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While the very wet weather has by its long continuance been a great inconvenience to farmers and has caused severe local losses, it should not be forgotten that the very wet seasons are good crop seasons in Kansas.

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.

A FARMER'S MERGER.

The word "merger" has come into frequent and prominent use in designating the union of interests now taking place in many enterprises. It is superceding the word "trust," and the difference in meanings is a measure of the advance made from the plan of conspiracy of competing interests to that of the unification of interests which come into contact with each other, either as competitors or as coordinate workers having common interests. Railroads have been merged; manufacturing have been merged; mercantile interests have been merged; mines have been merged. Farms are about the only properties that have not been subjected to the merger. Mergers have generally been profitable to the owners and they have not nearly always been oppressive to their patrons, or a disadvantage to the general public.

During the last few years there have

been organized in Kansas and adjoining territory many cooperative farmers' shipping associations. The object has been to lower the cost of marketing farm products, it being generally held that, especially in the matter of grain, the shippers' combines have taken profits in excess of reasonable compensation for the services rendered. Most of the farmers' associations have built or bought local elevators. Contemporary with these, there has been in existence an organization of farmers intended to serve the many local shipping associations by receiving and selling grain or other products consigned to it charging a reasonable commission for the service. This central association and all of the locals at once became the target of the interests which have fattened from at least liberal profits on farm products. The contest has lasted for about two years. These various farmers' associations are chartered corporations under the laws of the States in which they are located.

There has been a manifest need for a closer union of the locals with the central association. After much consultation it was decided to hold a meeting of representatives of such associations as would go into a merger. This meeting was held at Topeka last week under the auspices of the Farmers' Cooperative Grain and Live Stock Association. The several associations with their assets were merged into a new organization called The Farmers' Cooperative Shipping Association. The capital stock of this association was placed at \$200,000. Of this amount, the KANSAS FARMER is informed that about \$60,000 has been taken, with prospects that about \$28,000 more will be taken within a few days.

The directors of the new association are: James Butler, S. H. Allen, Topeka, Kans.; Frank Wright, White Rock, Okla.; H. R. Signor, Numa, Okla.; H. H. Shull, Argonia, Kans.; J. G. Goings, Minden, Neb.; R. L. Milton, Stafford, Kans.; C. B. Hoffman, Enterprise, Kans., and Dr. F. Engilhard, Rising City, Neb.

At a meeting of the board of directors the following officers were elected: James Butler, president, Topeka, Kans.; J. G. Goings, vice-president, Minden, Neb.; H. R. Signor, secretary, Numa, Okla.; R. L. Milton, treasurer, Stafford, Kans.; C. B. Hoffman, business manager, Enterprise, Kans., and S. H. Allen, attorney, Topeka, Kans.

The following stockholders were present at the meeting May 21, 1903: H. W. Herring, R. L. Milton, Carr Beebe, J. W. McFadden, S. W. McComb, H. S. Crawford, Stafford, Kans.; H. H. Shull, G. H. Welch, Argonia, Kans.; John Gile, Milan, Kans.; Frank Wright, P. H. Chartrand, R. F. James, Billings, Okla.; H. R. Signor, Numa, Okla.; Miller Dobbins, Viola, Kans.; W. H. Mitchell, Abbeyville, Kans.; Otis S. Allen, Topeka, Kans.; F. C. Ball, Gorham, Kans.; H. O. Hendricks,

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That the organization of coordinate interests to cooperate may be at once a public good and a source of profit to those cooperating is a proven proposition. That the success of such cooperative enterprise is contingent upon the use of ample capital for the business undertaken and upon the business ability and fidelity to trust of the management is the record of experience. That the farmers of the West have the necessary capital and that they can hire the ability coupled with the fidelity need not be questioned. If the company just formed by the merging of the many shall transact its business on reasonable margins there will be little room for competitors in its field. It ought to save to its patrons this year many times the amount of its capital stock.

ALFALFA AND BLUE-GRASS.

Since the first experiences with alfalfa in Kansas, there has not been a season in which this plant has failed to justify before the Court of Profit. About twelve years ago a Marion County farmer asked, Which is the best grass to sow in central Kansas for permanent hog-pasture? The editor submitted the question to the readers of the KANSAS FARMER. Many answers were sent in and every one of them said "alfalfa." This answer stands unchallenged to this day. But the question of the best grass to sow for permanent pasture for cattle is not so easily answered. Alfalfa has been used, and its nutritious qualities have been fully demonstrated. But sad experiences with bloat have made many hesitate to pasture it.

Several years ago Mr. D. H. Watson, of Kearney, Neb., presented a paper before the Kansas State Board of Agriculture, in which he told of successfully pasturing a field seeded to a mixture of alfalfa and Kentucky blue-grass. A few days ago, Mr. J. P. Short, of Cowley County, was in this office and kindly related his experience with the alfalfa-blue-grass mixture. Having a piece of alfalfa which was thin in spots and having read of Mr. Watson's experience, he sowed Kentucky blue-grass among the alfalfa. The blue-grass took rather sparingly at first, but grew up taller than the alfalfa. (Continued on page 588.)

Agricultural Matters.

ANSWERS TO INQUIRIES BY PROFESSORS OF STATE AGRICULTURAL COLLEGE.

Grass for Springy Land.

I would like if possible to have a copy of your book on Kansas grasses. I have thirty acres of springy land, too wet to farm (unless it is drained), that I would like to get back into grass. What kind do you recommend, how and when should it be sown?

F. T. LITTLE.

Sedgwick County.

Your letter to Secretary Coburn was referred to Professor Willard who has mailed you bulletins on grasses and referred your letter to me for further answer. I believe that red-top will be about the only grass which will successfully grow on the wet, springy land which you describe. You might sow a little Alsike clover with the red-top, as this clover is better suited to wet lands than other varieties. The seed can be sown almost any time during the spring and early summer if the ground can be gotten into favorable condition. If the ground is too wet to cultivate, seed sown early in the spring might make considerable of a catch although if it is possible to cultivate the land it would be better to prepare a good seed-bed. Fall sowing might be successful, say the first of September but grass would perhaps be injured more by too much water during the winter and spring when it is sown in the fall than it would be if it were sown earlier and had made a strong growth by fall. The red-top is easiest sown broadcast and harrowed in. It may be sown by hand or by means of a broadcast seeder. If the seed-bed is well prepared a single harrowing after seeding is sufficient to cover the seed.

A. M. TEN EYCK.

Cow-peas and Corn, or Cow-peas and Cane.

I want to sow something for hay this summer or fall and have decided on one of two kinds, namely, cow-peas and corn, or cane. I want to know which is the best feed for horses, and which will yield the most per acre, and which is the easiest kept. Also, how much cane shall I sow per acre on rich bottom land? What quantity of peas and corn mixed, or of peas without corn, per acre, and about when should I sow?

G. F. SOTER.

Indian Territory.

For a general forage crop I would recommend planting the corn and cow-peas together rather than cow-peas and cane. Cow-peas and cane will doubtless make a good fodder. However, cane is a hard crop to cure well and you will find it a difficult problem to successfully cure and store cow-pea cane fodder. We have not grown cow-peas and cane together at this station and can not speak from experience. The usual method of handling cane fodder where it is grown alone is to leave it in the field during the winter. This would not be a good way to handle cow-pea fodder.

Cow-peas and corn can be cut and cured so that the fodder may be stacked, or stored in the barn or shed, thus preserving it in good condition. It may be a good plant to try planting cow-peas and cane together in a small way, because you will thus learn the value of the fodder and also, perhaps, find some successful way of handling it. The feeding value of cow-pea corn fodder will be greater than the feeding value of cow-pea cane fodder supposing that the fodder contains the same proportion of cow-peas in each case. Especially for horses, feed the cow-pea corn fodder rather than the cow-pea cane fodder. As to which will yield the most per acre, am inclined to place the cow-pea corn fodder first.

The usual amount of cane to sow per acre when it is planted in rows is six to eight pounds. On rich bottom land, it should be planted thicker than on poor land, a stalk every two or three inches on average land should not be too thick; rather thick planting will produce a better quality of fodder than thin planting. A little thinner planting of the cane may be desirable when cow-peas are planted with the cane. In case cane is sown broadcast, fifty to seventy-five pounds of seed per acre are recommended. If cane and peas are sown broadcast together, one bushel of cane seed and three pecks of cow-peas make a good combination. Sow about the last of May in this climate.

Where cow-peas are planted alone in rows, three to four pecks of seed per acre will be required. When the peas

are sown broadcast or sown in close drills, the amount per acre should not exceed one and one-half to two bushels. Planting peas and corn mixed for fodder should not require more than six quarts of corn and one-half bushel of peas per acre when the crop is planted in rows three and one-half feet apart. It may be advisable to plant the corn thinner, say four quarts per acre as is usually planted for ear production. A finer quality of fodder may be secured by planting the corn thick but a less production of ears. Corn sown broadcast or in close drills will require one and one-half to two bushels of seed per acre. Cow-peas and corn may be mixed in equal proportions and sown broadcast at the rate of two bushels of the mixture per acre.

The more practical way to plant cow-peas and corn together is to plant them at the same time, rather late in the season, in our climate about May 25. The peas and corn may be mixed together in the right proportions and planted with the grain-drill in rows the desired distance apart, by stopping up part of the seed-cups. Another method is to use the lister in planting the corn, and following the lister, putting the peas in with a corn-drill or corn-planter. We intend to plant cow-peas and corn together in rows as an experiment during the coming season. The corn has already been planted and we expect to plant the cow-peas in the corn-rows with a hand corn-planter a little later. It does not seem to me that this will be a practical method for the general farmer to follow.

Very little report seems to have been made by any of the experiment stations upon growing cow-peas and corn together in this way. The usual method is to sow cow-peas broadcast with the corn and to cut for fodder, in much the same manner as corn or cane is handled when sown broadcast alone. Such a crop is hard to harvest, store, and keep in good condition. When cow-peas are planted with corn in rows and cultivated, the crop may be harvested with the corn-binder and handled much as corn fodder in handled. Since planting cow-peas and corn together for fodder has not been tried extensively it may be advisable not to plant too much the first year but rather begin in a small way and the experience gained will teach the best methods of growing and handling the crop and will also demonstrate the feeding value of the cow-pea corn fodder.

A. M. TEN EYCK.

Too Wet for Alfalfa.

I understand you have the latest bulletins on alfalfa culture and would be greatly obliged if you would kindly send me some.

Our alfalfa was killed out quite a bit this winter and we are anxious to find out the cause. Last summer and fall were much wetter than usual here and we wonder if this condition had anything to do with the alfalfa killing out.

ROBERT TAYLOR.

Hall County Nebraska.

I have sent you bulletin No. 114 discussing alfalfa under separate cover.

Referring to your mention of alfalfa killing out, I take it from your mention of the wet condition of the land that the alfalfa was killed out by drowning. In spots where the water stands for any length of time, say forty-eight hours or so, alfalfa is almost sure to be killed out. Even if no water stood on the surface for any length of time, the saturated condition of the soil for a considerable period might destroy the alfalfa.

A. M. TEN EYCK.

Siberian Millet.

Have you a press bulletin on Siberian millet? If you could furnish information on it we would be much pleased to have it.

J. HANNA & Co.

Rice County.

We have no press bulletins on Siberian millet. This variety of millet has been grown at the college, although no report has been made upon it. The millet is not so rank a grower as the German millet, not so coarse but more leafy and the heads are not so large as those of the German millet. Siberian millet resembles the Hungarian millet, and is usually classed with the Hungarian. The heads are of a reddish shade. The stems are also slightly red. In type of fodder it stands between Hungarian grass and German millet. It seems to be well adapted to Kansas soil and climate. The seed is red and medium in size, although the variety is not so heavy a yielder of seed as the German millet, yet good crops are secured. The method of culture, etc., of Siberian millet is practically identical with that of German millet.

A. M. TEN EYCK.

Alfalfa in Western Kansas.

I have noted what you have to say on the growth of alfalfa in Kansas as described in Mr. F. D. Coburn's book, "Alfalfa," but I wish to inquire in particular in regard to the growth of this plant in the northwestern part of Kansas, and especially in Wallace County. As I understand the conditions in Wallace County, they are free from the two insurmountable obstacles which you mention in this work, namely, rock at a depth of four to five feet, where the soil is dry down to the rock, or where the soil is not properly drained. As I understand it, there is an abundance of sheet-water in Wallace County at a depth of thirty to eighty feet, and that below the subsoil there is a deep bed of sand and gravel. From what has been accomplished in this county, what do you think of the future growth of alfalfa? Do the hot winds effect it, and are these hot winds as destructive as generally understood by the people living farther east? I shall very much appreciate any information you give me in regard to these matters.

HORACE M. REBOK.

Des Moines, Iowa.

Alfalfa is not being grown to any extent as far west as Wallace County. It is possible to get alfalfa to grow on the river- and creek-bottoms, but on the upland a good stand of alfalfa is very hard to secure, and even if one is able to get the crop started, in the average season it is doubtful whether there would be a profitable production unless the land be irrigated.

Alfalfa will stand the hot winds and drouth better than most farm crops. After the alfalfa is well-established, it is not likely to be killed out by drouth or hot winds, although during these unfavorable periods it will not grow. I believe that the alfalfa is well worth trying on many of the lands in Wallace County. By summer-fallowing, so that the ground can be put in a good condition of tilth and moisture, it will be possible during many of the spring seasons to get a good stand of alfalfa, and if the stand is once established and the plants well-rooted, special methods of cultivation may be practiced by which the soil-moisture may be retained in the soil and made useful to the growing crops. If you are interested in Wallace County farms I would recommend that you get a copy of "Campbell's Soil-Culture," published by H. W. Campbell, Holdrege, Neb. By carefully studying Campbell's method of soil-culture, you will get many suggestions as to how to successfully produce crops in the western part of this State.

A. M. TEN EYCK.

Kerosene for Cutworms.

Is it a fact that cutworms in newly plowed sod-ground will not bother corn after it is up if kerosene is first poured over the seed-corn before planting? I should like to know about this important question as soon as convenient.

WM. MORTON.

Atchison County.

I can find no confirmation of the belief that cutworms will be kept from attacking corn by the application of coal-oil to the seed before planting. Such preventives are variously recommended by chance report but not often are they capable of proof by experiment. At the time of this writing the cutworms are all of the hatch of last fall. They have lived over the winter as half-grown worms, and will soon go into the pupa state previous to their appearance a few weeks later as moths. These moths will lay eggs in summer on any vegetation that attracts them and the worms from these eggs will feed on plants of many sorts, but probably will not attract attention by reason of the larger growth of the plants. Sod-land has an abundance of the worms because they have wintered over from the eggs laid abundantly last summer by the moth, attracted to the grass-land by the abundance and diversity of the plants there growing. Ground plowed the previous fall will have much fewer worms, or, if clean of plant-growth, perhaps none at all. The worms will soon go into the pupa state, and for a time the danger of the worms eating the young plants will be at a minimum; late planting will thus be in a measure a protection. I have no confidence in doctoring the seed, and seed so treated is troublesome to handle besides running the chance of injury by medication. The subjugation of the cutworm is a matter of preventive and cultural treatment, and will be most surely accomplished by fall plowing of ground likely to be infested, with similar anticipatory measures.

E. A. POPENOE.

TILLAGE AND FERTILITY.

The following papers are from members of Prof. A. M. Ten Eyck's class in tillage and fertility:

Conservation of Soil-Moisture.

J. C. CUNNINGHAM.

The question of soil-moisture may be conveniently considered under three heads. First, to have soil in a condition to receive the moisture as it falls; second, bring it back to the plant when needed; third, to arrest rapid evaporation.

The results obtained from thorough cultivation, both in receiving the moisture and bringing it back to the plant, are most forcibly presented in the report of observations taken by Professor Willard during the dry season of 1901: "The latter part of July, a considerable number of fields at and near the college were sampled to the depth of fifteen inches and determinations of the moistures made. Careful notes were taken also of the growing crops. It was found that with most cultivated field crops the moisture was reduced to from 8 to 11 per cent; in grass lands to 6 per cent. It is obvious that the upper one-half must have been drier still. The college orchard, which had been kept free from weeds and thoroughly cultivated throughout the season, showed over 16 per cent of moisture at the close of this drouth-period of nearly eight weeks, with less than one inch of rain."

