Nebr.

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ROSE COMB BROWN LEGHORN EGGS—15 for \$1.50, 30 for \$2.50, 100 for \$4. Mrs. John Holtshey, Bendena, Kans.

NOT TWO LATE to get a start of Hastings' Heavy Laying Strain of S. C. Brown Leghorns. Rest of season, eggs 75c per 15; 2 sittings \$1.25; or \$3 for 100. L. H. Hastings Quincy, Kans.

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BROWN'S WHITE WYANDOTTES—Ahead of everything; stock for sale; eggs in season. I have the English Fox Terrier dogs. Write me for prices and particulars. J. H. Brown, Clay Center, Kans.

RHODE ISLAND REDS.

NEOSHO POULTRY YARDS—Rose Comb R. I. Reds, this year's breeders for sale. We can give you better bargains at this season of the year than at any other time.—J. W. Swartz, Americus, Kans.

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RHODE ISLAND REDS—Cockerels, S. C. R. I. Reds from prize winners. Red to the skin. Eggs in season. Good Hope Fruit & Poultry Farm, Troy, Ky.

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THE KANSAS FARMER CO.
Topeka, Kansas

The Judge and Tim.

Judge Lindsey, the famous "children's judge" of Denver, does not believe that there are bad boys. 'Boys do bad things,' he has been heard to say, "but they aren't really bad themselves. There is a lot of good in the worst of them, and we can usually find it if we try." Perhaps of all the public men interested in the welfare of the so-called bad boy, he has been the most successful in finding the good he speaks of so optimistically.

There are cases, however, that are baffling even to his patience. One of these was that of a thirteen-year-old boy who was brought into the juvenile court on a charge of truancy. Tim was a bright-looking little chap, and the judge expected that his kindly admonition would bear immediate results, but he was disappointed; for at the end of a fortnight, when Tim was ordered to bring his teacher's report, in accordance with the system organized by Judge Lindsey, he presented a sad record of almost continual absences from school.

"You must do better than this," said the judge.

"Yes, sir," was the answer; but at the next report day there was no improvement. "Tim will stay out of school to work," wrote the teacher.

"Tim," said Judge Lindsey, looking across the table where he always sits with cozy informality among the boys brought into court for varying degrees of delinquency, "don't you know that if your mother was living she'd want you to go to school? Your aunt is good to you and gives you a home, and you don't have to work. Now's the time when you ought to be studying. You can work when you are a man."

"My father's a man, and he don't work!" blurted out Tim. "He went off and left mother an' me. I guess that's what killed her." The boy gulped down a sob, and the judge said gently, "Your mother wished you to be a good man, and you must begin by obeying the law and going to school."

Tim's reports still continued to show absences from school, and to one report the teacher added her opinion that it was hopeless to try to keep Tim at his studies. Still the judge was not discouraged, and he spoke again to the boy, urging him to mend his ways, and was answered only by an almost sullen stolidity of expression which did not seem to promise well. But at the end of the next two weeks Tim appeared with a happy face and a much improved report card.

He pulled a soiled and crumpled paper from his pocket and handed it to the judge. "I'm goin' to remember all the things you told me and I'm goin' to school regular, now I got that done," he said, with some pride. Judge Lindsey examined the paper, which proved to be a receipted bill, and found that, little by little, Tim had paid \$50 for a headstone at his mother's grave.

"My boy, is that what you've been doing all these months?"

"I wanted her to have a monument, judge." Tim furtively wiped away the moisture in his eyes. "She done a lot for me; that's all I could do for her now."—Exchange.

Jefferson and Adams.

It is a curious incident that the two principal actors in the making of the Declaration of Independence both died on the same day and that day the Fourth of July—just fifty years after signing the immortal paper. They also both lived to serve their country as its President. Thomas Jefferson, who wrote the Declaration of Independence, was the son of a rich and noted man—a land surveyor and one of the authors of the map of Virginia. Thomas was an exceptionally bright boy and had every opportunity to become a great man. He was eager to learn everything, that was to be known, and was considered the most accomplished scholar in the colonies. He was not a gifted orator but was a brilliant and eloquent writer, and it was with his pen that he served his country most. We are indebted to him for our present system of money for he changed our money from pounds, shillings, and pence to dol-

lars, dimes, and cents. He used his influence against the slave trade, and took the lead in the repeal of the colonial laws that gave the oldest son the largest share of his father's property. He was the leader in separating church and state, giving the people religious liberty. The purchase from France of the territory west of the Mississippi was due him.

