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KANSAS FARMER.

Established in 1863.

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J. B. MCAPHER.....Vice President
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KANSAS FARMER CO.,
116 West Sixth Ave., Topeka, Kans.

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Attention of the public has been so absorbed by the floods which have devastated some of the river-bottom lands of Kansas that it has been almost forgotten that a great wheat harvest is now almost ready for the reaper. Laborers in large numbers are urgently needed to save this harvest. It is to be hoped that railroads rates will be made such as will enable the men to reach the sections where needed.

BLOCKS OF TWO.

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

DISTRIBUTION OF RELIEF.

The disposition of aid to flood sufferers contributed for no specified locality has been placed in the hands of a board of prominent citizens appointed by the Governor. A census of flood sufferers in each county affected has been prepared under the direction of the county commissioners of the counties severally. This census shows, as nearly as possible, the losses and present situation of each head of family. From this census the Governor's board will apportion the funds in hand among the several counties. The amount set apart for each county will be entrusted to the county commissioners to distribute to those whose necessities are most pressing.

At this writing, Tuesday noon, the Governor's board has not yet convened. Before this number of the KANSAS FARMER shall have reached its readers, it is hoped the relief will be well on its way to those for whom it is intended.

Those who have suffered losses will do well to remember that any one of the several counties furnishes enough cases of urgent need to absorb the en-

tire amount available. The effort to reach the cases of most utter destitution will be honestly made. How this may affect the apportionment between town and country can not now be stated. The chronic cases of abject poverty which always exist in the cities are intensified by the effects of the flood. True the man whose only capital was his labor has that still, and it is enhanced in value by the greatly increased demand. But the hardships suffered by these are always pressed upon the public with more persistence than those suffered in the country. Unless, therefore, the township trustees attend to the presentation of cases of most acute need in the country the greater part of the relief fund is liable to be absorbed in the towns.

The wealth of Kansas is created in the country—on the farms. Except as here created neither country nor town has an income. The interest of the State of Kansas in the matter, aside from the relief of dire necessity, lies in enabling the farmer to replant his fields and produce crops this season. It is evident, however, that it will be necessary for every heavy loser who can obtain indulgence from his relatives or friends, every one who has any basis for credit, to use these resources for all they are worth. "God helps him who helps himself." This is not more true than that, "Everybody helps a hustler." All will need to be hustlers. The help that every flood sufferer will have to find for himself will many times exceed the public aid that can be extended to the most needy.

The KANSAS FARMER desires, however, in this connection to repeat the proposition made last week to present a year's subscription to each farmer who has suffered direct loss from the floods. This offer is made to old and new subscribers alike. Its acceptance does not create any obligation to continue the subscription beyond the one year to be sent free on account of the flood.

RESERVOIRS—A LITTLE ARITHMETIC.

Students of irrigation several years ago gave attention to water storage as a preventive of floods on the lower courses of the rivers. The late Judge J. S. Emery, of Lawrence, Kans., lecturer of the National Irrigation Congress, showed the futility of the levee system for other than temporary relief from floods, especially along the lower Mississippi. He also called attention to the moral certainty that destructive floods will recur with unabated frequency until measures shall be taken to impound the waters in the districts where they fall, there to be retained until released for irrigation or other useful purposes.

A phenomenon well known to students of rivers bearing alluvium is, that when their banks are raised by levees, sediment is deposited in the river-beds, making necessary still

higher levees. It therefore comes about that the levees must not only be repaired but that they must be continually built higher. The river thus assumes, or is driven to, a position along the back of a ridge. When the inevitable break in the levee comes during a freshet—and they choose none other than these inopportune times to break—the water rushes down the embankment with such impetuosity that, in many cases, no human power can stop it, the crevasse becomes an ever widening and deepening torrent, inundating and destroying farms and cities below the river's banks.

It has been claimed that the general Government may expend public funds for the promotion and protection of navigation, but that Congress has no right to appropriate money for the promotion or protection of agriculture except in an experimental way. It has come about, therefore, that while millions of public money have been spent upon levees to protect plantations and cities on the lower Mississippi, the appropriations have been ostensibly "in aid of navigation."

The Kansas and the Arkansas Rivers are designated by the Government as navigable streams. Without doubt the Kansas River has, for several weeks, contained water enough to float the largest river craft. Without doubt this same river will, within a short time, present rather "dry sledding" for boats of small size. Building dikes or levees along it might be ostensibly in aid of navigation, but it is difficult to see how such dikes will enable steamboats to navigate sandbars.

The irrigationists' proposition that Congress provide for impounding floodwaters—or torrential precipitations before they become floods—has been met with the objection that such would be beyond the powers of Congress. True the irrigation law passed by the last session of Congress got around this objection in a measure. But the provisions of this law, even when fully carried out according to the intent thereof, will have little if any effect in preventing, or even reducing in volume such floods as have recently been so destructive. If, however, floodwaters may be effectively held in Kansas and Nebraska and other sections where they are precipitated, the fiction of the benefit of navigation may be urged in behalf of this plan even more rationally than in the case of the levees. These impounded waters would be liberated as needed upon the land during the months of deficiency when the rivers run low and would tend to maintain a steadiness of flow to the great extension of the season of navigability of the rivers.

But, if these doctrinal questions may be considered as settled in favor of impounding instead of fruitlessly trying to defend against the floodwaters, the question still remains of the practicality.

(Continued on page 680.)

Agricultural Matters.

REPLIES FROM THE AGRICULTURIST OF THE KANSAS EXPERIMENT STATION.

Handling Alfalfa to Save the Seed.

Please write me as quickly as possible of the manner of handling alfalfa to save the seed. I have a small lot of it in bloom and as the blooms are so large I think I had better save seed from this. This is the third season; must I cut before fully ripe with mower or cut with a wheat-binder? Do you handle it like clover, putting it in small piles in the field till dry, then thrash? Please give particulars as to saving seed.

R. L. ARMISTEAD.

Davison County, Tennessee.

Where alfalfa is grown for seed mainly the first or second crop may be saved for seed. The harvesting of the second crop is attended with less liability of loss from bad weather than the harvesting of the first crop. Where insects are liable to attack the crop it is better to save the first crop for seed. Harvest with the mower while the plants are yet rather green but when the pods are mostly brown, and nearly ripe. A side delivery to the swath or a buncher is a desirable attachment to have to the mower. Let the alfalfa cure well and then place it in bunches or cocks. Thrash out of the field when the straw has become thoroughly cured. It is not considered safe to stack as a rule, the seed is apt to be injured by heating in the stack. Alfalfa can be thrashed with the ordinary separator, but a clover or alfalfa huller is a much better machine for the purpose. The Rumley Mfg. Co., which has an office in Kansas City, Mo., is introducing a huller into the State which seems to be meeting with decided success.

I would add that bees to assist in the pollination are quite a necessary factor in the production of good crops of alfalfa seed. It is advised also not to put a large bulk of seed together, as it is liable to heat and destroy the germinating power of the seed.

A. M. TEN EYCK.

Corn for Late Planting.

In papers of recent date you have recommended certain varieties of 100-day corn to be planted now for crop this fall. Do you have seed of the varieties recommended for sale and at what price?

If you do not have seed for sale will you kindly tell me where it may be purchased?

J. M. McCASLIN.

Anderson County.

Any medium early corn which you may be acquainted with in your neighborhood will doubtless be classed as a 100-day corn and it will be safe to plant such seed perhaps until June 18. After that you had best secure seed of the earlier varieties. Both F. Barteldes, of Lawrence, and Annabil, of McPherson, Kans., advertise early varieties of corn, such as the Pride of the North, etc. We do not have seed for sale at this college. As all seedmen in or near the flooded district will doubtless make an effort to secure a supply of seed-corn for late planting, you will doubtless be able to get corn near home quicker and at a more reasonable price than you will be sending away for it. At this time I would not stop too much for variety provided the corn is early or medium early, but be sure the seed will grow.

A. M. TEN EYCK.

Emmer.

Will you please advise if it is too late to sow emmer (speltz), also which kind of mangels for cattle are perhaps best to produce in this locality.

FRANK A. GALEY,

Anderson County.

It is too late to sow emmer. There is time enough left before frost to mature the seed, but the season is past when this plant will grow and produce seed properly. Emmer, like wheat and oats, must be sown at a certain time of the year and grow during a certain season in order to make full development.

There is little difference in the feeding value of the various varieties of mangels, but in my experience in growing several varieties I believe the Mammoth Long Red Mangels to be one of the heaviest yielders. The Red Globe Mangel, also, is among the best.

A. M. TEN EYCK.

Soy-beans for Seed-crop.

Please put my name on the list for all bulletins and other matter free to Kansas Farmers. I also want some information about soy-beans. How late

will it do to plant for seed crop? And how late for hay? Are they articles of commerce and are they convertible into cash at any time the same as wheat or corn? Where can you get seed at reasonable prices? We have moved here from the north this spring and want to get posted on Kansas farming.

J. H. BRAINARD.

Allen County.

I enclose you a copy of press bulletin No. 124, recently issued by this station in which you will find some discussion of soy-beans. The period which will be required to mature a crop of soy-beans for seed will depend much on the variety. At this station the Early Yellow Soy, which is well adapted to this State, matures seed in about ninety days. This variety may be cut for hay in perhaps from sixty to seventy days from planting.

At the present time there is a good market for soy-beans, generally locally or for seed purposes. There is perhaps no general market for the crop, such as exists for wheat and corn and the crop can not therefore be so readily converted into cash as a rule as can wheat or corn.

Most of the reliable seedmen who advertise in the agricultural papers will be able to furnish seed at reasonable prices. At present seed is quoted at \$2 to \$3 per bushel. F. Barteldes & Co., Lawrence, Kans., advertise the Early Yellow at \$3 per bushel, the other varieties at \$2.50.

A. M. TEN EYCK.

Kafir-corn for Indian Territory.

We are just about thirty miles south of the Kansas line. What I would like to know is this: Do you think it would pay to plant Kafir-corn about June 15 or 20? That will be about as early as we can get on the ground, on account of excessive rains. Corn prospect not any too bright.

J. EDW. WOLFE, JR.

Indian Territory.

At this station the Red Kafir-corn which is the earliest variety has required on the average about 125 days from planting to full maturity. The average date of killing frost for the last twenty-three years at this station has been October 5. Considering this date as the probable date for frost this year, there will be a fair prospect for maturing Kafir-corn from plantings made from June 15 to 20. Doubtless in your locality killing frosts will not occur on the average quite so early in the fall as they do here. I think it safe for you to plant Kafir-corn as late as June 20 provided you secure an early maturing variety. For fodder production Kafir-corn may be planted as late as July 10.

I enclose you press bulletin No. 124 which will give you further information on this subject.

A. M. TEN EYCK.

Alfalfa and Other Crops for Texas.

I am anxious to know what success can be made by planting alfalfa in a portion of Texas, to wit, the counties of Mitchell and Jones, where the rainfall is limited. Can you give me the name of any other plant or product which can be raised with sufficient returns, both money and otherwise, in that country? Is milo manze and Kafir, or Egyptian corn of sufficient importance? Possibly the existing conditions of Kansas are the same as in Texas?

JOHN C. BROWN.

Nashville, Tenn.

It is doubtful whether you will be able to raise alfalfa in Mitchell and Jones Counties, Texas, still it is worth trying and it is possible that if you get a stand you may be able to produce profitable crops. Alfalfa makes a feeble growth at first and requires favorable conditions as regards soil moisture and temperature. Otherwise the seeds will not germinate or the young plants will dry up. If you choose a wet season—preferably seed in a wet fall, or else seed early while the soil is moist in the spring and get the young plants well-established before the drouth and hot weather come on—you may be able to get a good stand of alfalfa. As to other grasses which may be adapted to your locality I refer you to the Texas Experiment Station, College Station, Texas.

Some of the varieties of milo maize, Kafir, and Egyptian corn will doubtless grow well in your locality and I can recommend them as being profitable crops for forage and grain, especially in the drier parts of Texas as well as in Kansas. At this station the black-hulled white Kafir-corn has given the largest yields both of fodder and corn. The common red Kafir is as yet more generally grown and is about eight or ten days earlier in maturing than the first-named variety. I would

"Gwaiakowe"

Translation—Corn is king



MCCORMICK
VERTICAL

CORN
BINDER

KING CORN BINDER

In the language of the Indian, after which our great American crop was named, corn is king. The grain value of the corn crop is approximately \$1,000,000,000. It is estimated that the stalks and fodder are worth as much more. Think, then, of the amount you can make by saving all of your corn crop.

The McCORMICK

corn binder and husker and shredder enables you to save this part of the corn crop that has in past years gone to waste.

B. L. Rees, Topeka, Ks., W. W. Weeks, Wichita, Ks.,
General Agents for McCormick Machines.

choose Kafir-corn in preference to milo maize or Egyptian corn.

A. M. TEN EYCK.

Exterminating Thistles.

I would like to know at what time and the best way to exterminate thistles on high pasture land and in fields. I do not think they are "Canada" thistles. Also the best method of exterminating ants that throw up great hills in alfalfa fields, and in second bottom lands in pastures.

W. A. POTTER.

Reno County.

The thistle which is troubling you is doubtless the common pasture thistle known by botanists as *Cnicus undulatus* (Gray), or possibly the Western thistle, *Cnicus ochrocentrus* (Gray). Both of these varieties are common through the central part of the State. The common thistle is a biennial, that is, it seeds the second year and dies after seeding. New plants are produced by the seeds and not from the roots. The weed therefore, should not be very difficult to eradicate.

With ordinary good cultivation in tillable fields the thistle ought not to be troublesome. Thistles in pastures may be destroyed by cutting off the plants below the crowns shortly before blooming. Mowing does not usually destroy them. If thistles are not allowed to seed for three years, and are kept cut in the waste places and fence rows, the pest will largely disappear.

A. M. TEN EYCK.

Pasture Grasses.

I write you for information in regard to sowing orchard- and English blue-grass. I sowed some of both last spring which has done very fine. The orchard-grass measures forty-four inches. I am in the Little Arkansas River bottom and have a dark sandy soil.

My wild-grass pasture is about gone and I want to get something else but I am not posted as to the merits of tame grass. Will orchard-grass make good pasture? Which will be better for pasture, orchard-grass or English blue-grass? Will it hurt old orchards to sow orchard-grass between the trees? Will it do to sow either grass in the fall? Would you recommend sowing redtop for pasture?

F. P. MILES.

Sedgwick County.

At this station we have found a mixture of orchard-grass 15 pounds per acre, English blue-grass 20 pounds per acre, and red clover 5 pounds per acre to make excellent pasture. I would recommend orchard-grass and English blue-grass sown together for pasture rather than either one sown separately. A little red clover will make the pas-

ture all the better. At this station orchard-grass has stood pasturing better than English blue-grass.

I would not recommend sowing red-top for pasture unless you have a piece of low bottom-land which is too wet for the other grasses named. On wet land redtop makes better meadow or pasture than other grasses.

Orchard-grass is often sown in old orchards. It grows well in the shade and not being a deep-rooted grass does not exhaust and dry out the soil as badly as other grasses.

Any of the above grasses may be sown in the fall if the ground is well-prepared and in good condition for the seed. The early springtime is usually the most favorable time to start all grasses. At that time we are more apt to have moist soil and more favorable conditions for growth.

A. M. TEN EYCK.

Cow-Peas and Soy-Beans.

Can you kindly inform me where I can procure some seed of cow-peas and soy-beans? I would like some information as to how to grow them. I intend to try two acres. The ground is plowed deep, harrowed well, and well settled. It is black, heavy soil, upland, and full of moisture. Is it suitable for the growth of these crops? Can I plant them with riding lister by setting sub-soiler well down below the shear?

Comanche County. G. R. SMART.

You can secure cow-peas and soy-beans for seed from almost any large seed-house whose advertisement may be found in Kansas agricultural papers. There are also local dealers from whom these seeds may be purchased. The usual method at this station is to plant cow-peas and soy-beans in drill rows thirty to forty-two inches apart with the grain-drill on plowed, well-prepared ground. The peas or beans should be planted two to three inches apart in the drill-row for seed purposes and a little closer if the purpose is to grow fodder especially. We have not practiced listing to any extent yet I believe that in warm soils or late in the season shallow listing will be successful. Mr. J. G. Haney, in the Twelfth Biennial Report of the State Board of Agriculture says that listing is not as a rule advisable and recommends that if the beans are listed the ditches be nearly filled before planting and the beans planted in the furrow with the corn-drill.

Doubtless double-listing the ground might answer, when the beans may be planted rather shallow on the ridge at the second listing. The objection to listing cow-peas or soy-beans is that the pods grow close to the ground and

(Continued on page 682.)

The Stock Interest.

THOROUGHBRED STOCK SALES.

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

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

Principles of Horse-Feeding.

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

METHOD OF FEEDING.

The method of feeding is a subject which is often discussed, the questions of especial interest being the comparative merits of cooked and raw feed, dry and soaked grain, ground and unground grain, and cut or chaffed and uncut coarse fodder. The number of experiments which have to do with these topics is not large.

COOKED AND RAW FEED.

One of the early French investigators compared oats and an equal volume of rye boiled until the grain burst. The results were not favorable to cooking the feed. According to another of his tests, 30.8 pounds of mashed steamed potatoes could not replace 11 pounds of hay. The potatoes were mixed with cut straw and fed cold.

It is often claimed that cooking feed increases its palatability and digestibility. The general conclusion drawn from tests with farm animals is that this belief is not warranted, and that the cost of cooking is not made up for by the increased value of the ration. It has been stated on good authority that boiled feed is useful for colts, brood mares, and stallions if fed two or three times per week, and that draft horses which are being prepared for sale or for exhibition may be given cooked feed once a day with advantage. An excellent feed for horses, it is said, may be made by boiling barley and oats in a kettle with considerable water and pouring the mass over chaffed hay, allowing the whole to stand until the hay is well softened. Bran, roots, and a small quantity of oil-meal may be added also.

DRY AND SOAKED FEED.

It is often claimed that soaking feed, especially hard grain, renders it more easily masticated and improves its digestibility. It is doubtful if the matter is as important with horses as some other classes of farm animals. It has been found in experimental tests that healthy horses with good teeth digested dry beans and corn as well as the same materials which had been soaked in water for 24 hours.

Soaking or wetting feed may sometimes be of importance as regards the health of horses. According to the experience of an English feeder, chaffed straw, which was fed on account of a shortage in the hay crop, gave better results when soaked than when dry. The dry material caused colic and constipation. It was also observed that the horses relished soaked grain (corn and oats 1:1).

It is believed that the dust in hay causes heaves, and to avoid such trouble both long and cut hay, especially clover, is very often dampened before feeding, to lay the dust.

GROUND AND UNGROUND FEED.

Opinions differ as regards the advantages of grinding grain. For horses which are out of the stable during the day and worked hard, it is quite generally believed that all grains, with the possible exception of oats, should be ground, and for those at extremely hard work, all grains should be

ground and mixed with chaffed hay. For idle horses oats or grain should not be ground, nor should hay or straw be chaffed. In other words, provided the animals have time to masticate their ration thoroughly, grinding is not necessary. When this is not the case, grinding takes the place of thorough mastication to some extent, and increases the assimilation of the ration.

When whole oats were compared with ground wheat and bran at the North Dakota Station, the horses fed the former ration ate somewhat more and showed a slight loss in weight, while doing a little less work than those fed the ground grain. At the Utah Station, tests of the comparative merits of ground and unground corn, oats, and wheat fed under different experimental conditions indicated that the ground and unground grains were equally satisfactory. When whole and ground oats, corn, and barley were compared for colts at the Iowa Station, somewhat larger gains were made on the ground feed.

The comparative digestibility of different ground and unground feeding stuffs was tested at the Maryland Station. It appeared that ground corn and oats were more thoroughly digested than the unground grain. In this connection it may be noted that similar results have been obtained in tests with other farm animals, but it is commonly believed that the difference in digestibility is often not sufficient to pay for the cost of grinding.

From all the American tests, and those which have been made in Europe, it appears fair to say that there is no very marked advantage in grinding grain for healthy horses with good teeth.

CUT AND UNCUT COARSE FODDER.

It is perhaps the general opinion that when horses have ample time for chewing and digesting their feed there is no necessity for chaffing or cutting hay and straw. When the time for feeding is limited chaffing and cutting coarse fodder is regarded as advantageous. This is an item of special importance with hard-worked horses kept in the stable only at night. Furthermore, chaffed feed occupies less space for storage than uncut hay or straw, and can be readily handled. Shredding corn-fodder is regarded as an economical practice, but apparently few experiments on the comparative merits of shredded and whole corn-fodder for horses have yet been reported. No marked variation was observed in the weights of two lots of horses fed whole and cut timothy or whole and cut alfalfa and clover hay mixed in a test carried on at the Utah Station.

At the Maryland Station, in studies of the digestibility of a number of whole and ground feeds, it was found that grinding corn shives—i. e., corn stalks from which the blades, husks, and pith are removed—until the material resembled coarse bran did not destroy its value as a coarse fodder, and that the finely ground material supplied the necessary bulk to the ration as well as the same material unground. It was further claimed that the finely ground coarse fodder possessed an advantage over the unground material in that it could be mixed with grain to form a well-balanced ration and fed to horses on ship-board, or under similar conditions, more readily than unground fodder and grain.

FATTENING HORSES FOR MARKET.

Fattening horses so that they will reach market in good condition for sale is quite an important industry in some regions. For instance, in Iowa there are a number of feeders who thus prepare large numbers of horses for the Chicago market, and officials of the Iowa Experiment Station have gathered some data on the subject. The general practice is to feed generously and give little exercise. With proper feeding and care, as many as a dozen horses of a lot fed for market have in some instances made an average of 3.75 pounds per head per day throughout a period of ninety days. Somewhat larger gains have been made under exceptional circumstances.

WATERING HORSES.

A discussion of the subject of watering horses should take into account the reasons why water is needed, the amount required, the proper time for watering, and related topics.

Horses, like other animals, require water, which should always be of good quality, for moistening their food, so that the digestive juices may permeate it readily, for diluting the blood and other fluids of the body, and for other physiological uses. It may be

assumed that under any given normal condition the body contains a definite amount of water. When any considerable amount of water is lost from the body, a sensation of thirst is experienced, showing that more water is needed to take its place. Practically all the water excreted leaves the body in the feces, urine, perspiration, and breath. The amount eliminated in each increases with the amount of water consumed, the largest amount being excreted in the feces.

In addition to the water drunk by horses, a considerable amount is obtained in the more or less succulent food eaten. The amount of water required is influenced by a number of factors, including the season of the year, temperature of the surrounding air, character of the feed, the individual peculiarities of the horse, the amount and character of the work performed, and probably others. The amount of water needed increases with the temperature and with the amount of work performed, since it is very evident that both of these factors increase the amount which is given off from the body in the form of perspiration. Muscular work also increases the amount of water vapor excreted in the breath.

It has been found that less water is required when the ration consists largely of concentrated feed than when large amounts of coarse fodder are consumed, and it is a matter of common observation that less water is consumed when green, succulent feeds form a considerable part of the ration than when it consists of dry feed. That the amount of water taken, even in dry feed, may be considerable is shown by the fact that a ration of 12 pounds of oats and 15 pounds of hay furnishes some 4 pounds of water. A succulent ration would furnish much more.

In general a horse will drink from 50 pounds or less to 65 pounds per day, though under the influence of warm weather or hard work the amount may range from 85 to 110 pounds or over. In some experiments in the British army it was found that when allowed to choose, horses drank about one-fourth of their daily allowance in the morning and not far from three-eighths at noon and about the same proportion at night.

In connection with a number of tests at the experiment stations in the United States the amount of water consumed has been recorded. At the New Hampshire Station, on a ration of different grain mixtures, with timothy hay and corn fodder, the quantity of water varied from 71 to 90 pounds of water per head per day, both the ration consumed and the amount of work performed influencing the quantity of water drank, although the individuality of the horse had the most marked effect. At the Utah Station it was found that larger amounts were consumed on alfalfa hay with oats than on timothy hay, the greater consumption of water on the former ration inducing a greater elimination by the kidneys; but so far as could be observed this was not attended by any bad results, nor was it found inconvenient.

A pair of mules, at the Oklahoma Station, during the hot summer weather, drank 113 pounds of water per head daily, and on one day 175 pounds. In another tests, at moderate work, the amount recorded was 107 pounds. In these tests the grain ration consisted of Kafir-corn, maize, oats, and bran.

The proper time to water horses is a matter concerning which opinions differ. Many feeders believe that they should be watered before feeding, while others are equally certain that feeding should precede watering. Some extended experiments have been recently made in Europe which have led to definite conclusions, and seem to have reached the truth in the matter.

The rations fed consisted of different mixtures of corn, oats, hay, and straw, and a number of experiments were made in which the only condition which varied was the time of watering. In some of the tests the horses drank before and in some after eating, and in others after the grain portion of the ration was eaten, but before the hay.

So far as was observed the time of drinking had no effect on the digestibility of a ration of grain and hay. When hay only was fed there seemed to be a slight advantage in watering before feeding. The general conclusion was drawn that horses may be watered before, during, or after meals without interfering with the digestion and absorption of food. All of these methods of watering are equally good for the horse, and each of them may be employed according to circumstances. It is obvious that certain circumstances may make it necessary to

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adopt one or the other method. For instance, after severe loss of water, such as occurs in consequence of long-continued, severe exertion, the animal should always be allowed to drink before he is fed, as otherwise he will not feed well.

In this connection it is worth noting that many American farmers believe that watering before feeding is best. Although all methods of watering seemed in these tests to be equally good for the horse, it is not desirable to change unnecessarily from one method to another. Animals, or at least some of them, appear to be not altogether indifferent to such a change. In the experiments referred to above it was found that whenever a change was made from the plan of watering after feeding to that of watering before, the appetite fell off for some days; not that the horses did not con-

sume the whole of the food given to them, but for some days together they did not eat with the same avidity as before, and took a longer time to consume their rations completely. A similar effect was not observed when the change was from watering before to watering after feeding, or from watering after to watering during meals, or when the change was in the opposite direction to the last. It seems best, therefore, to avoid sudden and unnecessary changes in the method of watering.

DIGESTIBILITY OF FEEDING STUFFS.

In the preceding pages reference has been made to the composition of different feeding stuffs and to tests of the comparative value of different concentrated feeds and coarse fodders. The real value of any feeding stuff is determined, not alone by its composition, but also by its digestibility; that is, by the amount of material which it gives up to the body in its passage through the digestive tract. It is evident that if two feeding stuffs have practically the same composition, but one gives up more material to the body than the other—that is, is more thoroughly digested—it must actually be more valuable than the other material. The bulk of the substance of almost all feeding stuffs is insoluble when eaten. Only material in solution can pass through the walls of the stomach and intestines into the circulation and be utilized by the body, therefore digestibility consists chiefly in rendering the insoluble materials soluble. This is effected by the aid of digestive ferments and also by bacteria.

Digestion experiments are frequently made to learn how thoroughly a given feeding stuff or ration is assimilated. The usual method is to feed the material under consideration for a longer or shorter time, the amount and composition being determined. From the total nutrients consumed, the amounts excreted undigested in the feces are deducted, showing the amount of each retained in the body. It is the usual custom to express the amounts digested in percentages, the results thus obtained being termed coefficients of digestibility.

The digestibility of a number of different feeding stuffs has been tested with horses in this country and in Europe, although the number of such experiments is much smaller than in the case of cattle and sheep. The most extended series of American experiments with horses was carried on at the Maryland Experiment Station.

The average results of the available digestion experiments with horses were used to compute the digestible nutrients furnished per 100 pounds by the different feeding stuffs included in the table on page 665, in KANSAS FARMER of June 18.

It has been found that in a majority of the feeding stuffs tested the percentage of protein digested is fairly high, being greater in grains and seeds than in hay and grasses, and least in the case of timothy hay and speltz straw.

Generally speaking, the values obtained for the digestibility of fat are rather low, the fat of oats being most digestible and that of peas least digestible. There are reasons connected with the analytical methods commonly followed which render the results obtained with fat not altogether satisfactory.

Nitrogen-free extract is quite thoroughly digested by horses, the values ranging, in a number of experiments, from 100 per cent in the case of molasses to 17.9 per cent in the case of speltz straw. The principal sources of nitrogen-free extract in the ration are the cereal grains and their by-products, and it is interesting to note that the coefficients of digestibility of nitrogen-free extract of these materials is high. In the majority of feeding stuffs the crude fiber is not very thoroughly digested, the coefficients of digestibility being on an average less than 50 per cent.

COMPARATIVE DIGESTIBILITY BY HORSES AND RUMINANTS.

In computing the digestible nutrients furnished by different feeding stuffs, it has been a common custom to use available data obtained from digestion experiments with farm animals without distinguishing between ruminants, like the cow, sheep, etc., and nonruminants, like the horse, although differences had been pointed out by a number of observers. Averaging the results of a considerable number of tests, it appears that ruminants digest 26.9 per cent more protein, 5.4 per cent more fat, 16.7 per cent more nitrogen-free extract, and 4 per cent more crude fiber from timo-

thy hay than horses. In the case of oats, the amounts of protein digested were practically the same, but the ruminants surpassed the horses by 12.8 per cent for the fat and 0.5 per cent each for the nitrogen-free extract and crude fiber. Similar results were obtained with other coarse fodders and concentrated feeds. Considering all the available experiments bearing on this subject, it seems fair to conclude that in general ruminants digest a larger percentage of fat, carbohydrates, and crude fiber than horses, the differences being most marked in the case of the crude fiber. These results are in accord with what might be expected from differences in the digestive organs of the different classes of animals. It is well known that fineness of division is an important factor in considering the thoroughness of digestion. The length of time any given food material remains in the digestive tract is also important. The ruminants have an opportunity to chew their food more thoroughly than horses and retain it longer in the digestive tract. It is said that on an average horses retain their food 4 days or less; cattle 3 or 4 to 7 or 8 days; sheep or goats from 3 or 4 days when ordinary rations to 7 or 8 days when straw is eaten. That the food is actually more finely divided by ruminants in chewing and digesting is indicated by the mechanical condition of the manure, that from horses containing an abundance of fairly large fragments of hay and other coarse fodders, etc., while the manure of cattle commonly contains undigested residue in a finer state of division. In the case of sheep the manure contains the undigested residue in still smaller fragments. It is perhaps generally believed that crude fiber is chiefly digested by the action of bacteria in the intestine, and it is obvious that the longer materials remain in the intestine the greater the opportunity for the action of such micro-organisms.

The fact that, other things being equal, horses digest their feed less thoroughly than cattle, i. e., retain less nutritive material from any given ration when it passes through the digestive tract, has been long recognized. For this reason horse manure is richer than manure from cattle on the same ration. In other words, the horse manure contains a larger proportion of the ration than cow manure, and hence, more of the nitrogen and mineral matter, especially phosphoric acid and potash, originally present in the feed.

The value of the manure produced by horses was studied by the Pennsylvania Station. Observations made with a number of horses indicate that a horse produces annually about 12,700 pounds of fresh manure, not including the amount dropped while at work. This quantity, which would be worth about \$13.50 as fertilizer, would require the use of about 2,500 pounds of straw for bedding. According to the author's calculations a ton of wheat straw economically used for bedding horses may result in 6 tons of fresh manure, although in general practice the amount is not likely to exceed 5 tons and may be much less if few animals are kept or the manure is infrequently removed.

RATIONS ACTUALLY FED AND FEEDING STANDARDS.