There is one item in the conservation of soil-moisture worthy of trial. A large per cent of the snow that falls in Kansas, especially in the western half, is banked along hedges and highways. We have noticed that wherever snow is packed a drift is apt to form. This suggests the idea of making a few trips across the field with the packer thus tending to form the drifts in the fields, instead of blocking the east and west roads.

By packing the soil to form a more perfect capillary action, we can bring the moisture back to the plant. The dust-mulch does without doubt prevent too rapid evaporation. With increasing price of land and more intense farming the question of conservation of soil-moisture will be more thoroughly understood and practiced.

Tilling the Land.

A. D. COLLIVER.

Tilling the land is the fundamental labor of agriculture, and has three chief objects; first, to prepare a suitable seed-bed, and to properly cover the seed sown. Second, to keep the soil in good condition during the growth of the crop. Third, "tillage is manure." The preparation of the seed-bed, or the work done with the plow, is the most important as well as the most expensive form of tillage.

The idea of simple tillage was set forth by Jethro Tull in 1733, and although some of his ideas were in error, his "New Horse-Hoeing Husbandry" is the basis upon which modern scientific tillage is based.

The land if left to itself will produce abundantly and continue to grow fertile, so you may ask, why is tillage necessary. We must pay the price in one way or another for everything we get. So when we remove a crop from the field we must return in payment plant-food, or make available the plant-food already in the soil. This is done largely by the use of the plow, and the work of the plow to be complete, must bury all ordinary plants deep enough so they will not interfere with subsequent tillage, and must pulverize the soil. Of the energy used in good plowing, about 35 per cent is used in the friction on the sole of the plow and on the land-side, about 55 per cent in severing the furrow-slice, and 10 per cent in pulverizing the soil. If we allow the furrow-slice to escape without pulverizing the soil, after having done nine-tenths of the work, we sustain a great loss; because whether the soil is pulverized or not makes our work good or bad plowing.

A useful attachment for the plow is known as the jointer. This breaks up the tenacity of the sod and prevents it from kinking. Even tenacious sod can be handled by the bold moldboard if a jointer of the right shape is used. The proper use of the jointer also prevents the furrow-slice from turning over too flat and leaves the ground in a corrugated condition, which allows a more effective use of the implements in after-tillage. It also allows the land to absorb heat in the spring, and part with excess of moisture. However, it is not always advisable to have the soil well pulverized, as in clayey soils plowed in the fall. Open space in this kind of soil allows the frost to do its work. This is very desirable, as frost

liberates large amounts of plant-food as well as fining the soil.

A very slight difference in the curve of the moldboard causes a great difference in the results of plowing. A moldboard that is well-curved tends to shear the furrow-slice and thus breaks it up, while one that is straighter allows the furrow-slice to slip over it without breaking.

The tendency of many farmers in foreign countries, and in the eastern part of this country, is to slight the plowing because of the hard, slow work. This is because they use light horses and small plows. In the West, where six or eight horses are hitched to a gang-plow, the work is done cheaper, faster, and better. The soil is plowed deeper and there is no great variation in the time of plowing a single field.

Tillage and the Conservation of Soil-Moisture.

FRED VAN DORP.

The fundamental work or beginning in agriculture is the stirring of the soil. Therefore it is necessary that we know what the objects of tilling the soil are. One of the chief objects, but one which has probably received the least attention until the last few years, is the pulverizing of the soil. This is best done with the plow, as all the work of harrowing is an additional expense, part of which can be avoided by the best possible pulverizing with the plow. The proper preparation of the soil with the plow will increase the capacity for holding water, as it will assist the water in passing down where it can be drawn on when needed.

For early crops in the spring it is necessary that the land be warm for the proper germination of the seed. Shallow tillage at this time will warm it by letting the sun act on the cold, fresh-turned soil. One of the requisites of a plant is that the roots have air, which will not enter the ground in large enough quantities if it be too compact and solid. If it is very open, a free circulation of air will be admitted which will result in a drying out. This can be prevented to a large extent by making a surface-mulch soon after plowing. Since nitrogen is the plant-food which is most apt to become deficient in the soil we should hasten nitrification as much as possible. Air and moisture are necessary for this change, and when they are properly supplied the fertility of the land will be thus increased. Plenty of tillage will get the land in a physical condition which will enable the rootlets of the plants to be in intimate connection with the soil-particles.

The principal object of surface-tillage is to form a smooth seed-bed of fine soil. A surface-mulch kept by frequent surface-tillage prevents the evaporation of moisture. Surface-intertillage, especially when the plants are young, is necessary to destroy weeds.

It is evident that the problem of moisture is the most important in the growing of crops, since plants suffer more for want of it than from any other cause. The first thing is the securing of the moisture—getting the land in a condition to absorb all that falls in times when it is plentiful and not needed. Deep plowing will let the water pass to the subsurface where it can be absorbed. Conserving the moisture after it is in the soil presents the greatest difficulty. It has been proven that the water which is in the soil at the beginning of the season is more valuable than that of any subsequent rains. Therefore we should strive to prevent the evaporation of this water.

On pasture-lands where the grass is eaten close, a large amount of ground is exposed, affording a chance for rapid evaporation. A light coat of manure on this land will check evaporation, and furnish plant-food as well. Only an earth-mulch should be used on intertilled crops, such as orchards and small fruits, as manure, straw, or similar material will obstruct cultivation, as well as be objectionable on account of the expense incurred.

The surface-mulch is the most economical and the best way of conserving the moisture. The subsurface should be compact, but the extent of the compactness varies with different kinds and textures of soils. Light and sandy soils should be packed firmly, because they have little power to hold water. Tillage opens up this soil easily, reducing its power to hold water, and destroying capillary action. Clayey soils when dry will become too fine by an excess of surface tillage, which will cause them to puddle with heavy rains. Soils with plenty of humus will retain the most water. The deep mulch is the better conservator of soil-moisture, but with some plants, as those which

root near the surface, a surface-mulch is more desirable.

In orchards it is best to stop growth near the end of the season, so that the wood will mature before freezing. The mulch should not be kept too late, and some cover-crop, as oats, should be planted. As well as checking growth, this will prevent the blowing of the snow and keep the ground from freezing too hard. Intertilled grain crops should be cultivated as long as possible for a large amount of water is needed at the time of maturity.

The depth of the mulch should be governed by the root-system of the plants and the character of the soil. It should receive special attention and study, as moisture plays such an important part in plant-growth.

The Science and Practice of Plowing.

C. W. FRYHOFFER.

In agriculture to-day, more than in any other occupation, it is necessary that science and practice go hand in hand; that with the doing must be known the "why and wherefore" of it, that in everything we may do intelligently and reap the best results.

Plowing—the stirring and mixing of the soil—is the one fundamental labor of agriculture. With it are connected results more far-reaching and important than is generally considered. In the practice of plowing it is especially important that the science part of it, the principles that underlie it, be not lost sight of.

Nature, when unassisted by civilized man, does not consider his wants but puts forth all her energies toward the perfection of species. In this effort she produces a great number of plants of many different species, and a struggle for existence results. In this struggle for existence the plants which survive deteriorate in those features considered most valuable by men, and the parts which under cultivation become highly developed in feeding-value and other secondary features, as size, flavor, etc., without the care of man become lacking in feeding-value, small in size and inedible. Hence the primary object in plowing is to destroy all plants undesirable to man and to protect and improve as much as it is in his power the condition of those plants for which he is caring and from which he is to derive his profits.

Another chief object in plowing is to pulverize the soil. Since plowing is a slow operation, it is of prime importance that this object be kept before us that not so much expensive labor be left undone by the plow to be completed later by additional expense with other implements, to form a suitable seed-bed or to facilitate the best action of the weather upon it.

In the process of plowing only 10 per cent of the energy required is used up in turning the soil by the moldboard. Hence, it is economy to use a plow with a bold, overhanging moldboard so as to secure complete pulverizing of the soil. About 35 per cent of the power necessary in plowing is used up by the friction due to the weight of the plow, and 55 per cent by severing the furrow slice and the friction of the land-side.

To secure the best breaking up of the soil, a jointer should be used where the land is not too stony. This consists of a small shovel attached to the beam of the plow and so shaped as to act as an aid to the plow in turning and breaking up the soil. It prevents the furrow-slice from being left too flat and leaves it in a corrugated, pulverized condition. It also secures more complete turning under of all surface matter.

One of the results of plowing is its effect on soil-moisture. Deep plowing allows the water to percolate downwards into the subsoil more rapidly. Where percolation is difficult from a compact condition of the soil, the land should be plowed shallow in the early spring and deep in the fall. This with the action of the frost in the winter will allow freer percolation and also prevent the formation of a hard-pan, which often forms by continually plowing at the same depth, resulting in a hardened layer from the repeated pressure of the plow on the bottom of the furrow. Where the soil is light and porous and allows the water to escape down through the soil too rapidly, something of a hardpan may be desirable and then the plowing should be of the depth desired and plowed at the same depth each successive season.

The most important aim in plowing should be the promotion of capillary action, since upon this natural law most plants must depend for their chief supply of moisture. To secure this result the land should not be kept so porous as to allow excessive evaporation, and a braking off of connec-

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tions with the compact surface of the furrow bottom. The soil, when sufficiently compacted by the harrow and subsurface-packer to permit the moisture to rise freely to the surface, should have two or three inches of loose soil on top as a mulch to prevent loss of moisture by evaporation. Unless the soil is too wet, much unnecessary loss of moisture could be prevented by harrowing the land the same day it is plowed, excepting all plowing, where the object is to expose the soil to the action of the weather.

Another result of plowing should be sufficient aeration of the soil to supply the plant-roots with the air they need and promote certain chemical changes, as nitrification. In order to promote nitrification, warmth, moisture, and air must be present in proper proportions.

As a further result of plowing and increased capillary action, the various elements of food which may be deeper down in the soil may be brought to the surface where they may be used by plants with shallow-growing roots.

Land should be plowed when in a bad physical condition. If ground is in good condition and a good seed-bed can be prepared easily, and the surface is richer than the subsurface, the land may be sown to grain without the extra expense of plowing. Land should never be plowed when too wet, nor when too dry and dust-like, as it will become puddled if heavy rains fall.

The Object of Tillage and Conservation of Soil-Moisture.

H. E. WEBSTER.

This is a subject with which every farmer has to deal and his success in the growing of crops depends largely upon the principles by which it is governed. Too often the only object of cultivation is to kill the weeds which, of course, is necessary to the welfare of the crops. But how many of us stop to think that while we are plowing or cultivating our land we are also unlocking the fertility, and making available the stored-up plant-food, so that it may be more readily taken up and used by the plants. In cultivating the land we make the soil-particles finer and so give the soil a better texture, and by so doing we make a layer-surface upon which the roots may feed, and when we increase this surface we also increase the capacity of the soil to hold moisture.

The soil needs air as well as water so that the bacteria may do their work of changing the nitrogen of the humus into the nitrates, and so make it available for the plants. We see that by tilling the land we not only kill the weeds but also increase the plant-food and the capacity of the soil to hold moisture. Thus tillage and soil-moisture conservation go hand in hand. We may have tillage and no conservation of soil-moisture if there is no moisture in the soil to conserve, but we can not conserve soil-moisture without tillage. In some soils in arid districts the first object of tillage is to prepare the soil to retain the rain which falls upon it. A great deal of the land during the hot, dry summer months becomes dry and hard so that the rains which fall will not penetrate the soil but will run off and do but little good.

The first thing to do is to break up the hard crust so that the water will go down into the ground. One of the best means by which this is accomplished is by plowing, and in soils that are very dry and hard the disk-plow is found to be superior to the moldboard-plow, since it has a rolling instead of a sliding motion and the draft is much lighter. This leaves the ground loosened to the depth of the furrow and forms a reservoir which catches and holds the rain so that it can penetrate into the soil below. The disk-harrow will also be found useful in breaking the dry crust.

After getting the water into the soil, we have the problem confronting us of keeping it there for the use of the crops when dry weather comes. The soil has been likened to a sponge hold-

ing water by capillary attraction, when it becomes dry at the top the water from below passes upward by capillary action to take its place. Then, having the moisture, we must prevent its escape or it will profit us nothing; and since the water rises by capillary action we must not allow the ground to become hard or form a crust on top; but we must break the capillarity at the surface. This is best done by an earth-mulch made with a harrow or other surface-working tool. When dry weather comes the water will rise to this mulch but there the capillary-tubes are broken and instead of escaping into the air the moisture is taken up by the plants. When we stop to consider that our crops more often suffer from lack of moisture than from lack of plant-food, it shows us the necessity of keeping as much moisture as possible in the soil, and it would seem as though any one could not help seeing the beneficial results to the crops if by thorough cultivation or tillage we can increase the amount of available plant-food and conserve the moisture in the soil.

Foreculture.

A Lumberman Recommends Forestry.

Mr. R. L. McCormick, president of the Mississippi Valley Lumbermen's Association, and secretary of the Weyerhaeuser Timber Company, in a recent interview defined clearly and forcibly the intimate relations between forest and lumbering. Mr. McCormick's views are especially interesting as expressing the very cordial and friendly attitude toward forestry so generally felt by lumbermen.

"Every man in the lumber business to-day whose dealings are of sufficient extent to be subject to influences beyond those of purely local demand and supply," said Mr. McCormick, "realizes that the lumber industry is in many regions confronted by a growing scarcity of available timber. Statistics point to it. Estimates of timber resources still remaining point to it also. But the strongest proof lies in the conditions which already affect our industry.

"It is just cause for congratulation that so far as the actual harvesting of timber and its manufacture into lumber is concerned, American lumbermen are far ahead of those of any other country in enterprise, ingenuity, and skill in methods and machinery. But in spite of the money saved in lumbering by better methods, we are obliged to charge more and more for our lumber in order to manufacture it at a profit. In every operation in the woods and in the mill, rigid economy is necessary now instead of the loose and lavish methods under which it was possible formerly to make lumbering a profitable business. We have gone so far already that it is probable we can not materially lower the cost of manufacturing our product in the future. Labor-saving devices can never in themselves prove an adequate remedy. The trouble lies not in the cost of manufacture, but in the dwindling supplies of the timber itself.

"It is not necessary to turn to statistics for proof that the supply of certain kinds of valuable timber-trees of the United States is rapidly falling, of other kinds is practically gone, and of still others has entirely vanished as a factor in the lumber market. For example, ten years ago the use of balsam in the manufacture of paper-pulp was practically unknown. The eastern hemlock is now valuable for its timber as well as for its bark. A more modern instance is the gradual rise in importance of the western hemlock until very recently altogether discredited as a timber-tree although in fact of great commercial importance. The red fir of the Northwest and the southern pines are rapidly invading markets formerly controlled altogether by the white pine

of the North Central States while species of peculiar value, such as black walnut and black cherry, have practically vanished from the market in the grades which once were common. The southern pines are being destroyed with a rapidity which finds its parallel only in the case of northern white pine. It is true that the list of commercial timbers lengthens from year to year. Just as the balsam is taking the place of the spruce so are substitutes coming in for other woods which no longer exist in sufficient quantity to supply the demand. But neither can this prove a sufficient remedy. The supply of the substitutes will be exhausted in its turn and the final situation will be worse than that which confronts us now. It is no longer a question of methods of manufacture or of substitutes for exhausted supplies. The time for us to look after the trees themselves has in many cases already arrived.

"Statistics of the merchantable timber still standing in this country are difficult to make because the forest area is vast and of large portions of it we are without accurate knowledge. But in Mr. Henry Gannett's reports upon lumber in the Twelfth Census of the United States he has made good use of the data at hand and presented facts which are significant based upon information sufficient to sustain them. I wish to call your attention to a few of these facts.