John Adams was also a prominent figure in the making of our independence. He was a forcible speaker and an ardent advocate of the independence of the colonies, and was one of the committee which reported Jefferson's draft of the Declaration to Congress.

Money Making Seed-Sower.

The farmer who is in need of a new drill or seeder is fortunate in one way at least. He has the opportunity to supply his needs with tools that will actually save him time and money.

Experience has proven that the new improved up-to-date Peoria Drills and Seeders actually make more money for the farmer than any other seeding tools on the market. One reason is that the New Peoria Double-run Feed saves seed and plants it better than any machine ever did before—this means bigger, better harvests.

This great feature is only one of many improvements found only in the Peoria line. There are many others that you will want to know about before you buy a drill or seeder. Farmers have found out, wherever the experiment has been tried, that it pays them big profits to drill their oats instead of sowing them broadcast as has been the custom heretofore. The leading agricultural colleges throughout the Middle West have thoroughly tested this new method with such wonderful results that they are recommending it as the best way to plant oats. They say that the farmer can actually increase his crop from 5 to 15 bushels to the acre and that drilling saves fully one-half the seed over broadcast sowing. That means that the farmer can easily pay for a Peoria Drill the first season and make money besides.

It will pay every reader of this paper to know more about these money-making seed saving tools. Before buying a drill or seeder spend a cent for a postal card and request the manufacturers, the Peoria Drill & Seeder Co., Peoria, Ill., to send you their catalog and full information about their tools. Mention this paper and they will send them free.

Kansas Fairs in 1907.

Following is a list of fairs to be held in Kansas in 1907, their dates, locations and secretaries, as reported to the State Board of Agriculture and compiled by Secretary F. D. Coburn:

- Allen County Agricultural Society: Frank E. Smith, secretary, Iola; August 27-30.
Barton County Fair Association: W. P. Feder, secretary, Great Bend; September 10-13.
Brown County—The Hiawatha Fair Association: J. D. Weltmer, secretary, Hiawatha; September 3-6.
Butler County Fair Association: W. F. Benson, secretary, Eldorado; August 27-31.
Butler County—Douglass Agricultural Society: C. R. Alger, secretary, Douglass; September 12-14.
Chautauqua County—Hewins Park and Fair Association: W. M. Jones, secretary, Cedarvale.
Clay County Fair Association: Walter Puckey, secretary, Clay Center; September 3-6.
Clay County—Wakefield Agricultural Society: Eugene Elkins, secretary, Wakefield; October 2-4.
Cloud County Fair Association: W. L. McCarty, secretary, Concordia; September 24-27.
Coffey County Agricultural Fair Association: S. D. Weaver, secretary, Burlington; September 9-13.
Cowley County Agricultural and Live-Stock Association: Frank W. Sidle, secretary, Winfield; October 1-4.
Cowley County—Eastern Cowley County Fair: W. A. Bowden, secretary, Burden; September.
Dickinson County Fair Association: H. C. Wann, secretary, Abilene; October 2-4.
Elk County Agricultural Fair Association: E. B. Place, secretary, Grenola; September 25-27.
Finney County Agricultural Society: A. H. Warner, secretary, Garden City.
Ford County Agricultural Society: Nicholas Mayrath, secretary, Dodge City; September 4-7.
Franklin County Agricultural Society: Carey M. Porter, secretary, Ottawa; September 3-7.
Greenwood County Fair Association: C. H. Weiser, secretary, Eureka; August 20-23.
Harper County—Anthony Fair Association: L. G. Jennings, secretary, Anthony; August 6-9.
Harvey County Agricultural Society: J. C. Mack, secretary, Newton; September 24-27.
Jefferson County Fair Association: Frank Leach, secretary, Oskaloosa.
The Leavenworth County Fair Association: Stance Meyers, secretary, Leavenworth; September 17-21.
Linn County Fair Association: P. S. Thorne, secretary, Mound City; October 1-4.
Marshall County Fair Association: R. W. Hemphill, secretary, Marysville; October 1-4.
McPherson County Agricultural Fair Association: H. A. Rowland, secretary; September 2-7.
Miami County Agricultural and Mechanical Fair Association: Geo. R. Reynolds, secretary, Paola; October 1-4.
Mitchell County Agricultural Association: Ira N. Tice, secretary, Beloit; October 2-6.
Montgomery County—Coffeyville Fair