The amount of the different feeding stuffs required and hence the quantity of nutrients supplied to horses may be learned by observation or experiment or a combination of the two methods. Doubtless all practical horse feeders supply rations which they believe are suited to their horses' needs, and in stables where horses are fed in any considerable number economy demands that the amount fed shall be fixed and not vary according to the whims of the feeder. When the feeding stuffs used are weighed and the condition of the horses is noted, a feeding experiment results. Using average values obtained from many more or less complicated feeding experiments and other investigations, so-called feeding standards have been devised which are designed to show the amount of protein, fat, and carbohydrates required per day for various conditions of work and rest. For the sake of uniformity, the standards are usually calculated on the basis of 1,000 pounds live weight. They often show in addition the nutritive ratio; that is, the ratio of protein to the sum of the carbohydrates and 2.25 times the fat. It is also possible to express the feeding standards in terms of protein and energy, since the functions of food, as previously stated, are to build and repair tissue and supply energy, protein alone serving for the former purpose, while all the nutrients yield energy. The



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best known feeding standards for horses and other farm animals are those computed by Wolff and revised by Lehmann.

Very frequently so-called standards for horses have been proposed which have shown the quantities of feeding stuffs required; for instance, the pounds of oats and hay needed per day per 1,000 pounds live weight. Such standards, or more properly standard rations, have been adopted in many countries for army horses, and in other cases where large numbers of horses are fed under uniform conditions. The digestible nutrients furnished by such standard rations can

be calculated by the aid of figures showing the average composition and digestibility of the feeding stuffs.

The table following shows the amount of nutrients and energy furnished per 1,000 pounds live weight by rations supplied the U. S. Army horses, by those fed to a number of farm horses at the stations, and work horses employed by packing houses, express companies, and other companies, and also the average nutritive value of a considerable number of such rations fed in different parts of the United States, as well as the commonly accepted feeding standards. The amount of digestible nutrients fur-

nished by the rations is also included, such data having been calculated by the aid of figures recorded elsewhere (see page 665, in KANSAS FARMER of June 18).

cepted theories, for it is generally conceded that horses at severe work require larger rations than those at moderate work. The discrepancy may be explained in part perhaps by the fact

ican horses performing light, moderate, and severe work, differ somewhat from the commonly accepted feeding standards. It would be going too far to propose the adoption of these aver-

TABLE II.—Rations actually fed to horses and digestible nutrients and energy in rations calculated to basis of 1,000 pounds live weight.

Kind of horses.	Weight of horses.	Rations actually fed.	Nutrients in ration per 1,000 pounds live weight.				Digestible nutrients in ration per 1,000 pounds live weight.				Energy in digestible nutrients.
			Protein.	Fat.	Nitrogen-free extract.	Crude fiber.	Protein.	Fat.	Nitrogen-free extract.	Crude fiber.	
ARMY HORSES.											
United States.	Lbs.	Pounds.									
Cavalry	1,050	{ Oats, 12. Hay, 14.	2.14	0.90	12.82	4.95	1.25	0.57	8.00	1.97	23,300
Artillery	1,125	{ Oats, 12. Hay, 14.	2.00	.84	11.96	4.62	1.16	.53	7.48	1.84	21,750
Mules	1,025	{ Oats, 9. Hay, 14.	1.84	.78	11.39	4.80	1.00	.48	6.88	1.94	20,250
HORSES WITH LIGHT WORK.											
Driving horse, Wyoming Station	1,200	{ Alfalfa, 21.25. Straw, 8.2.	2.38	.18	5.87	2.34	1.76	.05	3.58	.92	11,855
Carriage horse	1,050	{ Oats, 10. Hay, 12.	2.06	.76	10.42	3.87	1.40	.40	6.97	1.44	19,935
Average			2.22	.47	8.15	3.10	1.58	.22	5.27	1.18	15,895
Fire company horses:											
Boston, Mass.	1,400	{ Ground grain, 9.88. Hay, 18.	1.65	.68	9.57	4.57	.87	.41	6.14	1.73	18,000
Chicago, Ill.	1,350	{ Oats, 4. Hay, 15.	1.00	.43	6.77	3.50	.42	.24	3.70	1.45	11,365
Average of 6, including above			1.35	.56	7.95	3.20	.78	.35	4.99	1.26	14,555
General average for light work			1.57	.54	8.00	3.18	.99	.32	5.06	1.20	14,890
HORSES WITH MODERATE WORK.											
Express horses:											
Richmond, V., summer	1,400	{ Corn, 4.67. Oats, 5.33. Bran, 0.83. Corn meal, 4.16. Hay, 15.	1.79	.78	11.78	3.64	.97	.45	8.19	1.46	21,650
Jersey City, N. J.	1,325	{ Corn, 2. Oats, 19. Bran, 1.5. Hay, 9.5.	2.45	1.03	13.45	3.57	1.66	.67	9.37	1.32	25,800
Boston, Mass.	1,325	{ Corn, 12. Oats, 5.25. Hay, 20.	2.38	1.04	14.96	5.32	1.28	.60	9.75	2.12	27,000
Average of 4, including above			2.15	.93	13.27	4.13	1.26	.55	9.06	1.62	24,550
Cab horses:											
Washington, D. C.	1,200	{ Oats, 10. Corn, 5. Hay, 23.	2.56	1.12	16.50	6.43	1.28	.63	10.42	2.60	29,250
San Francisco, Cal.	1,350	{ Oats, 8. Hay, 16.	1.39	.59	8.87	4.00	.70	.36	5.21	1.64	15,550
Average of 4, including above			1.88	.80	11.51	4.30	1.06	.49	7.33	1.72	20,860
Farm horses:											
Wyoming Station	1,000	{ Alfalfa, 13.75. Straw, 2.25. Bran, 2.	1.85	.14	6.27	.....	1.37	.03	4.08	.....	8,240
New Hampshire Station	1,235	{ Corn, 6. Gluten meal, 6. Hay, 10.	2.37	.93	10.49	2.90	1.59	.64	7.47	1.03	21,465
New Jersey Station	1,000	{ Hay, 6. Bran, 2 1/2. Corn, 4 2/7. Dried brewers' grain, 8 4/7. Hay, 18.	3.21	.89	10.81	3.09	2.22	.65	6.99	1.38	22,440
Massachusetts Station	1,100	{ Wheat bran, 2. Provender, 6=crushed corn, 2 7/8; oats, 8 2/7.	1.85	.76	11.85	5.25	.85	.41	7.04	2.14	20,335
Utah Station	1,370	{ Alfalfa hay, 25. Bran and shorts (1:1), 10.	3.72	.71	11.83	5.16	2.81	.29	8.27	1.96	25,480
Utah Station	1,325	{ Timothy hay, 22.8. Bran and shorts (1:1), 10.	2.17	.75	11.93	5.61	1.11	.42	6.56	2.31	20,345
Average of 41, including above			2.46	.75	11.92	4.05	1.57	.40	8.09	1.62	22,760
General average for moderate work			2.38	.77	11.99	4.08	1.49	.42	8.09	1.63	22,710
Farm mules, Virginia Station	1,310	{ Hay, 15.2. Corn, 10.5. Corn silage, 10.5.	1.70	.82	12.00	4.00	.72	.42	8.22	1.75	21,655
Average of 6, including above			1.64	.78	11.54	3.74	.69	.39	7.95	1.60	20,675
HORSES WITH SEVERE WORK.											
Truck and draft horses:											
Chicago, Ill., daily ration	1,500	{ Oats, 7.5. Hay, 20.	1.88	.58	8.99	4.34	.64	.34	5.11	1.79	15,450
South Omaha, Nebr.	1,500	{ Oats, 15. Hay, 12.	1.65	.70	9.57	3.27	1.04	.45	6.23	1.27	17,800
Average of 5, including above			1.80	.76	10.49	3.49	1.12	.49	6.94	1.35	19,560
FEEDING STANDARDS AND AVERAGE RATINGS.											
Light work, Wolff-Lehmann								1.5	.40	9.5	22,150
Medium work, Wolff-Lehmann								2.0	.60	11.0	26,700
Heavy work, Wolff-Lehmann								2.5	.80	13.3	32,750
Maintenance, moderate work, original, Grandean								2.14	.52	11.15	28,900
Maintenance, moderate work, modified, Grandean								1.95	.44	9.93	23,950
Paris Bus Co., horses, Lawes & Gilbert's computation								1.60	.40	12.14	27,200
Ordinary work, Lavalard								1.10	.....	11.0	22,510
Severe work, Lavalard								1.30	.....	11.0	22,880
AMERICAN EXPERIMENTS.											
Horses with light work:											
Driving horses								1.58	.22	5.27	15,895
General average .....								.99	.32	5.06	14,890
Horses with moderate work:											
Express and cab horses								1.06	.49	7.33	20,860
Farm horses								1.57	.40	8.09	22,760
General average								1.49	.42	8.09	22,710
Mules with moderate work: Farm mules .....								.69	.39	7.95	20,675
Horses with severe work: Truck and draft horses								1.12	.49	6.94	19,560

a This value represents total carbohydrates plus 2.25 times the fat.

As will be seen, the average values for the protein and energy in the rations of the horses performing light work are considerably less than similar values for horses performing moderate work. The data for the former group is much more limited than for the latter, but the relation is in accord with the commonly accepted theories. The farm mules consumed a ration furnishing less protein and practically the same amount of energy as horses performing similar work, though the tests with mules are too few for general deductions. The rations of the truck and draft horse performing severe muscular work furnished less protein and energy on an average than the rations of the horses with moderate work. This is not in accord with commonly ac-

cepted theories, for it is generally conceded that horses at severe work require larger rations than those at moderate work. There is every reason to suppose that the truck and draft horses received rations sufficient for their needs, as the firms owning them are known to make the effort to maintain their horses in good condition. Such truck and draft animals are often employed at work which is performed at a slow pace, and undoubtedly this has a bearing on the fact that they were able to perform a large amount of work on a comparatively small ration, as the speed at which work is performed has a marked effect upon the food requirements.

The average values, representing the amounts which were fed to Amer-

ican horses performing light, moderate, and severe work, differ somewhat from the commonly accepted feeding standards. It is undoubtedly true that a feeding standard should be based on other data than the results of feeding experiments; however, in so far as the results represent the average practice of successful feeders they are worthy of consideration, and certainly emphasize the importance of undertaking investigations with a view to revising the standards. It should be remembered that the amounts of digestible nutrients in the rations actually fed were calculated with the aid of coefficients of digestibility obtained with horses and are, therefore, considerably lower than would be the case if average values obtained with ruminants had been used, a method of calcula-



It Means Something

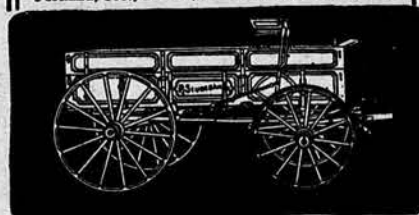
to you to have harness that are right in make and material. It means as much with respect to the wagon or any other vehicle you buy. Don't ever question that it pays to buy value. Looking for the cheapest gets you the shoddiest, and you are practicing the poorest kind of economy.

Studebaker Vehicles and Harness

have quality and give service—the highest and the best. Not once, but everywhere and always. The name is an unfailing guarantee. Their honorable record is now running into the second half century. The first fifty years never found them wanting. Endless variety, all styles, one quality. Local Studebaker dealers will show them. We will mail you descriptive catalogue on request.

STUDEBAKER BROS. MFG. CO.

South Bend, Ind.
Chicago, New York, San Francisco, Kansas City,
Portland, Ore., Denver, Salt Lake City, Dallas, Tex.



tion which has been often followed in the past, but which does not seem desirable.

The number of feeding stuffs used in making up the rations fed was not found to be large, oats and corn being the common grains, and hay, usually timothy, the common coarse fodder. The amounts of nutrients and energy in the different rations of the horses making up the different groups varied within rather wide limits, which is not surprising when it is remembered that the horses were fed under many different conditions and by a large number of feeders whose opinions regarding what constituted a proper ration naturally differed.

The rations given in Table 2 and those used in calculating the averages there included were believed to be sufficient for the horses' needs either because the animals maintained a practically constant weight, as in the case of the horses fed at the experiment stations, or because the rations had stood the practical test of usage at the hands of express companies, cab companies, etc. Several additional rations follow, which may perhaps serve as a guide in determining the kind and amount of feeds which should be given to work horses under different conditions.

The New Hampshire Station found that the following rations were moderate in cost and sufficient in amount for farm horses weighing between 1,200 and 1,300 pounds:

Ration No. 1. Timothy hay 10 pounds, bran 2 pounds, corn 6 pounds, and gluten feed 6 pounds.

Ration No. 2. Timothy hay 10 pounds, corn eight pounds, and bran 7 pounds.

Ration No. 3. Timothy hay 10 pounds, corn 8 pounds, and linseed-meal 4 pounds.

As shown by correspondence a favorite ration with feeders in different cities for truck horses weighing some 1,500 pounds is made up of 15 to 20 pounds of oats and 12 to 20 pounds of hay. Some feeders prefer corn and oats in equal parts instead of oats.

In Table 2 the ration for army horses weighing about 1,100 pounds is given as oats 12 pounds and hay 14 pounds. According to the army regulations a like amount of corn or barley may be supplied in the place of oats.

The Iowa Station work horses, weighing 1,200 pounds, according to a recent publication, are fed 12 pounds of hay and 12 pounds of grain (oats, corn, and bran 3:2:1) per head daily. If oats are high in price the amount of corn is increased, the grains being mixed in the proportion of 2:2:1. Horses weighing 1,500 to 1,600 pounds

receive 15 pounds of hay and 15 pounds of the above grain mixture. This, it is said, has been found sufficient to keep them in good flesh during heavy work. For ordinary work horses weighing about 1,300 pounds a ration of 10 pounds of oat straw and 15 pounds of equal parts of corn and oats by weight is considered sufficient. At severe work the mixture should consist of 3 parts of oats to 2 of corn.

The California Station recommends, per 1,000 pounds live weight, the following combinations among others as suited to Pacific coast conditions:

Ration No. 1. Alfalfa hay 12 pounds, wheat hay 11 pounds, and crushed barley 7 pounds.

Ration No. 2. Alfalfa hay 10 pounds, barley hay 12 pounds, and cracked corn 7 pounds.

As a sample of a ration containing molasses the following may be cited which has been satisfactorily fed to a large number of draft horses averaging 1,700 pounds in weight: Night and morning a quart of molasses diluted with 3 quarts of water and thoroughly mixed with 6 pounds of cut hay of good quality, 1.5 quarts of corn-meal, and 2.5 quarts of coarse bran. In addition the horses were given 5 quarts of

Beef East, Butter West.

For some years the East has been regarded as the dairyman's territory and the West as the beef-maker's domain. It is true that the rich pastures of the Virginias turn off a great deal of beef, and eastern Pennsylvania has always fed large numbers of cattle; yet the demand from numerous cities and towns to be supplied with dairy products has caused the dairy industry to overshadow the beef industry in a large part of the East. But gradually things are changing. The West has gone into butter- and cheese-making on a large scale, and the Eastern farmer is again disposed to take up beef-production. There are two causes for this revival of beef-making in the East. One is the scarcity of labor. The industrial development has been so great that it is hard to get labor for the exacting duties of the dairy. And the other is the silo. The Eastern farmer has found that he can make dairy products at a minimum cost by the use of the silo, and of late years, since he is confronted with fair prices for beef cattle and a labor problem that makes dairying an unusually arduous business, he is asking why he can not use a different type of animal and make beef with his silage. A good many feeders have

which come from the West come at less expense than after fattening. But the question promises not to be of relative but actual profit. So long as the eastern producer can make money he need not worry about anybody's competition, and the future promises a return to the beef-producer that will make him money.—National Stockman and Farmer.

A Mule Decision.

Our old and tried friend, the mule, has got into the legal game again, just as he managed to get into everything else. We presume there were no mules in the ark, because they probably hadn't been invented then, and besides, Noah had troubles enough without having a pair of mules to stir up things. There were no negroes in the ark, anyway, hence there was no one to take care of mules. If that isn't good logic, we fail to see why it isn't.

But to get back to the present. We see that a court in Missouri has virtually decided that no one can plead ignorance of a mule's nature as a defense in case of injury—that is, if an employee is injured by a mule, the animal's owner can not plead ignorance of the mule's vicious character, the theory of the court being that a mule's

ity and capacity for deceit. No animal that walks the earth can wear a more thoroughly sanctimonious look than an old mule, and there is not one that can engineer a more complete surprise. This writer dismounted from a 20-year-old mule very suddenly and unexpectedly in a cold river ford one day, and the animal deliberately wandered to the bank and stopped as if he wondered what the rider got off for. Mules are very sudden at times, and nothing but eternal vigilance and a good stock of watchfulness will enable an ordinary mortal to get the better of one. Whether the judge was exactly fair to them in judicially holding that they are all vicious and that their owners all know it is a question. It is hard on our long-eared friend, at all events.—Montgomery Advertiser.

The Sotham Sale of Herefords.

It is gratifying to announce that the all-round sale of Hereford cattle held at Chillicothe three days last week by T. P. B. Sotham was a successful event, despite the unfavorable flood conditions.

Only fifty head of pure-breds were sold, which comprised only seven head bred by Mr. Sotham, all of which were bulls and brought good prices. The top price was \$625, paid for the 2-year-old bull, Clem Graves 122511, a son of Dale, which went to Geo. Dennis, of Chillicothe, Mo. The top price for females was for the 6-year-old cow, Arnel 66479, by Columbus, which brought \$600, the purchaser being Clem Graves, of Bunker Hills, Ind. The fifty head of pure-breds brought \$11,615, average of \$232.30. Thirteen bulls average \$267.31, and thirty-seven females average \$220.54.

The bulk of the auction offered consisted of high-grade stockers, steers, and heifers.

There was considerable interest manifested in the sale of high-grade Hereford and Shorthorn calves, yearlings, and 2-year-olds and bidding was lively. It took less than four hours Tuesday to dispose of 1,193 head. The cattle had been personally selected by Mr. Sotham from high-class herds in Missouri, Kansas, and Texas. Most of all of those sold Tuesday were from Texas. Prices ranged from \$15.50 to \$30.50 on the heifers, and from \$18.25 to \$32.50 on the steers.

On Wednesday 653 more were sold, mostly in carload lots. Some very good dehorned 2-year-old grade Hereford steers were popular and sold readily at \$33.25 to \$39 per head. Two-year-old grade heifers sold at \$20 to \$21.50. A full load of fancy yearling whiteface steers brought \$33. A lot of grade 2-year-old spayed heifers sold readily at \$24.50 to \$28 per head. This method of selling high-class stockers seems to have struck a popular chord. Buyers came from many Eastern States but found sharp competition throughout from Missouri feeders.

RANGE OF STOCKER PRICES.

1,055 yearling steers.....	\$18.00@33.00
127 2-year-old steers.....	25.00@39.00
227 yearling heifers.....	15.25@25.00
268 2-year-old heifers.....	19.00@30.50

Some Nebraska Shorthorns.

Messrs. Henry H. Kuper and W. D. Elmore, Humboldt, Neb., are to be accounted among the leading breeders of Shorthorns in that fine section of country. These gentlemen are arranging for a combination sale from their herds to be held at Humboldt on November 21. It will be a double dispersion sale, and one that will interest a large circle of stockmen. As the time draws near for this sale a hearty invitation is to be extended to readers of the Kansas Farmer to come out and see the cattle. A representative of the Kansas Farmer was recently to see these Nebraska herds and brings excellent report of their way of doing. Mr. Kuper will furnish the bulk of the cattle for this sale from his Pleasant Hill herd, northwest of town. He has at head of his herd the grand 4-year-old red bull Viscount 167567, tracing to imported Bellina by Barmpton. This is a bull of excellent scale and fine form, and he has demonstrated himself an outstanding grand breeding bull, a fine lot of his calves to go into the sale. A younger bull that is being used to some extent is Empress' Lad of Walnut Stream by Gwendoline of Walnut Stream, he by Gwendoline, the well-known Hitchcock sire. The dam of this young bull is a daughter of the great Cruickshank bull Souise Boy, second dam by Royal Victor. Mr. Elmore is breeding his cows to Viscount also. A fine string of breeding cows will be marshalled into this sale-ring from either herd, and this fact will make the above occasion a popular one for men who are looking for useful cattle at their own prices. We shall give full particulars at a later date in these columns.

Holstein-Friesian Cattle Sell Well.

One of the most successful sales of Holstein-Friesian cattle ever held in the country was conducted by Messrs. Averill & Gregory at Syracuse, N. Y., June 4 and 5. The cattle had been carefully collected and bred along the most approved lines and always with an eye to the strictly useful performance of the cows at the pail. No expense had been spared to obtain the very best blood in the "black-and-white" breed, and when the herd came to be dispersed, owing to the pressure of other business on the firm, buyers from Maine to California congregated at the ringside. The highest price paid for a cow of the breed at auction since 1888 was bid for Segis Inka, which went at \$1,600 to Dr. W. N. Landon, of New York State. When the bidding for this matron was in progress a series of interesting offers was made in connection with her. Henry Stevens, Lacona, N. Y., said he would give the service of his bull for the cow free and guarantee \$500 for a bull calf by him from her. This offer was raised by Mr. Kellogg to \$600 for a bull calf and free service by Mercedes Jullip's Pletertje Pauli, and then Mr. Matteson offered the service of Paul de Kol, Jr., free and \$750 for a bull calf from the mating. This offer was not improved on and was accepted. Bidding



THE IMPORTED FRENCH COACH STALLION VOLTIGEUR 3286.

Imported and owned by McLaughlin Bros., of Columbus, Ohio, and Kansas City, Mo. Voltigeur is one of the grandest individuals, and one of the highest acting French Coach stallions ever imported to America. He is a horse of great substance and is at the same time very shapely and full of quality. Along with his grand individual merit he possesses the best blood of this illustrious breed, counting in his direct ancestors the most noted prize-winners of France. He was foaled March 1, 1899, and is now at McLaughlin Bros.' Kansas City stables.

dry oats in the middle of the day and 11 pounds of long hay at night.

An English authority recommends the ration given below, which is interesting as an example of the use of roots: For work horses 12 pounds of oats, 15 pounds of hay, and 5 pounds of carrots. A more abundant ration suited to more severe work is 20 pounds of oats, 10 pounds of hay, and 3 pounds of carrots.

For farm horses at light work Settegast recommends 6 to 10 pounds oats, 6 to 9 pounds hay, and 3 pounds straw. For medium work 10 pounds oats, 10 pounds hay, and 3 pounds straw. For heavy work 13 pounds oats, 12 pounds hay, and 3 pounds straw.

A ration proposed by Sidney for a draft horse at heavy work is of interest because beans replaced some of the grain ordinarily fed. The ration consists of 13 pounds oats, 6 pounds beans, 3 pounds corn, and 15 pounds chaffed clover hay.

The above rations are not especially recommended, but are quoted as illustrations of the ways in which feeding stuffs can be combined. Each feeder should decide upon a ration which makes the most economical use of the local feed supply, taking care that it furnishes in reasonable combination nutritive material sufficient for the amount of work required.

(To be continued.)

tried this plan and "it works" all right when it is properly understood. More are going to try it, and there is promise of an increasing beef-producing industry in the territory east of Indiana by the use of the silo.

The siloist has learned the lesson of making silage from corn well toward maturity, and when he gets to making beef will probably realize still more the importance of this. And he will learn also not to depend too much on silage—that it is not and can not be the whole thing in finishing steers that must compete with the dry-fed steers from the West. One who has tried it says that silage may be used for the whole ration for one-third of the period of fattening, for half the ration for one-third, and not at all during the last third of the period. This may be right or wrong. Time and experience alone will tell the best practice in this matter. But if the East is to compete with the West the cheap feed must be a large part of the ration.

Right here comes up the old question, that should be asked and answered first—Can the East compete? Probably there are portions which can and others which cannot and don't want to. Land to raise ten thousand bushels of corn can be had cheaper in the East today than in the West; but it will cost more to produce from it. Feeding facilities are better, and the cattle

character is always bad, and that all owners of mules know it. Consequently, when an animal cuts up rough and puts an employee out of business, the owner of the animal must take the responsibility, because he knew, or should have known, just what a mule would do.

This is a general and wholesale indictment against a large and important family, and we don't know that it is deserved. The mule can't help being here, nor do we believe that he can help his nature. He may be an accident or a wise design, but he is not among us by any act of his own nor is he responsible for his disposition. If he partakes of some of the worst characteristics of both of his parents it isn't his fault. Even a horse isn't always a model of good behavior, and if a mule makes a rough house shall we blame the entire breed and legally declare that they are individually and collectively a bad lot? That is hardly a fair deal, but it is the way of the world.

There is one thing, however, that is beyond a doubt, and that is that there is never a time when the mule will not bear watching. If there is any being on earth who is really and truly posted on mule nature it is a negro, and we have seen negroes about as badly surprised at a mule's unexpectedness as ever a white person was. In truth, one of the mule's strong points is his abil-

was spirited all through the sale and the prices realized very good, though they would surely have been better had the drouth been broken. In all 159 animals were sold in the two days. Of the lot 118 were females and 41 bulls, and as the total sum realized was \$25,590, the average works out to \$161 over head.

Stock Gossip.

A. E. Burleigh, Knox City, Mo., writes that on October 6 he will have a dispersion sale of Polled Durham cattle to be held at Kansas City.

H. T. Hineman, Dighton, Lane County, breeder of horses and mules, is well pleased with the Kansas Farmer, and says: "It is the best farm paper in the land. Last February one of my neighbors had a jack he wanted to sell and I advised him to advertise in the Kansas Farmer, which he did, and made a sale at good figures."

H. Bellairs, Cherryvale, Kans., writes us that he topped the market for his wool clip of this season. He desires to inquire of other sheep men what their experience has been with the Chicago Flexible Shaft Company. He finds considerable difficulty in sharpening the knives and would like to have the opinion of others that have had experience in the use of this machine.

McLaughlin Bros., horse importers, Columbus, Ohio, and Kansas City, Mo., under date of the 19th inst., write us as follows: "A cable message came this afternoon from Mr. James McLaughlin, Nogent-le-Rotrou, France, where the great annual Percheron show of France is being held this week in which he says that our horses have won every first prize, forty prizes in all and in collections ours won first. As usual we have all of the best horses. These prize-winners will arrive here the last of July."

Manwaring Bros., breeders of Large English Berkshires, Lawrence, Kans., report stock in good condition, and while the feed crop is not as large as last year they have a good many customers to draw from and expect to take care of their trade in good shape. They expect to be out with the show herd this year at the leading fairs and desire to announce that their establishment was not located in the flood district, although they were somewhat in the mud belt.

The Empire Separator Company, of Bloomfield, N. J., has inaugurated a new system of continuous instruction for its agents by publishing a monthly magazine entitled, "The Empire Push." This magazine is under the management of Mr. E. E. Bell, superintendent of the company, and is edited, in part at least, by Mr. Marco Morrow of the Frank B. White Company, Chicago. This statement insures the fact that the magazine is bright, breezy, and full of instruction.

William A. Pierce, of Topeka, formerly a cattleman of Wabunsee county, has been employed by the British government to take charge of a cargo of cows shipped from this country and distribute them in South Africa. By the terms of the surrender of the Boers to Great Britain the latter Nation contracted to rehabilitate the country devastated by the war. The cows Mr. Pierce takes to South Africa are mainly from Texas and New Mexico. It was the American mule that aided the British to conquer the Boer country, and now the American cow is sent over to help restore it to its former prosperity.

The nineteenth annual sale of Short-horns by Benjamin Whitsitt & Sons at Preemption, Ill., last week resulted in the disposal of forty-nine head for \$5,730, an average of \$116.95, and as they were practically all bred by the Messrs. Whitsitt, the sale represents a good profit to the sellers, and also serves as an object lesson as to the financial benefits to be derived from cattle-breeding carried on judiciously. Colonel Carey M. Jones secured an average of \$120.71 for thirty-seven females and \$96.65 for twelve bulls, making a general average of \$116.95 for forty-nine head.

In living up to our motto of being always at the front, the Kansas Farmer has just made arrangements with the publisher of a particularly valuable book entitled, "Farm Engines and How To Run Them." This book is bound in cloth, copiously illustrated with cuts showing all the different parts of the different traction and stationary engines together with the thrashing machine and its parts, and full instructions on the gasoline engine. It is a book of over 200 pages written by the most skillful engineers and sells for \$1.00 per copy. Under our contract we can furnish this book and a years subscription to the Kansas Farmer for \$1.50.

The Eureka Valley Breeding Farm, owned by Warner & Odle, Manhattan, Kans., was peculiarly fortunate in not suffering any loss by flood from either their Shorthorn or their French Coach herds. The farm, however, was damaged by the flood and the corn crop was entirely destroyed but was practically all replanted by June 16. The large acreage of alfalfa on this place was badly injured although there is hope for a considerable part of it to sprout again. The entire home farm except about forty acres, was under water. While they have suffered damage they are by no means out of business and will continue to furnish good Shorthorns and good horses at the same reasonable prices that have heretofore made them popular. Their advertising card is now on page 691.

John Tomson, of T. K. Tomson & Sons, Dover, Kans., dropped in for a moment the other day to say that his young herd of Shorthorns which he is now fitting for the fair- and show-circuit this fall is in fine condition and doing well. This reminds us that John M. Hazelton, manager of publicity for the American Royal, announces that the floods have in no way injured the buildings in which the American Royal will be held and that preparations for this great show are going forward in an entirely satisfactory manner and its success is assured. He is now sending out a handsome poster showing a pretty cow-girl and the dates of the American Royal Show, together with

those of the pure-bred sales which will be held in connection with it. These posters are limited in number and if you want one, mention the Kansas Farmer and write to Mr. Hazelton.

Chas. E. Sutton, Rutger Farm, Russell, Kans., says: "Love at first sight" was the result, and two 'lookers' left the farm smiling, each owning his first Angus bull, both having always used Shorthorns in their herds. The buyers were: Mr. T. F. Gorman, of Dickinson County, who selected the low-down blocky calf, Rutger Royal 2d, of the 'Kinnard' tribe, descended from Old Lady Ann, calved in 1820, the oldest Angus cow of which records exist, and E. B. Curtis, of Rooks County, who took Rutger Erebus, another son of Expand, a chip of the old block, a splendid prospect for a 2,000-pound bull and a good one. These youngsters can not help but sire 'market toppers' as they belong in that class judged as individuals and from a breeding standpoint. We still have a dozen of these fancy fellows and an investment in one of them will return a greater profit to any farmer with ten or more cows than any investment he can make of a similar amount of money."

Col. Harriman, Bunceon, Mo., the livestock auctioneer, last week returned from the State of Washington, where he had been to conduct two Shorthorn cattle sales—one at Colfax, the other at Walla Walla—held under the auspices of the American Shorthorn Association. The management of these sales was in the hands of B. O. Cowan, secretary of the association, and he succeeded in working up a fine interest, securing the active cooperation of the State fair boards, agricultural colleges and adjoining States. The seventy head of bulls and females sold made a general average of \$165, or something like \$35 more than last year. This is a fact that speaks eloquently for Col. Harriman's good work on the block and is something of which he may be justly proud. Mr. Cowan expressed himself as being highly pleased with the result of the sale. Mr. Harriman had a very pleasant trip, visiting eleven States and viewing some of the finest scenery in the world. In a recent letter the Colonel says: "I am almost through with my sale work for this season and am well pleased with the results. Have made in all something over 100 sales of pure-bred stock since January 1, 1903, and sold in fifteen different States and Territories. I have sales booked ahead in eight different States, but have a number of desirable dates open for other customers who may wish my services."

Publisher's Paragraphs.

See Wm. R. White's proposition, page 692.

The new town of Ludderdale, Carroll County, on the Omaha extension of the Chicago Great Western Railway will be opened to the public by an auction sale of lots about the middle of July. For particulars address Edwin B. Magill, Mgr., Townsite Dept., Fort Dodge, Iowa.

After much tribulation the trustees of the Kansas Mutual Life Insurance Company is now merged into one of the great companies of the country, the Illinois Life Insurance Company, and policy-holders of the old Kansas Mutual will have the assurance of knowing that their contracts will be faithfully carried out in a much more satisfactory manner than they have heretofore. Elsewhere in this issue we publish announcement for the Illinois Life Insurance Company regarding its plan in reference to Kansas Mutual policy-holders.