"There is probably no forest in the world so immense, so accessible, so easy to lumber, and so regular in the high quality of its timber as was the great pinery which occupied the region of the Great Lakes and of the Upper Mississippi. The forests of Michigan, Wisconsin, and Minnesota originally contained a stand of about 350,000,000,000 feet. Of this, Michigan had about 150,000,000,000, Wisconsin 130,000,000,000, and Minnesota about 70,000,000,000 feet. Lumbering began in Michigan and Wisconsin during the 30's, and was of small importance until the early 70's. Since then the great pinery has been cut over in a way unprecedented in lumbering. In 1873 the cut was about 4,000,000,000 feet. It reached high water mark in 1892, when it was over 8,500,000,000 feet. Since then it has steadily fallen, until for 1902 it was a little over 5,000,000,000. To the enormous total of about 188,000,000,000 feet cut in the last thirty years, there must be added about 28,000,000,000, or 15 per cent, for laths, shingles, and minor produce, making a total of 216,000,000,000. Fifty billion feet were probably cut prior to 1873 which would bring the total product of the Lake States to about 265,000,000,000 feet. As the estimate of the original stand amounted to about 350,000,000,000 feet, it would seem that after the cut of 1902, exclusive of second growth, there were 85,000,000,000 feet standing. There are, however, by careful estimate, not more than 35,000,000,000 feet or merchantable timber, which also includes, undoubtedly, a considerable amount of second growth. Of the vast discrepancy, only a part can be put down to error, since we know enough of the fire history of these States to ascribe the loss of 60,000,000,000 feet to fire. These figures show that it is a safe and conservative statement that the end of the white pine is near and that ten years will see it disappear as an important factor in the lumber trade.

"The present stand of yellow pine in the Southern States has been stated by Mr. R. A. Long, in a paper read before the annual meeting of the Southern Lumber Manufacturers' Association, to be about 137,000,000,000 feet. About 163,000,000,000 feet have probably been lumbered already. For the census year of 1900 the total cut of yellow pine was given as nearly 10,000,000,000 feet. These figures show that at the present rate of consumption the present stand of longleaf yellow pine will be exhausted long before a second crop can be produced to take its place."

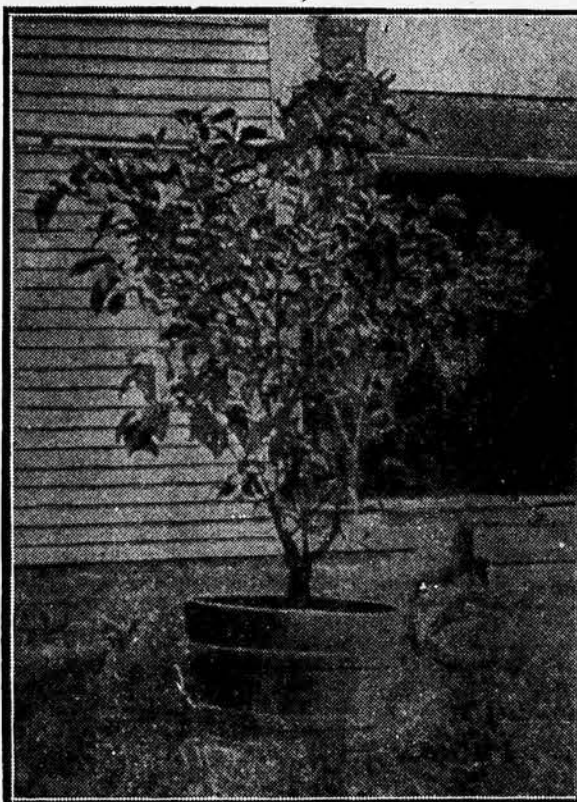
"It is not necessary to multiply instances. It would merely be to provide you with facts of which you have a keen realization already. The lumber industry ranks fourth among the great industries of the United States. It has, in my judgment, done more to develop this country than any other private enterprise except the railroads, and the rapid growth of the latter would in many cases have been impossible without the parallel development of lumbering. But in lumbering as in all other great private industries the necessity for care is not seen until the harm has been done and until the results of it are bitterly felt. We have reached the point now when we are often unable to supply the vast demand for lumber which we have fostered. We must look to the production of a second

crop upon lumbered lands or prepare to stop lumbering when the first crop is gone. In the old days it was easy to lumber one forest and then to turn to another. To-day, however, we can not count upon new fields to turn to. We must make the best of what we have, and wherever it pays we must lumber conservatively.

"Practical forestry means conservative lumbering. The question whether conservative lumbering pays depends upon whether the value of the second crop upon lumbered land is sufficient to make it a profitable enterprise to foster and protect it, and in many cases the time has already come when practical forestry is a good business investment for lumbermen. We have received a good deal of abuse for what has been called our vandalism—abuse which was unreasonable and which was not accompanied by pertinent suggestions for reform; but now the Bureau of Forestry of the United States Department of Agriculture puts the question of conservative lumbering in a way which makes it worthy the attention of lumbermen. It is the attitude of this bureau, that forestry and lumbering are allies, not enemies, and that the interests of one depend directly upon those of the other. The bureau does not claim that forestry is the panacea for every lumberman's troubles,

Mrs. Leah Stamm, of Wayne County, Indiana, is regarded as the most successful grower of lemons in the State. She brought the secret of cultivation from Pennsylvania, where her family have been successful growers for many years. She has regularly supplied her own household and many neighbors with lemons from her trees, besides selling small quantities occasionally at the village groceries. These home-grown lemons were eagerly purchased by persons who had learned that they were better than the fruit shipped from tropical countries. It is actually true that these home-grown lemons contain more juice and possess greater acidity than the lemons usually found in the markets, besides being larger and handsomer than any except the very choice selections.

It is not unusual for lemons to grow to weigh a pound and measure twelve inches in circumference. Ordinarily the fruit is allowed to remain on the tree until it ripens; and to this is attributed its superior excellence, since all lemons offered in Northern markets that were grown in the South are taken from the tree while yet green and ripened artificially. This is necessary, because lemons continue the ripening process after removal from the tree about as steadily as if allowed to remain, and after a certain stage is



A TWO-YEAR-OLD GRAFTED LEMON-TREE.

nor that it is now applicable to every timber-tract in this country. It simply holds itself in readiness to assist lumbermen in applying practical forestry to their holdings in those cases in which it is evident that conservative lumbering will pay. The Bureau of Forestry does not deal with forest problems merely in a general way. It gives each timber-tract upon which its assistance is requested a careful study on the ground, and it draws up its final plan for management with due regard to the purpose and point of view of the lumberman. In other words, its work is eminently practical and business-like, not purely scientific and theoretical.

"The advice given by the Bureau of Forestry in its working plans for the handling of timber-tracts is, in a word, the best business policy for their management based on a thorough expert examination. In my judgment, the opportunity is worthy of your close attention, and I commend it to you."

Growing Lemons in the North.

C. M. GINTHER, IN FARM AND FIRESIDE.

That lemons can be profitably cultivated north of the Ohio River is not advanced as a tenable proposition, nevertheless there are many families in Eastern Indiana who depend for their supply of lemons at all seasons of the year solely upon their ornamental lemon-trees, grown in tubs and kept in the living-rooms in winter.

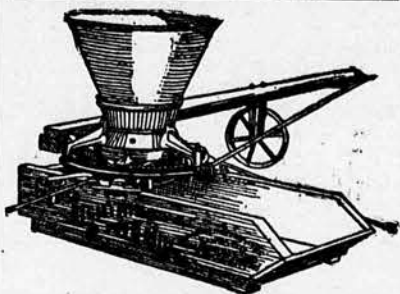
Lemon-trees are not difficult to grow when the secret of doing so is once learned, and the fruit yielded by even a small bush will more than repay all the trouble bestowed upon it. The lemon is a beautiful plant for indoor cultivation, and the added advantage it offers of yielding a regular supply of fruit at all seasons serves to establish it in high favor with all who have experimented with it.

reached the fruit rapidly deteriorates in quality. In order to obviate this and guard against loss, large growers have learned to remove the fruit while green, and allow the ripening to continue after the market is reached. It is for this reason that tropical fruit is often inferior to that grown at home, which is ripened on the tree.

The lemon is one of the most peculiar plants known to botany. Stripped of its scientific verbiage, it is described as a citrus plant possessing the remarkable quality of bearing flowers which are in part both male and female, and in part single sex. It may be started from the seed or from cuttings, which latter are set in sand like rose slips. In either event, the resulting plant must be grafted from a bearing tree before it will acquire bearing qualities. There is no known exception to this rule. In this respect the plant finds its greatest peculiarity, and the fact suggests how nearly its fruit is the result of man's interference with nature's course. Without the aid of man in adding and developing the growth, the world's supply of lemons would be small and very astringent.

The lemon is a slow-growing plant, and much time may be saved by procuring a grafted shrub from a reputable greenhouse. Seeds from a perfect lemon purchased in the market may be planted at any time in a jar of rich dirt in which a light sprinkle of sand and commercial fertilizer have been mixed. The sprouts will appear after an apparently interminable time, and should be repotted before attaining much growth. When the plant is a year or more old it should be grafted with buds from a bearing tree. Let the buds be inserted in the most vigorous stems, near the ground, in the usual manner of grafting, for ultimately it will be desired to remove all but the grafted stems in order to make available all the strength of the roots.

Lightning Feed Mill.



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Probably by the end of the first year the grafts will bloom, but unless the tree is quite vigorous and hardy these pioneer blooms should be removed. When the first blooms appear that are allowed to remain, careful attention should be shown to the healthfulness of the tree. It should be washed occasionally with weak soap-suds, and given food in the shape of proper fertilizer. The lemon does not burst into bloom at once, like the cherry- or plum-tree, but a solitary bud will show at first, which will be followed by another when its petals have dropped off. This method of blooming will continue during the lifetime of the tree. A year is required for the flowers to fructify, and when the first lemons are ripe there will be green ones hanging on the tree in all stages of growth, and doubtless a white blossom or two. A mature tree bearing ripe fruit and green, with white blossoms alternating, is a very pretty object. By this wise provision ripe lemons may be had at all seasons, and as crop-failures are unlikely, the supply of lemons for family use is reasonably certain.

The tree shown in the illustration is owned by Mrs. Charles Casner, of Wayne County, Indiana. It is two years old, and its first ripe lemon was ready to take off when the photograph was made. The ripest fruit was a very large specimen, it being fifteen inches in circumference and weighing seventeen ounces. It was perfect in growth and condition, was very juicy and entirely free from astringency. There are a number of other lemons in all stages of growth on this small tree, and some buds just bursting into bloom. Three such trees would furnish an ordinary-sized family with a constant supply of lemons the year round.

The lemon-tree is very susceptible to cold, and the slightest freeze will prove fatal. In summer the tree should be placed outdoors in a sheltered spot, screened from the direct rays of the sun at noon. Before danger of frost returns in the fall it must be taken into the house, where the more sun it gets the better.

A number of women in eastern Indiana derive a steady income from the sale of grafted lemon-trees. Usually two years must ensue before any return from such labor can be realized, but by constantly planting seeds and grafting the shoots while small, a supply of marketable trees may be obtained. The price ranges from \$3 to \$35 each, depending upon size, beauty, and quality. Nurserymen usually act as agents for the growers. The demand comes mainly from cities.

The lemon is a comparatively modern production. It is a native of north-west India, where it occurs under several forms. The fruit was unknown to the ancient Greeks and Romans. Arabs introduced it into Spain in the thirteenth century. In 1494 lemons grown in the Azores were shipped to England, where the fruit instantly became popular. This traffic continued until 1838, when trade competition destroyed the business. The lemon is more delicate than the orange. Unlike the orange, which presents a fine, close head of deep green foliage, it forms a straggling bush or small tree five to twelve feet high, with paler, more scattered leaves, and short, angular branches.

The lemon is an exceedingly prolific bearer, the larger trees regularly ripening as many as three thousand fruits in a year.

The world's supply of lemons comes mainly from the region about the Mediterranean Sea, but in recent years California and Florida have entered largely into its cultivation, and already offer superior fruit at lower prices than the Old World can furnish. Lemons are also grown in Australia, but in comparatively small quantities as yet.

The Stock Interest.

THOROUGHbred STOCK SALES.

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

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 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 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.
 November 10-11, 1903—Marshall County Hereford breeders' annual sale at Blue Rapids, Kans.
 November 12, 1903—Central Missouri Hereford Breeders' Association.
 December 3, 1903—100 head of Herefords, at Chicago, Ill. C. R. Thomas, Secretary.

REPLIES TO INQUIRIES FROM THE ANIMAL HUSBANDRY DEPARTMENT OF THE KANSAS EXPERIMENT STATION.

Kafir-corn and Sorghum-seed for Steers.

Mr. S. M. K., of Humboldt, Kans., writes: "I am feeding 45 head of 3-year-old steers on broken ear-corn with clover, timothy, prairie-hay, and millet-hay for roughness. These steers have been on feed since November and are doing fairly well. I have sorghum and Kafir-corn that I am thinking of grinding and making part of the ration with the broken ear-corn. Do you recommend ground sorghum-seed and Kafir-corn as feed for steers? Have you had any experience in feeding ground millet to cattle, particularly to fattening steers? Would ground Kafir-corn and sorghum be good feed for breeding sows, or for pigs at weaning time?"

Bulletin 67 of this station details the results obtained in feeding steers corn-meal in comparison with Kafir-corn meal. The steers receiving corn-meal required 997 pounds of grain to produce 100 pounds of gain, and those receiving Kafir-corn (the white variety) required 1,041 pounds of grain per 100 pounds of gain.

It will be seen from this that Kafir-corn is very nearly equal to corn, pound for pound. Subsequent experiments with calves and hogs showed that wherever we mixed corn and Kafir-corn we obtained better results than we did from feeding either one alone. This will doubtless hold true with steers also and we would therefore advise our correspondent to feed ground Kafir-corn with his ear-corn.

As to the relative merits of Kafir-corn and sorghum-seed we can say that both the composition and our experience in feeding them to dairy cows (we have never fed sorghum-seed to steers) indicate that they are very nearly though not quite equal in feeding value. Other things being equal, we would give the preference to Kafir-corn as a grain feed. A mixture of Kafir-corn and sorghum, by giving greater variety, will undoubtedly give as good or better results as the same weight of Kafir-corn. Our correspondent ought to get good results from feeding a grain ration composed of one-half corn, one-fourth Kafir-corn, and one-fourth sorghum seed. In addition to this our correspondent should feed some oil-meal or cottonseed-meal the last five or six weeks of the feeding period in order to put a better finish on his cattle. Begin with a half pound daily per steer and increase gradually to four or five pounds.

While Kafir-corn and sorghum make a good grain feed for hogs, we would not advise feeding them alone but mixed with shorts corn, or bran. We have been feeding a mixture of one-half shorts, one-fourth Kafir-corn, and one-half corn to hogs with excellent results. Brood sows suckling large litters of pigs should have a little oil-meal in addition, or if possible, plenty of skim-milk. The amount of grain required for either brood-sows or shoats will be materially lessened by good alfalfa or rape pasture. See KANSAS FARMER for May 14, page 534.

D. H. OTIS.

Millet Hay for Horses.

Mr. W. O. N., of Iola, propounds the following: "It is generally believed that millet hay is injurious to horses; would it not be all right if cut early before the seed ripens?"

We have had no experience at the Kansas Station in feeding millet to horses. Professor T. D. Hienbauch, of the North Dakota Experiment Station, in bulletin 26, published in November, 1896, gives the results of a series of

experiments in feeding millet to horses and comes to the following conclusion: "We would say that our experiments here have thoroughly demonstrated that millet when used entirely as a coarse food is injurious to horses. First, in producing an increased action of the kidneys; second, in causing lameness and swelling of the joints; third, in producing infusion of blood into the joints; fourth, in destroying the texture of the bone, rendering it softer and less tenacious, so that traction causes the ligaments to be torn loose. The experience of many farmers with whom I have talked confirm the above conclusion, and we could multiply case after case showing that the above conditions are the results of feeding millet."

Prof. W. A. Henry, after quoting the above experiment in his book on feeds and feeding, says: "It is remarkable that millet, one of the oldest known plants and one that is used so extensively in various countries, should fall under this serious charge. Possibly hay from the plant is injurious in some districts while harmless elsewhere; or in some years it may prove deleterious while usually safe for feeding. Having been put on his guard, the horseman will use millet with caution, awaiting further reports from the investigators. It should be noted that in the cases where the trouble arose, millet hay was used exclusively for roughness. Ill effects can probably be avoided by using this hay in limited quantity for roughage and not continuously. Nothing unfavorable to the use of millet hay for cattle- or sheep-feeding has been reported."