- and Park Association: A. B. Holloway, secretary, Coffeyville; August 13-16.
Nemaha County Fair Association: Chas. H. Herold, secretary, Seneca; September 11-13.
Neosho County—Chanute Fair and Improvement Association: A. E. Timpane, secretary, Chanute; August 20-24.
Ness County Agricultural Association: Thos. Rineley, secretary, Ness City; September 11-13.
Ness County—Utica Fair and Agricultural Association: R. C. Webster, Jr., secretary, Utica.
Norton County Agricultural Association: M. F. Garrity, secretary, Norton; August 27-30.
Osage County Fair Association: F. E. Burke, secretary, Burlingame; September 3-6.
Reno County—Central Kansas Fair Association: A. L. Sponsler, secretary, Hutchinson; September 16-21.
Republic County Agricultural Association: W. R. Wells, secretary, Belleville; September 10-13.
Rice County Agricultural and Live-Stock Association: F. L. Goodson, secretary, Sterling; September 10-14.
Riley County Agricultural Association—W. B. Craig, secretary, Riley; August 20-23.
Rooks County Fair Association: E. L. Williams, secretary, Stockton; September 10-13.
Saline County Agricultural, Horticultural, and Mechanical Association: B. B. Stimmel, Jr., secretary, Salina; September 24-27.
Shawnee County—Kansas Exposition Company: R. T. Kreple, secretary, Topeka; September 9-14.
Sheridan County Agricultural Association: Miles Gray, secretary, Hoxie; September 3-6.
Smith County Fair Association: H. C. Smith, secretary, Smith Center; August 20-23.
Stafford County Fair Association: G. W. Grandy, secretary, St. John; August 23-30.
Wilson County—Fredonia Agricultural Association: V. L. Polson, secretary, Fredonia; August 6-9.

Expositions and State Fairs.

- American Royal—Kansas City, Mo., October 14-19. T. J. Wornall, secretary.
Blue Grass Fair—Lexington, Ky., September 9-13. Jouett Shouse, secretary.
Canada National Exhibition—Toronto, Ont., August 26-September 9. Dr. J. O. Orr, secretary.
Illinois State Fair—Springfield, September 27-October 5. W. G. Garrard, secretary.
Interstate Fair—LaCrosse, Wis., September 23-28. C. S. VanAuken, secretary.
Interstate Fair, Sioux City, Ia., September 9-14. F. L. Wirick, secretary.
Iowa State Fair—Des Moines, August 23-30. J. C. Simpson, secretary.
Indiana State Fair—Indianapolis, September 9-13. Chas. Downing, secretary.
International Live Stock Exposition—Chicago, Ill., November 30-December 7. B. H. Helde, general superintendent.
Kansas State Fair—Hutchinson, September 16-21. A. L. Sponsler, secretary.
Kentucky State Fair—Louisville, September 16-21. R. E. Hughes, secretary.
Michigan State Fair—Detroit, August 29-September 6. I. H. Butterfield, secretary.
Minnesota State Fair—Hamline, September 2-7. E. W. Randall, secretary.
Interstate Fair and Exposition—Elm Ridge, Kansas City, Mo., September 23-October 5 inclusive. Dr. J. S. Gardner, president, Dwight Building, Kansas City, Mo.
Missouri State Fair—Sedalia, October 7-12. J. R. Rippey, secretary.
Nebraska State Fair—Lincoln, August 30-September 6. W. R. Mellor, secretary.
New York State Fair—Syracuse, September 9-14. S. C. Shaver, Albany, secretary.
North Carolina State Fair—Raleigh, October 14-19. Jos. S. Pough, secretary.
Ohio State Fair—Columbus, September 2-6. T. L. Calvert, secretary.
Oregon State Fair—Salem, September 16-21. F. A. Welch, secretary.
South Dakota State Fair—Huron, September 9-14. Geo. M. McEathron, secretary.
Tennessee State Fair—Nashville, September 23-30. J. W. Russworm, secretary.
Texas State Fair—Dallas, October 19-November 3. Sidney Smith, secretary.
Washington State Fair—North Yakima, September 23-28. Geo. E. Graham, secretary.
West Virginia State Fair—Wheeling, September 9-13. Geo. Hook, secretary.
Wisconsin State Fair—Milwaukee, September 9-14. John M. True, secretary.
West Michigan State Fair—Grand Rapids, Mich., September 9-13. F. D. Conger, secretary.