Kansas colleges now rank with the best in the country and are well equipped with apparatus and other conveniences with equal rank anywhere, besides possessing advantages of economy for the student superior to eastern institutions. The readers of the Kansas Farmer recognize the value of education, and in this connection we desire to call special attention to the new advertisement of the Kansas Wesleyan College of Salina. Look up their announcement and write P. W. Roach, principal, for catalogue and detailed information regarding that most excellent educational institution.

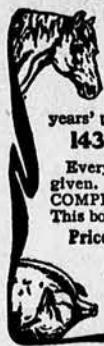
Perry & Dowden, the enterprising managers of the Frisco Townsite Company, have gotten up a great excursion to visit the new town of Eldorado on the Frisco extension into the "new country" of Oklahoma. They have secured a nominal rate of fare on the railroad and will feed the guests at a great barbecue composed of thirty head of selected cattle and twenty head of sheep, along with other good things to eat. The excursion will take place on June 25, 26, and 27, and the dinner will be free to all who come. This will give homeseekers an opportunity to see the finest of land in this new country to be had at the nominal price of \$3 to \$15 per acre. Write to Perry & Dowden, 200½ Grand Ave., Oklahoma City, Okla.

Spraying Crops: Why, When and How. By Clarence M. Weed, D. Sc., Professor of Zoology and Entomology, New Hampshire College of Agriculture and the Mechanic Arts. Fourth edition, rewritten and enlarged. Illustrated. 5 by 7 inches. 150 pages. Cloth. Orange Judd Company, New York, N. Y. Price, postpaid, 50 cents.

The practice of spraying is now recognized as an essential part of the work of the successful fruit-grower. Professor Weed's little manual on "Spraying Crops" has been generally recognized, for the last ten years, as a most useful guide to spraying operations, the book having had an extraordinary sale in its three previous editions. The present, the fourth edition, has been rewritten and reset throughout to bring it thoroughly up to date, so that it embodies the latest practical information gleaned by our fruit-growers and experiment station workers.

After an introduction, which discusses the general principles involved in spraying, the book is divided into four parts, the first dealing with Spraying the Larger Fruits; the second, with Spraying Small Fruits and Nursery Stock; the third, with Spraying Shade Trees, Ornamental Plants and Flowers; and the fourth, with Spraying Vegetables, Field Crops and Domestic

Complete Stock-Doctor



The largest and best illustrated work on Live Stock ever published. The PRAIRIE FARMER says: "It fills a place not heretofore met in agricultural literature." It is really a whole library in one volume. It treats exhaustively on Live Stock of all kinds in health and in disease; also on Poultry and Bees. It is the result of thirty-three years' practical experience and study, and contains

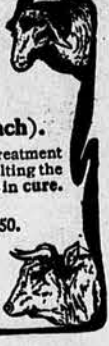
1438 Pages. 800 Costly Engravings. 8 Lithographs (6 colors each).

Every disease known to the animal world is accurately described in this book and the proper treatment given. Thus stock raisers are enabled to properly care for their sick animals, simply by consulting the COMPLETE STOCK-DOCTOR. It is equally as strong in causes and prevention of diseases as in cure. This book will save any farmer ten times its cost every year.

Prices: Extra English Cloth, \$3.75. Half Russia, \$4.50. Leather bound, library style, \$5.50.

AGENTS WANTED. Exclusive territory and very liberal terms. The book is a wonderful seller. Orders are taken without trouble. Write us at once for good territory. Full instructions and confidential terms on application.

N. D. THOMPSON PUB. CO. 204 Olive Street St. Louis, Mo.



Animals. In each part the principal insects and fungous enemies of the various crops are discussed, and the best methods of combating them are clearly described. So much new information has come to light since the third edition was published, that this is practically a new book, needed by those who have utilized the earlier editions, as well as by fruit-growers and farmers generally.

Illinois Life Insurance Company—Its Plans in Reference to Kansas Mutual Policy-Holders.

Secretary Oswald J. Arnold, and General Counsel Theodore K. Long, of the Illinois Life Insurance Company, will remain at Topeka all this week, for the purpose of maturing and formulating the plans for the company in this section. It is the company's purpose to materially increase the importance of the Topeka office and to make it the medium of loaning largely of the assets of the Illinois Life upon Kansas farm mortgages. The present Kansas mortgage loans will be continued, and they, together with the additional loans contemplated, will make the Topeka office the most important office of the company in the point of mortgage investments.

In the matter of new insurance, the Illinois Life will at once organize the entire Kansas field and expects, in a very short time, to have this State and the Southwest produce a large volume of business.

The Kansas people generally are to be congratulated upon the fact that the Illinois Life will not only continue the investment of all the Kansas Mutual funds in this State, but will add greatly thereto, and upon the further fact that the financial condition of the Illinois Life, and its methods of transacting business, give to the policy-holders who have been transferred from the Kansas Mutual the assurance that their interests in the future will be carefully safeguarded and protected. The Kansas Mutual funds now on

deposit with the State Treasurer will be kept on deposit in the State Treasury.

The last annual statement of the Illinois Life showed insurance in force January 1, 1903, \$30,143,975,000, and assets of \$4,136,657.70.

Gwaiakowe.

Gwaiakowe is an Indian word and means "Corn is King." In America corn is indeed the king of cereals, the grain alone being valued at considerably more than \$1,000,000,000, which is more than double the value of the wheat and oat crops combined. In addition to the grain value of the crop, the stalks when shredded are worth as much as the ears, and hence the McCormick Corn-Binder and the McCormick Husker and Shredder have enabled the corn-grower to double the value of his crop. A beautifully illustrated book entitled "King of the Corn Field" will be mailed free to readers of Kansas Farmer upon request. Write to the nearest McCormick agent.

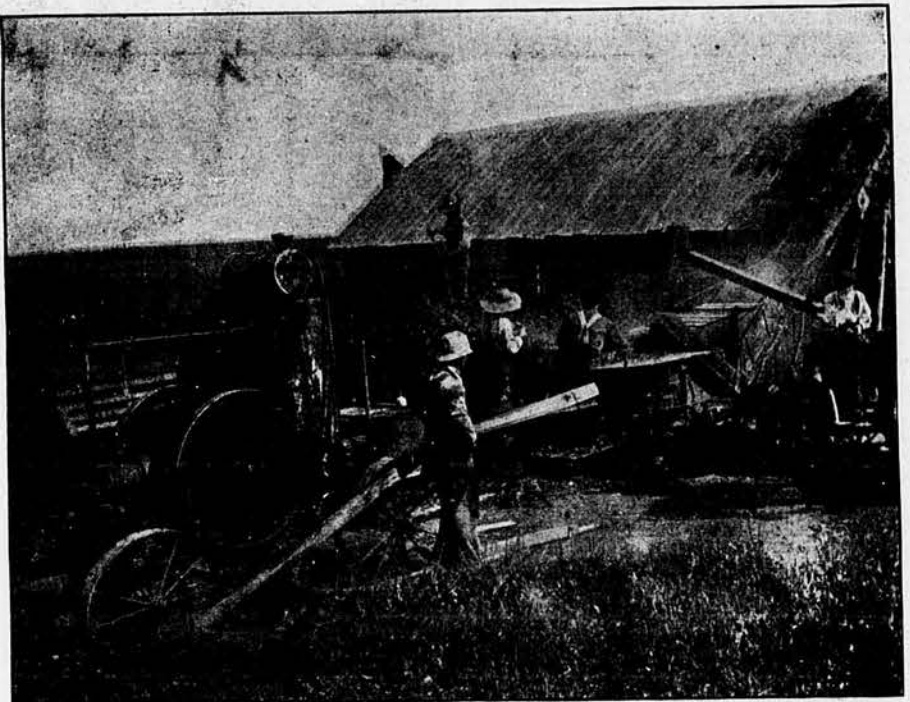
Almost Given Away.

The John Deere Plow Company, of Kansas City, have two second-hand Bell City thrashing machinery outfits which they are offering to sell at low figures, owing to the fact that they were slightly damaged by the high water at Kansas City, but they are guaranteed to do the work, so that any of our readers who wish to purchase a thrashing outfit should write the firm concerning their offer.

Unexcelled for Man and Beast.

Agassiz, B. C., April 28, 1903. Dr. B. J. Kendall Co., Enosburg Falls, Vt. Gentlemen: Enclosed find postage for your horse book. Have been using your Kendall's Spavin Cure for myself and on horses and I find it an unexcelled preparation for man or beast.

Very truly yours, Robert Maitland.



A Home Thrashing Outfit.

ALBERT PETERSON, ILLINOIS.

In my neighborhood there are sixteen to twenty horse-power and steam thrashing outfits doing their work rapidly and wastefully, requiring two or three neighborhoods of men to get the grain to and from them. Owing to their large number, they are a poor investment for the thrashermen who own them and a burden to the farmer and his better half. For the above reasons there is a rapidly growing demand among farmers for a thrashing machine and engine that can be operated by a few hands and are simple enough for the average farmer to handle—an outfit that can easily be moved over the worst roads.

The illustration shows in operation a small thrashing outfit that I purchased two years ago. It was only intended to be used for my own thrashing, but after overcoming the ridicule heaped upon it by thrashermen it has met with such favor among the farmers here that I am unable to thrash for all that want me. Instead of being called a "coffee mill" as at first, it is now called "pet" and "friend" by the farmer and his wife. The separator has a 24-inch cylinder, 26-foot straw-stacker, wagon grain-elevator and all as complete as any large machine. It will thrash and separate any kind of grain or grass seed as perfectly as any other machine. The power is furnished by a portable gasoline engine, simply constructed and being automatic in every part, after being started I can feed the separator and run the whole outfit alone. To say that I am well pleased with it is

expressing it mildly. Myself and two or three neighbors combine so as to form a working crew of six men and one boy. When thrashing from shock we have one man to pitch bundles in field, two men with teams to haul from field to machine, one man with team to haul grain from machine to bins, one man on straw stack, and the boy to cut hands, myself feeding machine as well as tending separator and engine. In this way we average from fifteen to twenty acres per day and of oats 600 to 1,000 bushels per day.

From a circuit of ten miles, hundreds of persons came to see us thrash and although every one at first smiled, as if thinking the whole affair was a plaything, yet not one has left us, to whom we had a chance to speak, but admitted that we had the best and neatest outfit they had seen, when cost of machinery, cost of running, and good quality of work was considered. The cost of gasoline for a day's work has been from 50 cents to \$1, using from five to eight gallons per day, according to the quantity and quality of straw and also how long we make a day. Last fall I thrashed with this outfit 500 bushels of millet seed and clover from ten acres cutting for seed, using only two men besides myself, resting machine when getting the loads in the field. We move our rig over any road with two teams easily, the separator weighing 1,800 pounds and engine 3,200 pounds. I trust that my experience will benefit some brother farmer, who, like myself, is tired of trading help for miles around when thrashing.

Horticulture.

More About Pear-Trees Sprouting.

EDITOR KANSAS FARMER:—The writer has been asked by one of the readers to explain what he calls the "Theory" given concerning the reasons for the sprouting of pear and other fruit-trees. The article referred to was published in the KANSAS FARMER of June 4.

In giving this explanation it will be well to define the terms so they can not be misconstrued. A perfect union between stock and scion is one in which the relationship between the two is close enough for the resulting graft to make a thrifty growth, providing the man who has made the graft has made it correctly and the graft has not suffered any injury. A graft which had been put together properly, but which had been injured by careless handling or by insects or fungi could not be called a perfect union though a small portion of the two cambiums might unite. In time the union might grow over, leaving a center either hollow or with some form of fungi that might destroy the tissue. In the article in the FARMER we said that the sprouting of any tree propagated by grafting or budding indicates that the scion is less vigorous than the stock, and we should have added "or that there has not been a perfect union." These statements are true, though as some one has said, there are trees and shrubs that are natural suckers. The pear seems to be one of these, though the fact that all pears on French stock do not sprout is very strong circumstantial evidence that the fault is in the graft or in the stock being planted too shallowly.

The following is quoted from that very reliable source, Prof. L. H. Bailey. "Where great hardiness is required, cherries are grafted on the Mazzard stocks in winter. Yearling stocks are used, and the scions are from six to ten inches long. When planted, only the top bud should be left above the ground, the scion strikes root and own-rooted trees are obtained." In speaking of the use of Morello suckers as stocks, he says, "If strong-growing tops are used on the Morello stocks, however, there is little annoyance from suckering." The idea that a weak scion will result in suckers is not newly hatched as the above quotations were taken from the 1891 edition of his nursery book. That the suckering of a tree indicates the weakness of the scion is not a theory, but has been for some time the grounds upon which the English have attacked our wholesale methods of propagation by graftage. It should be understood that the term graftage includes both budding and grafting. The editor of The Garden says: "There may be some reason for the wholesale propagation of our fruit-trees by graftage but I doubt it." The English horticulturists find many faults with the Americans for their methods.

The suckers on a tree propagated by grafting are not always an indication that there has not been a perfect union, for there are plants in which it is natural for adventitious buds to be formed on the roots near the surface. With such plants it is no new thing for the horticulturist to graft with a long scion and set the graft deeply to prevent the growing of sprouts. Professor Wickson says in his "California Fruits" that pears are found to succeed better on their own roots in that State. The pear has been grafted on quince for the purpose of producing own-rooted trees in many places, but in California they are grafted on the French stock. The pear stock forms a more perfect union and is a better nurse than is the quince. The Buffalo Currant (*Ribes aureum*) is used to some extent in England as a stock for certain varieties of gooseberries that are slow to start roots from cuttings. It is well known that this species is bad about sprouting and the difficulty is overcome by planting the grafts deeply with a bud of the scion above the surface. The Buffalo currant acts as a nurse until the gooseberry becomes own-rooted.

It is generally known that some varieties of pears root more readily from the scion than do the others. The Oriental varieties, as LeConte and Keiffer, of course, will root easily. Of the common varieties, Duchess is the one that is most spoken of as being easily induced to become own-rooted. The same thing is true of the apples. It is well known among horticulturists that the Maiden Blush becomes own-rooted very readily and nearly all if

not all of the varieties under cultivation will become own-rooted if the graft is planted deeply enough for the scion to send out roots.

Suckering, as everyone knows, tends to rob the parent stem of food. This is easily seen in the case of the plum grafted on the Marianna stock. If a sucker is allowed to grow, the scion will die within a few years, the plant food going where it finds the least resistance, showing according to our English horticulturists an unnatural union.

It has long been the practice of nurserymen to bud the pear instead of grafting it because to graft successfully the pear must have a long scion. This sort of a graft would result in an increased expense in their production and could not possibly pay on a commercial scale. The preventive of sprouting in fruit-trees is not in their being grafted or budded high or low, but in planting the graft so low that there are no surface-roots to throw out suckers. With all shallow grafts, as in case of the apple, nurserymen find it necessary to remove the "rogues," the sprouts from the grafts, during the first year and in the case of some of the slower-growing varieties it is sometimes necessary to go over them once during the second year in the nursery. These suckers come from adventitious buds formed on the stock during the time while it is in storage before a perfect union has been made between the stock and scion.

As was stated in the former article, not knowing the methods used in propagation and in cultivating this particular orchard it is hard to say what is the

reason for the sprouting in that place, but no one who has had experience with fruit-trees will fail to see how trees injured by blight, sunscald, or starvation, would tend to try to recover by the throwing up of suckers. This suckering would certainly be the result of a lack of vigor in the parent stem. If the variety happened to be one that was tender and the stock was hardy there is no reason why the stock should not send up suckers.

GEO. O. GREENE.

Kansas Experiment Station.

Horticulture at the World's Fair.

The Horticulture Building stands on Skinner Hill, 250 feet south of the Agriculture Building. The structure is in the shape of a Greek cross with a center pavilion and two wings. The center pavilion is 400 feet square; the wings are each 204 feet by 200 feet. They are divided from the center pavilion by glass partitions and the floor of each is 9 feet lower than that of the center pavilion. This difference in elevation produces a monumental effect, which is further heightened by the use in the main entrance on the north front of two towers about 150 feet high.

The eastern wing of the building will be almost entirely of glass and will be used as a conservatory. A hot-water heating-plant is to be installed in the cellar of this wing and the pipes are to be led throughout the wing. The specifications provide that this wing shall be made air-tight. It is the intention to force plants here during the winter and spring, preceding the opening of the Exposition for use in landscape and bedding work about the grounds. The heat will also have the effect of saving some of the valuable plants sent for exhibition from the cold, which comes during the late autumn im-

mediately after the closing of the Exposition. The glass sides allow the admission of the sun throughout the day. In this wing will be shown specimens of plant cultures grown in different countries for use and ornament, and the forced culture of vegetables and fruits.

The west wing of the building will be used for general horticultural exhibits. In the basement cold storage will be provided for fruit to be exhibited in the building, and for this reason the cellar has double walls packed with sawdust. In the basement there will also be an unpacking room which will keep the shipping debris out of sight. Three sides of this wing will have galleries, two of which will be used as restaurants. Tables will be set here so that the visitor may observe the exhibits below while taking luncheon. The gallery is easily accessible by stairs from the center pavilion and from the main floor. The southern gallery will be used as offices for the working force of the Department of Horticulture.

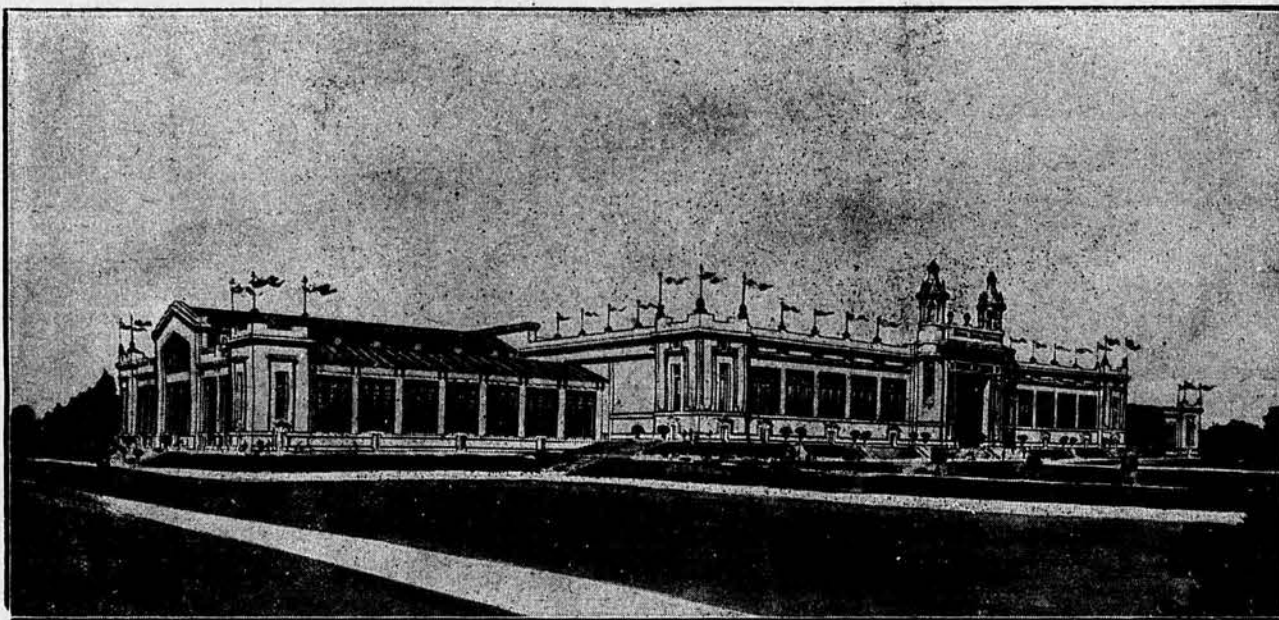
The center pavilion will contain the pomological exhibits, including, according to the classification, pomaceous and stone-fruits, such as apples, peaches, nectarines, etc.; citrus-fruits, such as oranges, lemons, limes, etc.; tropical and sub-tropical fruits, such as pineapples, bananas, olives, figs, etc.; small fruits, such as strawberries, gooseberries, etc., and nuts.

The construction of the building shows no change from the accepted method of the other buildings. The exhibit spaces are covered by trusses, which range in span from 72 feet over

when used, they can not be put in place a screen can be erected or grown so that an observing public can not make disparaging remarks.

A handsome and useful screen is formed by planting a yard-wide row of asparagus seeds or roots the entire length of the yard you wish to screen from the street. Such a bed of asparagus furnishes, in the spring time, a fine dish for the table, and a quality that sells readily. It is no care or trouble, comparatively speaking, only requiring a top dressing of straw and coarse manure in the fall, together with a little sand to hold the straw from blowing away. I have known such a row to yield \$10 a year, and when the season was over, the wavy, seed-bearing foliage formed one of the finest boundaries to a flower-decked lawn that could be imagined, as well as hiding a disorderly backyard.

Another screen equally pretty but not so dense a green or so valuable is made by planting rows of hollyhocks a foot wide or more. Sometimes two rows are planted to form right angles to screen either side of the rear yard if the house is situated on a corner. No blossoms can rival these flowers in richness of colors, profusion, or continuous blossoming, if the seeds are planted in rich soil some time during the late fall. All the shades of red are seen from the palest pink to the velvet-fringed maroon, while the creamy white and yellow tints are not less beautiful. Such a screen is a thing of beauty from the first blossom until snow comes. Last year over forty blossoms were found on one stalk, the first ones ranging from a brick red to a



HORTICULTURAL BUILDING AT THE WORLD'S FAIR.

the center aisle to 48 feet over the side aisles.

The space between the Horticulture and Agriculture buildings will be laid out in a highly ornate garden in which exhibiting florists and nurserymen will maintain beds.

Three Screens.

Once upon a time a notable German made a trip through the United States. When questioned as to what sight he found the most pleasing, he replied, "The front yards of your country and village homes." Naturally the question followed, "And what was the most displeasing?" The reply came hesitatingly, but surely, "I don't know, unless it was their backyards."

We, being a humorous people, as well as ambitious, can join in the laugh that must have ensued, yet he sought to teach us, I suspect, that cleanliness and beauty in the front yard can not make up for shiftlessness and lack of order in the rear of our dwellings. I agree with the German and say that there is no prettier sight than a well-kept lawn, dotted with growing blossoms, flowering shrubs or dwarf evergreens, arranged in systematic profusion or niggardliness, while nothing is more unsightly than a back yard strewn with old pails, tin cans, barrels, grindstones, chicken coops, boxes, disorderly piles of lumber, broken-down buggies, and unused farming implements, rusting and rotting in the sunshine and the rain. And then the back porch! Wonder of wonders that any one can pass unscathed without coming in contact with greasy, swill pails, broken baskets, ragged-edged pails or ash pans, blackened wash boilers, tickle wash benches, numerous tubs and crocks, while the water-pail and wash stand claim a prominent place. Nearly all these things are useful to a farmer and his household, and if

bright pink. They lend themselves easily to decorative purposes, and a huge bouquet at a short distance would never be mistaken for the almost ostracized, old-fashioned, grandmotherly hollyhock.

Another screen is grown from sweet peas or morning glories and scarlet or white runner beans. Woven fence wire can be stretched the required distance, and either of these planted at the base, and soon, while performing the homely morning routine work you will be gladdened by the variegated colors, and humming of bees. If woven wire can not be obtained, place two or three posts in the ground some distance apart, and stretch wire or strong string from one to the other about five feet from the ground. Stretch another wire or string from post to post as close to the soil as possible. Then wind string from one wire to the other until a screen of string is made. The vines will run up the strings and cover them entirely, if the soil is moderately good, and watered occasionally, if the summer is dry.—C. A. P. B., Garrettsville, Ohio.

Boston Excursions.

via the Nickel Plate Road, June 25 to 27, inclusive; also July 1 to 5, inclusive, at popular rates. Write City Ticket Office, 111 Adams St., and Union Ticket Office, Auditorium Annex, Chicago. (17)

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TREES—Best dormant till May 1904. Each tree one year from bud, 1 and 2 cts. each. Also pear, quince, Japan plums, Citronier tree. W. S. Johnston, Box 17, Stockley, Delaware.

The Young Folks.

Conducted by Ruth Cowgill.

FORGIVE AND FORGET.

Forgive and forget—it is better
To fling all ill feeling aside
Than allow the deep cankered fester
Of revenge in your breast to abide;
For your step o'er life's path will be
Lighter

When the load from your bosom is cast,
And the glorious sky will seem brighter
When the cloud of displeasure has
Passed.

Though your spirit swell high with emotion
To give back injustice again,
Sink the thought in oblivious ocean.
For remembrance increases the pain.

Oh, why should we linger in sorrow,
When its shadow is passing away—
Or seek to encounter to-morrow
The blast that o'er sweeps us to-day?

Our life's stream is a varying river
And though it may placidly glide
When the sunbeams of joy o'er it quiver,
It must foam when the storm meets its
Tide.

Then stir not its current to madness,
For its wrath thou wilt ever regret,
Though the morning beams break on thy
Sadness.

Ere the sunset forgive and forget.
—Robert Gray.

At the Mammoth Cave.

Some students from the State Agricultural College at Manhattan made a visit to the Mammoth Cave in Kentucky. The account of the trip which was published in the Students' Herald, is so interesting that we reproduce it for the benefit of our young folks:

So we started by rail about the first of July, and made things as lively as we could all the way. At St. Louis, a stop was made of a day or two, to see the preparations being made for the World's Fair soon to be opened. The magnificent railroad station was well worth seeing, among the other numerous sights. But we hastened on and soon arrived at a small town in Kentucky near the cave.

The cave was discovered in 1809 by a hunter, who chased a bear into it. It is a large cavern made by water containing acids, which dissolved the limestone and formed the cave. Many caves are formed in that region, but this is the largest of them all. It is about ten miles long, but one has to travel about one hundred and fifty miles before reaching the end, as it is so crooked. The opening is spanned by a natural arch about seventy feet high, out of which flows a cascade, which falls to the rocks fifty feet below.

When we arrived at the mouth of the cave, a halt was made, and we prepared ourselves for the trip into the cave. We took enough provisions to last two days, lanterns, matches, a rope, and a small canvas folding-boat to use when a stream of water blocked our way. We intended to pass but one night in the cave, but we were compelled to change our plans and stay longer than we purposed.

All preparations having been made, we entered the cave, called the Main Cave. We found the old saltpetre works, which were in operation mining saltpetre from the deposits in the cave until people began coming to see the cave, when the works were abandoned. The air in the cave is dry, except when near water, and the temperature is found to be about 54°. It was thought at one time to be a consumptive cure, and a number of cottages were erected far underground, but the venture was a failure, and only two are now standing. We passed on into the Star Chamber, where we found the most beautiful crystals protruding through the black manganese. We all agreed that a week could be spent there studying those beautiful crystals, but we were eager to see what else we could find in that wonderful place. Crawling through a small opening, which was called the Fat Man's Misery, though as all of the boys were about my build it did not trouble any of us much, we entered a large cavern which has been named the Rot. Here were thousands of stalactites suspended from the top and as many stalagmites resting on the floor of the cave. They were white and glistened like the purest snow. Water containing calcium carbonate in solution deposits the mineral in fantastic forms of all kinds. We were passing through this vast place when one of the party remarked that he was half starved, and upon looking at a watch we found that it was almost supper time. Dinner time had passed almost unnoticed, something very unusual for us, but the cave contained so many wonders that we were held spellbound. We, however, managed to break this spell long enough to eat a good, healthy meal. We were very well satisfied with our trip

so far, and all felt in good spirits, though we were nearly exhausted. For a while after supper we examined the sides and floor, but we soon turned in and slept soundly until morning. After breakfast we traveled on, and after some time came to what our guide-book called the Echo River. The sweetest echoes could be heard, and also harmonies if a key note was sounded. That alone repaid us for our trouble in coming so far into the cave.

We had already traveled several miles into the cave and had seen many strange sights, but we wanted to go on; so our small boat was unfolded and placed in the river, which was about fifty feet wide. A valise containing our lanterns, matches, guide-books, and other supplies, was placed in the boat, while one of the boys climbed in and started for the opposite side. But the boat struck a sharp rock, which tore a great hole in it, and it sank at once. The man in charge scrambled ashore, while everything in it was lost. Our guide-book, lanterns and matches were gone and we were in a dilemma. About the worst misfortune that can come to any one is to be lost in a cave or mine without a light. But we had one lantern and our provisions, so it might have been worse.

How to get out was the problem? The sights and wonders of the Great Cave lost all attraction for us at once, while fresh air and daylight was craved by all. We tried to retract our steps the way we had come, and hurried on, making good progress for a time, while we were confident that we were on the right track, as many familiar places were noted. About the time our hopes began to rise and we thought that we would soon be out, strange places were encountered and we knew at once that we were not going back the same way we came. What to do now was the question. If we went in one direction it might lead us just the opposite way to what we wanted to go. We were all rather nervous, while some of the boys were getting badly scared. About four o'clock we decided to eat lunch, making a light meal do for two, as our supplies were limited and we didn't know how long we might have to stay in there. Then we wandered around, trying to find some way that might possibly lead to the outside air. But bedtime came and we were still lost. Very little sleep was enjoyed by any of us, though we were desperately tired. All thought that if we ever reached the Sunflower State again we would never leave it for all the caves in the world. About seven o'clock we ate a few bites and hastened on somewhere. At noon our light went out, and with it our hopes. We sat in the darkness and felt that we were doomed.

About an hour later one of the boys declared he heard some one talking and a few moments later, sure enough, here came a party in charge of a guide. How we cheered and yelled! We hurried forward and explained our situation.

The guide laughed and said, "Why, you fellows are within forty feet of the mouth." And sure enough, in a few moments we were out in the sunshine. While we were so near, still we had no way of knowing and would very likely have started the wrong way. All decided that we had seen enough of the Mammoth Cave, so we went down to the village for supper. The next day we started for the South, but we felt repaid for all our trouble and alarm, for the cave was well worth seeing. Still, if we ever explore the cave again, a good, competent guide will be secured first of all.

Prairie-Dogs.

A very interesting wild animal of Kansas is the prairie-dog. It is about the size of a squirrel and light brown in color, but its tail is not bushy like a squirrel's.

The prairie-dogs dig holes in the ground to live in and bank the dirt when they bring out of the hole, outside to shed rain. Large colonies of them live together and sometimes much pasture is ruined by their holes. These colonies are called "Prairie-dog Towns."

They seem to have sentinels that sit on their hind feet and watch for any intruders and when they see one coming give the warning cry and all the prairie-dogs run to their holes and get down in them until all one can see is their heads and tails, then they all bark at the intruder, whatever it may be, and continue barking until the enemy is out of their town, or if it happens to get too near a hole, the prairie-dog that is in that hole gives a bark and runs down its hole, kicking up dust with its hind feet, as a means

of defense. If the intruder is a dog it rushes to the hole to get the prairie-dog but receives a cloud of dirt in its face instead.

Prairie-dogs seem to have observation mounds, because there are mounds that have been built by them and there are no holes in the mounds. That is where the sentinels stand to watch for intruders.

They seem to play games. I have seen the young ones chasing each other, jumping straight up in the air and acting like frolicsome kittens.

They live mostly on grass and get up very early in the morning and eat the grass when the dew is still on it. They will also eat grain whenever they can get it.

The prairie-owl lives in holes with the prairie-dog, and in unsettled parts rattlesnakes live with them. A large number of young prairie-dogs are eaten by the rattlesnakes, but in settled regions the people kill the rattlesnakes and that is the reason prairie-dogs increase faster in settled than unsettled communities.

Prairie-dogs are very hard to get because they are so spry; no animal can catch them in the daytime, but at night the badger digs them out and eats them. They are bright, pretty, and interesting little animals, and make nice pets when tamed and can be taught many tricks.

MARJORY LESTER.
Kinsley, Kans.

Our Pets—A True Story.