The writer finds no statement in regard to the stage at which the millet used in these experiments at the North Dakota Experiment Station was cut. If any of our readers have had any experience in feeding millet to horses, we trust they will give the readers of the KANSAS FARMER the benefit of this experience.

D. H. OTIS.

When to Pasture Hogs on Alfalfa.

Mr. J. E. C., Bendena, Kans., writes the following: "I wrote you in regard to the sowing of alfalfa and under your directions now have one of the finest stands of alfalfa in northeastern Kansas. I intend sowing five acres more but would like to know how old the stand should be before pasturing with hogs."

The stage at which to pasture alfalfa depends more upon its condition than upon its age. It is never advisable to pasture it the first year and it is very seldom advisable to pasture it the second year. On good soil, where it makes a good, vigorous growth, it can doubtless be pastured the third year without injury. Even then it is well to watch it closely, and if the hogs seem to be injuring it, it would be well to either take them out or reduce the number.

A good stand of alfalfa is too valuable to have injured by too early and too much pasturing.

D. H. OTIS.

Exterminate Texas Itch.

The following communication was last week presented to Governor Bailey by the Kansas Live Stock Sanitary Commission:

"For the protection of the live-stock interests of Kansas, and to prevent the dissemination of contagious, infectious, or communicable diseases among the same, we beg to report to your excellency that a parasite disease known as itch, or mange (resembling scabbies in sheep) has become prevalent among the cattle of Kansas, and exists to a remarkable extent in the western portion, known as the short-grass region.

"The counties referred to are occupied by cattle-owners, and principally used in large open ranges, or large pastures, and it will require the most stringent methods to stamp out this disease, which is rapidly encroaching upon the non-infected counties of the central and eastern portion of the State. Therefore, we respectfully request your excellency to issue a proclamation, operative at once, levying permanent quarantine upon the following-named counties:

"Cheyenne, Rawlins, Decatur, Sheridan, Thomas, Sherman, Graham, Trego, Gove, Logan, Wallace, Greeley, Wichita, Scott, Lane, Ness, Hodgeman, Finney, Kearny, Hamilton, Stanton, Grant, Haskell, Gray, Ford, Morton, Stevens, Meade, and Clark.

"It will also be necessary to establish a temporary quarantine on all of the infected pastures in the balance of the State, and to prohibit the movement of cattle in any manner by rail, trail, or wagon excepting in accordance with the rules and regulations which have been adopted by this board, and which are herewith submit-

ted for your consideration and approval."

The following is the proclamation issued by Governor Bailey:

GOVERNOR BAILEY'S PROCLAMATION.

"Pursuant to the above petition, I, W. J. Bailey, Governor of the State of Kansas, by virtue of the authority vested in me by law, and for the purpose of preventing the further spread of the above-mentioned disease in this State, do hereby proclaim and establish a quarantine against all the cattle in the counties above-mentioned, and said cattle shall be permitted only to move under the following conditions:

"Rule 1—No cattle shall be moved from one pasture to another in the above quarantined counties, nor from any of the above-mentioned counties to another, neither shall they be received for shipment by any railroad in the State, except they have been first carefully dipped with the use of some one of the standard dips in a solution of not less than one to twenty-five, which are known to be effective in curing said disease, or treated by hand dressing, with scrubbing brushes, and then only in case the disease is apparently cured. Excepting that any cattle may be moved a distance of fifteen miles from the home range or pasture for the purpose of reaching a dipping station where said cattle shall be dipped.

"Rule 2—In all counties or districts where regularly appointed agents of this board are located they shall be requested to inspect all cattle after dipping before they shall be permitted to move to any other portion of the State. Said inspectors will issue a bill of health if found free from infection.

"Rule 3—In localities where there are no agents appointed by the Sanitary board, inspection of cattle may be made by sheriffs of counties or their deputies, or any constable will be authorized to inspect cattle, the certificate of whom will be considered good.

"Rule 4—Where the above disease is known to exist in any range or pasture in this State the owners of said cattle shall proceed immediately upon the publication of these regulations to dip or disinfect said cattle in a manner satisfactory to this board. If not so done, the sheriff of the county in which the cattle are located is required by law to take possession of said cattle and treat the same until they are cured. All of which expense will be chargeable to the owner of the cattle.

"Chloro-naphtholeum zenolium, carbol, and lime and sulfur have all been found effective disinfectants. The latter should be prepared strictly in accordance with the formula of State Veterinarian Mayo in the last biennial report of this board which will be found at the office of your sheriff.

"Rule 5—All railroads, live-stock transportation and stock-yards companies and their employees, and all other persons, are hereby forbidden to transport, drive, or in any way handle cattle in Kansas, except in compliance with the foregoing rules, under the pains and penalty of the following statute:

"Extract from chapter 2, section 21, laws of 1884: 'Any person who shall violate, disregard, or evade, or attempt to violate, disregard, or evade, any of the rules, regulations, orders, or directions of the live-stock commission, establishing and governing quarantines, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than \$100 or more than \$5,000.'

Developing Knee Action in the Horse.

T. E. R., Wadesville, Ind., writes to the Breeder's Gazette:

"How shall I shoe a horse to make him have high knee-action?"

To this the Gazette answers as follows:

This question is about as indefinite as it well can be. What kind of a horse is he? Has he any amount of knee-action naturally? Is he in conformation and disposition such an animal as one would consider a favorable prospect for development along these lines? How old is he? Has he been broken and worked, and if so, how long and in what capacity? Have his parents any degree of action and have they the blood of any high-acting breed in their veins? All these and many more similar questions should be answered before any very definite reply should be made, but as none of these particulars is vouchsafed the best we can do is to answer in the most general terms.

There is no such thing as putting action in some horses. You can not take a farm scrub, scrub-bred, and put any decent degree of action into him. He was not bred for it in the start and the chances are that his conformation

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUSTIC OR FIRING. Impossible to produce scar or blemish. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. THE LAWRENCE-WILLIAMS CO., Cleveland, O.



CURE HEAVES, COUGH.

Distemper, all trouble that causes heaves. Sold on guarantee over 18 years. 50c per gal., by mail, 60c.

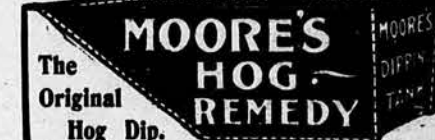
CURED 34.

"The past 3 months I have cured 34 horses of heaves, 14 of distemper and 9 of chronic cough."—E. Behncke, Newark, N. Y. Write how many head stock you have, we send stock book FREE. Russian Remedy Co., St. Paul, Minn.



Cure Them

Lump Jaw in cattle, Fistula and Poll Evil in horses, and almost every blemish that a horse can have, even bad Bone Spavin, Ringbone and Knee-Springs, can be readily cured by anybody. We want to tell you how to do it, prove that you can do it, and guarantee you success in doing it. Two big books explaining everything sent free. Write now. Fleming Bros., Chemists, 213 Union Stock Yards, Chicago, Ill.



MOORE'S HOG REMEDY

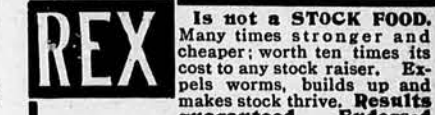
Used on Outside and Inside of Hogs

Kills lice and fever germs, removes worms, cures mange, canker and cough; aids digestion, promotes healthy growth, and

Prevents Disease, at Small Cost.

At dealers in Sealed Cans Only. Useful book with illustration of Dip Tank FREE. Address

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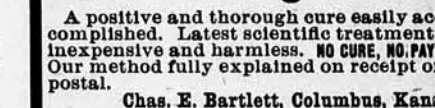
Is not a STOCK FOOD. Many times stronger and cheaper; worth ten times its cost to any stock raiser. Expels worms, builds up and makes stock thrive. Results guaranteed. Endorsed by State Veterinarians. Used by largest stock owners of this country. Dealers every where, or from us direct.

25 lbs. \$3.00; 100 lbs. \$10. Freight paid on 25 lbs. or more. Order today. Write for free bulletins, etc.

Rex Stock Food Co., Dept 9 Omaha, Nebraska.



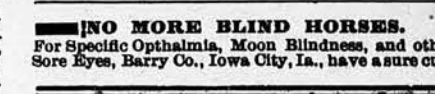
CONDITIONER



LUMP JAW

A positive and thorough cure easily accomplished. Latest scientific treatment, inexpensive and harmless. NO CURE, NO PAY. Our method fully explained on receipt of postal.

Chas. E. Bartlett, Columbus, Kans.



NO HUMBUG. Three

For Specific Ophthalmia, Moon Blindness, and other Sore Eyes, Barry Co., Iowa City, Ia., have a sure cure

precludes the possibility of his ever putting up his knees at all well. If on the other hand the animal has in his veins the blood of the coacher, the Hackney or the American trotter, and has shoulders which will permit, he may be taught to do quite a stunt in the acting line if long enough time is taken in the process of teaching him, and he is not overdone. It must always be remembered right at the very beginning that leg-weariness and high-action do not agree, and the horse which it is sought to make over into a high-actor should never be driven

or trained or fussed with till he is fatigued.

The rule for shoeing is to place the weight in the heel to make the horse lift high and in the toe to make him reach out. The high lift and the reach forward are both essential to good action. The horse that merely picks up his foot and slams it down again in the same spot is not much of an actor. The best description the writer can give of the proper play of the leg is that the foot should be picked up sharply and then put down at though following the rim of a rolling wheel. This means a high lift of the knee and a moderately long stride, both of which must be included or the horse can not be said to be a good actor. As we know absolutely nothing about the animal in question we can offer no suggestions as to the amount of weight, but as a general rule it will be well for our correspondent begin with shoes weighing from sixteen to twenty ounces, and the most of the lift in and towards the heels. Keep the feet level at all times. If it is desired to make the horse reach out, the weight used may be the same, but most of it placed in the toe. Experimentation along this line will show how much weight is needed and where.

In order to improve action in harness-horses some trainers make them walk over a row of fence posts (round) staked to the ground and just as far apart as to be handy for the horse to step over. He will be compelled to lift his feet to get over the obstructions and in that way the habit may be fixed with more or less intensity. Another way adopted in England and Scotland is to dig a trench of convenient length, perhaps 100 or 150 yards, and 2 feet wide by 3 feet or more deep. This is filled with the woody heather plant and tramped down by a heavy cart horse. When ready for use the heather-footing is resistant and the horse continually sinking seeks to raise his feet high up and place them well forward in order to save himself. Naturally this is very tiring work and the horse should not be kept at it for any great length of time, but no rule can be laid down, for what is play for one horse is weariness to another. We do not know of any shrub in this country of a woody character like the British heather, but it is probable that corn-stalks and especially broom-corn-stalks might be made to do duty for the Scottish emblematic plant very well. We do not know as to this but the experiment is worth the trying. Fill a short ditch with good, tough, old cornstalks and tramp them down well, taking care to lay them criss-cross so as to give as much spring as possible to the footing when it is finished. It will cost but little even if it fails entirely. It will be found necessary to fill the ditch only partially, or to erect a fence or rail on both sides of it for the reason that if the top of the filling is level with the rest of the ground the scholar will annoy the teacher to the point of distraction by forever stepping onto terra firma and away from his lesson.

Rattles also should be used to induce the lift of the foot. These are usually constructed of bone, in spherical form, graduated in size, and are strung on a strap to be buckled around the leg at the ankle. These rattles may be obtained from or through any harness-dealer. Or a chamois leather tube of shot may be used as a weight in the same way. This may also be procured at the harness-shops.

Another point to be made is that the educator must have a very large stock of patience. He must not know what discouragement means, and he must have full control of the animal handled at all times. A horse that is to be used for driving purposes must be prompt and bold in all his movements. The slovenly old slouch will never do, hence he must be taught to do well what he can do—do—that is, he must be taught to act as near like a naturally high-actor as possible. With all this go good feed and care. Starvation and dirty coats do not fit in harmoniously with education for the improvement of action.

Some New Features at the Iowa State Fair.

Heretofore at the Iowa State Fair, little attention has been given to the exhibit of fat cattle by breeds. This year, a feature of the cattle exhibit will be the displays in the steer classes. The State Fair management has added seven new classes for fat-stock by breeds to the cattle premium list, thus greatly strengthening the cattle-department. Already the numerous entries are coming in for these classes and there is little doubt an exceptionally fine show of fat-stock will be seen at the fair, along with the usual magnificent exhibits of breeding-animals. The

breeds displayed will be the Short-horns, Herefords, Galloways, and Aberdeen-Angus. Grades and cross breeds have also been given a glass. The grand champion fat-stock prize is a premium of \$50 given to the best steer of any age or breed, limited to the champion steers in the other fat-stock classes. A prize of \$75 will be given for the grand champion group of three steers.

The cattle- and horse-show at the Iowa State Fair this year will be improved by the issue of a catalogue by the management. This will give the name and pedigree of every animal shown in the cattle- and horse-departments. Heretofore it has been difficult for spectators of the judging, seated in the stock pavilion, to keep an accurate note of what was going on. With the catalogue, it will be as easy to watch the judging understandingly as if one were down in the judging ring. It is expected the issue of the catalogue will tend to make the stock pavilion more of an attraction than ever for visitors at the fair next August.

Percheron Injunction Dissolved.

Just as we go to press information comes from Judge Bishop's court that he has on hearing dissolved the injunction which Judge Haney granted against the newly organized American Percheron Horse Breeders' and Importers' Association restraining it from registering pedigrees and soliciting members and otherwise conducting the business for which it was organized. Mr. Thompson, secretary of the old Percheron association, thus sought to estop the new association, but his case was promptly thrown out of court when it came to be heard. The new association will now renew its vigorous and successful efforts to draw to its support the better elements engaged in the importation and breeding of Percheron horses. Meantime we repeat our warning to those who are supporting the old association that before long they will have cause to regret the company that they have been keeping.—Breeders Gazette.

The German Coachers at the American Royal.

"If you will make a class for German Coachers we will guarantee that we will give the patrons of the American Royal the greatest exhibition of horsemanship they have ever seen." This from J. C. Crouch, of Lafayette, Ind., secretary of the German Hanoverian and Oldenburg German Coach Horse Association of America, is a sample of the interest shown by importers and breeders of draft and coach horses in this year's American Royal Live-stock Show which will be held here October 19-24. The class for German Coachers will be provided.

To date \$1,500 in cash and medals has been hung up in premiums for the horse department of the show. This includes the \$500 in medals voted by the directors of the American Percheron Horse Breeders' Association at their meeting in Chicago last week. At this meeting the following classification for Percherons was adopted: Best stallion, any age, \$100 gold medal; best mare, any age, \$100 gold medal; best group five stallions, \$100 gold medal; best group three mares, \$100 gold medal; best group four animals, get of one sire, \$50 silver medal, best brood mare and two or more of her produce, mare to count 50 per cent and produce 50 per cent, \$50 silver medal; best herd, consisting of stallion, any age, and four mares, any age, \$50 silver medal.

It is now practically assured that in addition to the Percherons and German Coachers there will be exhibits of Shires, French Draft, French Coach, and Belgian horses. The Lincoln Horse Importing Company and Watson, Woods Bros. & Kelly, of Lincoln, Neb., will contribute 30 Percherons, and J. W. & J. C. Robison, of Towanda, Kans., will exhibit a couple of carloads.

Secretary Park of the American Galloway-Breeders' Association, has sent out the preliminary classification of the Galloways for the American Royal. It is substantially the same as last year's. The cash prizes offered by the association aggregate \$2,435. Secretary C. R. Thomas, of the American Hereford-Breeders' Association, announces that the list of animals to be sold by Hereford breeders during the show, 100 head, is full, and 40 head that were offered had to be refused.

The Hereford Shows and Sales.

Mr. C. R. Thomas, secretary of the American Hereford-Breeders' Association, has issued a preliminary catalogue for the National Hereford shows and sales to be held under the auspices of this great association. The shows will be held at Hamline, Minn., August 31 to September 5, Kansas City, October 19 to 24, Chicago, November 28 to December 5. In addition to these National shows the association has hung up prizes for twenty-one State fairs, with total purses for each ranging from \$200 to \$600. The State fair at Sedalia, Mo., will receive \$300, and the fair at Topeka will receive the same amount in prizes from this association. The National sales held under the auspices of the association will include 100 head at Hamline, Minn., on September 1 and 2; 100 head at Kansas City on October 22; and 100 head at Chicago on December 3.