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Weather Bulletin

Following is the weekly weather bulletin for the Kansas Weather Service for the week ending July 9, 1907, prepared by T. B. Jennings, Station Director.

DATA FOR THE WEEK.

Table with columns for Maximum, Minimum, Mean, Departure from normal, Total, Departure from normal, and Per cent of sunshine. Divided into Western, Middle, and Eastern Divisions.

DATA FOR STATE BY WEEKS.

Table showing weather data for various weeks from April 6 to July 6, including temperature and precipitation.

GENERAL SUMMARY.

With the opening week of July an entire change in the weather has been experienced. The day temperatures have ranged in the nineties, while in the northern counties west of Nemaha County, and in the extreme western counties, temperatures of 100° to 102° were not uncommon.

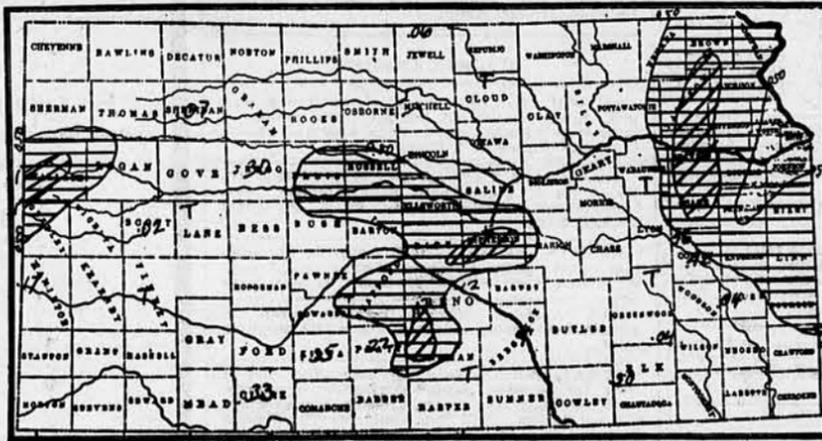
EASTERN DIVISION.

Allen.—The temperature on the first three days of the week averaged a few degrees below normal and the last four days were several degrees above normal. The rainfall was but 0.04 of an inch which fell on June 30th.

on the 30th and most of the days were clear. Brown.—Clear weather prevailed throughout and the latter part was quite warm. On the 30th, 1.20 inches of rain fell.

at Cunningham on the 2d, but only a trace at Norwich. Maximum temperatures were above 90° every day at Cunningham, but below 90° at Norwich on the 30th of June and 1st and 2d of July.

RAINFALL FOR WEEK ENDING JULY 6, 1907.



SCALE IN INCHES:



tures ranging in the sixties. A rain of 0.85 of an inch fell on the 30th. Lyon.—The week was rainless. Minimum temperatures ranged in the sixties, maxima ranged in the eighties till the 3rd after which a maximum of 93° was attained each day.

MIDDLE DIVISION.

Barton.—Temperatures rose gradually from a maximum of 91° on the 1st and 2d to 97° on the 5th and 6th. All the moisture needed was supplied by the rains of the preceding week and rain of 0.32 of an inch that fell on Sunday, the 30th.

Butler.—Clear and rainless weather occurred. Temperatures were uniform, the maxima varying from 87° on the 30th of June and 1st of July to 91° on the 4th and 5th.

Clay.—The days were quite warm, although the nights were pleasant till the 5th. Maximum temperatures were above 90° every day, the highest being 99° on the 5th and 6th.

Cloud.—Temperatures rose as the week progressed, being a degree below normal on the 1st and 2d above on the 5th when the maximum was 99°. Only a trace of rain fell and much sunshine was received.

Cowley.—The weather was ideal. Temperatures were about seasonal, every day was clear and sunny and no rain fell, plenty of moisture being supplied by the rains of the preceding week.

Ellis.—The fore part was pleasant, with some cloudiness and 0.70 of an inch of rain on the 30th; the latter part was clear, with warm winds and a temperature of 93° on the 5th and 6th.

Ellsworth.—Temperatures of 90° or above occurred every day, and night temperatures ranged from 69° on the first to 68° on the 4th and 5th. A rain of 0.70 of an inch fell on the 30th.

Jewell.—Every day was clear and the temperatures the latter part reached 100°. The nights, however, were cooler and more pleasant. Light showers fell on the 30th of June and 2d of July.