While it is a well-known fact that weasels are fond of chickens, it is not so well known, however, that they make pretty and useful pets. They are far better than a cat to clear the place of rats. We once owned three of these lovely little animals. It happened this way. A long time ago when I was a child, father was plowing early in the spring when he turned out a nest of weasels, an old one and four small ones, too young to have their eyes open. Father killed the old one and brought the little fellows to the house for us to see. They looked some like very small kittens. We soon found they could take milk from a spoon and like all children we begged to be allowed to keep them for pets. It was soon decided that we would try to raise them. The rats were numerous and doing so much damage it was with pleasure that we undertook to raise the wild little fellows, that were such enemies to the rats. In a few days one of them crawled out of its nest and fell into some water and was drowned. The others grew and for a time seemed to be as gentle as any domestic animal. It was very interesting to watch them as they would race over the floor, climb the window-curtains, swing to our dresses, and in a twinkling be on our heads, then down again and in a rough and tumble on the floor. They gradually grew timid and disliked to be handled. When about half-grown they took up their abode in the cellar under the house. There also a stranger came to dwell with them. It was smaller and darker than our pets, and very shy. The rats soon disappeared and we rejoiced. We gave our pets a liberal supply of milk night and morning, at feeding-time the

of yellow light. All was merry and all was well till one rainy night late in the summer a brood of fifteen chicks was killed, a slight puncture on each side of the head told the story. Our pets left the same night. A few days later a neighbor killed one at his home; it was in a pile of wood close to the house and quite tame. We lost no more chicks and the rats were gone so I think we were the gainers after all.

AUNT ADELA.
Pleasanton, Kans.

Story of a Hawk.

I have been quite interested in the story contest, which I saw in last week's paper about wild animals. The incident which happened in Anderson County, Kansas, is about a hawk. It was one morning early in September, as I was returning home from a visit with my grandfather and grandmother. We were driving along a beautiful road admiring the country, when suddenly we heard a sound as of some one crying. We looked around and saw a hawk with a jack-rabbit not far off in a meadow. As we approached opposite the place, the hawk discovered we were watching it, and spread its wings out over the rabbit, performing in a very curious manner, as if trying to hide its prey from view, but keeping close watch all the time of us. My brother started to where the hawk was, which seeing him coming tried to fly and carry the rabbit. But seeing he could not do this left the rabbit and flew off some distance and kept close watch. My brother got the rabbit and returned to the carriage. The hawk came back to the place but was much disappointed in not finding its prey. There was a house within a half mile where we threw the rabbit down for the dogs. I think this shows that a hawk is about as clever a bird as there is.

MABLE H. BAUGH.
Linn County.

Will the author of "The Blackbird," in KANSAS FARMER of June 11 send her name and age again. In some unaccountable way it has been lost.

For the Little Ones

A HELPING HAND.

When William clears the table
And carries out each plate,
And piles the cups and saucers,
He says his name is Kate!

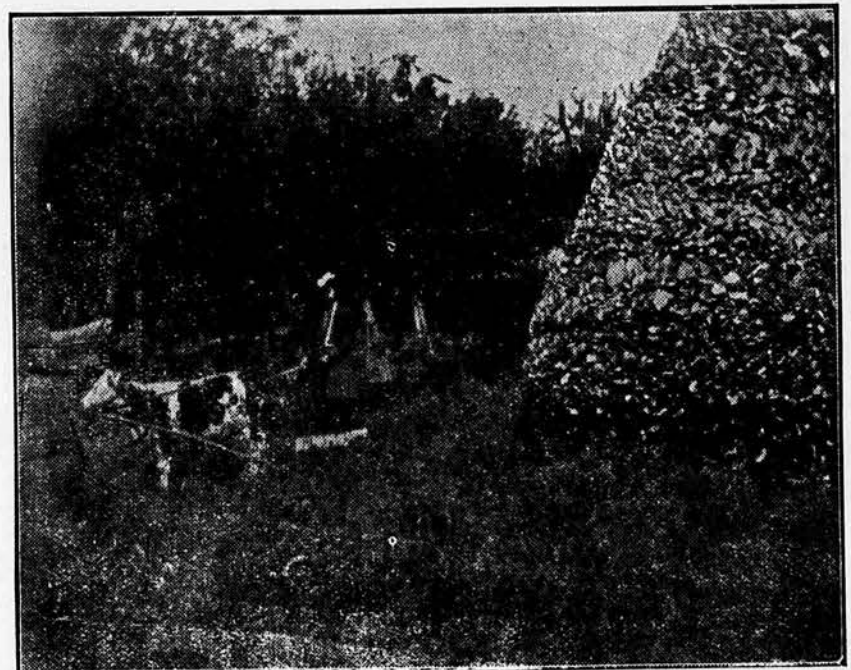
And when he dons his overcoat,
And mitts and leggins trim,
And sallies forth to carry wood,
Why, then his name is Jim!

But when he dresses in his best,
With collar stiff and white,
To promenade upon the street,
He's William Horace Dwight!

And would you lend a helping hand,
And be three boys in one?
You'll find that work and play unite
To make the best of fun.
—Little Men and Women.

A Little Girl and Her Calf.

This is a picture of one of our readers, with her calf, named for a very good and great man. This little girl says:



strange weasel came and drank with them, then would hide again, but if we sat down and kept quite still our pets would climb in our laps, run down our arms, back on our shoulders, peek in our faces in a very inquiring way and nestle up in our hair; but a slight movement and they were gone like a flash

"I call my calf 'Teddy' for papa says he is so solid and so hard to head off. I am 9 years old. I can harness a horse, hitch up, ride after the cows, put feed in for all the horses, sweep, wash the dishes, bake a cake and dance the 'cake walk'."

"JUNE R. PROUTY."

The Home Circle.

Conducted by Ruth Cowgill.

KNEE-DEEP IN JUNE.

Tell you what I like the best—
Long about knee-deep in June,
'Bout the time strawberries melts
On the vine—some afternoon,
Like to jes' get out an' rest,
An' not work at nothin' else.

Orchard's where I'd rather be—
Needn't fence it in fer me.
Jes' the whole sky overhead,
An' the whole air underneath—
Sorto' so's a man kin breathe
Like he ort, and kindo' has
Elbow room to keerslessly
Sprawl out len'thways on the grass,
Jes' a sorto' layin' there—
S'lazy 'at you peek and peer
Through the wavin' grass above,
Like a feller 'ats in love
An' don't know it, ner don't keer.

Ever'thing you hear and see
Got some sort of interest—
Maybe find a bluebird's nest
Tucked up there conveniently
Fer the boys 'ats apt to be
Up some other apple-tree.
Pee-wees' singin', to express
My opinion's, second-class,
Yit you'll hear 'em more or less;
Sapsucks' gittin' down to biz,
Weeden' out the lonesomeness;
Mr. Blue Jay, full o' sass,
In them base-ball clo'es o' his,
Sportin' round the orchard jes'
Like he owned the primises.

Plague if they aint sompin' in
Work 'at somehow goes ag'in
My convictions, 'long about
Here in June especially!
Under some old apple-tree,
Jes' a restin' through an' through
I could git along without
Nothin' else at all to do.
Only jes' a-wishin' you
Was a gittin' thar, like me,
An' June was eternity.

March ain't never nothin' new
Aprile's altogether too
Brash fer me; and May—I jes'
'Bominate its promises!
Little hints o' sunshine and
Green around the timber land—
A few blossoms, an' a few
Chip-birds, an' a sprout or two—
Drap asleep, an' it turns in
'Fore daylight, and snows ag'in!
But when June comes—clear my throat
With wild honey! Retch my hair
In the dew and—hold my coat!
Whoop out loud! and throw my hat!
June wants me and I'm to spare!
Spread them shadders anywhere,
I'll get down and woller there,
An' oblige to you, at that.
—James Whitcomb Riley.

What the Coffee-Pot Told the Teapot.

"You look pretty black this morning," said the teapot to the coffee-pot, as the latter joined her after breakfast on the kitchen stove.

"I feel black," said the coffee-pot. "There's a man in that dining-room that ought to be scrubbed."

"Dishpans and soap," exclaimed the teapot, "what has he done?"

"Talked about me and my contents as if I were nothing short of a murderer," answered the coffee-pot. "Not a drop of coffee would he touch. Said it was poison."

"Dear me," said the teapot, bubbling a little, "is that all? I wouldn't worry about that if I were you, for you know there's some truth in it, shut your spout all you're a mind to."

"Well," said the coffee-pot, popping his cover open in a hurry, "he said worse things about you than he did about me, anyway."

"What did he say?" demanded the teapot, bubbling more.

"He said that every pound of tea contains enough poison to kill forty cats, for one thing. He said that tea could make a man drunk just as well as alcohol; that lots of shaky old ladies were made so by drinking it. He told about one woman who had delirium tremens as the result of drinking that nice black stuff you take in for supper."

At this the teakettle fairly boiled over as she said, "He must be a very disagreeable person, indeed, and very rude, too, to talk to people that way right at their own table."

"Well, I'll have to admit, to be fair," said the coffee-pot, "that Mr. Preston did ask his opinion. He said he wanted to convince Mrs. Preston that it was just as bad for her to drink tea and coffee as it was for him to smoke tobacco. And that man actually had the audacity to say that he didn't see much difference."

"The monster," cried the teapot in a rage, dancing up and down on the griddle, while Mr. Preston's favorite pipe fell off the shelf, and broke, with a giggle, upon the floor.

"Yes, he did," continued the coffee-pot. "He said that tea, coffee, cocoa, chocolate, all belong to the same family so far as their bad effects are concerned. Tea, though, is the worst of them all,—the wicked and crafty mother, so to speak, who prepares the way for the rest, and eggs them on to destroy the nerves, and make people dull and stupid. He talked very learnedly

about saliva and starch and glands, and said that when a man drinks half a cup of tea with his meal, he takes enough of some queer-sounding thing into his stomach to spoil the digestion of all the bread and potatoes he has eaten. He said it takes only ten grains of this stuff to make a man sick, but that an ordinary cup of tea contains two grains. He talked about tea's being an antidote for opium and—"

"Well, I think you've told enough about tea," declared the teapot. "Why don't you tell a few of the things he said about your contents?"

"Most of the things he said about me were only echoes of your short-pourings," retorted the coffee-pot. "The worst thing he said about me was that my coffee made people think they had had something to eat when they hadn't, or words to that effect. He said they filled up their stomachs with coffee until they had no room for food, and that the coffee acted as a stimulant, making them feel as if they had taken real nourishment. He told an exasperating story about an English physician, who, with his assistants, took an infusion of two ounces of coffee just to see what it would do, and it made them all unconscious for several hours."

"Well, I think you're making a big fuss for nothing," said the teapot. "Don't you know that people never pay any attention to scientific facts? They go right straight along doing just as they please, regardless of the most alarming and convincing arguments, so you needn't be afraid of losing your job right away."

"But this man was in such dead earnest," rejoined the coffee-pot, "and what he said was so terribly sensible. Why, he showed how coffee causes headache, and nervousness, and insomnia, indigestion, dizziness, palpitation of the heart, and I don't know what all. He said it made people hollow-eyed and thin-cheeked and yellow, and Mr. Preston said, 'There you are, my dear, you see it's just as bad for you to drink coffee as for me to have a cigar every day. Confess it.'"

"And what did Mrs. Preston say?" inquired the teapot.

"Oh, she laughed a little, and said, 'You mean thing.' Then she became more serious, and said that she knew, of course, that those things were true in general. She had heard them before, but she didn't believe she could give up her coffee unless somebody convinced her that the little coffee she drank was doing her individually a particular and specified injury. She said she couldn't go on general principles when it came to eating. That made me shake clear to my grounds, for nothing could have been more conclusive than what she had just heard."

"Yes, you see it's just as I told you," sputtered the teapot. "But she wouldn't be convinced, not even if she could actually see those poisons winding through her body, and spoiling the ends of her nerves. People are never convinced unless they want to be."

"That's comforting," said the coffee-pot. "I am sure I'd hate to be thrown on the ash-pile while that old patent apple-parer is out there. I can't bear to associate with broken tinware, and you're positively certain to get dents in your side when you're thrown outdoors."

"I'm not afraid," said the teapot, subsiding to a simmer. "Let's talk about something more agreeable."

But it was too late. Bridget had heard them boiling over, and now came to the stove to separate them. She whisked the teapot into the sink, shut the cover of the coffee-pot, plugged its spout, and set it back to keep hot for her own breakfast.

"It's all nonsense what that man was saying about coffee's being unhealthy," she said to herself, sniffing the fragrant odor. "Anyhow, if it is true, I don't want to know it."—Mary Henry Rossiter, in Good Health.

Hints for the Home Dressmaker.

There are many details in the matter of dressmaking which go to make or mar the style and beauty of a garment, and which change so often that it is impossible for the ordinary housewife to know about them. We give a few hints, called from an interview with an expert dressmaker, hoping they may be serviceable to the home dressmaker.

THE SHIRTAUST SUIT.

The fashionable dress for the season is the shirtwaist suit, made of gingham, lawn, chambray, linen, lightweight wool, or silk—in fact, any and every material can be utilized for this useful garment. It is simply a shirtwaist and skirt of the same material and trimmed in the same style. One of the essentials for a stylish-looking

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Club Department.

Our Club Roll.

Mutual Improvement Club, Carbondale, Shawnee County (1896).
Give and Get Good Club, Berryton (1902).
Osborne Woman's Literary Club (1902).
The Ladies Reading Club of Darlington Township (1902).
Woman's Club, Logan (1902).
Domestic Science Club, Osage, Osage County (1888).
Ladies' Crescent Club, Tully (1902).
Ladies' Social Society No. 1, Minneapolis (1888).
Ladies' Social Society No. 2, Minneapolis (1889).
Ladies' Social Society No. 3, Minneapolis (1891).
Ladies' Social Society No. 4, Minneapolis (1897).
Chillicothe Club, Highland Park (1902).
Cultus Club, Phillipsburg (1902).
Literatae Club, Ford (1903).
Sabeau Club, Mission Township (1899).
Star Valley Woman's Club, Iola (1902).
Forestry Club, Topeka (1903).
[If mistakes are made in the above roll, please inform us at once. Let each club look for its name, and see that all information concerning it be correctly given.]

A Forestry Club.

The first forestry club to be organized in the State since the appointment of Mrs. Chester I. Long as chairman of the forestry committee for the General federation, was formed Wednesday afternoon at Elmwood Place, the home of Mrs. W. A. Johnston. The club was the outgrowth of a suggestion made by Mrs. Johnston, as chairman of the club extension committee of the Topeka federation, having invited her committee, the civic committee, and a few of her friends and neighbors to spend the afternoon.

Mrs. A. H. Horton, president of the State federation, and Mrs. G. A. Huron, club organizer for Shawnee County in the State federation, each added a word to help along the good work. As a result a dozen enthusiastic neighbors adjourned to the library and formed an organization to be known as the West Side Forestry Club. Mrs. W. A. Johnston was elected president; Mrs. I. D. Graham, secretary, and Mrs. Henry W. McAfee, treasurer.

"Overflowing Waters."

The book "Overflowing Waters," which the Topeka Federation of Clubs is getting out, will soon be ready. It is written by Mrs. Margaret Hill McCarter, whose pen ever finds eager readers. There are to be many illustrations taken from actual photographs of the scenes of the great flood, and the story can be depended upon for absolute and unembellished truthfulness. The price of the book will be 25 cents. The money realized from the sale of the book is to be expended in the relief work.

The house had been full of aunts come to spend the holidays, and the baby's six-year-old brother was heard one morning confiding his woe to his father:

"Say, papa, do you know I've had to sleep a whole week in a room just full of women?"—Lippincott's Magazine.

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garment this year is that the trimming of waist and skirt be exactly similar. If bands run up and down on skirt, so must they run on waist and sleeves; if piping is used on one part, the whole must be piped. Another essential is the long shoulder effect. You can use your last year's pattern, said my informant, only cutting the piece an inch longer in the arm-hole both back and front and sloping gradually to the underarm seam, where it corresponds again with the pattern. Skirts must fit over the hips as perfectly as your waists do, and flare at the bottom. All skirts are made without lining, the drop-skirt taking its place. For all summer dresses the lawn drop-skirt is the thing, being more stylish even than silk. The white or light dresses use white lawn; for darker shades, black or a harmonizing dark color. The drop-skirts must be made with great care, for the hang and fit of the outside skirt depends greatly upon the drop-skirt for its beauty of set. Cut the drop-skirt by the same pattern as you are going to use for the outside, and finish with full, fluffy ruffles, which hold out the skirt, and make possible the fashionable flare.

The shirtwaist suit is generally trimmed with bias bands and piping. The piping is of some contrasting or harmonizing color, as white or plaid on blue or black, blue on green, etc. It is made by cutting the material into bias pieces about three-quarters of an inch in width, which are folded in the middle lengthwise, and basted upon the edges of the bands, leaving just a cord showing upon the edge when done. The bands are then stitched upon the garment in any way that suits the taste of the wearer, and the bastings are removed. Piping is sometimes used upon plaits, also, being stitched along the outer edge.

Another important adjunct to the shirtwaist suit is the collar, and in this part of the garment "anything goes." Do not fear to exercise your originality here. It is well to have several stocks for the shirtwaist suit, made of the same material as the suit. Piping can be used and to good advantage upon the collars.

THE LAWN DRESS.

The thin dresses are prettier than ever before. There is opportunity for any amount of work, for these dresses can be trimmed and trimmed and trimmed, yet care must be taken that the effect is one of simplicity, fussiness being entirely out of order on a cool dress. Tucking is very much used on these dresses, and very dainty and pretty it makes them. Sometimes no other trimming is needed. Yokes are tucked, sleeves, collar, waist, skirt, ruffles, all are beautiful with tucking. Some of the prettiest dresses have the yokes cut all in one piece, coming to the outer edge of the shoulder. It is a very graceful and becoming style for young girls. These yokes do not require a pattern, if one is skillful and used to cutting and fitting, as the average housewife is. Take the waist pattern, and pin it together securely along the shoulder seam. Then lay it upon the material, and cut carefully, remembering the caution about the long-shoulder effect, and making it as deep as desired. A ribbon belt, with four loops at the back is a very pretty finish.

"Most people are aware," says the Scientific American, "of the power of egg-shells to resist external pressure on the ends, but not many would credit the results of tests recently made, which appears to be genuine. Eight ordinary hen's eggs were submitted to pressure applied externally all over the surface of the shell, and the breaking pressures varied between 400 pounds and 675 pounds per square inch. With the stresses applied internally to twelve eggs, these gave way at pressures varying between thirty-two and sixty-five pounds per square inch. The pressure required to crush the eggs varied between forty pounds and seventy-five pounds. The average thickness of the shells was thirteen one-thousandth inch."

"He boasts that he doesn't advertise, but he's still doing business at his old stand."

"He means he's doing business at his old standstill."—Philadelphia Press.

Miscellany.

Pleasing Not One's Self.

The KANSAS FARMER in all of its long existence has never before printed a baccalaureate sermon. They generally lose their interest when separated from the occasion and circumstances of their delivery. So marked an exception to this general case is the one delivered by President Norman Plass at the recent Washburn College commencement that the editor lost no time in requesting a copy for publication.

This address so abounds with the spirit of Washburn that it will carry to the homes of KANSAS FARMER readers a knowledge of this great educational institution. It will interest both young and old:

"Now we that are strong ought to bear the infirmities of the weak, and not to please ourselves. For Christ also pleased not himself." Rom. 15:1, 3.

We mark the strenuousness of the life of Christ, the incidents passing before us in quick succession. The story hurries on, as if to keep pace with his rapid transition from one deed of love to another. The pace is marked by one word—one in Greek—variously translated by "straightway," "forthwith," "immediately," "anon," in English. "Straightway he entered into the synagogue"—"Forthwith they entered into the house of Simon's mother"—"Anon they tell him of her"—"Immediately the fever left her"—so reads the whole story of the life of Christ, incessantly scintillating bright and enlightening rays.

In physical exhaustion he stands ready to joyously serve. The storm immediately after sunset upon the lake does not awaken him, because of his weariness and exhaustion, but he hears the cry of distress in the midst of the storm, and answers "Peace, be still," and the winds and the sea obey Him.

He departs alone that he may seek God in prayer. The retirement is broken in upon before it is well begun. The sigh of relief in the momentary rest is scarcely drawn, and the burden laid down for an instant, when it has to be lifted again. His solitary prayer is interrupted by the disciples with the exclamation, "All men seek thee," and without a murmur or pause, he buckles on his girdle again and says, "Let us go into the next towns and preach there also, for therefore am I sent."

When he would carry his weary disciples with him for a brief respite on the other side of the sea, to get away from the thronging crowd, the people watch his course, and run afout out of all the cities and, making their way around the head of the lake, are all there at the landing-place before him. "Instead of seclusion and repose, here is the same confusion and bustle. Here they are, most of them from mere curiosity, some of them no doubt with deeper feelings. Here they are, with their diseased and demoniacs, and as soon as his foot touches the shore he is in the midst of it all again." And he meets it, not with impatience at this rude intrusion on his privacy, not with refusals to help, but with one strong emotion. He forgets all about hunger and weariness and retirement, he is moved with compassion toward them, because they are all sheep not having a shepherd, and he begins to teach them many things. "Wist ye not that I must be about my Father's business?" "My meat is to do the will of him that sent me, and to finish his work." "Let us preach to other cities also, for therefore am I sent." Christ lived and toiled, and bore weariness and exhaustion, and counted every moment as worthy to be garnered up and precious, as to be filled with deeds of love and kindness, because wherever he went, and whatsoever he set his hand to, had the one consciousness of a great task laid upon him by a loving Father whom he loved, and whom, therefore, it was his joy and his blessedness to serve. "I must work the works of him that sent me while it is day; for the night cometh, when no man can work."

"He recognized the brief hour of sunny life as being an hour that must be filled with service. Speaking reverently, he was a miser of his moments, carefully husbanding and garnering up every opportunity, toiling with the toil of a man who had a task before him that must be done when the clock should strike six, who saw the hands move over the dial, and by every glance that he cast was stimu-

lated to intenser service and to harder toil." He felt that impulse to service that we all should feel—the night cometh—let us fill the hours with work.

If a Nicodemus comes even by night; if a despairing father forces his way into the house of feasting; if another suppliant finds him in a home where he would have remained hidden; if they come running to him in the way; or drop their sick down before him through the very roof—it is all the same. He never thinks of himself, but gladly addresses himself to heal and to bless. "Even Christ pleased not himself." Therefore, "we that are strong, ought to bear the infirmities of the weak, and not to please ourselves."

Paul pleased not himself. He sacrificed rank and position; he bore the ignominy of the cross; he was shipwrecked, scourged and beaten; he journeyed throughout the provinces of the Roman world; he sought to please his Maker and not himself. "God forbid that I should glory save in the cross of our Lord Jesus Christ," was his cry.

Howard, the philanthropist, whom Burke called a circumnavigation of charity," pleased not himself. He visited all Europe, not to gratify an appetite for novelty, not to satisfy a refined and aesthetic taste, not to survey sumptuous products of architecture and art, not to make money, not to get health, not to cultivate elect friendships. His was the genius of humanity. He went to descend into deep dungeons, to dare the contagion and infection of lazaretos; to explore the vastness and to sound the deepness of human poverty and misery, want and woe; to visit the sick and the prisoner in dark cells and gloomy hospitals, and to pour in light and sympathy, and to offer the ministry of an angel. The prophecy regarding the Master was the prophecy of his life—"The spirit of the Lord God is upon me; because he has anointed me to preach good tidings to the meek; he hath sent me bind up the broken-hearted, to proclaim the liberty to the captives, and the opening of the prison to them that are bound.—To proclaim the acceptable year of the Lord."

The Earl of Shaftesbury pleased not himself. "His public life of over fifty years was linked with more active philanthropies than any man before him." He criticised, like Michael Angelo, "by creation, and not by finding fault." An heir to lands and estates, he carried on his investigations in person, and then in person carried out his benevolent schemes. He went into the worst quarters of London, at midnight, where the vermin of society hide; to the vagrants' hiding-places, in dismal vaults and under arches, to bring homeless wretches to the ragged school, and sit at their side to speak to them words of hope and love, and awaken longings for a better life—exchanging a night of rest for one of sleepless toil, that he might introduce to the blessings of a home a poor outcast. Urged again and again to accept office, with its honors and dignities, he replied: "I cannot satisfy myself that the call to accept office is a divine call; but I am satisfied that God has called me to labor among the poor." "The social reforms of the last century," said the Duke of Argyll, "have been mainly due to the influence, character and perseverance of one man—Lord Shaftesbury."

Time would fail me to speak of scores of others—of Carey and Livingston, of Judson and Stanley, of Wood and Waring, of Taft and Roosevelt—successors to the heroes named in the eleventh chapter of Hebrews—who through unselfish devotion have "subdued kingdoms, wrought righteousness, obtained promises, stopped the mouths of lions, quenched the violence of fire, escaped the edge of the sword, out of weakness were made strong, waxed valiant in fight, turned to flight the armies of the aliens."

The great point in life is to learn the lesson that Christ has taught us, and that these men have taught us, that by not pleasing ourselves we can make our lives sublime. "It is more blessed to give than to receive," said the Lord Jesus—We should heed the words.

Be like the stream, that flows for others' good. Not like the pool that ever still has stood. When like the stream, with sparkling gleam.

We flow to bless the land. We grow more pure, and will endure. Fed by God's bounteous hand. When like the pool, in covert cool.

We stay with selfish will. More stagnant yet the waters get. And polluting the still.

The life that pursues a selfish policy is guilty of a prodigious waste. The judgment of the world may be other-

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wise, but it is a mistaken one. The remark of the apostle Peter, "Lord, we have forsaken all and have followed thee; what shall we have therefore?" shows that he still dwelt under the shadow of the pagan world. To be sure the Master says, "He that hath forsaken all and followed me, shall have lands and a thousandfold more in this world," but it is not they who forsake all that they may have more, to whom the promise applied. "Give says the Master," "Give, hoping for nothing again, and your reward shall be great." An old Scotch farmer attended a missionary meeting one night and heard it said that if a man gave liberally the Lord would abundantly repay him again. So he thought he would try it. When the collection was taken, he put a sovereign on the plate. As he was returning home on foot that beautiful moonlight night, he saw a shining sovereign lying in the path, and was not slow at picking it up. Upon reaching home, he related his experience, and added, "Now I know the promise of the Lord is true, for I gave a sovereign and he gave it back to me again." But one of his servants said to him, "Master, are ye sure ye've got it right. It seems to me jest this way. Ye give that sovereign to the Lord, expecting it back again; and the Lord wouldn't take it on that score; so he flung it at ye on the road." When we set out not to please ourselves in life, it should be with such an unselfish spirit that it will prove our greatest pleasure not to please ourselves. Such was the spirit of the Master when He pleased not Himself. "The most obvious lesson in Christ's teaching," says Professor Drummond, "is, that there is no happiness in having or getting anything, but only in giving. I repeat," he says, "There is no happiness in having and getting, but only in giving. And half the world is on the wrong scent in the pursuit of happiness. They think it consists in having and getting, and in being served by others. It consists in giving, and in serving others." "He that would be great among you," says the Christ, "let him serve." That life that reaches out unselfishly toward other lives receives itself the greater blessing. He, on the other hand, is most miserable, who never knew the luxury of doing good. "The more we forget ourselves in our doings," says one, "the greater the returns they will yield. The more we are willing to lose our life in our pursuit, the more surely we shall find it in the fruit of our works." That is what Christ meant when he said, "He that loseth his life shall find it." As of what we have, so it is likewise true of what we are—"He that soweth sparingly shall reap also sparingly; and he that soweth bountifully shall reap also bountifully. According as a man purposeth in his heart, so let him give—not grudgingly, nor of necessity, for the Lord loveth a cheerful giver." If we are willing to lose our lives for Christ's sake, we shall have them returned to us full of all sweetness and beauty. Seeking to please ourselves, we may succeed alone in filling the vase of life full of pretty flowers, but with the going down of the sun their petals will close and their beauty pass forever away. If we place the vase of life in Christ's hand, emptied of all self-pleasing, He will return it to us full of never-fading flowers, whose beauty shall outlast the sunshine of the eternal day. How true the promise, "He that watereth others shall be watered also himself."

The Princess Eugenie of Sweden devoted herself to efforts for the good of her people. Desiring to build a hospital for the sick poor in the Island of Gothland, her summer home, she found that her ordinary income, already taxed by many charities, would not yield the necessary funds. Constrained by the love of Christ, she discovered a way by which the difficulty could be overcome. First to herself, and then to the king, her brother, she said: "May I not sell my diamonds?"

Consent granted, the diamonds were sold and the home for incurables built. Some time after, one of the inmates was deeply laid upon the princess' heart. She seemed unusually ignorant and inaccessible. "I prayed much for her," said the princess. But at length the woman was changed, and as the princess approached her bed one day, she was greeted with the words, "I thank God that the blood of Jesus Christ cleanseth from all sin, and that He hath cleansed me." The tears of thankful joy were running down the woman's cheeks. "In those tears," said the princess afterward, "I saw my diamonds again." "Hereby perceive we the love of God, because he laid down his life for us; and we ought to lay down our lives for the brethren."

"Why this waste?" cries the pool, as the stream goes speeding on. "Summer is near; and better far would it be to hold your waters back." But summer comes, and when the pool is dry the stream still flows smiling on.

"Why this waste?" cries the barrel that has hitherto held it, as the water is poured out upon the ground at the foot of the tree. But it reaches the widely extending roots, and is returned in the leaves, the flowers, and fruits, that grow upon the branches.

"Why this waste?" cried Judas, when Mary poured out the precious ointment upon the feet of Christ. But it was an act of love that gained the Master's praise, and has secured rich returns wherever the story of the Gospel has been told, having led many to break the alabaster box of a selfish life and pour its contents at the feet of Christ, that the perfume of that life, no longer selfish, may arise to fill the place and bless thousands of other lives.

"Why this waste?" cried the Jews, when Saul forsook the synagogue and became a follower of the despised Nazarene. But what was Saul as we know him compared with Paul as we know him! What was the work of building up the synagogue by dragging men to death, compared with the work of building up the church of Christ by leading men to life in Christ! Paul suffered deprivations, imprisonments, persecutions, was crucified at Rome, but while princes obtained a corruptible crown, and saw their kingdoms decay, he obtained an incorruptible, and established the kingdom of Christ in the world.

"Why this waste?" men cried, when Polycarp was burned at the stake. But the dying testimony of such as he made "the blood of the martyrs" become "the seed of the church." Ridley and Latimer were put to death, but Latimer cried as the flames shot up about him: "Play the man, Master Ridley; we shall this day light up such a candle by God's grace in England as I trust shall never be put out."

"Why this waste?" cry men to-day, when lucrative positions are refused or forsaken, and men choose instead the ministry of Christ and the foreign field, or some position where love speaks louder than lucre. One who has gone to the China Island Mission gave his life, not only, but his fortune of \$500,000 for the extension of the cause of Christ.

A few years ago a lady obtained celebrity as a writer in the periodical literature of the day. She found herself the object of admiration everywhere; a bright future before her; welcomed as queen in the highest social circles. But no sooner had she gained this honor than it became known that Fannie Forrester had consented to become the wife of Judson, to plunge with him into the darkest heart of heathendom, there to learn a barbarous language and help to tame a cruel race, burning her life to lamp down to the very socket. "Why this waste? What madness!" people cried. But who can doubt that the gain to that life was infinitely more than it could ever have been had she remained here in selfish ease, and the

(Continued on page 688.)

RESERVOIRS—A LITTLE ARITHMETIC.

(Continued from page 600.)

bility of impounding so much water. Here the use of a little arithmetic may be beneficial.

The heaviest rainfall reported as contributing to the flood was that of Saline County, Kansas, and was for the flood week slightly under eighteen inches. The amount in other parts of the Kaw River watershed varied through 12 inches, 9 inches, 8 inches, and below. To get a basis for estimates, let it be assumed that the portion of this watershed which produced the flood had an average precipitation of 12 inches during the flood week. It may doubtless be safely assumed that the soil absorbed and stored in its sub-surface reservoirs one-third of this, or 4 inches. It may with equal assurance be assumed that the river could have carried away half of the remaining 8 inches without endangering adjacent property. There would remain, therefore, 4 inches to be restrained by impounding.