A copy of this preliminary catalogue may be had by addressing C. R. Thomas, secretary, Stock Yards, Kansas City, Mo.

To Boston and Return at One Fare

for the round-trip from Chicago via Nickel Plate Road, for Christian Scientists' meeting in June. Tickets on sale June

25, 26, and 27, with extended return limit of August 1. Stopover at Niagara Falls, in either direction, without extra charge, and at New York returning on payment of fee of \$1.00. No excess fare charged on any of our trains. Write John Y. Calahan, General Agent, 113 Adams St., Room 298, Chicago, for detailed information. (6)

Gossip About Stock.

E. E. Axline, of Oak Grove, Mo., known to every Poland-China breeder in the West, will be amply prepared for his great fall sale unless some disaster overtakes him. Notice the date under dates claimed because here will be an opportunity to get Poland-Chinas of the best.

The popular headquarters for stockmen who visit Kansas City is the Coates House. Direct car lines from the Union Depot and to the stock-yards. Whenever public sales of fine stock are held at Kansas City you can depend on meeting the crowd at the new Coates House. Special rates to stockmen.

John and George Isaac, of Markham, Ont., held a very successful sale of Shorthorns on May 14. This sale was characterized by a good attendance, good humor and evenness of prices. A total of forty-nine head were sold for \$17,345, average, \$355.95. Forty-four females sold for \$15,680, average \$355.90. Five bulls brought \$1,685, average \$337.

On May 20, at Osborne, Ohio, Mr. C. R. Gerlaugh made the second of the spring series of Ohio Shorthorn sales. The offering consisted of both imported and home-bred Scotch cattle and were in good condition. The thirty animals sold for \$11,055, average \$368.50. Of these twenty-six were females which averaged \$345 and the four bulls averaged \$516.25.

Under date of May 20 comes the announcement that the National Creamery Butter-makers Association will hold its annual meeting at Sioux Falls, S. D., this year. As the contest between Buffalo, N. Y., and Sioux Falls has been waged for several months, the Western people are highly elated over the result and every effort will be put forward to make this the greatest convention in the history of this association.

On May 14, Mr. G. H. Hoxie, owner of Thorn Creek Herd of Herefords, Thornton, Ill., held a sale which was not only satisfactory to himself but to breeders of Herefords generally. Buyers were present from West Virginia, to Missouri, including Kentucky, Illinois, Indiana, Pennsylvania, Iowa, Wisconsin, and Manitoba. A total of thirty-eight head were sold for \$11,400, average \$300. Thirty-two females brought \$10,280, average \$321.25. Six bulls sold for \$1,120, average \$186.65.

S. A. Spriggs, of Westphalia, writes us that he has had remarkable success during the past season as the result of his advertising in the Kansas Farmer. He imports and breeds Percheron, English Shire and French Coach horses and Black Mammoth and Imp. Spanish Jacks and Jennets. He is about sold out now, all of his horses having gone at good prices, but he still has one or two registered Black Mammoth Jacks and some bred Jennets for sale. A card to him will bring the particulars about these.

On May 19, the spring circuit of Ohio Shorthorn sales opened at Yellow Springs when E. S. Kelly sold a draft from his well-known herd. A crowd of about 1,500 people were in attendance and the sale proved a most satisfactory one, although some of the imported animals were disposed of at a loss to Mr. Kelly. The top of the sale was brought by the imported cow Fair Morn with heifer calf at foot, who went for \$850. Thirty-four animals were sold for \$13,925, average \$409.48. The thirty-three females averaged \$414.39 and the one bull brought \$250.

The Ray County Shorthorn Breeders' Association held their first annual sale at Richmond, Mo., on Saturday, May 23. The results of the sale were so generally satisfactory that plans are already being laid for future sales. The crowd numbered some 300 farmers and breeders. The offering was nearly all young animals under 1 year, and as a consequence the average price is not high. The top price on females is \$75 and on bulls \$130. The thirty-five head in the sale averaged \$61.57. Twenty of these were bulls which averaged \$67.75, and fifteen cows and heifers average \$53.33.

The following classification for the Percheron exhibit at the American Royal this fall has been adopted by the American Percheron Horse Association: Best stallion, any age, \$100 gold medal; best mare, any age, \$100 gold medal; best group 5 stallions, \$100 gold medal; best group three mares, \$100 gold medal; best group four animals get of one sire, \$50 silver medal; best brood mare and two or more of her produce, mare to count 50 per cent and produce 50 per cent, \$50 silver medal; best herd Percheron horses, consisting of stallion any age and four mares any age, \$50 silver medal.

A. F. Huse, Manhattan, Kans., has for a long time been using pure-bred Shorthorn bulls in his herd. The work done by these animals has served to convince him of the value of raising pure-bred cattle, and in the last few years he has been getting together a bunch of registered Shorthorns as well as of Poland-Chinas, so that he is now ready to take rank among the breeders of the State. He writes that he has had good trade from his advertisement in the Kansas Farmer, and that both his cattle and his hogs are doing fine, and that he will have a splendid lot of young stuff to offer this fall. Keep your eye on Huse.

The Poland-China merger so much discussed and so much to be desired is slowly but surely becoming an accomplished fact. The utter absurdity of maintaining so many record associations at so great an expense is so patent to everybody that recruits are falling into line in favor of the progressive method of merging, and we hope before many months to see their object accomplished. The agricultural press of the country is practically a unit in favor of the unification of the Poland-China interests, and it will afford the Kansas Farmer pleasure to do anything in its power toward the fur-

PURPURA HEMORRHAGICA.

A Distressing Disorder in Horses—Its Cause and Its Cure.



swelling of the legs and nose which ends abruptly. Occasionally the eyes become swollen and tears will drip.

Exposure to cold or draughts of cold air excite attacks and even after the animal has apparently recovered may cause relapses.

Treatment.—One or two dram doses of dried sulphate of iron with a dram of gentian and ginger given three or four times a day is good treatment. In early attacks, chlorate of potash should be given in half ounce doses three times a day for one or two days, then the dose must be reduced. After the first day or two, dram doses of chlorate of potash with dram doses of dried sulphate of iron in two dram doses of powdered gentian gives good results and should be used every four to six hours.

An ounce of tincture of iron in a quart of water applied to the swellings with a sponge several times a day is of advantage. This treatment is much more effective and rapid when supplemented by Dr. Hess' Stock Food, the best tonic and regulator for horses of every age and condition. This food is invaluable in convalescence after purpura, building up the animal very rapidly, purifying the blood, restoring healthy flesh and muscular elasticity with a glossy coat and willing action.

Dr. Hess' Stock Food is a guaranteed flesh producer, it produces flesh by compelling the system to appropriate every particle of nutrition out of the stuff fed, allowing nothing to pass off undigested.

Dr. Hess' Stock Food is sold on a written guarantee, in 100-lb. sacks \$5.00, smaller packages at a slight advance; fed in small doses.

Every package of Dr. Hess' Stock Food contains a little yellow card, which entitles the holder to free advice and prescriptions from Dr. Hess, a graduate of both medical and veterinary colleges.

Dr. Hess has written a book on the diseases of stock and poultry. It is the only complete treatise for farmers and stockmen published. It is consulted and commended by many leading veterinarians.

For a little information this valuable book will be mailed to you free, postage paid. Write Dr. Hess & Clark, Ashland, Ohio, state what stock you have, what stock food you have fed; also mention this paper. Write at once and the book will be sent free, postage paid.

therance of this proposed movement, not only because of its practicability but because it is demanded by our breeders. Unification must come in one way or another.

Parties interested in Tamworth hogs, and there will be many of them doubtless when the real value of this breed becomes more generally known, will find the best opportunity to inspect this breed that is offered anywhere in the West at the breeding farm of C. W. Frelove, Clyde, Kans. Being a new breed to the State, it is really important that parties interested in hogs should see the Tamworths at their home and learn from their breeder their possibilities. Mr. Frelove's advertising card is on page 593 and a letter to him will bring information, but we think a visit to the herd would be more profitable.

The dispersion sale of Herefords held by G. G. Huggans, at Wyoming, Iowa, was very satisfactory in every way. These cattle were all of Mr. Huggans' breeding and were a good useful lot, creditable to their owner. The average of the sale was \$170 for seventy-eight head. At Indianapolis a two-days' combination sale of Hereford cattle was held under the management of Colonel Wallace which also proved very satisfactory. The good cattle in this sale brought good prices while the young and thin stuff offered brought their full value. Our report does not give the average but we understand that it was a very satisfactory one.

Chief Coburn, of the live-stock section of the Louisiana Purchase Exposition, is planning the greatest live-stock show that was ever held. The Columbian Exposition at Chicago in 1893 had at its disposal \$142,500 for the payment of premiums, though a part of this was not used. Next year Chief Coburn expects to have not less than \$250,000 for prizes, and in using this immense sum he will provide for the erection of about fifty barns for accommodation of 3,000 head of either horses or cattle and 6,000 head of sheep or swine; also a large amphitheater with immense space for judging and an enormous dairy demonstration open to all breeds.

Mr. Chas. Morrison, of Phillipsburg, owner of the Phillips County Herd of Red Polled cattle, Poland-China swine, Partidge Cochins chickens, and Mammoth Bronze turkeys, has a few head of the choicest individual Red Polled cattle for sale that we have seen anywhere. We understand that his prices are extremely reasonable when quality is considered, and we doubt if any one can make a more profitable investment than to buy a railroad ticket to Phillipsburg to examine this stock; this, provided he wants some of the best Red Polls that are to be had. It may be interesting to know that Mr. Morrison's Poland-Chinas are coming along in fine shape and that he will have a nice lot of extra choice youngsters to sell at the proper season. His advertising card is on page 595.

That the mechanical inventions of latter days have not taken the place of the horse in public usefulness is shown by a record which has been made by one Percheron stallion owned by Carpenter Bros., Clay Center, Kans. About twelve years ago they selected a stallion sucking colt from

the Henry Avery & Son herd at Wakefield, for which they paid about \$500 as a weanling. They still have this stallion and are having great seasons with him. They have raised thousands of dollars' worth of colts with him on their own farm besides the outside income, and have now sold a pair of grade draft geldings from this stallion that more than cover the original investment. The twelve years that they have owned this horse covers the period of low prices and depression in the horse business as well as the present prosperous times. These geldings sold in Kansas City for the record price of \$615. Avery & Son bred and reared the stallion who sired these record-making geldings.

McLaughlin Bros., Importers of Percheron and French Coach stallions, Kansas City, Mo., and Columbus, Ohio, write us under date of May 20, that the steamship Marquette landed in New York on May 13, with their second spring importation of Percheron horses. These horses were promptly passed through the custom-house and were shipped by the Adams Express Company to Columbus, Ohio, where they arrived in good condition the next day after they landed. Every horse that started from France in this importation is now in Columbus, Ohio, safe, sound, and well. They also add that within the past year they have imported 320 stallions from France, which is more than has been brought to this country from France by all the other importers combined. They have already purchased more than 100 of the best stallions that now remain in France, and after their round of the great French shows in June these stallions will be delivered to Columbus in July when they will be shown at the principal shows and horse-fairs this fall.

Mr. F. C. Barry, who has been so long and favorably known by reason of his connection with the passenger department of the Great Rock Island System, has recently changed his business relations and will hereafter be found at Room 103, Bryant Bldg., Kansas City, Mo., where he is associated with Mr. Hiland P. Lockwood, land and colonization agent. These gentlemen have, as their most interesting problem, the greater development of Thomas County, Kansas. This statement does not mean that they are not interested largely in other sections, but they have selected Thomas County as one of the best representatives of the conditions which confront the settler in the newer West, and they are bending every effort to its proper development. As Thomas County lies in the midst of the alfalfa region and as this region has already shown itself to be the best dairy section of Kansas, the success of Messrs. Lockwood and Barry in their efforts in behalf of Thomas County seems already assured. At any rate, Barry is a hustler and when he gets behind anything it very nearly has to move.

A special meeting of the directors of the American Percheron Horse-Breeders' Association was held at the Grand Pacific Hotel in Chicago, on Wednesday, May 20. Reports were presented by the secretary and treasurer showing the association to be in good financial condition, and that the registrations for the past four months were in excess of those received in the corresponding four months of last year. Resolutions were passed authorizing the treasurer to pay all outstanding bills for advertising, etc. It was voted that \$500 in medals to be given to the American Royal Show to be distributed as special premiums for Percheron exhibit at their show to be held at Kansas City, Mo., this coming fall; it was also voted that this be duplicated for special premiums to be awarded to Percherons exhibited at the International Live-stock Exposition to be held in Chicago in December. A resolution was carried unanimously recommending that the Association give \$1,000 in cash to be awarded as special premiums at the Louisiana Purchase Exposition to be held at St. Louis, Mo., 1904.

Mr. Chas. Morrison, owner of the famous Phillips County herd of Red Polled cattle, has been extremely successful in an experiment in raising his calves by hand. Like other progressive farmers and stock breeders Mr. Morrison uses a hand-separator and from the separator-milk he has been successful in raising an extra quality of calves. His calves are given whole corn in small quantities in the allowance of milk and this is accompanied by a small amount of blood-meal. Mr. Morrison has previously made experiments in the use of Kafir-corn meal in the milk allowance for the calves in the belief, as stated by experiment station workers, that the Kafir-corn meal supplied the elements which the separator took from the milk to a certain extent and at the same time had a tendency to counteract any danger from scouring. Finding that the calves had difficulty in masticating the meal and believing that it would be of benefit to the youngsters to have something on which to develop their grinders, he has used whole shelled corn with the best possible results. Any tendency to scour has been counteracted by addition of a small quantity of blood meal. The calves now on his farm, which have gone through with this experience are creditable at once to the skill of his feeding and to the breed he represents.

H. M. Kirkpatrick, whose Poland-China breeding farm is at Wolcott, Kans., on the Missouri Pacific railroad, and also on the Kansas City-Leavenworth Electric line, has adopted a new policy for this year. Instead of holding an annual sale as has been his custom for years past he will sell out his offering at private treaty. Included in the offering will be the best lot and the best-grown pigs that he has ever had on his farm and this is saying a good deal for them. He will sell but sixty head of younger animals and will include in the offering his Kansas Perfection boar. Owing to circumstances in which he now finds himself through his connection with the management of the big shows and sales this fall and the association work, he is in a position to spare the boar mentioned from his herd. This will be a bit of good news to Kansas breeders because there are many of them, doubtless, who would like to own this great boar. He has made one herd famous and can bring fame to another. The wise breeder of experience or the young breeder who is beginning would show wisdom by buying this great boar, and the only way to make sure of getting

him would be to write to Mr. Kirkpatrick at once. A better plan would be to take a ride on the trolley line to Wolcott and inspect this boar and the other sale-animals in this herd, among which you will be sure to find what you want. His advertising card appears on page 585.

What to do with the bull so that he may have plenty of fresh air and exercise and at the same time be kept under perfect control is sometimes a question that puzzles owners. We think perhaps the best solution of this problem is a device which we have seen in several places, but most lately at Chas. Morrison's breeding farm at Phillipsburg, Kans. This consists simply in fastening a strong wire or cable between two trees or strong posts at a height of about eight or nine feet from the ground. Upon this cable is a sliding ring to which the halter of the bull is attached. The other end of the halter may be then snapped in the bull-ring or on the head-stall as may be required. This device gives opportunity for the bull to take plenty of exercise by walking to and fro between the trees and gives him an abundance of fresh air and sunshine with the privilege of shade at each end of his walk. By scattering his fodder the length of the wire he may be compelled to do more or less walking if he is not inclined to it. The cable may be made at home by twisting together a number of galvanized fence-wires, although the one we speak of at Phillipsburg was made of a single wire of large size. It is a matter of comparative ease to train a bull so that he may be tied in this manner with perfect safety, and we find that those who have used this plan like it so well that they continue its use.