Kingman.—A heavy local rain and some hail fell

Russell.—Good rains the fore part were followed by clear weather and temperatures reaching 90° or more nearly every day.

Saline.—The weather was very favorable. The coolest day was the 1st which was about seasonal and a maximum of 99° was attained on the 5th and 6th.

Sedgwick.—Aside from a sprinkle on June 30th, there has been no rain this week. The sunshine was close to the maximum amount possible and the temperature averaged 2° above normal.

Stafford.—A little over half an inch of rain on the 3d, combined with the rain of the preceding weeks, furnished plenty of moisture and the temperatures averaged a little above the seasonal average.

Washington.—Hot, clear and dry weather prevailed every day. A temperature of 101°, the highest of the season, occurred on the 5th and the maximum reached 100° on the 4th and 6th. The nights, except the last two, were pleasant.

WESTERN DIVISION.

Clark.—The weather was very favorable. The percentage of sunshine was high and maximum temperatures of 90° or more occurred every day, the highest being 96° on the 5th. No moisture was needed, the two light showers occurred on the 2d and 3d.

Finney.—This was a hot, dry week, maximum temperatures ranging from 93° on the 1st to 99° on the 5th. There has been plenty of moisture for all purposes.

Ford.—There was an abundance of sunshine, but no rainfall. The mean temperature, 79°, was two degrees above the normal. Considerable dew was noticed every morning during the first of the week.

Graham.—Ideal weather conditions obtained. The maximum temperature was 100° on the 6th, 101° on the 30th and 102° on the 5th, every day was clear and there was no rain.

Hamilton.—The coolest weather occurred on the 1st of July when the maximum was 91° and the minimum 57°, the warmest day was the 5th, with a maximum of 102° and a minimum of 65°. On the 30th, 0.17 of an inch of rain fell.

Lane.—The maximum temperature was below 90° on only one day, the 2d. Every day was clear, and hot winds blew on the 5th, with a maximum of 99°.

Scott.—The weather was very favorable for farm work, the only rain being 0.02 of an inch on the 2d. Temperatures rose steadily as the week progressed from a maximum of 87° on the 30th to 98° on the 5th.

Sheridan.—The weather was warm, dry and generally clear. On no day was the maximum temperature below 90° and on the 5th it was 102°.

Thomas.—Showers on the first and last days amounted to 0.11 of an inch, but there was no lack of moisture, a sufficient amount being present from the rains of the preceding week. Temperatures were very favorable, the maximum generally being above 90°.

Trego.—No rain fell after the 30th when 0.30 of an inch was recorded. Temperatures were uniform. The coolest day was the 30th when the maximum was 88° and the warmest day was the 5th, with a maximum of 98°.

Wallace.—The weather was ideal. A fine rain of one inch fell on the 2d. A temperature of 100° occurred on the 30th of June and 5th of July and the nights were seasonable.

KANSAS FARMER CROP REPORT.

EASTERN DIVISION.

Brown.—A full week of clean weather which has been thoroughly improved by farmers in harvesting wheat, cultivation of corn, and haying.

Chase.—Favorable weather for harvest and for corn.

Coffey.—Wheat harvest well along.

Elk.—The best growing week of the season.

Greenwood.—A dry week.

Shawnee.—The most favorable week of the season, fine for harvest, for field work and growth of corn.

MIDDLE DIVISION.

Barton.—A splendid week for harvest; thrashing begun showing fine, lump berry.

Butler.—Crops of all kinds doing well.

Cowley.—An elegant week for harvesting wheat and plowing corn.

Jewell.—Harvest is in full blast and the corn is growing nicely. Some few are plowing. Thrashing will begin next week.

Kingman.—Some hail on the 2d but caused no damage.

Kiowa.—A full harvest week and fine for corn. All work progressing rapidly.

Ottawa.—Warm and dry but a good week for harvesting wheat.

Pratt.—Pretty hot, otherwise fine harvesting weather.

Washington.—A clear, dry week, fine for harvesting, which is in full blast.

Western Division.

Finney.—Hot and dry. Ample water in river and all irrigation ditches running full, furnishing an abundance of water. Fine weather for work and for harvest.

Ford.—Abundance of sunshine with no rain, giving a fine week for harvest.

Lane.—Warm, dry week; farm work progressing rapidly.