The great reservoir now under construction at Great Bend will have an average depth of 30 feet, and will cover 30,000 acres. This exceptional opportunity for making a deep reservoir can not, however, be taken as a basis for estimates. The ordinary catchment reservoir constructed by the farmer for holding stock water averages not deeper than 4 feet. Probably the storm-water reservoir such as might be constructed on almost every quarter-section can be given an average depth of 10 feet. Such reservoirs must necessarily be made secure enough to be safe against breaking when full and overflowing, otherwise the flood dangers might be aggravated rather than averted.

Taking the assumptions herein made as approximately correct, provision would have to be made for impounding an average of 4 inches of water from each acre, or enough water from every 3 acres to cover 1 acre 1 foot deep. With reservoirs averaging 10 feet deep, 1 acre of reservoir would be required for each 30 acres of the area of excessive precipitation, or say 5 acres of water on the average for each quarter-section.

The fact that these reservoirs would probably never be entirely empty and might at the beginning of such a storm as caused the floods contain considerable water must not be overlooked. Possibly this could be met by making the reservoirs deeper. In most reservoirs the question of depth would be a question of cost. The cost would increase far more rapidly than the depth.

Whatever may be the case in the remote future the profits from the use of such reservoirs will not in the near future justify the average quarter-section farmer in constructing and maintaining them. On some farms they could not be so placed as to make their water available on the farms on which located. Without extended discussion of this phase of the subject, it is plain that if such reservoirs are to be built—"in aid of navigation"—for the protection of property on bottom lands it will have to be done at other than the expense of the farmers on whose lands the reservoirs may be located.

Probably no man in the flooded district of Kansas is more capable of estimating property values and flood damages than Congressman J. B. Bowersock, of Lawrence, himself probably the heaviest loser in the State. He places the aggregate loss in Kansas at about \$25,000,000. Others place the sum at a much higher figure. While this loss falls directly upon a comparatively small number of people in a limited area, it is the concern of the entire people of the State and Nation. The relations of modern society are so interwoven that it is impossible for any great catastrophe to fall upon any portion of the people without injuring the whole.

The devotion of 5 acres of each 160 to holding water would have no deleterious effect upon the climate of Kansas. Within a very few years at most, possibly from the start, the value of the impounded water for irrigating crops would be equal to the cost of maintaining the reservoirs. A sum of money equal to the losses by the recent flood would go far towards constructing sufficient reservoirs to make such flood impossible, and would add immensely to the productive capacity of the lands in the vicinity of and below the reservoirs.

Mr. E. W. Thompson, so long and so favorably known as the assistant general passenger agent of the great Rock Island system, has recently resigned his position and accepted a lucrative

one with the National Live Insurance Company of Vermont. Mr. Thompson has been so long connected with the Rock Island system that his name is almost synonymous with that of the road and both are significant of the energy, vim, and push which so characterize the West. Since 1884 Mr. Thompson has been a factor in the development of the Rock Island. He has held his present position since 1898. During his administration much of importance for the good of the West as well as for the good of the Rock Island has been accomplished. Perhaps the most important event in this period, from a railroad point of view, was the opening up of the Kiowa and Comanche country in July, 1901, when the Rock Island won such signal success in handling its enormous business under the personal supervision of Mr. Thompson. The Rock Island loses a valuable man and the whole West will sympathize with it, while the insurance company gains a man for whom it is to be congratulated.

KANSAS STATE FAIR AND EXPOSITION.

The regular annual meeting of the stockholders of the Kansas State Exposition Company was held at Topeka last week. M. A. Low, of Topeka, was reelected president. Chas. H. Samson was elected secretary-treasurer.

The previous announcement that a great State fair and exposition should be held this fall, despite the floods, was enthusiastically confirmed by the stockholders at the annual meeting, and \$20,000 in premiums consisting of prizes, purses, and special premiums will be offered to the exhibitors. The second annual event will be held at Topeka September 14-19, 1903.

The Topeka Commercial Club pledges \$5,000 to the prize fund. The Kansas World's Fair Commission offers \$1,200 in prizes for county collective agricultural exhibits, first prize being \$500 and running down to \$75 for a sixth prize. Liberal premiums will be given for live stock and for all displays of Kansas products. It is the intention of the management to have the greatest State fair and exposition ever held in Kansas. It is desired that everyone who has choice products of any kind good enough to go to the World's Fair will have the same at Topeka, so that the Kansas Commission to the World's Fair may be able to secure representative displays to be shown at St. Louis next year.

The Kansas State Exposition Company has made a new departure in State fair management that will be appreciated by all members of the various State industrial associations, and will undoubtedly result in bringing out the most creditable and representative display for the various departments ever attempted in the West. The general live-stock display will be held under the auspices of the Kansas Improved Stock Breeders' Association; the dairy department under the auspices of the Kansas State Dairy Association; the horticultural and floral department under the auspices of the Kansas State Horticultural Society; the department of farm products of all kinds and county collective agricultural displays under the auspices of the Kansas State Grange, and the department of farm machinery and manufacturers' displays will be in charge of the executive committee of the Kansas, Missouri and Oklahoma Implement Dealers' Association. A meeting of the officers of the various associations in connection with the directors of the Kansas Exposition Company will be held at Topeka this week when details will be arranged for the big show at Topeka, September 14-19, 1903.

Every public-spirited citizen of Kansas who desires to see a great show of Kansas' best products should preserve the best specimens of grains and grasses in the sheaf as well as the choicest specimens from the orchard and garden so that he can help out his county display to be shown at Topeka.

Premium lists will be gotten out in July and may be had upon application to C. H. Samson, secretary, Topeka, Kans.

A SAMPLE FLOOD SUFFERER.

Among the Kansas flood sufferers, by reason of the high water in the Missouri River, is the well-known breeder, H. M. Kirkpatrick, Wolcott, Kans., the president of the Kansas Swine Breeders' Association, who in a recent letter says:

"We managed to save most of our pigs by swimming them out of the alfalfa field in the bottom to the upland. The KANSAS FARMER's description of the flood sufferers fits us pretty well. Two hundred acres of corn and

potatoes, 75 acres of alfalfa totally destroyed. Fencing, buildings and orchards badly damaged. About 1,000 bushels of corn in crib and a bin of mill-feed gone. What to do, is the question. Have three disk corn-planters running to-day picking out the dry spots. Your timely suggestions in the last week's KANSAS FARMER much appreciated."

CEMENT FOR WALLS.

EDITOR KANSAS FARMER:—Can you give the correct instructions for mixing cement for walls, that is, the different proportion of cement and sand where it is mixed with broken rock? Or perhaps you can tell me where I can get a book on the subject.

Clay County. H. D. C.

There are doubtless books on cement and its uses. But if our correspondent desires to have at hand a book which will be authority upon almost every question of physics as applied to the farm he will do well to buy "Physics of Agriculture" by Prof. F. H. King, Madison, Wis. This book, at page 381, says: "The amounts of each ingredient required to make a solid concrete with all the spaces filled depends upon the pore-space in the different materials. Trantwine assumes that for each ingredient the voids are near enough 50 per cent, so that as a safe working basis this should be taken.

"To make a cubic yard of concrete it would be necessary to use, on Trantwine's basis:

Crushed rock, 27 cu. ft.; gravel or screenings, 13.5 cu. ft.; coarse sand, 6.75 cu. ft.; cement, 3.375 cu. ft.

"This ratio for pore-space is certainly larger than is likely to occur and for farm purposes it will be safe enough to take the ratios of:

Crushed rock, 27 cu. ft.; gravel or screenings, 12.69 cu. ft.; sand, 5.584 cu. ft.; cement, 2.122 cu. ft.

"These figures assume the pore-space of the rock to be 47 per cent, of the gravel 44 per cent, and of the sand 38 per cent.

"Where good plastering sand is used for making the finishing surface the pore-space to be filled will be about 35 per cent, and this would require a little more than one of cement to three of sand, and unless there is some gravel or screenings to use with the sand it will be safer to make the facing two of sand to one of cement."

In preparing this kind of concrete it is better to mix the cement and sand dry, with these two mix the gravel, and with these three mix the broken stone, and finally add water. The right amount of water has been added when the water comes to the surface but does not splash when the concrete is struck with the tamping stick.

There are several kinds of cement. The writer has found none more satisfactory than that made by the Iola, Kans., Portland Cement Company.

WILL NOT INTERFERE WITH KANSAS SILK.

There is no end to man's efforts to make substitutes for nature's products. Only by aid of the law has the cow even a partial monopoly of the butter business. The hog long ago lost control of the lard market. Maple molasses is made of beet-sugar melted in a decoction of corn-cobs. The chemists of the Department of Agriculture find that a very large proportion of the materials used for food and for medicine are adulterated. And now comes the inventor as a competitor of the silkworm. For a few years mercerized cotton has been made to take the place of silk in many fabrics in which the product of the worm was formerly used. This substitution does very well until the goods get wet when there is trouble to pay for. The inventors next prepared a fabric composed of nitro-cellulose. This would have been satisfactory but for its great inflammability and the danger that it would explode. But the inventors have not wearied.

In degumming silk it is boiled, and a patent recently issued covers a process for manufacturing artificial silk from three parts of the liquor in which the silk was boiled and six and a half parts of gelatin. The process is to thoroughly mix the two ingredients for two hours, then place the resultant mixture in another vessel and subject it to a heat of about 120° F. for an hour, after which it is placed in an airtight vessel provided with orifices through which the mixture is forced by pressure. The resulting filaments are then twisted into threads and wound on bobbins or formed into skeins. They are then subjected to the fumes of formaldehyde to render the threads insoluble. It is said that the

product is strong, pliable, elastic, and lustrous, and that it is not affected by moisture or change of temperature.

This invention will not exactly knock out the agricultural or horticultural pursuit of raising silkworms, but it promises competition with their most valuable product by using a waste product of this kind of farming.

These reflections are suggested by the solicitude recently expressed in print for a revival of the silk industry in Kansas. This State once had a silk station duly authorized and provided for by an act of the Legislature. It was in charge of a man who enthused over the idea that the women and children on the farms of Kansas would one day be engaged in the rearing of silkworms and the reeling of silk. The silk station was provided with one or more of the little hand-reeling machines. All difficult questions such as those about profits, compensation for State silk station was provided with one or more of the little hand-reeling machine would work by simply turning the crank. This kind of "argument" was effective with the solons who controlled appropriations, but they did not take to any alarming extent with the women folks and children of the farmers of Kansas who are able to find better use for their time than devoting it to competing with Italian and Chinese peasants in the work at which they earn a few cents a day.

The newly invented substitute for silk will cause no distress among Kansas producers.

RESTOCK WITH PURE-BREDS.

The mighty flood which came down the Kansas River valley and tributaries bringing disaster in its train has brought discouragement as well. But discouragement is not a sentiment that remains long in the mind of the average Kansan. The adversity through which he built this State and his frequent contests with the enemies of his industry have given him an optimistic character which enables him to triumph over any difficulty no matter how great.

One of the most serious losses felt in the flooded district will be the hogs. Not only because they are valuable property in themselves but because they are property which more rapidly brings returns than do others. A few cattle have been lost but perhaps their number is not so great as that from the hog-pens.

In line with the history of the State and with her people, we desire to emphasize the need at this time for all flood-sufferers who have lost their live stock of restocking, or at least forming a resolution to restock their farms with pure-bred animals. There is no quicker method of recouping the losses of the flood than by securing the returns from pure-bred animals. Life is too short to content one's self with inferior animals on the farm. It costs no more to raise pure-bred animals than it does to raise scrubs and the returns from them are many times greater. Of course we understand that there are many farmers whose losses are so heavy that their industry must be paralyzed for a time. On the other hand there are those who will be able to restock their farms at once and whose effort should be to start with good stock and thus start right. Even a small bunch of pure-bred hogs with their two litters a year will more rapidly help to bring victory out of disaster than will any other investment that could possibly be made, and we bespeak for the farmers in this section who would renew their operations by restocking with pure-bred stock a liberal treatment on behalf of the breeders so that they may more rapidly get on their feet again.

ILLINOIS WANTS \$50,000.

The Illinois stock-breeders had a special committee representing cattle, horses, swine, sheep, and poultry, and had a meeting with the Illinois State Commission at St. Louis last week, and asked for an appropriation of \$50,000 for the live-stock breeders of Illinois. This is about the same amount that the Kansas breeders expect.

FUND FOR FLOOD SUFFERERS.

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

An ex-Kansan in Boston.....	\$100.00
J. W. Vawter, Ulysses, Neb.....	8.00
A. D. & H. L. Perrin, Prescott, Kans.....	5.00
J. H. Houck, Agenda, Kans.....	5.00
W. H. Ransom, North Wichita.....	2.00
A lady teacher, Pasadena, Calif.....	1.00

THE PANAMA CANAL.

The latest and most comprehensive authoritative treatise on the subject of the Isthmian Canal is found in the concluding chapters of "Ancient and Modern Engineering, and the Isthmian Canal," by Professor Wm. H. Burr, professor of civil engineering at the Columbian University, and a member of the Isthmian Canal Commission. The following summary was compiled for Dun's Review:

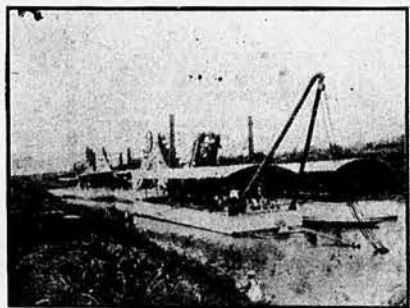
The route adopted by the Commission is that of the New Panama Canal Company. Starting from the harbor of Colon it traverses low, marshy ground to Mindi river, and thence to Chagres river, which it meets at a point about



THE CITY OF PANAMA.

Street Scene in the Best Quarters.

six miles from Colon. It then follows the general course of this river to Obispo, which is about 30 miles from the Atlantic terminus. Here it leaves the Chagres and follows a small stream called the Camancho for five miles until the continental divide is reached, at the great Culebra cut, the distance from Colon being 36 miles and from Panama 13 miles. After traversing the cut the canal route follows the course of the Rio Grande river to its mouth at Panama Bay. This route presents several marked advantages over the Nicaragua route. Its total length is 49.09 miles, as compared with 183.66 miles for the other. The time for traversing it is estimated at twelve hours, while 33 hours would be required for the longer route. This means that vessels can generally get through by daylight, while in the other case it would always be necessary to slow down or stop at night, especially in the case of large or heavily loaded vessels. There are 29 curves on the Panama route, of which only one has a radius of less than 6,000 feet. This is at the entrance to the inner harbor of Colon, where the width of the channel is 800 feet. On the Nicaragua route there are 56 curves, of which no less than 33 have



THE CANAL, PANAMA SIDE.

Showing French Machinery in Operation.

a radius of less than 6,000 feet. This matter of curvature is of little importance for small vessels, but it is at times difficult for large steamships to navigate a tortuous channel. The estimates of the commission involved the expenditure of large sums to avoid curves on the Nicaragua route wherever practicable, but in so difficult a canal country they were necessarily very numerous and, as indicated, frequently quite sharp. The Panama curves are, with the single exception noted, of large radius and will offer little difficulty to navigators.

The plans of the commission contemplate a channel 500 feet wide and a minimum depth of 35 feet at low water across the harbor of Colon, with a width of 800 feet on the sharpest curve. This channel will be two miles long. Across the Bay of Panama a similar channel four miles in length will have to be excavated. From Colon to the River Chagres and thence for a considerable distance no engineering difficulties are encountered. Here and throughout the route the American canal will be a marked improvement upon that contemplated by the French engineers. The original De Lesseps company planned for a bottom width of only 72 feet, and the new company of 98 feet, with a depth of 29.5 feet in each case. As the largest ships now afloat draw 32 feet in salt-water and

would draw at least 33 feet in the fresh-water portions of the canal, the commission determined to increase the depth to a point that might at least anticipate naval construction for some time, and fixed that dimension at 35 feet throughout. The ships having the greatest beam at the present time are naval vessels, the maximum now being 77 feet. As it is essential that the canal should accommodate these the bottom width was enlarged to 150 feet. The locks planned are all to have a usable length of 740 feet and a clear width of 84 feet. As stated, no obstacles are encountered in the marshes above Colon and the lower reaches of the River Chagres. At Bohio, a point on this river about 14 miles from Colon, one of the greatest engineering feats in connection with the canal will be undertaken. The River Chagres is subject to sudden and violent floods, the water rising frequently to a point 30 feet above low water, and in one instance 39.3 feet. These floods proved troublesome to the first French company and presented a problem that the second company found most difficult of solution. The commission, adopting the plan finally evolved by the French engineers but improving upon it in several important respects, proposes to erect a dam perhaps 2,000 feet long and rising to 100 feet above sea level. This will cut off the entire Chagres valley and back the river up into an artificial lake 25 miles long and having a surface area of about 40 square miles. At a point three miles from this dam a second dam is to be erected having an overflow weir 2,000 feet in length, which will serve as a spillway or wasteweiir in time of flood. At low



THE CANAL, COLON SIDE.

Showing Methods of Excavating in Low-land Section.

water the commission estimated the flow of the Chagres as reaching a minimum 600 feet per second, while at flood it was assumed that there might be a possible discharge of about 136,000 feet per second. This spillway is designed to dispose effectively of 140,000 cubic feet per second, the water running over its crest and thence through low marshes again to the Chagres and then to the sea. As the canal runs in proximity to the marshes which would thus be flooded it will be necessary to protect it to some extent by embankments or levees. As the water in this artificial (Bohio) lake may be 90 feet above sea level, two great locks will be constructed near Bohio, each of 45 feet lift. Twin locks are to be built at each point, making really four locks for the two flights—an arrangement that is to be followed throughout. They will be constructed of masonry and concrete, and that at Bohio will be located about 1,000 feet from the Bohio dam.

At Obispo, a point about 14 miles from Bohio, the canal leaves the lake and shortly beyond strikes the continental divide. Here the greatest open cut in the world will have to be made. The entire section is only 7.9 miles in length, but the cost of the canal at this

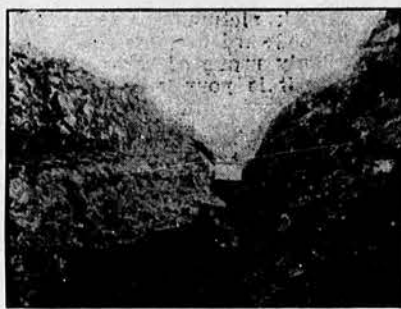


THE CULEBRA CUT.

Showing French Method of Excavation.

point will be nearly one-third of the total estimated cost, the commission estimating it at about \$44,400,000. At its highest point the depth of cut to the bottom of the canal will be 286 feet. The material is for the most part hard clay, and the sides must therefore slope. Considerable work has already been done on this section by the French companies, but their machinery is now antiquated and the commission

believes that much will be saved by the employment of entirely new and modern plants. American invention in this field has made great progress in recent years, notably in connection with the Chicago drainage canal, and it is possible that the cost of completing this section may fall materially below the commission's estimates. At Pedro Miguel, just beyond the Culebra cut, is another flight of two twin locks, each with a lift of 30 feet. These bring the canal level down sixty feet nearer to that of the Pacific. A little farther on is a single flight of twin locks at Miraflores, having a maximum lift of 40 and a minimum of 20 feet, to allow for variations in the tide level. This brings the canal down to the Pacific,



THE EMPERADOR CUT.

Indicating Amount of Rock to be Removed.

after traversing five locks in all. From this point to Panama is 8.54 miles, the construction of the canal offering no difficulties. In connection with the locks another advantage of the Panama route over Nicaragua may be noted. There are eight locks on the latter, and the principal danger from volcanic disturbance being of injury to the locks it is evident that this is a factor of some importance. Volcanoes are somewhat numerous in Nicaragua, while the nearest one to the Panama route is 175 miles away.

The total cost of the Nicaragua canal was estimated at \$189,864,062. That of the Panama canal, including \$40,000,000 to be paid to the New Panama Canal Company, is \$184,233,358. The annual cost of maintenance and operation is estimated at \$3,300,000 for Nicaragua and \$2,000,000 for Panama. In the hygienic conditions along the two routes there seems to be little to choose, although in this respect Nicaragua may be superior. The commission estimated that eight years would be required for completing the Nicaragua canal and ten years for the Panama, but there is excellent authority for the belief that these figures may be safely reversed, since there are



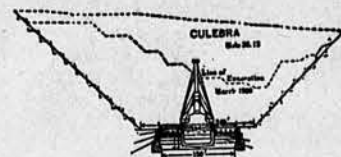
THE CULEBRA CUT.

Trains at Work on Side of Clay Slope.

great opportunities for concentration of work upon the Bohio dam and the Culebra cut. The Nicaragua route would have been 378 nautical miles shorter than the Panama route as between the Atlantic ports and San Francisco, and 580 miles shorter for the trip from New Orleans, but, on the other hand, the time thus saved would be wholly lost in the increased time required for traversing the longer and more tortuous canal.

The commercial effect of the canal will be in line with that of most great modern public improvements, a saving of labor and time. The distances between the principal Atlantic ports of Europe and North America and the ports of western South America, the East Indies and Asia will be in most instances immensely reduced. This will produce results of the utmost importance in the way of altering existing commercial routes, and may materially affect the trade of certain cities and possibly that of several countries. Such changes may, however, be anticipated and will in any event be gradual, so that the readjustment of commercial relations caused by the opening of the Panama Canal need occasion no such economic disturbances as those that were attributed to the opening of the Suez route in 1869.

The changes in trade routes constitute a phase of the subject too large for complete consideration in the space available in this issue and may therefore best be postponed to a later number. For the present it will suffice to



S. S. DEUTSCHLAND IN CULEBRA CUT.

indicate briefly the saving in the distance between leading ports that the Panama route will make possible. This may best be shown by the following table, showing the present distance between the ports named by existing steamship routes and those by the Panama route:

From—	Via existing route.	Via Panama.	Distance saved.
N. Y. to San Francisco.....	13,174	5,299	7,875
N. Y. to Melbourne.....	12,860	10,427	2,433
N. Y. to Auckland, N. Z.....	11,599	8,892	2,707
N. Y. to Honolulu, H. I.....	13,290	6,795	4,495
N. Y. to Valparaiso.....	8,440	4,630	3,910
N. Y. to Callao.....	9,640	3,359	6,281
N. Y. to Guayaquil.....	10,300	2,864	7,436
N. Y. to Yokohama.....	15,217	9,835	5,382
Liverpool to San Francisco.....	13,494	8,038	5,456
Liverpool to Guayaquil.....	10,620	5,603	5,017
Liverpool to Callao.....	9,960	6,098	3,862
Liverpool to Valparaiso.....	8,760	7,369	1,391

Distances from Hamburg, Bordeaux, Antwerp and other leading European ports to the foregoing ports on the Pacific are likewise reduced from 20 per cent to nearly 100 per cent. To ports in the Orient the Suez Canal will continue to be preferable for ships sailing from European ports, but the Panama route will in many instances be better from American ports. The whole commercial world will benefit by the new canal, and its influence will be especially marked in stimulating the growth of trade between Europe and America and the countries bordering upon the Pacific.

DILUTE BORDEAUX MIXTURE FOR PEAR BLIGHT.

Were it not for the blight, the pear would be one of the most profitable fruit crops for Kansas horticulturists. But to have the trees blasted just as they reach the age for bearing heavy crops or at any time before or after they begin fruiting is discouraging. In a book just published entitled "Spraying Crops," the following remedy is given: "Spray twice with the 50- or 60-gallon formula of the Bordeaux mixture, applying first about one month after the blossoms fall, and again a month later. If more than two applications of the Bordeaux mixture are made after blooming there is danger of giving the fruit a russet appearance. In case of early pears only one application should be made after blooming. If late applications are made the copper carbonate should be used."

The illustration of the effect of this treatment shows the sprayed tree unaffected by blight while the unsprayed has the characteristic appearance after the blight has done its worst. The form of Bordeaux mixture recommended is made from the ordinary Bordeaux diluted to about 2½ times the standard volume.

If it shall prove as effective as the illustration suggests, pears may become almost as abundant as apples.

Souvenir Flood View.

The best illustrated book published on the great flood is that just issued by John F. Strickrott, 515 Kansas Ave., Topeka. Unlike other and smaller books of flood views published this is the most complete and desirable one yet published. It contains 75 views with descriptive matter showing pictures of the flood at its different stages. It is the most desirable thing to have in the way of a complete souvenir of typical flood scenes to be had. It is gotten out in good style and is quite unlike the cheaper and smaller editions which now flood the market. It is just such a book as you desire for your library or to send to your friends. It will be mailed to any address on receipt of 50 cents, sent to the publisher, John F. Strickrott, or the KANSAS FARMER will fill your order.

"I can heartily recommend Zenoleum as one of the best disinfectants and particularly your very effective work of disinfecting at the great International Live Stock Show at Chicago, 1901." A. C. Binne, Breeder of Aberdeen-Angus Cattle, Alta, Iowa.

Ludderdale and Lanesboro are bright new towns on the Chicago Great Western Railway. For particulars write Edwin B. Magill, Mgr., Townsite Dept., Fort Dodge, Iowa.

Cow-Peas and Soy-Beans.

(Continued from page 670.)

would be covered in cultivating. Doubtless your suggestion of setting the sub-soller a little deeper than for corn-listing so as to leave a good mellow seed-bed would favor the quick germination of the seed and the early growth of the young plants.

Cow-peas may be sown broadcast or in close drills when the purpose is to grow for fodder only and if it is desired to use the crop for pasture this method of planting may be recommended in preference to planting in rows, provided the ground is put in excellent condition at seeding-time.

Soy-beans or cow-peas will do well on light soil but the heavy black loam which you described will doubtless be suitable for the crop.

A. M. TEN EYCK.

Treatment for Thin Alfalfa.

I have a field of alfalfa badly killed by water and freezing. I have cut it and thought of disking it. Please answer by return mail, and oblige.

Wilson County. STEPHEN CANTY.

Bulletin No. 114 has been mailed you under separate cover. The disking will do no harm, in fact it is likely to be of very much benefit, but if your alfalfa has become too thin to leave as a stand I do not think disking will thicken it up to any extent. Disking causes the plants to spread out at the crowns but it does not induce the growth of other plants. In fact it is liable to kill out an occasional plant if the crowns are cut off too low. The purpose of disking is to stir up the soil and not to cut off the crowns of alfalfa but simply to divide them. This may be accomplished by not having the disk set too sloping but rather straight with sufficient load on the disk to make it cut the ground.

Perhaps in your case it would be well after thoroughly disking the ground in the fall, about September 1, to sprinkle a little seed over the field and harrow once lightly after seeding. If the fall and spring are favorable many new plants will start and thus thicken up the stand.

If the field is old, namely, has grown alfalfa for six or eight years, it would appear to me best to seed down a new field this fall and plow up the old one, using it for general crops. Alfalfa wherever tried has made an excellent rotation crop for corn and grain.

A. M. TEN EYCK.

Alfalfa Bacteria Wanted.

Will you kindly write me terms upon which you could furnish to me from your station 2,000 to 4,000 pounds of bacteria-infected soil from old alfalfa fields? I wish to obtain sufficient to infect five to ten acres. I find that the alfalfa roots show no trace of the tubercles hence infer that the bacteria are not present in my soil and I wish to make the experiment, and was referred to you through kindness of W. F. Sterley, General Agent F. W. & D. C. Ry. Would you please tell me about what quantity of infected earth you would recommend to use per acre and when and how best to apply it?

W. S. MARSHALL.

Channing, Texas.

I believe that to thoroughly inoculate a new field with the alfalfa bacteria you should use about 300 or 400 pounds of the infected soil per acre. I have recommended to several parties to thoroughly inoculate a small amount of land, say a half-acre, by sowing the infected soil in large amount. After a year or two use the surface soil from this plot to distribute over a larger area. This would seem to me to be the most practical and economical way of getting the soil on your farm inoculated with alfalfa bacteria. Meanwhile you will have an opportunity to compare the treated plot with the balance which is untreated. Another plan which I recommend is to sow the infected soil much thinner, say a hundred pounds per acre, and disk or harrow so as to mix thoroughly with the soil of the field. Scattering plants will be inoculated all over the field by this method. If after a couple of years the field be broken and the ground be thoroughly tilled and harrowed and reseeded to alfalfa the bacteria will have been distributed so that the plants of the new seeding will be very generally infected with the bacteria. Perhaps it will not be necessary to break and reseed. The first inoculation may be enough. Careful examination will decide.

I think the more practical plan for applying the inoculated soil is to sow it broadcast over the field, and harrow or disk afterwards. In case you are sowing the alfalfa it may be practicable to mix in a little of the soil with

the alfalfa seed in the drill, thoroughly fining the soil before mixing. The best time to apply is the early spring or in the fall, in case you seed in the fall and wish to apply the soil at the time of seeding.

I would not care to handle so much soil as you have mentioned. We have been sending out soil in smaller amounts, say from 100 to 300 pounds, at 50 cents per hundred, f. o. b., Manhattan, Kans.

A. M. TEN EYCK.

Alfalfa on Sandy Land.

Through the courtesy of Mr. O. E. Walker, of Shawnee County, we are enabled to reproduce the following excerpts from a letter written by Mr. Louis Fehr, of Newkirk, Okla.:

I am sending you under separate cover three kodak pictures taken at our ranch in Woodward County. One of them will likely prove of some interest to you as it is your old friend Hobbs standing on our alfalfa field—as fine a piece of alfalfa as you ever saw. It was sown a year ago on sandy soil, in fact the sand was so loose that it nearly blew it out of the ground at



two different times. It is very thick on the ground and will make an immense yield. This was an experiment for us on account of the sand; and we find we can raise it on sand if we can get it large enough to cover the ground to keep from blowing. We have 200 acres like this, land 6 to 12 feet to water, and we will put it all in alfalfa in course of time.

If you care to give this to the KANSAS FARMER for them to print in their paper you can do so and I will gladly send you another picture.

LOUIS FEHR.

Crop Conditions June 1.

Preliminary returns to the Statistician on the acreage of spring wheat sown indicate an area of about 17,257,000 acres, a decrease of 364,000 acres, or 2.1 per cent, from the revised estimate of the acreage sown last year. An increase of 10 per cent in North Dakota is accompanied by a decrease in Minnesota and South Dakota, conservatively estimated at 6 per cent in the former State and 5 per cent in the latter.

The average condition of spring wheat on June 1 was 95.9, as compared with 95.4 at the corresponding date last year, 92 on June 1, 1901, and a ten-year average 92.9.

The average condition of winter wheat on June 1 was 82.2, as compared with 92.6 on May 1, 1903, 76.1 on June 1, 1902, 87.8 at the corresponding date in 1901, and a ten-year average of 79.1.

The total reported area in oats is about 27,732,000 acres, a reduction of 920,000 acres, or 3.2 per cent, from the area sown last year.

The average condition of oats on June 1 was 85.5, against 90.6 on June 1, 1902, 85.3 at the corresponding date in 1901, and a ten-year average of 90.2.

The acreage reported as under barley exceeds that harvested last year by about 330,000 acres, or 7.1 per cent. The average condition of barley is 91.5, against 93.6 on June 1, 1902, 91 at the corresponding date in 1901, and a ten-year average of 88.7.

The acreage under rye shows a reduction of 3.6 per cent from that harvested last year. The average condition of rye is 90.6, against 88.1 on June 1, 1902, 93.9 at the corresponding date in 1901, and 89, the mean of the corresponding averages of the last ten years.

The acreage of clover for the country as a whole can not be satisfactorily determined, but all of the principal clover States except Wisconsin report

decreases in acreage, ranging from 1 per cent in Pennsylvania, Michigan and Illinois, to 8 per cent in Iowa and Kansas. The condition of clover exceeds the ten-year average in Iowa, Illinois, Missouri, Kansas, and Wisconsin, while New York, Pennsylvania, and Ohio show conditions below their ten-year averages.