One of the best commentaries on the necessity for advertising in any business is included in some recent words by Col. Pope, the best-known bicycle manufacturer in the United States. He says that the great bicycle trust which exploded recently failed because it regarded itself independent of the newspapers. It considered that the bicycle had such a firm hold on the affections of the people that no more advertising in the newspapers was necessary. This trust lasted exactly three years, and the story of its decline is told by Col. Pope in these few words: "In the first year of its triumphal march it began to salt away money for its stockholders by cutting down its advertising—using what one of its officials likes to call 'the condensing method.' Next year it gave some more wringing twists to the compass of its condenser. During the year just closing it compressed its advertising almost to the vanishing point, and in all these years its business shrunk in direct proportion to the shrinkage of its advertising, until in September last, just three years from the month of its sanguine start, it defaulted the payment of its fixed charges and went into the hands of the receivers. It never paid a dividend and its fifty operating plants have shrunk two-thirds." There is a moral in this that men in all branches of industry may profit by. Live-stock breeders who achieve the maximum measure of success are invariably those who advertise.

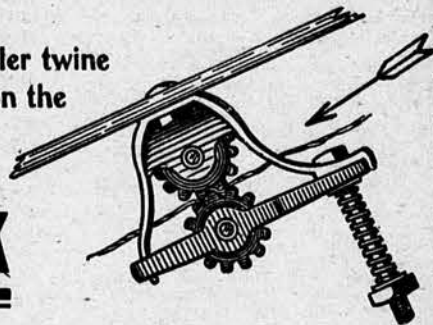
We have personal acquaintance with a breeder of pure-bred registered Poland-China swine of good quality which he announces calmly is bringing him \$10 per head at weaning time. The gentleman is a good breeder and a sane man and for these reasons we think he is worthy of a little admonition because of the facts just stated. Our contention is that under swine conditions such as have existed for the past year or more, a man who will sell registered Poland-China swine for such a price is not only failing to receive what he should have for the hogs, but he is doing a positive damage to his reputation and his future business and at the same time doing about all he can to discredit the Poland-China breed. His contention that pigs at weaning-time have cost him practically nothing and that \$10 means a good profit, taken with his further contention that the farmers in his neighborhood will not pay more for them only aggravates the offense. It should be his business to improve his herd as rapidly as may be and then to see to it that other farmers than his neighbors shall know of the quality and kind of stock he is breeding, so that they may not be shut out from the purchase of animals for which they are actually hungry. No breeder can afford to devote the time and attention necessary to the production of the best in his breed and then sell the produce for so low a sum as \$10. We will go farther than this and state that we never have known a breeder of pure-bred live stock who was able to sell his surplus animals at a profit to his immediate neighbors. It is a curiosity in human nature that breeders will prefer to go a long distance, incur expense, and pay a long price for an animal which may not be as good or as cheap as one that he could buy from a home-breeder. As long as this condition of things exists, and as long as the demand for breeding Poland-Chinas is as good as it now is, a breeder does not do himself, his breed, or the association it represents the justice which it is entitled to when he sells at a lower price than the animals could and would bring in the open market for that class of animals.

The Empire Cream Separator Company, Bloomfield, N. J., has inaugurated a novelty in the way of giving out information and instruction to its employees. It now publishes a handsome little monthly named the "Empire Push," and its motto is the "Betterment of the Dairy Industry." It is well-edited and will doubtless be appreciated by those for whom it is printed. Vol. 1, No. 1, has for its first article excerpts from a recent address delivered at Salina by Manager Ernest E. Bell, entitled "Push But Don't Knock." As showing the tone of this article we quote as follows: "The proper kind of push is made up of several important attributes, the first and most important of which is integrity. So long as a man does not confine his efforts to pushing along lines which are absolutely right, which hold him aloof from and away above resorting to unscrupulous and questionable methods, his pushing will never attain that degree of success to which an honest man will point with pride. Other attributes of importance are energy and ambition. An overabundance of these, without a well-developed moral stamina and an inflexible determination never to push except in the right direc-

WINNING POINT

is the roller twine tension on the

McCormick



TO SEE THIS TENSION

work satisfies everyone that it is the proper idea for a successful binder. The McCormick twine tension saves a lot of time in the harvest field, and time at that season is big money. The illustration shows the two corrugated rollers through which the twine passes to the needle. They prevent the curling or kinking of the twine.

B. L. Rees, Topeka, Kans., W. W. Weeks, Wichita, Kans.,
GENERAL AGENTS FOR MCCORMICK MACHINES.

Studebaker Orders.

Two sales recently made by the Chicago house of the Studebaker Bros. Mfg. Co. show which way the wind is setting with big concerns that are satisfied with nothing short of the best to be had in vehicles and harness. The first was to the Yellowstone Park Transportation Co., the concessionaires under the Government of the transportation privileges in the Yellowstone National Park, who have some 800 head of horses in service. Some time ago this company ordered from Studebakers a few sets of harness, and having tested and compared them with other makes used by them, quickly followed with an order for fifty sets of four-hand harness. The order was placed expressly on the superior quality of the Studebaker goods. The other sale was to the W. C. Walsh Co. of Chicago and consisted of sixty United States Mail wagons and sixty sets of harness to go into the Government mail service and to be made after the approved Government designs and specifications. These orders, though not of great magnitude as Studebakers do things, yet indicate in a forcible way the high standing of Studebaker goods.

Winning Points.

The merits of a thing are usually determined by the number of winning points it may have. The winning points of an oration, for instance, are sound reasoning, good diction and forceful delivery; the winning points of an applicant for a position are ability to work, honesty and faithfulness; and the winning points of a binder are correct principles in construction, durability and ease of operation. One make of machines may have many more winning points than another, just as one man may excel another in mental or physical strength. The vast majority of agriculturists know that the preeminence of the McCormick binder is due to the large number of winning points the machine has, among which are its staunch main frame, strong gears, roller clutch, elevator rollers, deck rollers, folding dividers, improved needle and roller twine tension—winning points that have made the McCormick world-renowned.

No Other Remedies Helped.

Glasford, Ill., March 8, 1902.
We wish to express our gratitude for the happiness Watkins' Kidney Tablets have brought to us. Our little son, Ray, age six years, had been a victim to kidney troubles all his life. Had tried many remedies without avail until your agent introduced your kidney tablets, which we tried with the most satisfactory results.
Mr. and Mrs. John Clinebell.

Do You Know

that Texas is a State of unexaggerated possibilities. No one can foretell its great future. If you want to know what it is and what is being done to make it better known and appreciated, write for copy of book entitled "TEXAS," and pamphlet "TIMELY TOPICS No. 3." Address
"Katy," 502 Wainwright, St. Louis, Mo.

The unexpected always happens, but afterwards we wonder why it was unexpected. Be on the safe side, read the KANSAS FARMER and be ready.

tion, may tempt us at times to resort to methods somewhat questionable on account of feeling that these questionable methods must be resorted to in order to meet methods of the same character found in our opponents. It may not always be apparent that 'Honesty is the best policy' in the short run, but it will invariably prove so in the long run. Energy and ambition must be controlled by a well-defined determination to confine our pushing at all times in the right direction regardless of what the immediate result may be. Knocking is somewhat different. The feature most characteristic of the knocker is a desire to hurt the other fellow, regardless of whether or not benefit accrues to the knocker. Just so some harm can be done to the party knocked. The knocker has ever been and always will be a disturbing element. The knocker is not controlled by that sense of honor and integrity which has for its aim the accomplishment of the most good for himself with the least injury to others, but is controlled more largely by a desire to do some one else injury regardless of whether benefit accrues to himself or any one else."

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 Sept. 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.
\$44.50 to Spokane and return, May 19, June 2 and 16.
\$52.00 to Portland, Tacoma and Seattle and return, May 19, June 2 and 16.
\$45.00 to San Francisco and Los Angeles and return, August 1 to 14, inclusive.
\$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.

\$19.00 From Chicago to Boston and Return \$19.00.

via Nickel Plate Road, account meeting of Christian Scientists, June 23-July 1. Tickets on sale June 25, 26 and 27, with open return limit of June 28. By depositing tickets with Joint Agent in Boston on July 1, 2, 3 or 4, and payment of fee of 50c., extended limit returning until August 1st may be obtained. Stopover at Niagara Falls, in either direction, without extra charge. No excess fare charged on any of our trains. Three trains daily. Through vestibuled sleeping-cars. American Club Meals served in dining-cars on Nickel Plate Road; also meals a la carte. Address John Y. Calahan, General Agent, 113 Adams St., Room 298, Chicago for reservation of sleeping-car space and other information. (S)

"It is with pleasure that we recommend Zenoleum to any one for disinfecting or to kill lice or mange on any kind of stock. We use it in our cattle barns and hog houses to purify them with great success."—F. A. Nave, breeder of Hereford cattle, Attica, Ind.

The Young Folks.

Conducted by Ruth Cowgill.

"THE MAN BEHIND THE GUN."

He's a foe to honest farmers,
Though a farmer be himself;
And his gun and ammunition
Should be laid upon the shelf;
If he'd use a grain of judgment
He'd be apt to do less harm
When he wanders forth a sportsman
With a gun beneath his arm.

Tender-hearted is the woman;
There's a dead bird on her hat;
She, by eating birds and squirrels,
Emulates a homeless cat.
Farmer, wife, and all their children
Feel the wounds from sportsman's gun;
They must pay a high percentage;
Yes, they're getting more than fun.

Witness then the devastation
Wrought by mighty insect throng;
You would miss the vegetation,
If you wouldn't miss the song.
When the shotgun kills our guard birds—
When the slaughter's just for fun,
We shall never blame the firearm—
But "the man behind the gun."

Take your gun and kill the birds off;
Let your aim be straight and true;
There'll be other days to follow;
They'll be busy days for you;
You may shoot the weed-seed eaters,
Then your troubles have begun;
Hot the sun—but on to battle!
You're "the man behind the gun!"

—Lucy E. Horton.

Emotion Among the Birds.

Writers upon the subjects of wild animal life are very numerous, and always have a hearing; for though doubt is sometimes thrown upon their more startling stories, yet every one knows that in the woods many dramas are enacted, and some that are visible to the casual observer are so wonderful that it is easy to believe possible more marvelous instances.

An observer has written for one of the great newspapers of his observations. They are very interesting and present some aspects of bird life not always noticed.

"Life in the woods," says he, "is not one roundelay of song. The birds have their hours of happiness and of sorrow. They are capable of the extreme emotions. Their range of activities is very wide. They quarrel and fight and forage; they find employment on the ground on in the trees or in the air; they watch for enemies every minute; they organize mobs and their toil as do no other creatures except men. The bird nature never permits monotony to reign in the woods. The redbird whose bright color makes him the mark of every shaft of danger, calls peace, peace, peace. A thousand unrecorded tragedies have taught his race this plaintive call. But there is no peace for any bird; the life of strife predominates in the woods. Birds are capable of the intense excitement and anger and their voices give expression to their various emotions. The mood and temper of a bird may be known by its voice as unmistakably as the mood and temper of a child may be known by its cry. If you go near a catbird's nest you will be greeted by the most spiteful sounds. The catbird is a good singer but there must be something villainous in his nature, or he would not be capable of the harrowing tones that come when he thinks an enemy is near. The shriek, for that's what it is, is not unlike the wail of a cat in distress. The bird gets his name from this sound, which can not be heard a tenth as far as can be heard his matin song. His nest is never higher than a man's head, but he sings from the tree tops. The brown thrush is second only to the mockingbird in the beauty of its song. But the brown thrush has a bitter, bitter language of denunciation. Disturb a pair of thrushes—you will find them in pairs—and you will hear the rasping sound of a rusty hinge.

"A bird mob is an interesting phase of bird life. Any frequenter of the woods must have seen those exhibitions of bird fury. An owl, a hawk, or a house-cat in a tree will furnish occasion for the assemblage of a posse committatus of crows from all the crow tribes in a township. An owl is the ideal target for all crow animosity, and often a luckless owl will be surrounded by a crow mob for half a day at a time. A hawk that is being mobbed will fly into the 'upper deep' and escape. The cat also will not remain long when the mob begins to arrive. But the owl is clumsy on his wings and can not see well in the daytime. He can not always escape and so becomes the sport and butt of crow hatred. The crow has a special mob call, and it is used freely when an owl is found in the woods. Every crow in hearing will repeat the call and at the same time start for the scene of action. The call is repeated in an ever-

widening circle and the mob grows from hour to hour by the arrival of crows from a distance. Sometimes such a mob will number many hundred crows and the noise and uproar can be heard for miles.

"The crow, however, is not the only bird that forms mobs. I came upon a screech-owl drowsing on a low branch under a canopy of wild grapevines. A screech-owl impresses one as an undeveloped joke. This screech-owl was so stupid and blinked his yellow eyes so indifferently that I made a dash for him, hoping to capture him. He barely escaped and sought a somewhat higher position.

"He was not much afraid of me. But he was in the midst of enemies and he knew it. His only desire was to escape the observation of his feathered foes. But a jaybird on police duty in that region and on the lookout for anything exciting or sensational gave the alarm. The other birds in the neighborhood paid no attention at first. They knew the woods were not on fire. But when the grackle and the chat joined in the alarm there was commotion in every tree. All the birds of every species in that part of the woods gathered in a great mob around the unabashed screech-owl. The mockingbird, the rain-crow, the vireo, the song-sparrow, the woodpecker, and all tribes and tongues joined in the furious onslaught. No human mob could rage more fiercely. The uproar increased every moment and it seemed that the poor little owl would be torn to pieces. But his equanimity was admirable. He was fully awake now and his head turned as on a pivot whenever he deigned even to acknowledge the presence of his tormentors. It was agreed on all hands that the owl ought to die; he was accused of eating young birds at night. Hatred was everywhere manifest. Now and then a bee-martin, the bravest of all birds, would swoop down and strike at the hateful foe, but always missed him. Other birds annoyed the victim in the same way, but there was a healthy respect for the owl's beak. After a while the owl took to wing and everybody gave chase. The owl flew to the broken top of an elm and disappeared in the cavity, where his home was. The mob dispersed without comment or ceremony."

The Jointed Snake.

Snakes and lizards are not so attractive as the birds. We seem to have an instinctive repugnance to the things that crawl. Is this an inheritance from our mother Eve, I wonder, between whom and the serpent the Lord put enmity forever? Yet, repulsive though they may be to us, there is much that is wonderfully interesting. The coloring and structure of the skin of snakes is often brilliantly beautiful, and the habits of both snakes and lizards are various and full of interest.

In the Scientific American there was an inquiry as to the so-called "jointed snake," which perhaps some of our readers have observed. The following is what is said of this peculiar creature by that scientific paper: "It is fair to say that a large percentage of the farmers of the country believe that there is a 'jointed' or 'glass snake,' which can disjoint itself and break up, to come together later; and it is difficult to find a boy brought up in the country who will not testify that he has seen the miracle time and again; and the most interesting feature is that they all firmly believe it. To give the deluded ones credit, the actions of the 'jointed snake' are so remarkable, so extremely unconventional, that there is little wonder that the sharpest observer is deceived; but there is a vast difference between what one really sees and what one thinks he sees, and herein lies the mystery of the 'jointed snake.'"

"To start fairly, there is no animal known to science as a jointed snake. What the credulous observer believes to be such is a lizard known scientifically as *Opheosaurus ventralis*; a well-known low form common east of the Mississippi River and south of the Ohio River. That it is considered a snake is hardly to be wondered at, as it has no feet; and when alarmed, darts away with the peculiar gliding or wriggling motion of a snake, and to any one but a naturalist it would, doubtless, be considered a snake. But the animal is a lizard, and the long, cylindrical tail, twice as long as the body, to the untrained observer appears to be the body. This slender tail is the cause of the many fables prevalent regarding the marvelous powers of the 'glass snake,' which is so brittle that it can not be touched without breaking; but the fact is that the vertebrae, or bones of this long

tail, are so delicately adjusted or connected that it is almost impossible to lift the animal by it without breaking it. Any violent jerk or strain will throw the tail into one or more pieces, which lie on the ground wriggling with a convulsive movement, while the head and body crawl away. In a word, it is not the body of the lizard, but its long tail which breaks up—a very common trick among lizards. The tail thus thrown off is deserted, the lizard having no more power to reattach it than has a man to assume his amputated leg. But the lizard has this advantage: a new tail begins to grow at once, and the glass-snake is in a short time itself again, and may break up and be renewed an indefinite number of times, so far as known. In a collection of lizards caught at random in the San Gabriel Valley, southern California, fifty per cent had new tails in all stages of growth from one to four inches in length, being darker and readily recognized as new and growing tails. This faculty of reproducing lost parts or limbs is common among crustaceans and the casting of tails is so deftly carried out among lizards that the conclusion is irresistible that it is intended to deceive the pursuer or enemy. Another 'glass-snake' is the lizard of the genus *Anguis*. The 'blind worm' often throws off its tail at the slightest danger and it is almost impossible to catch and retain one without the loss of this member."