Norton.—Fine week for all growing crops, with sunshine enough to make things grow.

Scott.—Fine weather for harvest, which is in full blast. Crops doing finely.

Churchyard Under the Sea.

When the coast erosion commissioners visited Walton on the Naze yesterday they were shown a spot north of the pier, and about a mile from the shore, which was formerly a churchyard.

A quarter of a century ago the tombstone could be seen under water at ebb tide, but since then the sea has further encroached, and even when the tide is extraordinarily low and the sea clear the old burying ground is scarcely discernible from the sea level.

London Daily News

Kansas City Grain Market.

Receipts of wheat in Kansas City to-day were 60 cars; Saturday's inspections were 28 cars. Prices were 2@3c lower. The sales were: Hard Wheat—No. 2, 1 car new at auction 88 1/2c, 1 car 88 1/4c, 5 cars 88c, 4 cars 87 1/2c, 1 car 87c, nominally 87@82c; No. 3, 1 car 83 1/2c, 2 cars 83 1/4c, 1 car 83c, 1 car like sample 84c, 1 car like sample 81 1/4c, 2 cars like sample 80 1/2c, nominally 82@90c; No. 4, 1 car 85c, 2 cars 84c, 2 cars 83c, 3 cars 81c, 4 cars 79c, 1 car 79c, 5 cars 78c, 1 car 77c, 1 car like sample 72c, nominally 76@87c; rejected, 2 cars 78c, 1 bulkhead car 75c; no grade, 1 car 75c; live weevil, 1 car 85c, 1 car 82c, 1 car 81c, 1 car 80c, 1 car 78c, 1 car 77 1/2c, 1 car 77c. Soft Wheat—No. 2 red, 2 cars 88c, 1 bulkhead car 88c, nominally 88@89c; No. 3 red, nominally 85@87c; No. 4 red, nominally 75@85c; no grade red, 1 car live weevil 77c. Durum Wheat—No. 2, 1 car 80c.

Receipts of corn were 45 cars; Saturday's inspections were 16 cars. Prices were unchanged to 1/2c lower. The sales were: No. 2 white, 4 cars 51c; No. 3 white, 1 car 51c, 2 cars 50 1/2c; No. 2 mixed, 1 car 51 1/2c, 6 cars 51 1/4c, 3 cars 51 1/2c, 1 bulkhead car 51c; No. 3 mixed, 4 cars 51c, 1 bulkhead car 50c; No. 4 mixed, 1 car 49 1/2c; No. 2 yellow, 6 cars 52c; No. 3 yellow, 2 cars 51 1/2c.

Receipts of oats were 24 cars; Saturday's inspections were 14 cars. Prices were 1/4@1/2c lower. The sales were: No. 2 white, 1 car 44 1/2c, 1 car like sample 44c, 1 car color 44c, 3 cars color 43 1/2c, 1 car color 43c, nominally 44@46c; No. 3 white, 1 car 43 1/2c, 1 car 43c, 10 cars color 43 1/2c; No. 2 mixed, nominally

42 1/4@43c; No. 3 mixed, nominally 42@42 1/2c; No. 4 mixed, 1 car 42 1/2c. Barley was quoted at 60@62c; rye, 77@82c; flaxseed, \$1.05@1.07; kafir-corn, \$1.05@1.06 per cwt.; bran, 79 1/4@89 1/4c per cwt.; shorts, 88@92c per cwt.; corn-chop, 98c@1.02 per cwt.; millet-seed, \$1@1.25 per cwt.; clover-seed, \$7.50@11 per cwt.

The range of prices for grain in Kansas City for future delivery and the close to-day, together with the close Saturday, were as follows:

Table with columns for Open, High, Low, Closed to-day, and Sat. Day. Rows for WHEAT and CORN.

Kansas City Live Stock Market.

Kansas City, Mo., July 8, 1907. The liberal supply of 15,000 cattle to-day is partly due to the opening of the season for grass cattle, large numbers of which are included to-day, and partly to the good market last week. The best cattle are steady to-day, but medium grades, which includes about all the grassers, are weak to 10c lower. Top beef steers to-day reached \$6.80, but relatively a small proportion of the receipts are dry lot steers, prices on which run from \$6.25 up to \$6 and straight grass steers from Kansas pastures bring as high as \$5.20. The settlement between salesmen and packers regarding the sale of the stock will probably be ratified by the various exchanges to-day, and trade pro-