Of the fourteen States having 5,000,000 apple-trees and upwards, but two, Virginia and Tennessee, report conditions above their ten-year averages, the conditions in the other important apple-producing States ranging from 2 points in North Carolina to 23 points in West Virginia below such average.

The present prospects for the peach crop are decidedly unfavorable, Oklahoma alone among the important peach-growing States showing a condition above its ten-year average. In the remaining States, having 3,000,000 peach-trees and upwards, conditions range from 1 per cent in California to 43 per cent in Arkansas below their ten-year averages.

The acreage devoted to rice has been reduced in all the principal rice-producing States, the reductions rang-

ing from 1 per cent in Georgia and Alabama to 14 per cent in Mississippi. The condition of rice is below the nine-year average in all rice-producing States except Alabama, Louisiana, and Texas, in which States conditions are 1, 1, and 4 per cent, respectively, above their nine-year averages.

There has been an improvement in the condition of spring pastures during the past month in Iowa, Missouri, Michigan, Kansas, and Wisconsin. New York, Pennsylvania, and Ohio show conditions considerably lower than those of last month, while the condition in Illinois has declined 1 point during the month.

Tile Draining.

EDITOR KANSAS FARMER:—I want to ask if any of the readers of the KANSAS FARMER have had any experience in draining land with tile. I have a small bottom that needs draining. Any one using tile for draining would very much oblige me by giving me their experience.

Second: Is there a tile-factory in the State? W. M. CAMPBELL. Stafford County.

W. Jenness, Beatrice, Neb., suggests the inquiry, "What per cent of the flood was caused by listing corn?"

Low Summer Tourist Rates Via Chicago Great Western Railway.

\$15 to St. Paul and Minneapolis and return; \$19 to Duluth, Superior, and Ashland; \$13 to Madison Lake, Waterville, Faribault, and other Minnesota resorts. Tickets on sale daily to September 30. Good to return October 31. For further information apply to any Great Western Agent, J. P. Elmer, Chicago, Ill.

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June 25 to 27, inclusive; also July 1 to 5, inclusive, via Nickel Plate Road. Especially low rates. Liberal return limits. Particulars at City Ticket Office, 111 Adams St., and Union Ticket Office, Auditorium Annex, Chicago. (18)

Business Opportunities For All.

Locations in Iowa, Illinois, Minnesota, and Missouri on the Chicago Great Western Railway; the very best agricultural section of the United States where farmers are prosperous and business men successful. We have a demand for competent men with the necessary capital for all branches of business. Some special opportunities for creamery men and millers. Good locations for general merchandise, hardware, harness, hotels, banks, and stock-buyers. Correspondences solicited. Write for maps and prospect leaflets. W. J. Reed, Industrial Agent, 604 Endicott Building, St. Paul, Minn.

Ninety Day Seed-Corn

We are in receipt of the following telegram which shows the promptness with which this great seed house arises to the emergency occasioned by the disastrous flood.

The J. R. Ratekin & Son Seed House

have proved themselves reliable, and their prompt offering of a ninety day Seed-Corn at this time will be thoroughly appreciated by the farmers of the flooded district.

Shenandoah, Iowa, June 9, 1903. Business Manager Kansas Farmer, Topeka Kansas:

Announce we are well supplied with ninety day seed-corn, both white and yellow. Price One Dollar per bushel on cars here.

BINDER TWINE

200 TONS BRAND NEW

HEMP (Mixed) ... 8½c

WHITE SISAL 11½c

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In 500 lb. Lot, ¼ CENT LOWER

Our Twines are RELIABLE. Quality and Strength Guaranteed. Will sell, payable September 1st, ten bales or more. BIG VALUES. PROMPT SHIPMENT.

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FARMERS

who wish to better their conditions are advised to write for a descriptive pamphlet and map of Maryland, which is being sent out free by charge by

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EXCURSION RATES

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Asheville, N. C.	June 27, 28, 29 and 30.....	\$20.25
Atlanta, Ga.	July 6, 7 and 8.....	\$18.60
Boston.	June 25, 26 and 27.....	\$25.00
Baltimore.	July 18 and 19.....	\$20.25
Boston.	July 1, 2, 3, 4 and 5.....	\$27.00
Baltimore.	September 18, 19 and 20.....	\$20.25
Chautauqua Lake, N. Y.	June 16 and 17.....	\$17.75
Chautauqua Lake, N. Y.	July 8 and 9.....	\$19.25
Mountain Lake Park, Md.	July 2, 3, 4, 5, 6 and 7.....	\$18.75
For full information apply to any agent, or to address, A. C. GOODRECH, 1111 F. B. GILDERSLERVE, 1801 10th Trav. Pass. Agents, Genl. Pass. Agt., Kansas City, Mo. St. Louis, Mo.		

In the Dairy.

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

A New Holstein-Friesian Herd for Kansas.

The following is the record of a few of our cows for seventeen days. These cows were not pushed from time of freshening, in fact the conditions under which they were handled would tend to prevent any large yields.

They were shipped this spring from another State, were three days on the road and have been giving milk an average of four months.

On May 15 we began weighing the milk and the record is for the remainder of the month, seventeen days:

Number of cows, 6; average period of lactation, 4 months; total yield, 4,560 pounds; average total yield per cow, 760 pounds; average daily yield per cow, 44.7 pounds.

The milk from two cows of the herd was weighed for the entire month. Their individual records are as follows:

Harriette of Buffalo 3d—Time of lactation, 33.5 months; total yield, 1,643 pounds; average yield per day, 53 pounds.

Carrie Elliston—Time of lactation, 4 months; total yield, 1,493 pounds; average yield per day, 48 pounds.

Baldwin, Kans. C. C. LEWIS.

It gives us great pleasure to print the above on the dairy page of the KANSAS FARMER. Mr. Lewis is not a new dairyman for Kansas, having already made an exceptionally good record with a grade herd.

His new herd of Holstein-Friesians, numbering forty-eight head, consists of the cream of the animals collected and bred by Mr. Watson, of Kearney, Neb. Mr. Lewis plans to make some new additions to his herd from the East very soon.

His herd-bull is Watson's Ranch Johanna Lad, whose dam, Rue 3d, owned by W. J. Gillette, of Rosendale, Wis., has an official record of 491 pounds of milk and 24 pounds and 3.8 ounces of butter in seven days. His sire is Sarcastic Lad, the only living son of Belle Sarcastic, who gave 30,000 pounds of milk in nineteen months.

In the hands of Mr. Lewis this herd will certainly be a credit to Kansas, and we hope to have further reports of them to publish. G. C. W.

A Question in Dairy-Breeding.

C. B. V., of Hutchinson, Kans., writes as follows: "What breed would you suggest for me to get in grading up dairy-cows? If I could get mostly heifer calves I would like the Jersey, but what can I do with the steer calves? People who have them here can hardly get rid of them at any price.

The Shorthorns look well, sell well, but the heifers are worse milkers (for butter) than a common old scrub.

The kind of a cow I want is one that will make from seven to ten pounds of butter per week and produce calves that will sell at 6 months at from \$10 to \$15. If you can solve this for me I would be much obliged."

It is comparatively easy to figure out on paper the kind and the type of a cow that we would like, but to produce these cows is an entirely different proposition. Extreme development along beef lines is not conducive to development along dairy lines, and vice versa, the best development along dairy lines does not produce animals that would stand the highest on the block. It is possible, however, to get cows that will produce from seven to ten pounds of butter per week and still raise calves that will develop into fairly good steers. For this purpose our corre-

spondent will want cows of the so-called dual-purpose breeds like the milking type of the Shorthorn, Red Polled, and the Polled Durham. As to what breed he will select each man must determine for himself. No one breed has the monopoly of good points, and success with any breed depends more upon the breed of the man than it does upon the breed of the cow. Select the breed you like best and by vigorous selection of the animal in that breed and by constantly grading up by selecting the best and weeding out the poorest a man can get a herd that will approach what he wants.

D. H. OTIS.

Kansas Experiment Station.

The Breed and the Man.

Every little while I notice something crop up about which is the best dairy breed and then it mostly drifts to the ones that were in the dairy test at Buffalo, and the lover of each breed figures his own to come out best. My idea is to be honest with each breed; the herd that had the most profit on butter and total solids over the cost of feed was the best.

But these same herds with the same feeders changed round would have shown different results; so I say it is the man not the cow, and there is no need for the lovers of the dairy breeds fighting about which is best. They are all best in their own place, and there is a place for them all. It is not the best breed of cattle they want to get at, it is the best breed of herdsmen.—T. B. in Hoard's Dairyman.

May Report from H. N. Holdeman.

Enclosed find report of my herd of Holstein-Friesian for month of May:

The average may seem low, especially to those who have not tried weighing their milk. I think if people would try weighing their milk they would soon find that guessing at it is very uncertain. They always guess too high. Three of my cows made an average of 50.5 pounds daily for the month and if I had guessed it by looking at the pail I would have judged it to average over 60 pounds per day.

Number of cows on record, 11; total milk for month, 10,555 pounds; average per cow, 959 pounds; average per cow daily, 31.95 pounds; average test, 3.6 per cent; average age of cows, 4 years, 11 months; average period of lactation, 4 months, 9 days. H. N. HOLDEMAN.

Good Roads Demanded as Justice to the Farmer.

One after another the prominent men of the Nation fall into line with the good-roads movement. One of the notable features of the recent convention at St. Louis was the bringing together of President Roosevelt and Colonel Bryan as speakers from the same platform. Widely as the two many differ on other questions, both are enthusiastic advocates of better highways. The Colonel has been studying the good-roads question recently and has taken a favorable view of the National-aid plan. In a recent speech reported in the Commoner he gave utterance to the following sentiments:

I have become exceedingly interested in this subject, as I have studied it. In fact, I have been thinking how many questions there are that enlist the thought and arouse the interest of those who seek to do something for their fellowmen. Nothing I have turned my attention to in the last few years has seemed to me to come nearer to the people than this question of good country roads. I find that there is a new field there, and I have already advanced so far that I have made up my mind to build a little road out near my farm, and to do what I can to get my county and my State to do something in the matter of roads.

The expenditure of money for the permanent improvement of the common roads can be defended, first, as a matter of justice to the people who live in the country; second, as a matter of advantage to the people who do not live in the country, and, third, on the ground that the welfare of the Nation demands that the comforts of country life shall, as far as possible, keep pace with the comforts of city life.

It is a well-known fact, or a fact easily ascertained, that the people in the country, while paying their full share of county, State, and Federal taxes, receive as a rule only the general benefits of Government, while the people in the cities have, in addition to the protection afforded by the Government, the advantages arising from the expenditure of public moneys in their midst. The farmer not only pays his share of the taxes, but more than his share, yet very little of what he pays gets back to the farmer. People

in the city pay not only less than their share, as a rule, but get back practically all of the benefits that come from the expenditure of the people's money. Let me show you what I mean when I say that the farmer pays more than his share: The farmer has visible property, and in every form of direct taxation visible property pays more than its share. Why? Because the man with visible property always pays. If he has an acre of land the assessor can find it; if he has horses, they can be counted; his cattle can be enumerated. If he has pigs, they begin to squeal when the assessor approaches; he can not hide them. The farmer has nothing that escapes taxation.

The improvement of the country roads can be justified also on the ground that the farmer, the first and most important of the producers of wealth, ought to be in position to hold his crop and market it at the most favorable opportunity, whereas at present he is virtually under compulsion to sell it as soon as it is matured because the roads may become impassable at any time during the fall, winter, or spring.

The farmer has a right to insist upon roads that will enable him to go to town, to church, to the school-house, and to the homes of his neighbors, as occasion may require, and with the extension of rural delivery he has an additional need for good roads in order that he may be kept in communication with the outside world.

Just to what extent action should be taken by the Federal Government, the State government, the county, and the precinct, or in what proportion the burden should be borne is a question for discussion, but that country roads should be constructed with a view to permanent and continuous use is scarcely open to debate.

I have such confidence in the patriotism and intelligence of the American people that I believe that in the clash of ideas and conflict of views, the best will always be triumphant, the people having the benefit of the combined wisdom of all the people.

The Old-Fashioned Home.

The old-fashioned home brings out the better qualities in a man; it makes the members of the family more careful about hurting the feelings of others; makes them more considerate of their fellowmen, and the people living in a community of homes are a happy people. When sickness comes to one's neighbors there are plenty of volunteers. When hard luck and financial distress comes there are plenty of friends, so that the sufferer is provided for with the things that are needful to his existence.

Most of the people in the city live in cooped-up flats. They find their pleasure outside of their homes; they do not know their neighbors and do not care to know them. Their so-called "home" is merely a place to go when all the other places are closed. There is nothing in the majority of city homes

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to bind family ties and cultivate a neighborly feeling. Each one is selfish, looks out for himself; he pushes through the crowd, tramples down the weak; he lives on his nerves; he seeks excitement and his home is home in name only.

About 80 per cent of the people living in cities are within thirty days of actual want and within ninety days of actual starvation. They live a hand-to-mouth existence, but the trouble is that the hands are always trying to catch up with the mouth.

The people in the country are known to their neighbors; their faults are frequently commented on, and if they wish to be good citizens it is to their advantage to act on the square, to be kind and gentle, to help one another. They get their real pleasure in the home.—Boyce's Hustler.



Cows will give 15 to 20 per cent more milk if protected from the torture of flies with

CHILD'S SO-BOS-SO KILFLY.

Kills flies and all insects; protects horses as well as cows. Perfectly harmless to man and beast. Rapidly applied with Child's Electric Sprayer. 80 to 50 cows sprayed in a few minutes. A true antiseptic; keeps stables, chicken houses, pig pens in a perfectly sanitary condition.

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We claim that the
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will make you more money than any other separator can or will, because the Empire turns more easily, is more easily cleaned and kept clean and has fewer parts to get out of order. Send for our book, "A Dairyman's Dollars," investigate all claims and decide for yourself.

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An Army Invades Kansas.

A year ago a few modest, delicate, unobtrusive Empire Separators went into Kansas with glad tidings of joy to the patient dairymen who had waited for years to receive the reward promised them, but which reward has never come. This little group of silent workers met some "bullies" and were told to go back from whence they came. When this noisy bluff failed, they were laughed at and made all kinds of fun of. They were told they were too little, too insignificant, too weak, and every now and then some great big duffer, who imagined himself proof against any kind of exposure would douse this little visitor with ice milk. But this little band of crusaders (who soon won favor with that element in whom everybody is interested—the women and children) continued to carry their silent message of a better way to handle milk, and they sent back to their old home for more help to tell this beautiful story of less work, less expense, better calves and above all a market from 25 to 50 per cent better than the old one. Each silent appeal brought a helper until at the expiration of the first year. There are 3000 of these little simple, silent workers preparing (in their easy way) the cream from 100,000 cows to be shipped to the Blue Valley Creamery Co., of St. Joseph, Mo where the highest price is paid. Do you want to know more? If you are interested write us.

YOURS FOR BETTER RESULTS,

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Tubular Separators

differ widely from the complicated "bucket bowl" types. Its bowl has no complications; all others have. It has a waist high milk vat; all others are head high. It has bottom feed, simple, accessible gearing, stands on its own bottom. No other does. Skims clean, turns easy. Ask any user. Free Catalogue No. 165. P. M. Sharples, West Chester, Pa. The Sharples Co., Chicago, Ill.

The Poultry Yard.

Progress by Selection.

We might all consider with advantage future possibilities in all things we undertake. If this rule were followed at all times, there would be less failure and more good results. Many of us purchase a few fowls for which we have a fancy, either from seeing or hearing of them, and turn them with our general farm flocks, without a thought as to results. Those we had may have been quite inferior as to quality, and the introduction of this new breed might bring improvement; or, on the other hand, we may have a fine, regular lot of some good variety that would be injured by the mixing. Be this as it may, such careless selections result in having mongrel or cross-bred fowls that are never equal to the true breed.

MAKE NO CHANGE WITHOUT REASON.

This same rule may be applied to all our efforts for better things. Study the possible results of a change of any kind. Do not go into them blindly, because, if you do, nine cases out of every ten, you will fail in your purpose and gain only disappointment. For this reason, it is always best to have some set purpose that is well understood, and work to that end. No matter whether planting lettuce or laying the foundation for a herd, give sufficient thought to both or either to assure the most desirable results, so as to gain by what has to be done rather than go the other way. Remember that in all things you must either advance or retard conditions, for the law of nature will not allow you merely to hold your own. You can not stand still in these matters—it is better or worse all the time.

In going about the past year, we have noticed that when we go into a neighborhood whose people hold to and follow a well set purpose, there is considerable thrift; while in localities where mixed or unsettled ideas or habits prevail, less prosperity is seen. In no agricultural pursuit is this so pronounced as in poultry-keeping. Where you find a man or woman successful with poultry, you find comfortable quarters and well selected, regularly bred stock, and not an assortment of promiscuous, cross-bred hens of all kinds, shapes and colors. It is an old-time saying that "You can tell a good workman by his tools;" and it is only necessary to drive along the road and see the houses and the hens to know whether they have fresh-laid eggs on that farm in winter, when profitable, or whether all their eggs come during warm weather when eggs are cheap.

SELECT FOR A PURPOSE.

To succeed with poultry, you must select your fowls for the purpose intended. Do not hope to succeed through the introduction of some Leghorn males this spring, and some Plymouth Rock or Wyandotte males next spring; and then from disappointment, select a Langshan or Brahma male or two, in hope of better things, for by so doing you destroy that very regularity which is of so much value in poultry growing. By these unnatural crosses you can grow a flock of hens that will lay eggs of bad shape, off or uneven colors, and irregular in size, all of which count against their value on the market. When sold for dressed poultry, they have many forms and lengths of body and breast, their color and finish are quite uneven, shanks of several shades of color, heads, combs and plumage not so attractive as in a regular lot. All this counts against their value, and might be avoided. When you have Leghorns, select the one variety that you like the best, and keep them pure and true. When new blood is needed, get it of the same variety and of the very best quality and vigor. If Plymouth Rocks or Wyandottes are your preference, select the one variety or color that you prefer and hold to it, pure and true, and renew only with new blood of the same. Let this hold true in all breeds and varieties of fowls—turkeys, ducks and geese. If you select a true variety of some one breed, stick to it and keep it pure and true to its own color. When you sell from these, never sell the best; always sell the poorer quality and keep the best for yourself. If this is followed constantly for several years, the result will be that in a few years your poorest specimens will be equal to the best of former days, and the higher grades better in proportion.

HOW TO IMPROVE A MIXED FLOCK.

Where it is desirable to improve a flock of farm-bred hens and to bring

them to a set or regular type, this can be done if we select and follow the proper rule of selection. For instance, if you have a flock of hens of all kinds and colors on your farm and should like to have them of the Plymouth Rock type, sell all your male birds and secure a true-bred Plymouth Rock male for each twenty hens. When fall comes, sell off all your old hens and keep the same true-bred Plymouth Rock males, with the pullets. The following fall, sell off all the males, old and young, as well as the hens, keeping only the pullets, and for them buy some more true-bred Plymouth Rock males, one for each twenty pullets. Stick to this same true-bred variety of males; never change this, and in a few years you will have a fine line of females all quite alike, providing you select continually as directed.

Much too often, when breeding up in this way, we make use of males that we breed ourselves from these matings. When we do, improvement ceases, because it is simply the intermingling of mixed bloods. On the other hand, when true-bred males only are used, and they are of the one true variety, for several years, their individuality is stamped upon the entire flock of hens, and they grow into a set and even type of fowls. If we have selected for the start the breed or its variety best suited to our wants, and follow up our matings every two years with new fresh, vigorous males of the same variety, we shall gain our reward by having a well-selected flock of even and regular quality, and with it all the advantages that come from having them. The same rule may be applied to any line or variety you prefer to have.

IMPROVING SIZE.

There are some improvements that come most quickly through the females. When it is desirable to have increased size, that will be most readily obtained through the use of large-sized hens—not fat, heavy hens, but fine, big hens with plenty of bone and frame. From such hens you will gain larger size in your chicks. From young pullets and small hens you may expect smaller offspring than the females that produce them. From the large mature hens you get increased size in the chicks. The same is true of Bantams—the smallest Bantams come from the smallest Bantam hens. For years those who bred Leghorns thought that the small size of the hens had to do with the egg yield—until the Minorca came into competition. Now, by selecting the largest Leghorn hens to grow their stock from, size is improved, constitutional vigor increased, and the more vigorous hens lay more eggs, and the eggs from the larger females are larger than those laid by the smaller ones.

This same influence goes throughout the entire list of land- and water-fowls. We are quite apt to pay too much attention to the size of the tom-turkey and too little attention to the size of the mother-turkey hen. The same with poultry, ducks and geese. It would be much better to pay more attention to selecting the females for our producing stock; for in so doing, we should gain faster and have less trouble in growing their young. Don't pay any less attention to the selecting of the males; continue in this, but gain the additional advantage that comes from the well selected females.—Country Gentleman.

Keep More Egg-Producers.

That too few fowls are kept by the average farmer goes without saying. That the quality of these fowls is not equal to what it should be is another potent fact. In attempting to treat on this subject I will not touch on the fancy, as I realize that farmers are not so much interested in fine feathers as in a strictly business bird, so let us talk business from a dollar-and-cent basis. It is a fact, but I believe not well known to farmers, that eggs can be produced with a much greater profit than milk or butter; besides this, poultry play a splendid accompaniment to the tune of improved dairying, which is being sung so much just now, for the surplus milk can be fed to poultry with greater profit than to pigs or calves.

The farmer's idea, usually, seems to be to produce enough eggs to balance the grocery-bill; this is good as far as

it goes, but if fifty hens will produce eggs enough at a profit to balance the grocery-bill, why not keep fifty more hens and balance the clothing-bill as well, and if these can be kept at a profit why not keep more and put the balance down in your jeans? They will be constantly enriching the soil and destroying many obnoxious insects about the farm. The question is often asked, Which is the most profitable breed to keep on the farm? This ought not to be a very hard question to determine when we take a look at the market, with eggs during the fall and winter at from 25 to 30 cents per dozen, and chickens during the same time from \$3 to \$3.50, with a market glutted with poultry and car-loads of eggs being shipped from the East, or, as a certain newspaper puts it, the market is usually "long" on chickens and "short" on eggs. Under these conditions a blind man ought to almost see where the best money is in poultry, which is in the best egg-producing breeds. Poultry on the farm can be managed largely by the family and considerable of the work can be done by children too small to be useful in the dairy; but I hear the farmer saying they are too much trouble, they bother the garden. Why, my friend, you can afford to raise a garden for them, and this is just what you should do—for turnips, beets or carrots, cooked and mixed with shorts for the morning meal and wheat at night will give as good results in egg-production as any of the fancy feeds and mixtures that can be conjured up; besides it has the advantage of being cheap and can be raised by the farmer.

A flock of hens, if given free range, will not only rustle for a large part of their food, but in doing this they will destroy the larvae of many injurious pests and turn these would-be destroyers into cash.

Keep a few more hens, Mr. Farmer, of some good egg-producing breed, then keep a careful account with them and the cow and determine for yourself if I have made an overdrawn statement.—Pacific Homestead.

Managing Broody Hens.

There is a whole lot of mistaken notions afloat about the best way to break up a broody hen. It is true that ducking her in the water will make her think of other things than hatching chickens, and throwing her over the fence by the tail will jar her some, and may "break her up" (or to pieces) if persisted in. Most of us keep hens for the eggs they lay. Therefore the only correct method of handling broody hens is not only to stop their desire to sit, but to induce them to begin laying again in the shortest possible time. Many people believe the thing to do is to shut in the broody hens in coops without food or water and "starve them to it." Others don't do anything. They just let them sit it out and incidentally feed the lice. They seem to go on the theory that a hen sitting is a hen resting, and ought to grow fat doing nothing.

Why does a hen get broody? There! You tell. It is a question of heredity. It would seem that there is a condition of nerve-exhaustion after a long period of laying, though it does not follow necessarily that there would be a condition of fat-exhaustion. Some of the fattest hens become broody. But whatever the theory, the fact is that the quickest and best way to break up broody hens and to get them to laying again is to remove them from the nest where they first show signs of getting broody. If they are permitted to stay on the nest for several days the desire to remain increases, and they are more persistent than if they had been removed promptly. They should be placed in coops or in a pen by themselves, where they can have plenty of pure air and an abundance of good rich food and clean water. If one has only a few fowls a separate pen is best and in this case a male should be placed with the hens. Where many hens are kept it becomes necessary to provide coops for the sitters and to place them where they will be the most convenient for the attendants to coop the hens each night when gathering the eggs. It is exceedingly difficult to fight the mites by this arrangement. We simply use 48- or 60-quart berry-crates, that can be purchased second-handed in most towns



POULTRY BREEDERS' DIRECTORY.

BLACK LANGSHAN EGGS for sale, 5 cents a piece. Minnie M. Steel, Gridley, Kans.

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

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

WHITE, LIGHT, WHITE PLYMOUTH ROCKS, the prize-winners at the Kansas State Poultry show, 1903. Remarkable for clear white plumage united with exceptional size and shape. Eggs from our best matings, \$2.50 for 15. Usher & Jackson, 1735 Clay St., Topeka, Kans.

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

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

EGGS FROM GEM POULTRY FARM are sure to hatch high-scoring Buff Plymouth Rocks. No other kind kept on the farm. 15 for \$2; 30 for \$3.50. Satisfaction guaranteed. M. B. Turkey eggs, 11 for \$2. C. W. Peckham, Haven, Kans.

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

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

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

VIRA BAILEY, Kinsley, Kans.

Pure-bred Light Brahma Eggs For Sale.

EGGS from our best pen headed by a cockerel scoring 94 points, mated to twelve extra fine pullets, for \$2 per setting of 15. Eggs from birds having run of the farm, \$1 per 15. Can furnish large orders for setting incubators on short notice as we have a large number of laying hens. Our stock is first-class and sure to produce good results that will please you.

Address F. W. DIXON, Holton, Kans.



DUFF'S POULTRY

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

A. H. DUFF, Larned, Kans.

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The only charge being \$10 for entry. Close to Churches, Schools, etc. Railways tap all settled districts. Send for Atlas and other literature to Superintendent of Immigration, Ottawa, Canada; or to the authorized Canadian Government Agent—

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for a mere pittance. At first they were used without alteration, being placed on the floor of each house, but the confined fowls would persist in flying out whenever others were added. The crates were then suspended like a cage by wires from the rafters, with a sliding slat for a door. This worked better, but the motion spilled the water from the dishes, and the other hens would persist in flying on the top of the crates to lay, even though the product would roll off a minute later and be broken. They were also hard to clean. We now simply knock off the top or the bottom of the crate, turn it upside down on the floor, fix a sliding slat on one end for a door, and all is ready. It is easy to whitewash inside and out, and quick to clean by lifting to a new place, there being no floor to the coop. It is not high enough for the hens to want to lay on it. By placing it next to the general waterpan we do not have an extra basin to fill. It is our practice to keep broody hens confined three or four days. A few of these go back to the nest and we have to re-sentence them to three days more imprisonment on full rations.

The things to bear in mind to break up the desire to sit are to act promptly and to so feed and care for the hens that they will be filled with new life and vitality, so that they will quit their nonsense and go to laying as soon as possible. This will save time, hens, and patience.—James E. Rice, in Tribune Farmer.

Lack of Grit.

Although not an article of food, grit is necessary to a bird's welfare and must be thought of as a possible cause of trouble. In my work of advising in poultry troubles I have opened dozens of brooder chicks that had both crop and gizzard filled with grit. Grit and nothing else. It is not safe to place clear grit and nothing else before little chicks. They are hungry and will fill up on grit alone if that is all within reach. It forms a solid impaction that is hard to break down and many chicks die as the result of it.

Adult birds, shut in during the winter months away from the soil, need grit and it must be supplied to have the birds keep healthy and lay eggs. If kept before them they will help themselves and not be obliged to scratch over the droppings to get filthy grit that has been through the fowl. Filth in any form is dangerous to health and being introduced on grit does not lessen the risk.—Poultry Keeper.

Grange Department.

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

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

NATIONAL GRANGE.

Master..... Aaron Jones, South Bend, Ind.
Lecturer..... N. J. Bachelder, Concord, N. H.
Secretary, John Trimble, 514 F St., Washington, D. C.

KANSAS STATE GRANGE.

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

EXECUTIVE COMMITTEE.

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

The Grange on the Pacific Coast.

Having just returned from a three-months' lecturing tour and study of the condition and necessities of the order in the States of Washington, Oregon and California, I have determined to carefully study the trend of thought and work for the order in the several States of the Union, and carefully note the conditions confronting the farmers' occupation in the various sections of our country, with a view, if possible, to advancing the interests of the order so as to give greatest benefit to our membership in every section of our beloved country, so vast in its territorial extent, and so varied in climatic and local conditions. Farmers who are engaged in a particular line or specialty sometimes feel they are not as much interested in the condition of farmers in remote sections of the country who are engaged in entirely different lines of agriculture, and therefore do not need to actively cooperate with them in securing just

recognition of their respective rights in business and legislation.

It occurred to me that it was the duty of our great order to study the trend of thought, and direct the minds of the American farmers along lines that will reach the conclusion that farmers of necessity must stand together, and see to it that all branches and subdivisions of our great industry must stand together, work together, prosper together, or suffer together for such failure.

The duties and responsibilities resting upon our order, and the part necessarily taken by the officers thereof—more and more impress me with the duty and responsibility resting on us. I have determined to give to this feature of the work of the order my earnest effort and thought.

Some of our members may sometimes forget the more serious and responsible duties of the officers of the Grange, and view the work of the lecturer as one of great personal pleasure to himself. Any one who goes out to lecture in the interest of our great order of Patrons of Husbandry should no doubt make himself as agreeable and pleasant to the members and all others as possible; but he should never forget that he stands as the representative of the great principles of our order; the observance of which leads to broader and better citizenship, to more profitable agriculture, and to the advancement of the general prosperity of a great nation.

Our first meeting in Oregon, held in the city of Portland, partook more of a National and Inter-state Council of Members of the Order of Patrons of Husbandry, State and city officials and citizens, and agricultural colleges and the public school interests of the great States of Washington and Oregon.

There were present, B. G. Leedy, Master of the State Grange, and wife; Postmasters Wm. Hilliary, Jacob Voorhes, and Judge R. P. Boise, and all the State officials of Oregon State Grange. And from Washington, Bro. and Sister J. O. Wing, Master Washington State Grange, Postmasters Bro. D. L. Russell and wife and Bro. Augustine High and wife, and nearly all the officers of the Washington State Grange, a representative of the Governor of the State of Oregon and mayor of the city of Portland, the chairman of the board of trade of the city of Portland, the State and county superintendents of public schools, the directors of the United States Experiment Stations for the States of Oregon and Washington, and the agricultural professors from the agricultural colleges of the States of Oregon and Washington, and representative men from the farm and factory and from all lines of business within a radius of one hundred and fifty miles, extending into the State of Washington as well as Oregon. This large representative assembly had gathered to take counsel with our order to advance the cause of the great basic industry of our country, and to promote better education and a broader citizenship. This representative meeting continued for two days, holding three sessions each day, and attracted great attention from all classes of citizens on the Pacific coast.

It is not my purpose to speak in detail of the arguments advanced by the various representatives there assembled. The influence of this one meeting was felt in every portion of the great States of Washington and Oregon, and attracted the attention of all the people to the work of the order of Patrons of Husbandry, and I do not think it overstates the matter when I say that the National character and great work accomplished by our order was understood and appreciated by all the people of the Pacific coast better than ever before. As a result of this one meeting a better feeling will obtain between residents of city and country; the standard of country schools will be raised; a large increase of members to our order secured, and the farmer will have a higher appreciation of his calling and his importance in the industrial activities and in State and National prosperity.

Faternally,

AARON JONES,
Master Nat. Grange P. of H.