The Praying Mantis.

Least in size, but not in interest, of the wild things are the insects. From Pets and Animals we give you the story of the Praying Mantis, by Frank H. Sweet:

As I leaned over to pull up a weed, I noticed one of these leaves moving. It widened out on one side, and then stretched up to a point. No, it was not the leaf moving, but a large insect clinging to the leaf and matching it in color so closely that it seemed a part of the plant.

At that moment a fly alighted on the blossom. Raising up the whole forepart of her body, and holding up her first pair of legs like arms in readiness for striking the large insect walked cautiously on her other four legs to the edge of the leaf. Then with a rapid movement she reached forward, caught the luckless fly in her jaws and held his aloft in triumph. Turning him over and beginning at the head, she slowly ate her victim, legs, wings and all.

I knew this large insect well. She was a mantis—mantis religiousus, the naturalists call her, a hard name which corresponds to the common name of praying mantis, given her in allusion to her usual attitude, body erect, arms raised and folded, as if in supplication, but in reality ready to seize her prey.

Her short, stubby wings were too small to be of much use in flying. Her abdomen was large, as if she lived high; the anterior portion of her body was long and slender and her eyes were so large and prominent that they gave her head a three-cornered look. As she turned her queerly shaped head around on her short, thin neck, these great eyes gave her an appearance of wisdom which accorded well with the sagacity she had displayed in hiding on the green leaf in easy reach of the red flower which acted as a lure to attract victims.

After eating the fly she licked her arms all over and took her spines in her mouth as if sucking them clean. Her toilet thus made, she again approached the edge of the leaf, and began to watch for another victim.

She had not long to wait. A white, woolly caterpillar ascended to the cocomb stalk, crawling rapidly, as if on important business, and was soon within easy reach. Mrs. Mantis immediately pounced upon him, held him aloft, wriggling, in her arms, and proceeded to devour him.

Desiring to cultivate her acquaintance, I cut off the leaf, carried it into the house and laid it on the window-sill, the mantis still clinging to it and eating her caterpillar.

When her meal was finished she began to ascend to the window to examine her surroundings. This was easy enough as she kept on the sash, but when she tried to cross one of the panes she seemed to find it hard work, for it was evident that she was not fitted for walking on glass. Putting down her long arms she reached about, feeling for something that her hooks would cling to, but in vain. Putting her "hands" to her mouth she moistened them with saliva to make them sticky, and then successfully walked upon the pane. Reaching the top of the window she found a few flies buzz-

DIETZ LANTERNS
are everywhere noted for shedding strong, clear, white light. Hand lanterns, street and driving lamps, etc., many sizes and styles for all purposes. Send for free illustrated catalogue. R. E. DIETZ COMPANY, 25 Light St., NEW YORK. (Incorporated 1890.)

ing about in the corner and at once caught and ate one.

She seemed to appreciate the advantages which that corner offered as a hunting-ground, and showed no inclination to leave it, but made herself perfectly at home there. Even when I raised the lower sash of the window and kept it open she did not leave.

Her appetite seemed perfectly insatiable; she would catch and eat flies all day long. My work-table was just inside the window, and whenever I looked up I could see her either holding a fly and eating it, or making her toilet after her meal, very much as a tidy cat would.

My work-room, where the mantis stayed, was also my bed-room, yet I rarely lighted my lamp there on summer evenings. One evening when I did so I noticed that my insect was missing. I at once concluded that she had wandered out through the open window and that I would never see her again. Next morning, to my surprise, I found her in her usual place; that night I lighted my lamp to look for her again, and again found her missing; but when I awoke next morning I found she had returned.

This was repeated, until at last I instituted a search to ascertain where she spent her nights, and found her clinging to the under side of my table. The corner of my window was her favorite hunting-ground, and she never left the sash, except to go to her strange bed-room beneath the table, and in these two places she spent the rest of her life.

One day I found another mantis, and, feeling my pet would like to have a companion of her own kind, brought it in and placed it in the window near her. The two great insects, either of them as long as my middle finger, eyed each other suspiciously and began to sidle up together.

Coming quite close, they suddenly spread out their funny little wings and dashed at each other. Closing, like two wrestlers, they struggled for a moment, locked in each other's arms; then my old mantis, being the larger, gained the advantage, overpowered her enemy and began to eat its head. I was amazed at such ferocity, and turned away from the scene of cannibalism in disgust. I do not know just how long it took her, but in the course of the day the gluttonous insect ate all of her fallen foe.

This is the trouble with mantises. They are the friends of man, but cannibalism prevents them from becoming numerous. The female is the larger, and family quarrels are generally terminated by Mrs. Mantis eating her unfortunate husband.

I do not often destroy even insect life, yet I felt but little compunction in assisting my mantis to catch flies and caterpillars; and from the very first she would take food from my fingers without hesitation. When I placed my hand before her and moved it up against her she would step upon it and eat on undisturbed while being carried about.

In hot countries the mantis grows large enough to eat small birds. In former times they were regarded with superstitious feelings and never harmed.

Another Story Contest.

From different sources we have gathered stories of nature for this week. They are very interesting, yet each is of something that could be observed by any one having eyes to see. Is it not true that while we are pining for new scenes and growing discontented with our little corner of the world we are overlooking a very great deal that is intensely interesting and would completely absorb our attention did we but see it?

Some months ago our page was full every week with well-told stories of life among the domestic animals. Now, let us hear from you of your observations of this other world about us. It is full of interesting stories and will well repay a close study. The same conditions are offered as in the former contest, a subscription for each story good enough to print, and one dollar as prize for the best. Please send your contributions at once.

The Kaiser Seldom in Plain Clothes.

Few Germans have seen the Kaiser in plain clothes. Yet he does wear them sometimes, but only when it is

absolutely necessary, for he prefers uniform, even at home. The time he is in mufti in Berlin is when he goes to his tennis court. He then wears a white flannel suit, but out of doors covers it with a military cloak. When he is in England, however, mufti is the rule. This is also the only time that anybody has ever seen the Kaiser in a dinner jacket or a black dress coat. Formerly the Kaiser ordered all his plain clothes from England, browns and light grays being his favorite colors, but now he orders everything in Berlin and Potsdam, mostly in the latter place.

For the Little Ones

IN SCHOOL AND OUT.

When I look at the clock in school,
The minute hand goes so slow;
And the hour hand hardly moves at all,
You can not see it go.

But when they have met at noon,
And I've only an hour for fun,
You ought to see how the spiteful hands
Just race from twelve to one!

—Selected.

The Making of a Brave Boy.

Norman's mother was going away for a long visit, and Norman was going to stay at home with his father. Norman was a good boy generally, but he had one very serious fault. He was always getting frightened. You never saw such a boy to be afraid of things. He was afraid of the thunder, he was afraid of the boys, he was afraid of a dog, or even a cow. He was afraid to drive his father's gentle old horse, and even to think of riding horseback made him turn pale.

Norman's mother was very sad when she saw what a coward her dear little boy was.

Just before she started, she called him into her room and told him how she wanted him to be a good boy while she was gone, always kind and truthful and obedient.

"Yes, mama; I will," promised Norman. Then his mother took from her finger a plain gold ring.

"Now, Norman," she said, "when I come back I think I shall find a brave little man here, instead of a baby. I will put a ribbon through this ring, and tie it around your neck, and you must never take it off till I come. Whenever you feel as if you were going to be afraid, you must put your hand over this ring and say to yourself, 'I am not afraid. I am mother's soldier boy.' Then when I come back I want you to tell all about the times when you might have been afraid, but were not."

Norman felt very solemn about this, for mother spoke very earnestly, and he loved her and wanted to be brave for her sake. So he said as firmly as he could, "All right. I will be a soldier."

Then mama kissed him good-bye quietly, and they all went to the train, which came roaring in, and took mother away.

Norman wanted to cry for fear of that great noisy thing, the engine, but instead, he put his hand over the ring and said, "I am not afraid—I am not afraid," over and over, till he stopped trembling and really was not afraid.

During that long, long time while mother was away, Norman had a great many experiences. One was when he went to play with another boy, and a great dog came running and jumping and barking around him. Just at first he wanted to scream and run but he remembered the ring and stood perfectly still. "Nice doggie, there doggie," he said, and even put his hand on the dog's great shaggy head.

Do you think the dog hurt him? Not a bit of it. He just stopped barking and trotted along beside him as though he were an old friend.

Another time he saw a man coming round the house, and thought he was a tramp. He was just about to run and hide under the bed, when he again remembered the ring. He went to the door with his hand on the ring, saying over and over, "I am mama's soldier boy. I am mama's soldier boy." And he found it was a man whom he knew very well who wanted to see his father. And so he found that many of the things that he used to be frightened about were perfectly kind and harmless and he grew braver and braver every day.

When mother came home he said to her, "I do not need the ring, now, mama. I am no longer a coward. I will take care of you after this, for I never am frightened, now."

The Home Circle.

Conducted by Ruth Cowgill.

OUR NATION'S DEAD.

In many a lonely spot they lie beneath the silent skies,
Those patriots in whose bosoms glowed the fires of sacrifice;
The bugle's call, the drum's deep roll, no more their ears shall greet,
But in our hearts still bloom for them the flowers of memory sweet.
And so we bring fair trophies of the May Memorial of our Nation's dead to-day!

No more the war-cry sounds afar on fair Columbia's shore;
No more our brethren meet as foes amid the cannon's roar;
But kindly hands to-day are stretched across the chasm wide
To clasp the hands of those who fought upon the other side.
The flag that waved above the battle's fray
Floats gently o'er our Nation's dead to-day!

Brave martyrs to their Country's cause, they bravely fought and died
That Freedom's glorious name might shed its luster far and wide,
That Liberty might spread abroad once more her pinions free,
And that the angel, Peace, might dwell with us in unity.
And so we come with reverent hearts to pay
Sweet tribute to our Nation's dead to-day!

—Helen Whitney Clark.

The Children's Sabbath.

MRS. RENA HARRIMAN.

Children and Sabbath—two of the greatest blessings to mankind. They are the gifts of our Heavenly Father and show His great wisdom and love. He who said, "A little child shall lead them," knew the power they would wield over others in their innocence and artlessness, and He set them up as our example where He said, "Except ye become as a little child, ye can not enter into the Kingdom of Heaven."

The children's Sabbath should be the happiest day of all the week, one to which they look forward to with bright anticipations and delight and one which they may look back upon with pleasure, when time has placed them beyond childhood days. I am glad that the day of long-faced Christians and solemn Sabbaths is past, and rejoice that there is such a thing as the "children's Sabbath."

The children's Sabbath is not a day on which they shall rest from their labors, "for they toil not." Nor is it a day when they shall sit and learn long chapters in the Bible and study the catechism. It is a day on which to train them to use it aright and the object should be to give them the right conception of the day. To do this, we must have the right idea ourselves. In the Old Testament we learn, "Remember the Sabbath day to keep it holy," and in the New we have the words of the Master, "The Sabbath was made for man and not man for the Sabbath." Let us teach our children that the day was given to us for our own good and because God loved us. That He knew we would become very tired after working six days and that we would live longer and be more useful and happy if we rested one day in seven. That He knew that in our care for our bodies and enjoyment of living we would forget to care for the most important part of us—the part that lives forever—our souls. That because He loves us He gave us this day in which to rest and worship Him, our King, that we may be more like Him. If we lay aside our work that has been absorbing our attention through the week, our minds are free to study about Him and serve Him.

On long, warm days mama has the little ones cease their play and lie down an hour or so, not because she does not want them to have a good time but because she is wiser than they, and knows they need the rest and that they will be happier, and stronger, and better-natured, too, for the rest. So God has given us the Sabbath.

How many golden opportunities mother has on this day when her mind is comparatively free from household duties to train her little ones in righteousness! But she must be wise and in her zeal not make the day irksome. There are so many beautiful ways now to teach children that it seems like all play to them.

We must not only teach by precept but by example.

On Saturday night the toys should be put aside, but I would not deprive a child of her doll or pet of any kind. Some parents keep a box of toys especially for Sunday and they are used on Sundays only. I think children should be taught to be more quiet on this day than on others. They must have employment or be entertained, for "Satan finds some mischief for idle

hands to do" on Sunday more than on other days. When they are old enough they should attend Sunday-school and church. A part of the day should be devoted to reading such books as will tend to develop the spiritual natures. There are many books of this kind for children. I have "The Young Folk's Bible," and "Walks with Jesus," which tell the Bible stories in such an interesting way that my children never tire of hearing them read. "Pilgrim's Progress" is another book that is both entertaining and beneficial.

But mother should not spend all her time entertaining the little ones; she must rest too. There are many ways in which the small children who can not read nor write may be employed. They may have Bible pictures to cover with water colors or colored pencils. They enjoy looking at pictures or cutting out pictures and pasting into scrap-books. There are Bible games which teach them Bible verses which they enjoy.

When the day is suitable, papa should take them for a walk into the woods. He will be the better for the airing, and mama will enjoy the quiet rest, and the children will learn many things about the handiwork of God. They will come home with stories about the squirrel that sat up and ate the nut holding it in its hands, and tell of the birds, so joyous and happy. They may bring home a geode or other curious stone, with questions or the wild flowers that may be examined with the microscope and lessons taught of the wisdom of God, and mama will have an opportunity to lead them "from nature up to nature's God."

I want to emphasize the thought of making it the day of all the days. I like to make it different from the rest, and use the best dishes, and brighten the table with the prettiest dolly and with plants, and have something extra to eat, but do not have extra work done on that day. My children are always delighted when they learn that tomorrow will be Sunday, and rise in the morning happy that the day has come.

Recipes.

Strawberry Sandwiches.—Cut medium-sized strawberries in two, sprinkle with sugar, and let stand for an hour or two. Butter thin slices of bread very generously with perfectly fresh, sweet butter and add the sliced berries.

Strawberry Whip.—Wash, hull and mash slightly one pint of strawberries. Beat the whites of three eggs to a stiff froth, add three tablespoonfuls of powdered sugar, then whip in the berries, until very thick and stiff. Pile lightly on a dish, and serve very cold with sponge-cake.

Strawberry Punch.—Beat together for five minutes, a pint of strawberry juice, the juice of two fine, large lemons, and a generous teacupful and a

half of powdered sugar. Add a quart of cold water, strain and freeze same as ice cream. Serve in small punch-glasses. Mrs. KATE WILSON.
Irving, Kans.

Club Department.

Jersey Creek Domestic Science Club.
MRS. IDA M. FERRIS.

The first meeting of the Jersey Creek Domestic Science Club occurred at the home of the president, Mrs. Sue Brewster, April 16, 1903.

Roll call on "How I Spent the Winter," revealed the fact that few pleasures and no leisure is the rule among country women, and that the blessing of the country home in winter is the traveling library. Mrs. Johnston builded better than she knew when she established the traveling libraries.

After an address by the president, who thanked the ladies for the honor conferred, Mrs. A. L. Wilson, of Lyndon, president of Osage County Federation and Mrs. Mercer, secretary of the same, were present and made addresses, which were much appreciated. Miss West and Miss Caryl favored the club with music. Mrs. Ferris's first article on "Country Club Organization" was read from the KANSAS FARMER, also the first two chapters of Miss Moler's story, "The Mayor's Retribution," from the same paper.

After the payment of dues, the secretary distributed the new year-book among the members while the hostess served a delicious luncheon.