Women and the Grange.

Many of our readers will recall the sketch of the Grange which State Master Westgate of Kansas read last January at the annual meeting of the Kansas State Board of Agriculture. The paper was followed by a discussion; ex-Governor Glick and others joined, all testifying to the worth of the Grange. The first of these extemporaneous addresses was by a woman, Mrs. Bina L. Otis, who spoke as follows: "It was some thirty years ago that I

joined the Grange. I would say to President Taylor that I was at the State Grange held in this city twenty-nine years ago, to which he referred. But thirty years ago would an agricultural society or any other society have asked a gentleman to prepare a paper and give him time to prepare it, and then on a moment's notice ask a woman to say anything?

"The brother has spoken of the past of the Grange and of the future. As I look on the past, I see that one of the objects of the Grange was the development of a higher manhood and womanhood—in fact, I believe this is the point. It was not only for the organization of the Grange. The brother said woman was admitted on an equality with man. I say she was put ahead! There are three or four offices in the Grange that no man can fill; and I have yet to see the place that a woman can not fill in the Grange. But in putting women forward in the Grange, I think the organizers very feebly realized what they were doing for the benefit of mankind. Where you develop the mother, there you bring a higher development into our homes. The development of each member of the family is increased by the mother leaving her dish-washing and her cooking for a short time and getting out and meeting with others, and through this rubbing and mixing with others she becomes more polished intellectually. I believe that the Grange has done more for women than any other organization. The Grange was organized before the fad of women's clubs. It was before any other organization had taken up the subject of bringing woman forward to realize that she had some public duties. When I first joined the Grange our master would address the brothers without saying a word to the sisters, and if any of the sisters ventured a word, she got up with fear and trembling. I well remember that when our first little girl was 6 years old, we met with the State Grange in Lawrence, and when Bro. Popenoe, one of the pioneers of the Grange, moved that they name her Flora in honor of the position I had held some years, I wished to get up and say 'Thank you' to the Grange. If you had known how my voice trembled, and I felt 'that sinking feeling,' you would never have invited me to 'back a man up,' as Bro. Westgate says.

"What of the future? The future is great. We have started on to intellectual development and the future will be just what we make it. You can't stop it. It is part of the evolution of the times. The rural delivery has brought the intelligence from all over the country to the farmers' home, and you will find the woman snatching a few minutes from her morning duties to read the morning paper. So you can't stop it. We are going on, and in the picture which the brother gave who read the paper on the 'Hog,' you will see the influence of the Grange."—Grange Bulletin.

Value of the Grange.

"I have no hesitation in saying that the Grange has been exceedingly beneficial to the farmers of the United States, and I hope they will continue their good work in the future, bringing to the front in each locality the prominent farmers and making them active and useful to their fellows, not only so, but recognizing womanhood in her sphere, giving her countenance and opportunity to do work that only woman can do. The Grange is moving along wisely and conservatively at the present time. It is doing its work along safe lines, and every effort made along these lines is valuable to producers, not only in regard to the markets of the world, but with regard to home

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markets. I cordially endorse the organization, its aims and objects and wish it God-speed."—Secretary of Agriculture Wilson.

Last of Foot-and-Mouth Disease.

The Secretary of Agriculture, having completed a careful investigation of the States now in quarantine for foot-and-mouth disease, through the inspectors of the Bureau of Animal Industry, without finding any cases of the disease during the last five weeks, has decided to offer a reward for all cases that are reported prior to July 1, the object being to ascertain with all possible certainty that the disease has been entirely eradicated, before the quarantine is removed and foreign countries are asked to again receive live stock from New England ports. It is believed that the disease has been entirely eradicated, and this reward is offered as a final effort to discover any traces of contagion that may possibly exist.

The following is the text of the offer issued by the secretary:

"A reward of two hundred and fifty dollars (\$250.00) will be paid to any person who shall, before June 30, 1903, first report to the Chief of the Bureau of Animal Industry, Washington, D. C., the existence of any specific case or cases of foot-and-mouth disease (epizootic apthae) in any animal or animals either in Massachusetts or New Hampshire. The nature of the disease must be confirmed by the inspectors of this Department."

This country has turned out some great men—and it should turn out some others. If you want to be great on the farm get next to our "Blocks of Two."

Farm Wagon Only \$21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon; that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only \$21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

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Work fastest, bales are tightest and shapeliest. Load cars to best advantage. Bales that endure, insure safety and facilitate work. Steel and wood frames, horse and steam powers. Full catalog free. Collins Plow Co., 1120 Hampshire St., Quincy, Ill.

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Use our latest improved machines and you can down all competition! The old kinds are "not in it." Address LOOMIS MACHINE CO., Tiffin, Ohio.

HOMESEEEKERS

Going to the Southwest Country in Missouri, Arkansas, Kansas, Oklahoma, Indian Territory, and Texas, along the



are finding excellent opportunities for improving their present conditions.

For all kinds of farming, fruit growing, and stock raising there is no better country, and lands are remarkably cheap considering what they will earn. Special Excursion Rates first and third Tuesdays of each month. Responsible representatives on the ground to show you the country.

For further information, address S. A. HUGHES, General Immigration Agent Frisco System, St. Louis, Mo.

Miscellany.

Four New Farmers' Bulletins.

The U. S. Department of Agriculture has recently issued Farmers' Bulletins Nos. 169, 170, 171, and 172.

Farmers' Bulletin No. 169 is one of the subseries compiled from the published reports of the agricultural experiment stations and kindred institutions in this and other countries. The title is "Experiment Station Work—XII." It was prepared in the Office of Experiment Stations. It contains articles on "Pure Water for Cows," "When to Cut Forage Crops," "Lippia or Fog Fruit," "Pithiness in Celery," "Irrigation of Strawberries," "Farmers' Fruit Garden," "Management of Orchards," "Tropical and Subtropical Fruits," "China Asters," "Preserving Sweet Potatoes," "Food Value of Beans," "Tankage for Pigs," and "Remedies for Flees."

Farmers' Bulletin No. 171—"The Control of the Codling Moth," by C. B. Simpson, Division of Entomology, is the result of three years' investigation of this insect in the Northwest. The author says "It has been estimated that from one-fourth to one-half of the apple-crop of the United States is either totally ruined or materially injured by it. In many large areas this insect would cause a total loss if it were allowed to take its natural course." The bulletin mentions the fruits infested and gives the life history of the insect, its natural enemies, together with preventive and remedial measures.

The bulletin concludes: The results secured against this insect by these methods under the different conditions found in the various apple sections of the United States are very satisfactory. In the infested sections of the far West, if no measures are used, from 85 to 100 per cent of the fruit is injured. By an intelligent application of these preventive and remedial measures many practical tests show that from 85 to 98 per cent of the fruit may be saved.

Farmers' Bulletin No. 172—"The Classes of Insects mentioned in 'Scale Insects and Mites on Citrus Trees,' by C. L. Marlatt, Entomologist in Charge of Experimental Field work, Division of Entomology, are the most important enemies of the citrus fruits and many inquiries concerning them are received by the Entomologist. The scale insects, or bark-lice, are the most important insect enemies of citrus, as they are also of most other subtropical plants.

Next in importance to the scale insects are the mite enemies of the orange and lemon, as represented by the mite which causes the rusting of the orange in Florida and the silvering of the lemon in California, and also the leaf mite, known as the six-spotted mite of the orange.

Of very great importance to the Florida grower of citrus fruits is the so-called white fly, the latter not being a scale insect in the ordinary acceptation, but in the essential features of life history and habits coming in the same category, and hence properly considered with the true scale insects.

There are many insect enemies of citrus plants other than the scale insects and mites but they are only occasionally abundant enough to be especially destructive.

Directions are given for the control of the insects and mites which will be of special service in California, throughout the Gulf region, including Florida, and in our new subtropical possessions.

Boots and Shoes for Foreigners.

The growth of the exports from the United States covers a wide range of products. American manufacturers are pushing their wares into many lands.

Exports of boots and shoes in the fiscal year about to end seem likely to exceed those of any preceding year, both in quantity and value. In 1880, the number of pairs of boots and shoes exported was 378,274; in 1890 the number had only increased to 587,108 pairs; by 1900 the number had grown to 3,016,720 pairs, and in 1902 the total was 3,966,766 pairs; and in the fiscal year about to end the total will pass the four million line. The total value of boots and shoes exported has grown from a little over a half million dollars in 1893 to over six millions in 1903. In 1893 the total value of boots and shoes exported was \$590,754; by 1895 it had practically doubled, being in that year, \$1,010,228; by 1899 it had doubled again, being in that year, \$2,711,385. Within two years the total again doubled, being in 1901, \$5,526,290, and in

the fiscal year 1903, which ends June 30, the total value of boots and shoes exported will be between six and seven million dollars.

Of the six million dollars' worth of boots and shoes exported in 1902, two million dollars' worth went to the United Kingdom, practically a million dollars' worth to British Australasia, over a half million dollars' worth to Mexico, a half million dollars' worth to Cuba, and about an equal sum to Canada.

The following table shows the exports of boots and shoes, by quantities, from 1892 to 1902:

Year.	Pairs.
1892	745,112
1893	498,027
1894	647,318
1895	622,412
1896	1,036,235
1897	1,224,484
1898	1,307,451
1899	1,834,277
1900	3,016,720
1901	3,492,041
1902	3,966,766

States at the World's Fair.

The appropriations made by States and Territories for the World's Fair at St. Louis indicate in a measure the progress of the various commonwealths in affluence and civilization. In answer to many inquiries as to what the States did at Chicago, and what they will do at St. Louis, the following table has been compiled. Though prepared nearly a year in advance of the opening of the exposition, it shows an increase over the appropriations for the Columbian Exposition amounting to \$707,969. Substantial additions will be made by the Legislatures meeting before the 30th of April next, the date set for the opening of the exposition:

States and Territories.	World's Fair St. Louis, all sources.	Columbian Exposition, all sources.
Alabama.....	\$ 50,000	30,000
Alaska.....	60,000	55,000
Arizona.....	80,000	510,000
Arkansas.....	125,000	220,000
California.....	150,000	70,000
Colorado.....	100,000	20,000
Connecticut.....	10,000	10,000
Delaware.....	10,000	10,000
Dist. of Columbia.....	10,000	10,000
Florida.....	150,000	150,000
Georgia.....	60,000	50,000
Hawaii.....	40,000	800,000
Idaho.....	282,000	129,000
Illinois.....	150,000	50,000
Indiana.....	150,000	138,000
Indian Territory.....	50,000	66,000
Iowa.....	125,000	100,000
Kansas.....	175,000	40,000
Kentucky.....	100,000	30,000
Louisiana.....	120,000	50,000
Maine.....	50,000	175,000
Maryland.....	125,000	127,000
Massachusetts.....	100,000	150,000
Michigan.....	100,000	250,000
Minnesota.....	100,000	150,000
Mississippi.....	150,000	50,000
Missouri.....	1,000,000	50,000
Montana.....	125,000	50,000
Nebraska.....	35,000	25,000
New Hampshire.....	100,000	142,500
New Jersey.....	130,000	42,000
New Mexico.....	130,000	610,000
New York.....	1350,000	10,000
Nevada.....	20,000	34,000
North Carolina.....	75,000	52,500
North Dakota.....	150,000	187,000
Ohio.....	175,000	17,500
Oklahoma.....	60,000	60,000
Oregon.....	100,000	550,000
Pennsylvania.....	1300,000	500,000
Philippine Islands.....	500,000	52,500
Porto Rico.....	120,000	60,000
Rhode Island.....	135,000	35,000
South Carolina.....	130,500	40,000
South Dakota.....	140,000	40,000
Tennessee.....	110,000	40,000
Texas.....	100,000	63,673
Utah.....	50,000	14,750
Vermont.....	100,000	33,000
Virginia.....	100,000	215,000
Washington.....	85,000	60,000
West Virginia.....	75,000	165,000
Wisconsin.....	100,000	30,000
Wyoming.....	25,000	
Grand total.....	\$6,107,500	\$5,524,928
Amount expended at Chicago.....		125,397
Net total expended at Chicago.....		\$5,399,531
Grand total raised for St. Louis.....	6,107,500	
Grand total expended at Chicago.....	5,399,531	
Difference in favor of St. Louis.....		\$ 707,969

*Appropriation pending.
†Appropriation to be increased.
‡Includes cost of exhibit now on hand.

Studies Farming.

EDITOR KANSAS FARMER:—Find enclosed \$1.00 for two subscriptions to the "Old Kellie." It is a welcome weekly guest at our home. I am a carpenter and joiner by trade, also make foundry patterns, etc., when living in a city, having followed the occupation nearly 30 years. Never farmed a week in my life. This year my 13-year-old son is farming some 10 or 12 acres, and we are following the advice of the KANSAS FARMER and Wallace's Farmer, of Des Moines. Both are excellent farm journals, well worthy of the patronage of the farming public, who wish scientific and intelligent information upon the oldest, most profitable and independent occupation known to man. Successful farming is a trade that must be learned as well as any mechanical pursuit.

Our crop prospects are good in this locality. Although corn is late it looks

well; greater portion is cultivated the second time. Small grains all O. K. Wheat headed. A good rain on Sunday, the 21st. Carpenters all busy on farm buildings here. I think we will return to Kansas next year and purchase a farm.

Success to the successful KANSAS FARMER.
GEO. W. YOUNG.
Benedict, Neb.

WEEKLY WEATHER-CROP BULLETIN.

Weekly weather-crop bulletin for the Kansas Weather Service for the week ending June 23, 1903, prepared by T. B. Jennings, Station Director.

GENERAL CONDITIONS.

The week has been much warmer, the temperature being more nearly normal, with an abundance of sunshine. Showers have been well distributed, and in most instances ample for present needs.

RESULTS.

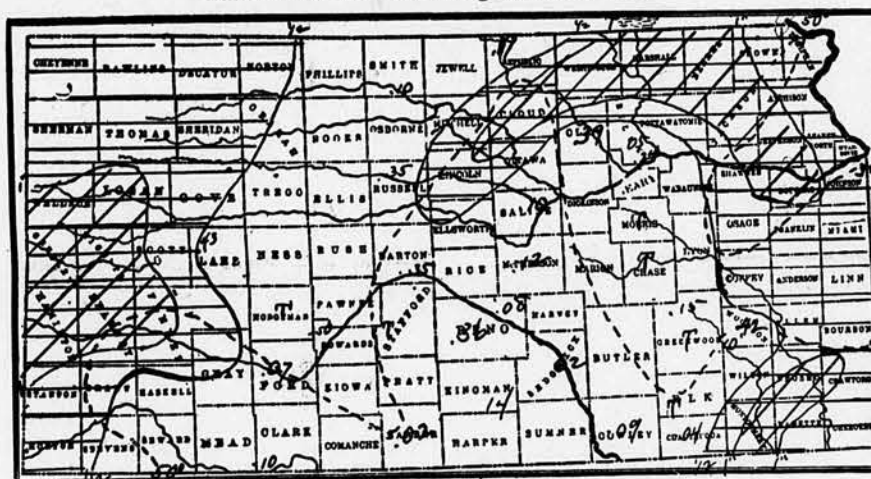
EASTERN DIVISION.

Wheat harvest is progressing in the extreme south showing a good berry; it is ready for harvesting in the south central counties, and is in good condition in the central and northern. Corn is being cultivated and has made considerable improvement; replanting is about finished. Oats continue in fine condition, and in Chautauqua are about ready to harvest. The first crop of alfalfa is now mostly in the stack, having been secured in good condition, and the second crop is making a good start. Grass—tame and wild—is in fine condition and pastures are very fine. Potatoes are in good condition in the central and northern counties and are being marketed in the central. Although apples are falling badly in Cherokee, they are in fine condition in Labette, and the June apples are ripening in Crawford. Raspberries the abundant in Shawnee. Millet and cane are being sown on the land in Chase that was inundated. The surface of the ground generally has been hard after the subsidence of the rains and the showers the past week have proved quite beneficial.

Allen.—Most of the corn planted; wheat almost ready to cut, and a fine crop; oats promise a good yield; flax is also very good; grasses of all kinds fine; corn very weedy and ground hard.

Anderson.—Early corn somewhat improved; late planting coming up, but is not promising;

Rainfall for Week Ending June 20, 1903.



Minimum temperature shown by broken lines.

SCALE IN INCHES.

Less than $\frac{1}{8}$. $\frac{1}{8}$ to 1. 1 to 2. 2 to 3. Over 3. T, trace.

ground moist below, but baked on the surface; some fields too hard to plow; wheat turning; timothy and clover in full bloom; alfalfa being cut; rain needed to soften the crust.

Atchison.—Good week for farming; most of the washed-out corn replanted, except in the bottoms where the ground is still too wet; oats and grass looking fine; wheat and rye good crops and ready to cut.

Bourbon.—Fine weather for farming; prospects for good oats crop; wheat still promising though this county raises but small acreage every year.

Brown.—Fine weather for crops; wheat will be good, not damaged by rust as badly as supposed; more or less corn had to be replanted, but conditions are much improved.

Chase.—Farmwork progressing well; becoming rather dry for gardens and potatoes; corn ground difficult to till, needs rain; first crop alfalfa about all in stack; second crop starting; wheat ripening nicely; some corn planted during the week, while others are cultivating the second time; millet and cane being sown on land that was inundated.

Chautauqua.—Wheat harvest being rushed; good crop of alfalfa harvested; corn has been cleaned out and is growing well, but is small for the time of year; oats are a good crop and about ready to harvest; forage crops will be large and valuable for this season; potatoes are growing very large but are soft, too much water for them.

Cherokee.—Corn is being rapidly cleaned and is changing color; all crops doing well; wheat harvest has begun; apples have fallen badly; potatoes very poor, too much water.

Coffey.—Good week for cleaning out the cornfields; corn about all planted; early corn improving; wheat that was not overflooded doing well; all field crops doing well; apples very scarce in some localities.

Crawford.—Corn planting nearly finished; good week for all growing crops; oats fine; corn growing; wheat turning; grass good; mulberries ripe; blackberries ripening; June apples ripening, they are small but have good flavor; all kinds of berries plentiful.

Doniphan.—Wheat harvest will begin next week; crop will be light; corn very backward and yellow; oats fairly good.

Elk.—Rain needed to soften the baked crust on the fields; corn improving since it has been cultivated.

Franklin.—A good week for farmers; corn is nearly all planted; cherries ripening; greenwood.—Good week for farmwork; most corn is well cleaned; some ground is still hard and cloddy; first crop of alfalfa mostly in stack; pastures good, and cattle doing well.

Jackson.—Good weather for all crops; corn all replanted, and is being cleaned; alfalfa and doing well on uplands; wheat is ripening finely; all grass crops will make a good yield.

Jefferson.—Some of the corn is still very weedy, but much of it is greatly improved by cultivation; still planting on the bottoms; oats and all other crops doing well.

Johnson.—Good week for farmwork; some not

through planting yet; corn that has been cultivated is getting a better color; wheat harvest is beginning; English blue-grass is looking well and will soon be ready to cut; clover about ready to cut; no peaches or pears; apples will be a light crop.

Labette.—Wheat only a fair yield, but an excellent berry; about two-thirds cut; oats not very promising; corn small and weedy, but growing well now; being cultivated; pastures fine; potatoes poor; apples in good condition.

Linn.—Wheat harvest next week, only a fair crop; oats promise a good crop; corn all planted and farmers are busy tending it; some of the early corn looks well, but late planting is just coming up; tame grass good.

Leavenworth.—Corn poor and weedy, and some not yet planted; oats looking well; pastures good; stock doing finely; apples and cherries few, plums none.

Marshall.—Fine growing weather; ground in good condition for cultivation; corn is backward, but its color is good and it is growing well now; wheat and oats are doing well; first crop of alfalfa saved in good condition; grass and pastures fine; potatoes and gardens now doing well.

Montgomery.—A good week for corn, and wheat harvest; wheat is good in many fields, in others very poor; corn has made a good growth; the flooded bottoms are generally replanted; grasses in good condition; a fair crop of blackberries is being marketed.

Morris.—Good week for farmwork; corn about all planted; cultivation in progress, but the corn is weedy and rain is needed to soften the ground; alfalfa cut and stacked; fine second growth where first cutting was early; oats looking well; potatoes will need rain soon to make much of a crop; most all overflooded land replanted to corn and Kafir-corn.

Pottawatomie.—Favorable week for planting corn in the flooded districts; some has been plowed and looks well; good crop of alfalfa cut and mostly secured; wheat nearly ready to cut; new potatoes beginning to come in, a good crop; strawberries plentiful.

Riley.—Farmers in flooded districts are replanting corn; second crop of alfalfa coming nicely; some wheat ready to cut; all crops on the uplands are in fine condition; ground is baked on the surface and needs rain; a large crop of raspberries ready for picking.

Shawnee.—A warm, growing week with showers; marked improvement in condition of all growing crops; corn replanting is being pushed in the flooded bottoms; wheat ripening finely; oats heading and very promising; on uplands most of the corn is up and a good stand, but needs tending; pastures good and cattle doing well; first crop of alfalfa not all harvested; raspberries ripe, a fine crop.

Woodson.—A favorable week for all growing crops; corn though small is growing rapidly and looks fine; planting about finished; wheat about ready to cut; potatoes and raspberries on market; ground very hard and in need of rain.

Wyandotte.—A fine week for work; early wheat ready to cut; condition of corn improving; in the bottoms the corn is being replanted as fast as the ground dries; new potatoes are being used.

MIDDLE DIVISION.

Wheat is being harvested in the southern tier of counties and is ready to harvest in the next counties north; it is ripening in the central counties. While in Barber the wheat is not so well filled as expected. In Butler it is not injured by rust as anticipated. A good crop is believed to be in sight. Corn is being cultivated and is improving; it is growing rapidly. Oats are doing well, and harvest will begin in another week. Rye harvest is progressing in the south and is ready in the central counties. The first crop of alfalfa is good and most of it has now been secured without injury. Grass is very good. New potatoes are being marketed in many of the counties and are a good crop. Early apples are on market in Cowley. Apples have ceased dropping in Barber but farther north they do not amount to much.

Barber.—Fine week for all growing crops; wheat and rye harvest begun; wheat not so well filled as expected; rye good; oats and corn doing well since the weather became warmer; potatoes a good crop; apples have ceased dropping; peaches a fair crop; cattle on range doing well.

Baron.—Wheat ripening; first crop of alfalfa in stack, a fair crop; plenty of garden vegetables in market; potatoes fine, will soon be ready for use; very few apples.

Butler.—All farm interests progressing well; rust not injuring the wheat; corn being rapidly cleaned and making fair growth; first crop of alfalfa has been secured in fine condition.

Clay.—Wheat on uplands in fine condition and ripening; replanting of corn finished; upland corn growing much faster since the showers and warm weather; some fields being cultivated the second time; prospects for oats unusually good; apples almost a failure.

Cloud.—Wheat and oats in fine condition; harvest will begin about the first of July; corn has made rapid growth during the week.

Cowley.—Fine growing week; harvest in full blast; wheat turning out well; oats promise very heavy yield; corn growing rapidly; early apples and blackberries in market.

Edwards.—A week of sunshine; everything in fine condition; corn growing rapidly.

Jewell.—A fine week for harvesting alfalfa; it is getting a little dry.

Kingman.—Corn fairly clean and growing rapidly; wheat about ready to harvest; oats unusually good; early potatoes in market, fine quality, large yield; cherries ripening, small crop; grass in fine condition.

McPherson.—Wheat ripening, stand good, yield and quality promise well; corn doing well; new potatoes good size; garden truck abundant; rain needed.

Phillips.—Wheat, oats, and rye in good condition; first crop of alfalfa good and nearly

harvested; corn small but doing well; potato crop good.

Reno.—Good growing weather; wheat looks fair, some falling down, straw being weakened by the fly; corn backward but is looking well; cultivation progressing rapidly; new potatoes in market; peach trees dropping much of their foliage and fruit as a result of the excessively wet weather in May.

Republic.—Oats generally rather thin, but some fields are thick enough; a fair crop promised; considerable rust in wheat, but damage seems to be only slight; corn being cultivated and looking well; alfalfa a heavy crop and mostly put up; rye nearly ready to cut; show-ers needed to soften the crushed surface of the ground.

Russell.—A fine week for farmwork; corn cultivation being rushed; good weather for wheat; new potatoes being used.

Saline.—Warm, dry week; rain needed; wheat where uninjured by the water promises a fair yield; oats looking well; some replanted corn coming up.

Sedgwick.—First cutting of alfalfa harvested; very good crop, and was put up without getting wet; wheat is ready to cut and is a very good crop; corn looks fine but will soon need rain; oats doing finely.

Smith.—Wheat in the dough and promises a good crop; corn and all vegetation growing rapidly; prospects good for oats; first crop of alfalfa cut and mostly stacked; pastures good.

Stafford.—Wheat ripening very slowly; corn growing and doing well.

Sumner.—A dry, warm week; wheat harvest in full blast; oats turning; corn doing well.

Washington.—Having some fine rains; farmers busy cultivating corn which has a very uneven stand and has required a great deal of replanting; wheat and all other small grain doing well; alfalfa good; grass doing well; potatoes look well; fruit generally a failure.

WESTERN DIVISION.

Wheat harvest has begun in Clark; wheat is heading nicely in Ford, is headed in Ness, is beginning to fall in Thomas, and is in fine condition in Wallace and Decatur. Corn has begun to grow in Ford, is growing nicely and improving in color in Lane, is growing rapidly in Ness and is being worked in Norton. Oats are improving, showing effects of warmer weather, and in Ness are heading. Rye is in good condition, and in Ness some of the crop is being cut for hay. Barley is in fine condition. The first crop of alfalfa is in the stack in good condition. Grass is fine. Kafr-corn, sorghum and millet are being sown in some counties, and are up in others, showing good effects of warmer weather.

Clark.—Harvest has commenced; good weather so far; first crop of alfalfa nearly all cut.

Decatur.—All kinds of small grain well headed and filling well, wheat and barley being especially fine; corn a fair stand; rather small, but growing rapidly now; alfalfa crop rather short; mostly cut and much in the stack.

Finney.—Two good rains during the week; all crops in fine condition, being benefited by the warmer weather; acreage of corn small; first crop of alfalfa in the stack and second crop growing rapidly; wheat, rye, and barley good.

Ford.—The first warm weather of the season has started the corn to growing; wheat, barley, and oats continue fine; wheat heading nicely; grass making good growth and stock thriving.

Gove.—First crop of alfalfa mostly in stack; wheat unusually good; barley looks well, but oats are not quite so good; corn growing rapidly the last few days; new potatoes being used, a fine crop; range-grass unusually good.

Grant.—Fore part of week too cold for all crops but grass, it is fine; cattle doing well; most forage crops will have to be replanted.

Hodgeman.—Rain is needed in this county; some grain lodged by high wind.

Lane.—A good week for corn; which is growing nicely and improving in color; Kafr-corn and cane coming up with a good stand; beginning to use new potatoes.

Morton.—A cloudy week, but not much rain; stockmen are busy planting fodder crops.

Ness.—A favorable week for crops; corn growing rapidly; alfalfa ready to cut; considerable rye being cut for hay; rye, wheat, and barley headed; oats heading; feed-planting well advanced; hay crop will be large; potatoes and gardens fine.

Norton.—Good growing week with local showers; corn being cultivated and making rapid growth; first crop of alfalfa harvested in good condition.

Thomas.—Good growing week for corn and barley; barley fine; wheat showing effects of dry weather in spots; early wheat and rye beginning to fill; potatoes good; rains beginning to be needed.

Trego.—Prospects very good for all crops; alfalfa in stack.

Wallace.—First crop of alfalfa nearly all cut, some fields light on account of freezing, others good; barley, rye, wheat, and range-grass fine; cattle doing well; forage crops coming on well, some still planting; potatoes and gardens look fine.

The Great Parks of Colorado

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

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

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

Full information cheerfully furnished on application to J. C. FULTON, Depot Agt., Phone 34, F. A. LEWIS, City Ticket Agt., 525 Kansas Ave., Phone 53.

Do you know that sick headache is a typical nervous disorder and that the theory that it is caused by some derangement of the stomach or liver is unscientific and not sustained by facts? Everybody knows that injuries and diseases of the brain often produce vomiting and that a disgusting mental impression will cause sickness of the stomach in many persons.

A leading nerve specialist after long experience states that the first symptoms of an attack of sick headache are always felt in the head, and in some cases several hours elapse before the stomach becomes perceptibly deranged.

If you can not attend church, the theater, places of amusement, parties; if you can not have the least cold, or pass through the least excitement without having headache and other disagreeable symptoms there is evidenced a weakened state of the nerve centers in the brain and to effect a complete and permanent cure Dr. Miles' Restorative Nervine should be taken regularly as directed.

In chronic cases where the sufferer usually knows some hours before that a headache is coming on the attack may

be prevented entirely by the use of one or two Anti-Pain Pills.

They are invaluable to travelers, giving almost instant relief from the fatigue, nervous exhaustion and eye strain which so often attends sight seeing.

Dr. Miles' Anti-Pain Pills are equally good for all bodily pain. The next time you have an attack of neuralgia, sciatica, lumbago, rheumatism, backache, toothache, or other pain try Dr. Miles' Anti-Pain Pills at our risk.

Anti-Pain Pills are a perfect pocket remedy, as they may be swallowed whole or chewed and swallowed with equally good results. They do not contain opiates nor create a craving, they do not affect the stomach or bowels in the slightest degree and are never sold in bulk. All druggists sell and guarantee them to bring relief or money refunded. Twenty-five doses twenty-five cents, or five packages \$1. They will be mailed upon receipt of price.

Dr. Miles Medical Co., Elkhart, Ind.

It Is Excellent.

New Canada, Minn., February 21, 1902. I was chopping wood and my hands were all blisters and sore. I was advised to use Watkins' Petro-Carbo Salve and bought two boxes. It is excellent and will not be without it.

FRANK SUCHLA.

Low Rate to Boston.

One fare for the round trip via Chicago Great Western Railway. Tickets on sale June 24-26. Good to return July 2d (or August 1, by payment of 50 cents extra). Stopovers allowed. For further information apply to any Great Western agent, of J. P. Elmer, G. P. A., Chicago, Ill.

A Bag of Gold

has immeasurable attraction for any one. Let us send you attractive "Katy" publications which will interest you. "The Golden Square," "Timely Topics," "Old Mexico," and others. Free for the asking. Address, "KATY,"

512 Wainwright Bldg., St. Louis, Mo.

"Town Talk" tells all about the new towns on the Chicago Great Western Railway. For free copy send to Edwin B. Magill, Mgr., Townsite Dept., Fort Dodge, Iowa.

THE MARKETS.

Kansas City Live Stock and Grain Markets.

Kansas City, Mo., June 22, 1903.

Four packers bought cattle here to-day, either for their home plants or else to ship. Receipts amounted to 26,000 head, the biggest day's supply since the flood, and the railroad roster showed that nearly all lines are now in shape to bring the stock to market. Receipts at five markets recorded a drop of 23,600 head from last Monday and this proved to be a strong stimulant to trade. The general market ruled steady to 10c higher than the close last week. Top native steers brought \$4.95, Ames-Ascheroff, of Grain Valley, Mo., marketing a drove of cattle at that price. Cows sold up to \$4 and heifers largely at \$3.50@4.25. Cudahy and Schwarzschild will resume killing operations the close of this week, and next Monday all the packers announce that they will be slaughtering cattle, hogs, and sheep at their full capacity.

Hog receipts were fair at 5,200 head. The supply in the West aggregated 76,000 head and were too much to support prices. Values were weak to 5c lower on heavy hogs while pigs and lights sold steady to strong. The close on heavy killing swine was around 10c lower. Tops brought \$6, while bulk of sales were at \$5.80@5.87½. Sheep were in fair supply, the run aggregating 2,700 head. Early offerings of natives sold nearly steady. Several loads that arrived late were shipped on because of unsatisfactory bids. Shorn Mexican lambs brought \$5.25.

The horse market operated to-day for the first time since the flood. About 200 head were offered in the auction. The demand was mainly from the East and called for massive horses, 1,400 pounds and upwards. Values were a little lower than the first of June and were \$15 @25 lower than the high time of the spring. Good drafts brought \$150 @175 and plainer city horses \$100@125.

Receipts of cattle here last week were fully in accord with the crippled condition of the market, total arrivals reaching 5,500 head. A year ago receipts were 23,400 cattle. In spite of the absence of supplies the past three weeks, however, receipts for the year to date show a gain of 65,000 head over last year. Prices here declined 15@25c on Monday and Tuesday out of sympathy with breaks elsewhere. A letup in supplies the last few days, however, saw this all regained. The demand for feeding steers and stockers was most unsatisfactory because shippers could not get out with their purchases. Very good feeders brought \$4@4.25. Best fat steers were worth \$4.50@4.85; heifers \$4@4.70 with fair kinds at \$3.75@4; cows \$2.75@4, the latter price applicable to choice kinds alone. By June 29, Swift & Co. will resume business and it is expected that the yards will be in shape to care for any sized runs by that date. Until then shippers are advised to bring in only stock that it is absolutely imperative to move.

Hog receipts were larger than anticipated, the supply aggregating 35,000 head, against only 41,600 a year ago. This was a pretty fine showing when it is considered that only two packers were able to take care of the offerings. There was no notable change in the market during the week, prices holding nearly steady from day to day. Tops brought \$6.02½. At the close the bulk of sales were commanding \$5.85@5.90, with tops at \$5.95. Swine prices at present are about \$1.50@1.75 below those current a year ago. Pigs sold a trifle mean, but were fairly well in line with heavy swine. Receipts at Western markets during the week aggregated 357,000 head against 300,700 the same period in 1902.

Among those in during the week with the best cattle were: John Sheehan, Paola, Kans., steers and heifers, \$4.65; H. E. Best, Golden City, Mo., steers, \$4.80; S. T. Shanklin, Ft. Scott, Kans., steers, \$4.85; H. V. Rowe, Hymer, Kans., heifers \$4.70; M. Z. Long, Neodesha, Kans., heifers, \$4.45; Peter Johnson, Eldorado, Kans.,

Special Want Column

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

CATTLE.

FOR SALE—A. J. C. C. St. Lambert bull calf dropped September 20, 1902, solid gray color guaranteed a No. 1 individual or money refunded. Edward Hunzicker, Colony, Kans.

REGISTERED HOLSTEINS FOR SALE—If you want a herd bull, write me for price on an elegant young bull, 15 months old, Sir Henry of Buffalo. His dam has a record of 72½ pounds milk in one day, 481 pounds in 7 days, and 2040 pounds in 30 days. His sire was one of the prize bulls at Omaha Exposition. Also a few splendid cows and several other young bulls. C. C. Lewis, Baldwin, Kans.

FOR EXCHANGE—I will give fifty shares of Public Service Publishing Co. Stock, of New York, for which I paid Twenty-five Hundred Dollars, for twenty cows and two bulls, Shorthorns; or for ten Percheron mares; must be young and prize-winning stock. On cars Kansas or Missouri. Send descriptions to "Exchange," lock box 469, Stroudsburg, Pa.

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

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

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

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

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

FOR SALE—Guernsey bulls from best registered stock. J. W. Perkins, 423 Altman Building, Kansas City, Mo.

SWINE.

PEDIGREED Duroc-Jersey Pigs—100 head of extra good ones; also a few bred sows. C. Dorr, Peterson, Kans.

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

FOR SALE—B. F. Tecumseh (6887), a fine yearling Poland-China boar. A first class individual and breeder. Write for breeding. I. B. Moore, R. F. D. 1, Wichita, Kans.

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

FOR SALE—A few nice young boars of October farrow, sired by Kansas Chief, a son of Chief Tecumseh 3d. C. M. Garver & Son, Abilene, Kansas.

POULTRY.

BARRED ROCKS ONLY—Heavy boned, vigorous stock, unlimited range. Eggs carefully and securely packed. 100, \$4.15; \$1 Adam A. Wier, Clay Center, Neb.

steers, \$4.80; T. G. Delhouse, Lafayette County, Mo., steers, \$4.75; and Z. T. Heath, Erie, Kans., steers, \$4.85. Among those topping the hog market during the week were James O. Donald, Lexington, Mo., \$5.90; J. B. DeGarmo, Marshall, Mo., \$6; and J. B. Piles, Waverly, Kans., \$6.

Members of the official board of the American Angora Breeders' Association met here last Friday and perfected details for the goat division of the Royal. It was decided to duplicate last year's premium classification and offer \$1,000 in prizes. The present system of inspection was ordered abolished. A. B. Hult, Springfield, Mo., and Dr. W. C. Bailey, Kansas City, were appointed a temporary committee to look after the matter of a goat exhibit in St. Louis during the 1904 exhibition. Among the members of the board present were: Dr. J. M. Stewart, Lewistown, Ill., president; L. E. Armer, Kingston, N. M.; C. D. Taylor, Macon, Mo.; W. N. Johnson, Westport, Mo.; Lee Emerick, Lone Tree, Mo.; E. D. Williams, Fox Lake, Wis.

Last week's sheep receipts, while small, were fully ample to meet the limited demand. Part of the week only one buyer was on the market, hence no big runs were needed or desired. Arrivals were exclusively natives from Missouri and Kansas points. Monday was the high day of the week, lambs selling then for \$6@6.50 and sheep for \$4@4.50. After that day the lamb market hit the toboggan with a whirl and by Friday the market had declined 50@75c. Muttons lost only 15 @50c during the week. Chicago reported the most disastrous decline of the season, lambs losing \$1@1.25 there and muttons 75c@1.

The poultry market was slow because of ample supplies arriving. Prices held up very well, however. Creamery butter showed weakness. Quotations are as follows: Eggs 11½@12c; hens 8c; choice broilers 18½c; roosters 20@30c each; turkey hens 9½c; ducks 10c; geese 6c; creamery butter 19c; store packed 14@15c; potatoes \$1.25@1.50 per bushel; choice fruits in request. Other kinds should not be shipped.

Grain quotations are: No. 2 wheat, 71@73½c; No. 4, 66@68c; No. 2 corn, 53@55c; No. 3, 51@53c; No. 2 oats, 43@47c; No. 3, 40@43c; flaxseed, 91c; tame hay, \$11@13.50; alfalfa, \$8@12; prairie, \$5@11.50; bran, 79@80c. H. A. POWELL.

New York Butter Market.

The New York butter market for the past week was as follows: Monday, June 15, 21¼c; Tuesday, June 16, 21¼c; Wednesday, June 17, 21¼c; Thursday, June 18, 21¼c; Friday, June 19, 21¼c; Saturday, June 20, 21¼c. The average for week of June 15 to 20 was 21¼c.

FARMS AND RANCHES.

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

BATES COUNTY, MO., FARMS—Three of them well located, fine land, fair buildings. Timber and water. Central Realty Agency, Room 4, Hall Bldg., Kansas City, Mo.

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

BOURBON, COUNTY, KANS., FARMS—216 acres, slope and bottom land, with timber and running water, good buildings; price only \$20 per acre. Central Realty Agency, Room 4, Hall Bldg., Kansas City, Mo.

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

FINE RANCH AND FARM—Greenwood County, Kans.; 2,000 acres, 500 bottom land, good buildings, orchard, fences, living water, timber—a great bargain. Central Realty Agency, Room 4, Hall Bldg., Kansas City, Mo.

FREE—Farm descriptions, prices, information. State pocket map 1900 Census 10 cents. Buckeye Agency, Agricola, Kans.

1,800-ACRE RANCH, CHASE COUNTY, KAS.—A splendid pasture with living water, timber, some valley land and buildings; one of our best bargains; price, \$10 per acre. Central Realty Agency, Room 4, Hall Bldg., Kansas City, Mo.

RANCH FOR SALE—1380 acres, 1120 acres of creek bottom, with model improvements, 140 acres alfalfa, 600 acres pasture, balance number one farm land. For further information address G. L. Gregg, Real Estate Dealer and Auctioneer, Clyde, Kans.

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

TEN THOUSAND ACRES of choice western and central Kansas land at from \$1 per acre up. Central Realty Agency, Room 4, Hall Bldg., Kansas City, Mo.

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

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

SEEDS AND PLANTS.

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

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

HORSES AND MULES.

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

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

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

PATENTS.

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

MISCELLANEOUS.

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

DE MIER BROS.' POPOTILLO, the Mexican herb cure for the kidneys, bladder and bed-wetting, 25c and 50c size, postpaid. Sample free. Las Cruces, New Mex.

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

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

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

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

The Stray List

Week Ending June 11.

Labette County—A. H. McCarty, Clerk.

CATTLE—Taken up by J. Andrews, in North tp (P. O. Parsons), May 15, 1903, one red Hereford cow weight 800 pounds, split and under-cut in left ear dehorned, white face, 8 years old; valued at \$15. Also one red Hereford cow, weight 800 pounds, split in left ear, dehorned, white face; valued at \$15.

Week Ending June 18.

Wabaunsee County—Stinson C. Smith, Clerk.

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

Week Ending June 25.

Wilson County—J. E. Brown, Clerk.

MULE—Taken up by E. C. Richardson in Center tp., May 27, 1903, one brown mare mule, silt in left ear; valued at \$50.

Jackson County

HEIFER—Taken up by John Carter, in Cedar tp., one red heifer, about 2 years old, a little white on belly and in bush of tail, crop off right ear and silt in same; no horns.

Pleasing Not One's Self.

(Continued from page 679.)

gain to the cause of Christ—who can estimate? "It is more blessed to give than to receive."

"Heaven is not heaven to one alone; Save thou one soul, and thou mayst save thine own."

"Shared feasts are savory feasts, shared joys are best, And the sharers and the shared-with both alike are blest."

Missionaries have died in mid-life in heathen lands, but obedient to Christ they went, and it is far better to die with Christ in Africa than to die without him in America. Nothing is wasted that flows for the good of others; nothing is wasted that is poured out at the feet of Christ.

Across the street, awaiting burial, lies the body of a noble man. He counted not his life dear, but devoted it to the cause of Christ and humanity. He spared not himself, but labored daily, hourly, without cessation, intensely, strenuously, zealously, for the good of his fellow men. The educational system of the State, the First Congregational Church of this city, and Washburn College almost wholly as we see it, are but the "lengthened shadow" of that noble man. He lives in the lives of thousands, and, being dead, yet speaketh. Had he set out in life with a selfish purpose, had he determined to ignore the Christ-life and to please himself, how much the State of Kansas and the great Middle West would have suffered, no man can tell. But even Christ pleased not Himself, and Peter MacVicar pleased not himself.

The last words of Charles the Fifth are memorable: "I have aimed at justice, but what king can be sure that he has always followed it? Perhaps I have done much evil of which I am ignorant. Frenchmen, who now hear me, I address myself to the Supreme Being and to you. I find that kings are happy but in this—that they have the power of doing good."

Members of the graduating class, three views of life are prevalent:

First is the childish view—that of the prodigal son of the parable—"Give me the portion of goods that falleth to me"—a view that thinks more of claims than of obligations—"The world owes me a living, and why shouldn't I have it?"

Second is the manly view—life is an obligation and not a claim—A dispensation of tasks and duties, and not of gratuitous favors. Man must work. "The world owes me a living, if I earn it." All things are conditioned. On every good thing a price is set. If you get the thing, you must sooner or later pay the price.

Third is the heroic view—life is an obligation, but for what is done there is no equivalent counter claim. Men put forth their best efforts, but look for no return. Their noblest deeds are never rewarded, for the simple reason that the world is not rich enough to reward them. Moses, Gregory the Great, John Eliot, were men of whom the world was not worthy, and therefore could not repay. Like Christ, they pleased not themselves.

I can say no better word to you in parting to-day than this: Adopt the third view of life, and follow the world's examples of nobility. Remember that Christ made Himself of no reputation, and took upon Himself the form of a servant, and became in likeness as a man, and humbled Himself even unto death, yea, the death of the cross. Wherefore God hath highly exalted Him, and given Him a name that is above every name, that at the name of Jesus every knee should bow, and every tongue, confess that Jesus Christ is Lord to the glory of God the Father. "We then that are strong"—strong because of our opportunities, our training, our education—strong because of our determined purpose to serve—strong in the Lord and in the power of His might—"We then that are strong ought to bear the infirmities of the weak." Already you have learned to do it—many of you have found more satisfaction in the last week of service among the flood sufferers than in the previous years of preparation for it. You will continue to serve. For even Christ pleased not Himself. "And I have left you an example," He says, "that ye should do as I have done unto you." It is more blessed—happier and better far—to give than to receive. The philosophy of a whole life—a blessed, a successful life—abides in these beautiful words of Mrs. Charles:

"Is thy cruise of comfort falling? Rise and share it with another, And thro' all the years of famine it shall serve thee and thy brother. Love divine will fill thy storehouse, or thy handfull still renew, Scanty fare for one will often make a royal feast for two."

For the heart grows rich in giving; all its wealth which mildew in the garner, scattered, fill with gold the plain. Is thy burden hard and heavy? Do thy steps drag wearily? Help to bear thy brother's burden; God will bear both it and thee. Numb and weary on the mountains, wouldst thou sleep amid the snow? Chafe that frozen form beside thee, and together both shall glow. Art thou stricken in life's battle? Many wounded round thee moan; Lavish on their wounds thy balsam, and that balm shall heal thy own. Is the heart a well left empty? None but God its void can fill. Nothing but a ceaseless fountain can its ceaseless longings still. Is thy heart a living power? Self-entwined its strength sinks low; It can only live by loving, and by serving love will grow."

Proposed Prevention of Floods.

In a recent speech before the Kansas City Commercial Club, Senator J. R. Burton said:

"The floods of the United States destroy more property every year, than do the fires, and while the energy of the Nation, States, and cities is centered in guarding against loss by fire, no protection is given the people from the floods of the mighty rivers."

"Millions upon millions of dollars have been expended by the Government in the construction and maintenance of levees along the lower reaches of the Mississippi, and, in fact, to points above the city of St. Louis. These vast sums of money have been worse than wasted, for the effect upon the great stream has been to raise it upon a ridge so that there are many places in Louisiana where from the lower deck of a steamer one can see farmers plowing in fields that actually lie below the surface of the river."

"From the city of Cairo to the mouth the Mississippi has a fall of three inches to the mile, and the process that has been started by the systems of dikes continues to-day and will continue until some more reasonable means are adopted to prevent the flooding of the lowlands."

"Thirty years ago there were falls and rapids all along the Kaw, but today, thanks to the fact that large quantities of sediment have been washed into the stream, the rapids are a thing of the past."

"The question at once suggests itself: If the levee system can not prevent floods, is there any means that can be taken to do so."

"Water in motion can not be controlled. The constant washing of water cut through a wall of granite I saw a few days ago that was 1,500 feet high and so hard that a chisel could not make an impression upon it in the hand of man. It is the most powerful force in nature. Fire has to yield to it and the works of man are as nothing to a mighty rush of angry water."

"Mankind, and especially American mankind, dislikes to admit defeat even by irresistible elements, and the question at once arises: What is the remedy?"

"Near my home town of Abilene there is a little creek emptying into the Kaw. Ten inches of rain fell in the catchment area of this creek and as a result it boomed and Abilene was nearly destroyed. The rush of the waters of Mud Creek helped to swell the Kaw and helped to devastate Kansas City and further along the river, St. Louis and the low towns. The plan I would suggest is to construct a system of canals to lead the surplus water into reservoirs, where they may be shut in until it is the pleasure of the people that they shall be released. There are many depressions and basins that would make perfect natural reservoirs and the canals need not be of the depth of the irrigation canals of the arid regions and by that much the less costly. I would like to see them built along the whole course of the Missouri River and its tributaries."

"Of course it would be very expensive, but on the other hand take the property loss along in this last flood which is estimated now to be in the neighborhood of \$25,000,000 in the Kaw valley, and I believe the whole system of canals could be built for only a few millions more than that figure. I want to ask that an organization be formed to get exact data of the losses in the Kaw valley so that they may be placed before the Government. I want the Government to build these storage reservoirs, but in order to get the matter properly before Congress it will be necessary to have the figures to present and the exact facts to back them up. I think the Government may then authorize an investigation of the whole matter and a survey of the region with a view of determining the cost of the improvement."

"We know that man can control still water and we know that he can not control rushing water. The only ques-

tion that remains is whether it is cheaper to lose the amount of the flood damages each year or protect against them. If the congressional investigation shows that the people will save by the expenditure, there will be no opposition to the passage of the bill. The plan is not new and does not originate with me, but it is a twin plan with the movement that has been started to preserve forests and construct great irrigation reservoirs in the arid districts for the conserving of flood waters."

"It would only cost about \$200,000 to equip the catchment area about Mud Creek with a system of flood-water canals and reservoirs and judging from that estimate the total cost of the whole work would not be as heavy as the gravity of the plan would seem to indicate. Another thing that might be said in favor of the reservoir plan is that the farmers even in the rain-belt would willingly pay more than the cost of administering the work for the privilege of using the waters in seasons of drouth."

"Man's domain is the earth. We will never have a successful flying-machine. We will never be able to make rain fall, but we can control still water. It is the greatest domestic question ever presented to the American people and if it can be accomplished and solved it will be the greatest domestic work ever accomplished by any people."

In the Duluth News-Tribune, Thos. E. Hill says:

"The severe wind-storms and floods which afflict portions of our country, during the spring and summer months suggest the query as to the cause and remedy for these evils."

"As to the cause. The denuding of vast tracts of country of trees has greatly changed atmospheric conditions. A region of the country once covered with forest, which held moisture, thereby cooling the air, now treeless, dry, and parched with heat, becomes covered with a heated atmosphere so filled with electricity as to easily produce the cyclone."

"The clearing up and cultivation of farms and the putting in of great numbers of drains, in reclaiming land, make it possible for rainfall to quickly escape from the soil, hence the rapid rise of streams, the flooding of vast tracts of country in the lowlands, the loss of life from these overflows, and the annual damage to property reaching into the millions of dollars."

"The remedy is plain. It will consist in holding water in the neighborhood where it falls in the up-country. To accomplish this let the Government set aside a portion of what is now expended each year in repairing damage from floods, and from this fund give fair compensation to every farmer and land-owner who will construct a lake, covering an area of an acre or more, in the swamps and lowlands of his farm. Follow this by turning all tile and other drains into these made lakes and reservoirs."

"Behold the change. The rainfall remains where it belongs. No longer is the country devastated by the destructive floods from the rapid out-

FAINTING SPELLS

THEY INDICATE A DANGEROUS CONDITION OF HEALTH.

Women so Afflicted are usually the Victims of a Weakness Which May Be Unsuspected.

Fainting spells and a tendency to faint away upon slight excitement indicate a condition of health that should be attended to without delay. The great majority of those so afflicted are women and the cause can generally be traced to female weakness, often of long standing and frequently unsuspected. "My health had become all run down," says Miss Catherine J. Ball, of No. 375 Bates Avenue, St. Paul, Minn., "and I had frequent fainting spells. I was pale and hollow and suffered regularly from a terrible headache and a soreness in my right side below the waist. I had no strength, the slightest exertion tired me and made me short of breath. My stomach troubled me at times and I never felt as a well person ought to feel. I doctored for three months but the physicians did not help me much and it was not until I took Dr. Williams' Pink Pills that I began to improve. In less than a week after beginning with these pills I could see a change for the better and in a short time I was well. My complexion became pure and healthy, the soreness disappeared, I am no longer troubled with faintness and I feel perfectly well and strong."

Dr. Williams' Pink Pills for Pale People cure cases like this because they go to the root of the disease. Not only have they cured hundreds of cases similar to Miss Ball's but they have proven themselves to be an unfailing specific for all diseases arising from impure or impoverished blood and shattered nerves—two fruitful causes of nearly all of the ills to which human-kind is heir. They are an unfailing specific for locomotor ataxia, partial paralysis, St. Vitus' dance, sciatica, neuralgia, rheumatism, nervous headache, after-effects of the grip, palpitation of the heart, pale and hollow complexions and all forms of weakness either in male or female.

Dr. Williams' Pink Pills for Pale People are sold only in boxes at 50 cents a box or six boxes for \$2.50, and may be had of all druggists, or direct by mail from Dr. Williams Medicine Co., Schenectady, N. Y. The genuine are never sold by the dozen or hundred.

pouring of water after a rain. On the contrary it remains in the uplands where it falls, to evaporate in the warm days, to come back in rains and dews, preventing drouth, and so cooling and moistening the atmosphere as to prevent the cyclone."

"Tell the truth and shame the devil." Make your advertisements tell the truth and your future business is sure.

Low Excursion Rates East

National Educational Ass'n.,

BOSTON, MASS.,
July 6th to 10th



EPWORTH LEAGUE

DETROIT, MICH.,

July 16th to 19th

ONE FARE, PLUS \$2.00 for ROUND TRIP

The Wabash is "The COOL NORTHERN ROUTE" and offers especially attractive features to all Eastern points.

LONG LIMITS --- DIVERSE ROUTES

Stop over at Detroit and Niagara Falls.

Boat ride across Lake Erie. No additional cost.

Ask your Agent for tickets reading over the Wabash.

For further information write to

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The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the Kansas Farmer. Give age, color, and sex of animal, stating symptoms accurately, of how long standing, and what treatment, if any, has been resorted to. All replies through this column are free. In order to receive a prompt reply, all letters for this department should give the inquirer's post office, should be signed with his full name, and should be addressed to Dr. Geo. C. Prichard, V. S., 110 East Tenth Street, Topeka, Kans. Telephone No. 319, either phone.

Scours.—I have a black mare colt 2 months old that has had the scours since it was 2 weeks old. Colt is growing, seems to feel good. I first gave the colt flour and water; second, coffee and eggs; third, castor oil, laudanum, and aconite; fourth, Chamberlain's cholera cure; fifth, Radway's Ready Relief; and then gave it one-fourth teaspoonful saltpetre and five drops aconite. The mare and colt are now on grass. The mare is and has been in fine condition. What can I do for the colt? W. S. JEFFERSON.

Wilson County.
Answer.—If your colt continues to scour try the following: Five drops every three hours of mercurious corrosive 6 X.

Umbilical Hernia.—I have a horse colt with a rupture just back of its naval about the size of a hen's egg. I tried to keep a bandage on it, but could not. It is slowly getting larger. Please let me know how to treat it. Pratt County. SCOTT REZEAN.

Answer.—More than likely have an umbilical hernia. Call in some local veterinarian and have him examine the colt and if need be put on a clamp.

Weak Back in Horse.—I have a bay horse 6 years old. He is weak in the back. He can lie down and get up all right but he is stiff in the back the next morning after a hard day's work. Is it his kidneys, and what can be done for him? M. R. S.

Oklahoma Territory.
Answer.—You will have to give a more minute description of your case to be informed about him. He may have spavins or some stiffler trouble that may cause the stiffness. If nothing is wrong except the muscles would say to bathe the parts thoroughly twice a day with extract of witch-hazel. Internally, give dram doses of tincture of nux vomica twice a day in feed.

Punctured Teat.—I have a fine heifer fresh a few days ago. She has an extra hole in one hind teat at back, next to udder—natural hole—which lets the milk stream out when udder is full. Can it be remedied?

Douglass County. E. L. GARRETT.
Answer.—Would advise you to call in Dr. McClelland, of Lawrence, who is a thoroughly educated veterinarian. It will be necessary to do some surgery in all probability, and think you will need a veterinarian to do it.

Blackleg.—My neighbor is anxious to know what is wrong with his calves—lost one this week. Calf all right in morning, but found in evening lame in right front leg—swollen above knee to body. He bathed it with liniment and swelling disappeared. Gave pills made of Wilber's stock food and castor oil. It swelled or puffed all over body like sack of wind and refused to take milk from cow, grew stupid and died after about 48 hours. Last year he lost four with the same trouble. Two before and two after vaccination, using vaccine from Kansas City, but later used Manhattan vaccine on about 20 and lost no more. J. L. FORSYTH.

Jefferson County.
Answer.—The calves died with blackleg. Would advise vaccination with some good vaccine.

Probably the largest currant patch is located in Colorado, where a field of 180 acres is occupied by 135,000 currant bushes in rows seven feet apart and bushes 3½ feet apart in the rows. At harvest time 150 hands are employed at 1¼ cents per pound for picking. The produce is used for preserving and wines.

The following epitaph was ordered inscribed on her husband's tombstone by a Chicago widow: "Rest until I come."—Exchange.

Kansas Fairs for 1903.

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

Allen County Agricultural Society: J. T. Tredway, Secretary, Iola; September 8-11.

Barton County Fair Association: Jas. W. Clarke, Secretary, Great Bend; August 25-28.

Brown County—Hiawatha Fair Association: Elliott Irvin, Secretary, Hiawatha; September 8-11.

Butler County Fair Association: J. W. Robison, Secretary, El Dorado; October 5-9.

Chautauqua County—Hewins Park and Fair Association: P. N. Whitney, Secretary, Cedar Vale.

Clay County Fair Association: E. E. Hoopes, Secretary, Clay Center; September 8-11.

Coffey County Agricultural Fair Association: J. E. Woodford, Secretary, Burlington; September 8-11.

Cowley County—Eastern Cowley Fair Association: Ed. E. Reed, Secretary, Burden; September 15-18.

Cowley County Agricultural and Stock Show Association: W. J. Wilson, Secretary, Winfield; September 8-11.

Finney County Agricultural Society: A. H. Warner, Secretary, Garden City; August 5-7.

Franklin County Agricultural Society: Carey M. Porter, Secretary, Ottawa; September 15-18.

Harvey County Agricultural Society: J. C. Nicholson, Secretary, Newton; September 22-25.

Jackson County Agricultural and Fair Association: S. B. McGrew, Secretary, Holton; September 1-4.

Jefferson County Agricultural and Mechanical Association: Geo. A. Patterson, Secretary, Oskaloosa; September 1-4.

Jewell County Agricultural Association: H. R. Honey, Secretary, Mankato; September 14-17.

Marshall County—Frankfort Fair Association: J. D. Gregg, Secretary, Frankfort; September 1-4.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wilson County—Fredonia Agricultural Association: J. T. Cooper, Secretary, Fredonia; August 25-28.

Round-Trip Rates Via Union Pacific to many points in the States of California, Colorado, Oregon, Washington, Utah, and Montana.

FROM MISSOURI RIVER TERMINALS. \$15.00 to Denver, Colorado Springs and Pueblo and return, July 1 to 10, inclusive.

\$17.50 to Denver, Colorado Springs and Pueblo and return, June 1 to September 30, inclusive.

(Glenwood Springs, \$29.50.) \$30.50 to Ogden and Salt Lake City and return, June 1 to September 30, inclusive.

\$34.50 to Butte and Helena and return, May 19, June 2 and 16, July 7 and 21, August 4 and 18, September 1 and 15.

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\$50.00 to San Francisco, Los Angeles and San Diego and return, July 1 to 10, inclusive.

For full information address F. A. Lewis, City Ticket Agent, 525 Kansas Avenue, or J. C. Fulton, Depot Agent.

He—Now, there's a woman I can't help admiring. She is so easily satisfied; has such plain tastes.

She—I didn't know you knew her.

He—I don't; it's her husband I know.—Brooklyn Life.

HORSES.

Percheron Horses

HENRY AVERY & SON, WAKEFIELD, KANSAS.

Registered Stallions For Sale

15 HEAD AT SPECIAL PRICES CONSISTING OF

Five Percherons, 2 to 5 years old—all black but one, and that a black-grey; two black yearling Percherons; four Shires, 3 to 7 years old; three trotting-bred horses, 3- and 4-year-olds; one registered saddle stallion. All but two at prices from \$200 to \$1,000 each. Come at once for bargains.

SNYDER BROS., WINFIELD, KANSAS.

ROBISON'S PERCHERONS AND SHORTHORNS

Percheron Herd headed by Casino (45463) 27880. Prize-winner Notional Show of France 1901. Winner of first prize at Missouri and Kansas State Fairs 1902. Shorthorn herd headed by Airdrie Viscount, a son of the great Lavender Viscount, champion of America in 1900 and 1901. Stock for sale. Address

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At the Great Percheron Show of France our stallions won Every Possible First Prize with one exception. Fifty of them were Prize-winners.

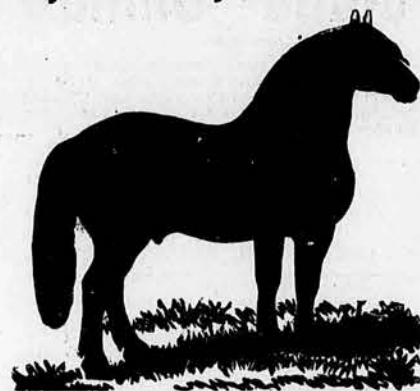
At the recent International Live Stock Exposition our Percheron Stallions won Championship and Every First Prize in the regular stallion classes except one. They also won First Prize as the Best Collection.

Our French Coach Stallions Won First Everywhere. If you live in a neighborhood where a really first-class stallion is needed and where the professional stallion men will not buy the best, write us and we will show you how you can procure one. We have a plan that has proven most successful where the above conditions exist.

We import more therefore can sell cheaper than anybody else

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PERCHERON HORSES and POLAND-CHINA HOGS

For Sale—Fifteen young stallions and a few mares. Inspection and correspondence invited.

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SEEDS

Plant Trees For Posts

Catalpa, Osage, and Russian Mulberry Seedlings, one year old for planting. The Catalpas are from seed selected from known Speciosa trees. Write for prices stating number wanted.

Peters & Skinner, North Topeka, Kansas.

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No. 331—Surrey. Price \$68. As good as sells for \$40 more.

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Large Catalogue FREE. Send for it.



No. 544—Light Stanhope. Price \$58.50. As good as sells for \$35 more.

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What President Hoxie, of the Mallory Commission Co., Says About Zenoleum Dip:

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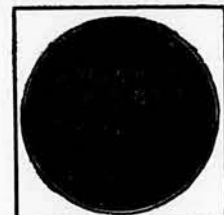
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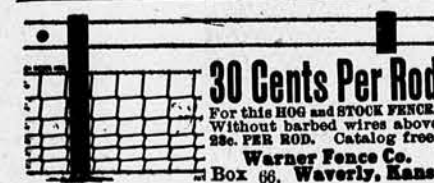
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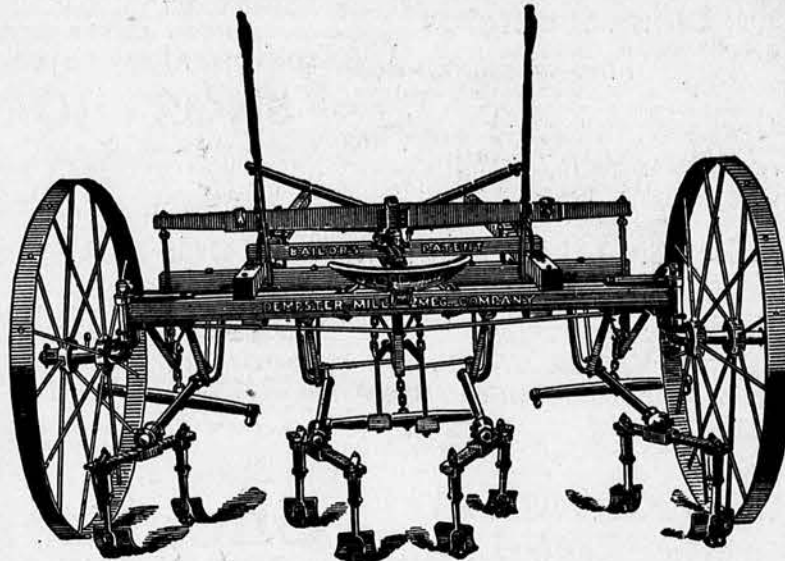
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