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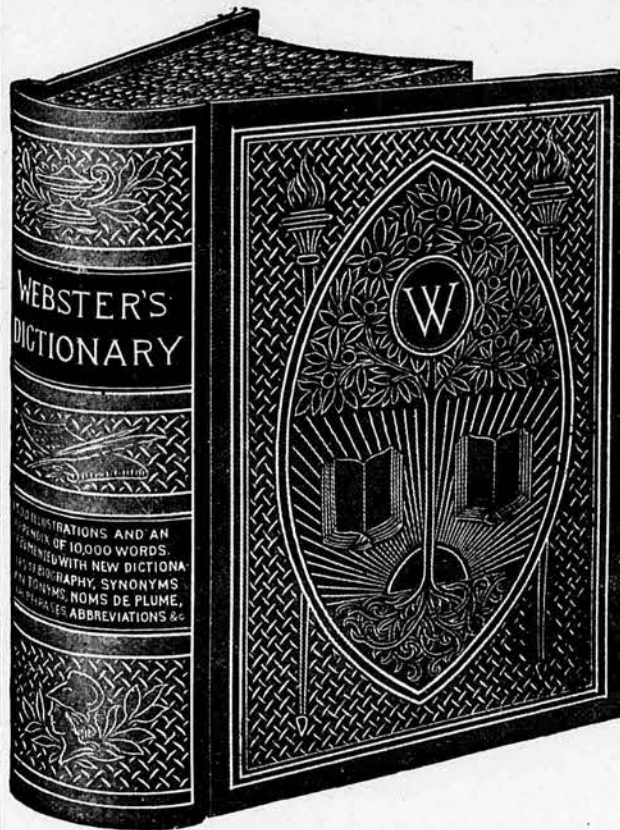
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What E. A. Burnett, of Nebraska Experiment Station, Says About Zenoleum Dip:

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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.

Lame Colt.—I have a mule colt 10 days old. The ankle on one of its hind legs has been swelled for 4 or 5 days; has some fever, is quite lame the last day or two and has a knot the size of a walnut on the inside of the leg on its ankle. I have rubbed it some, and bathed it twice in Ballard's Snow Liniment. I would like to know what to do for it, through the FARMER.

Oklahoma. D. B. HEACOCK.

Answer.—Reduce inflammation with hot fomentations and bandages, and if any swelling remains, blister the enlargement with the following: Red iodide of mercury, 3 drams; vaseline, 18 drams; mix, and rub a little well into the swelling once every ten days.

Diseased Tooth.—I have a bay mare 4 years old that has a swelling above the right eye. The swelling is hard, and she is running at the nose some. Her appetite is good. Is it distemper, and what can I do for it?

Rooks County. E. N. PHELPS.

Answer.—Have your mare examined by a qualified veterinarian as she no doubt is suffering from a diseased tooth.

Bunch on Shoulder.—I have a bay mare 4 years old with a knot on her right shoulder. The knot is soft.

E. N. PHELPS.

Answer.—It will be necessary to open the bunch on your mare's shoulder to effect a cure. You may be able to do it yourself; if not, take her to a veterinarian.

Itch in Pigs.—I have twenty little pigs that from the middle of March seem to have mange or itch. They sleep on prairie hay and sowed Kafir-corn. They are doing well, but are constantly scratching and rubbing. Will you please give me the cause and the remedy?

Answer.—We would advise turning your pigs on grass. At this time of the year the young tender grass is particularly suited to such cases, as the cause of most skin troubles is due to derangement of the digestive tract, and nature's remedy is the very best. It can hardly be of a serious nature if the pigs are in a thrifty condition as you say.

Worms in Pigs.—Will you tell me through the columns of the KANSAS FARMER what will kill the worms in pigs without injuring the pigs? I have a bunch of winter pigs that had been kept in a dry lot until a week ago when they were turned on alfalfa. On the sixth day after being in the alfalfa, one of them died. I opened the pig and found a great many worms in its stomach and bowels. The opening from the stomach was literally full of worms from three to eleven inches in length—fifty-six worms in all. I presume they are all wormy as they look rough and unthrifty.

M. B. JAMESON.

Dickinson County.

Answer.—Would advise you to try some of the stock-food companies' worm-powders advertised in KANSAS FARMER. While we have had no actual knowledge of contents of the powders, they have been highly spoken of by parties that have used them in cases similar to yours.

Milk Fever in Cows—Bleeding for Blackleg—Puncturing for Bloat—Records of Trotting-Horses.—Will you please answer the following questions:

1. Has anything new been discovered toward a cure for the fatal disease, milk-fever in cows? I understand there is a so-called "Hood-Smith treatment" recommended. What do you think of it, and what would you recommend to do in the start, and for that matter at any time, when a cow shows symptoms of this distressing disease?

2. Where is the right place to bleed cattle in case of blackleg?

3. In case of bad bloating, when other remedies fail, where is the correct place to stick cattle? Some say, between hip and first rib; others say, between first and second rib. If the latter is correct, how far from backbone?

4. Could you give me color, weight and speed-record of the following four Standard-bred trotting horses? Onward, Patchen Wilkes, Geo. Wilkes, May Morgan.

Rice County. JERRY JOHNSON.

Answers.—Experiments are constantly being made, some with more or less merit. Have tried all or nearly all with varying success. The treatment I would recommend is the following: With first symptoms give brisk cathartic, from one and a half to two pounds Epsom salts, according to size of cow, followed by half-dram doses of tincture of nux vomica every 3 hours, together with two ounces of whisky in little warm water. Attend to general comfort of animal, and do not despair too soon.

2. Prevent blackleg by vaccination.

3. Between hip and last rib—mid-way.

4. Onward, bay horse, 1,150. Patchen Wilkes, black horse, record 2.29 1/4, 1,050. Geo. Wilkes, bay, record 2.22, 1,025. Do not know May Morgan.

Swelled Leg on Horse—Mange.—I have a Hambletonian gelding, light bay, 3 years old. About a year ago he cut the muscle of his right hind leg a little to the front of the outside and about half way between the stifle and hock joints. He was running in pasture and did not have much care and was a long time healing. It has been healed for about three months but is still somewhat enlarged. The enlargement is quite noticeable when standing by his head but not visible from behind. It is quite soft to the touch. He is not lame. I put liniment on it for two or three weeks about every day, not enough to blister, but caused the hair to come off. The hair is on again now all right but swelling seems about the same. Can I do anything to take it off?

We bought a farm and a small bunch of stock cattle on it this spring. They have, or had what people here call Texas itch. I think ours had been doctored for it as it seems to be about gone now. Will it return in the fall? What can be done to prevent and cure it? There seems to be quite a good deal of it around here. This is my first experience with it.

Pawnee County. H. W. GIDDENS.

Answer.—The swelling you speak of will naturally diminish in size as he is put to work. But little else can be done. The itch you speak of in cattle is mange, and can be permanently cured by dipping, which is recommended by the U. S. Government all through the West.

Scours and Thumps in Hogs.—I have two questions to ask you through the KANSAS FARMER:

1. I have a shoat that weighs about 75 pounds and has the scours badly; has had them about ten days; seems healthy except for that, though appetite is no good. What remedy?

2. Do fat hogs have the thumps? If so, what will cure them? During the last 90 days I have lost three fat hogs (weight 240 pounds). They were not sick, nose was moist, were not constipated, nothing wrong only thumped behind the shoulders and did not last more than from one to three days when they started to thump.

A. L. ROTTLE.

Montgomery County.

Answer.—1. Restrict food, and feed plenty of charcoal. Medicinally: Give half-dram doses of tincture of opium in very little milk until the scours are stopped.

2. Give hogs plenty of exercise and plenty of grass and good clean water. For thumps, give from 4 to 8 ounces of raw linseed oil, to be followed by tincture of nux vomica in half-dram doses twice a day.

Muscular Rheumatism.—I have a fine Chester-White brood-sow that is helpless in her hind parts. She can manage to get on her front feet to eat. Her appetite seems very good. Her first litter of pigs is about 6

weeks old. Have taken them away from her. She squeals and appears to be in great pain when I move her or when she moves herself. Has been in this condition about three weeks.

Indian Territory. D. F. HEISER.

Answer.—Your sow has muscular rheumatism. Treatment, give half dram doses of tincture of nux vomica, and rub over loins spirits of turpentine, well rubbed in. This treatment will cure most cases if taken at the first indication of disease. After long standing but little can be done.

Blackleg Vaccine.—In the KANSAS FARMER of April 9, vaccination of stock is advised as an almost infallible preventive of blackleg if done with pure vaccine. Will you give me the name of some vaccine that you consider pure? I hear that some have been tried and found useless. I am anxious to have my stock vaccinated.

Crawford County. W. C. HOSSACK.

Answer.—There are several preparations of blackleg vaccine that are reliable. We have used more of the Pasteur preparation than others, and can vouch for the reliability of the same. See that it is properly done and that each animal gets its share.

Side-bones and Corns.—I have a large gray mare with side-bones on her feet and corns directly under them at the bottom of feet. They have been there some time. I would like to know what caused them and the cure if there is any.

H. B. HAMPTON.

Indian Territory.

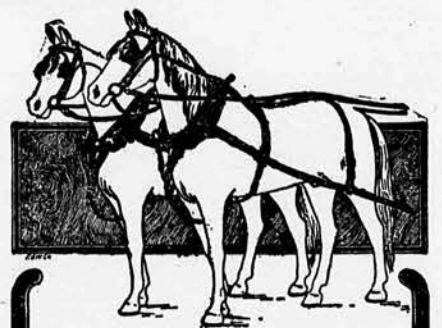
Answer.—The side-bones should be fired with budding iron, if the lameness is there. But first treat the corns by removing all diseased tissue at the seat of corn, and shoe with bar-shoe and frog pressure with bearing removed from quarters. If lameness continues, fire side-bones as directed.

Poll-evil.—I have a half-blood Clydesdale mare, 8 years old, roan in color, that has poll-evil that opened about a week ago, on the right side, about four inches back of ear. It began last summer. I then applied Venice turpentine with a hot iron, and thought I had it killed. It began again this winter but same remedy failed to stop it. I blistered it then repeatedly with gum-camphor and turpentine with the result above stated. I cured two cases of poll-evil with Venice turpentine three years ago. Please advise me through columns of KANSAS FARMER what to do for my mare.

Finney County. A. P. MILLER.

Answer.—With a long-standing poll-evil, first, open up thoroughly to get good drainage, and follow with daily dressing of tincture of iodine, full strength. Inject iodine right into cavity.

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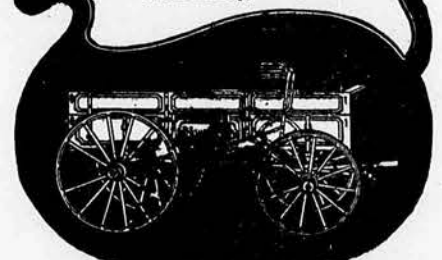
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Miscellany.

The Relations Between Capital and Labor.

The following excerpts from an address of Hon. Carroll D. Wright, U. S. Commissioner of Labor, give a modern view of present industrial developments and some of their relations to society:

INDUSTRY THE BASIS OF SOCIAL ORDER.

It is well to study modern industry as the basis of the social order of our time. Industry itself has been the basis of social order in all time. Of course, it is not the sole element of social order, but without it all the other elements fall or fall in their power. Under the old hand-system industry was a social force, to be sure, but a meager one. There was no development. The single employer and the single laborer were not social factors in the sense in which we consider them at the present time, but when the single employer found it necessary to add to his power by association with another, thus making the firm, it began to be seen that industry was more of a social force than previously it had been; and when the firm developed into the corporation the true spirit of association was developed, for the corporation is simply one of the more energetic forms of cooperation. It brings to its aid the savings of the many, and through its management directs the social force of these savings to industrial development. Out of the corporation there has now grown the great modern industrial combination, which is simply a new social machine, and as such meets with opposition here and there, but, like its predecessor, the corporation, it has come to be an institution that must be recognized not only in law, but by society.

PROFITS AND WAGES.

Capital may receive now and then an exorbitant increase in the way of profits or of interest, and wages may be raised or depressed artificially, but under all normal conditions the profits to capital and the remuneration to labor will be regulated by positive economic laws; but these laws are more elastic than natural laws, and hence disturbances, misunderstandings, and bitterness arise. On the whole, however, the remuneration to capital is constantly decreasing and that to labor constantly increasing. This is the result, so far as capital is concerned, of the accumulation of wealth which may be turned into active and productive capital, and so far as wages are concerned, to the increased standard of living resulting from education and the culture which follows it.

OUR GREAT QUESTIONS.

Probably there is no war, either industrial or political, in our immediate future. Politically we have no great questions which agitate our people as they do the European countries. We have no vital questions before us which mean to us what the vital questions of European politics mean to the people of Europe. Our questions, so far as magnitude is concerned, belong to the economic development of the resources of our country. Our future must be a continuance of the contests with nature. The great questions for us to meet grow out of industrial relations and interests. Notwithstanding this, our industrial problems may well excite at times the anxiety of conservative and patriotic men, for upon their treatment depends the peace of the country to some extent, and it may be of the industrial world. So our very best services must be called to the social and economic contests of our epoch.

It is fortunate that we have been able to project and carry to success great industrial and commercial enterprises. These men exhibit a great capacity for the organization of varied forces which commands our enthusiastic admiration. We demand fidelity and good ability of them, as we do of those in our governmental places; but we must have commanding genius in the leaders of industry and intelligence in those who make up the bone and sinew of industrial forces. This class of men are teaching the world that America holds the key to industrial supremacy among nations, and the result is an aristocracy here in whose ranks the proudest may march—the aristocracy of brains.

The great development under this aristocracy gives us occasionally colossal wealth held by an individual, but such wealth is mere dross without a moral community for whose benefits the millions must really be invested. Fortunes belong to men, but the prin-

ciples of their use and of their value are of God. There is no return for inactive capital, and mere money, whether in the hands of one man or of another, or in the hands of one man or a corporation of men, is nothing without activity. It is against the bad use, the uneconomic use, of wealth that men have a right to enter their protest. When used in fostering the grand projects of peace, in the establishment of institutions of learning, in carrying on the war of intercommunication, in opening new lines of industry, in building great communities—all such employments call for the very best genius of our land and the services of men who are convinced that moral forces should be recognized in the conduct of industrial affairs.

MODERN SYSTEM OF INDUSTRY.

When we compare the modern system of industry with that which preceded it, looking only to results which are not represented by figures, the marvel is as great as when we consider the statistics. Under the old system of hand labor the workingman was a clod, ignorant, debased, without social force, and having no relation even, or at least little relation, to the social conditions which surrounded him. The inventions which led to the establishment of the factory system changed all this gradually but steadily. It changed ignorance and poverty to intelligence and well-being; it led directly to the establishment of the national school system of England; it played its part in the interpretation of laws, and more strongly in the enactment of laws for the welfare of the wage-worker. Under it, care has been taken for the sanitary and hygienic conditions of the worker everywhere. To it can be traced the establishment of great educational institutions. The production of art in a way to supply all the world is one of the direct effects of the modern system. All these things are the direct results of the gradual development of modern industry, by which all men may secure the commodities necessary for a comfortable existence at reasonable cost.

MODERN INDUSTRIAL INTELLIGENCE.

The intelligence which comes from the friction of the modern industrial establishment is sufficient to justify its existence. It is sometimes alleged—and frequently, indeed—that the complete modern establishment for the production of any class of goods has created an ignorant community. There is nothing more absurdly false than this position. The great establishment, or the industrial community may bring together, perhaps, a body of ignorant men and women, but it does not create the ignorance. By bringing them together, the community sees that something must be done to improve the masses employed, and thus the workingman has risen from ignorance to intelligence, and as he has reached intelligence he has become more or less a greater complication in industrial affairs. In his ignorance he did not strike; in his intelligence he does strike. The next step in the development of his intelligence will be that he will not strike; that he will be able to accommodate himself to conditions, because he will know them and understand them better. He will be able to recognize his rights in relation to the rights of others, and to know fully what is necessary for successful production, where now he understands only a part.

Modern industry has taught us to recognize the spirit of work. As I have said, capital must work in the interest of society, or it is mere sand. Labor must work in the interest of society, or it gets no returns. But when we see the achievements and recognize that the ingenuity and the industry of man constitute the chief elements of society, we must also recognize that while business principles must and will prevail, there is something higher which touches the very heart of the Nation and of every individual in it.

NO ANTAGONISM BETWEEN CAPITAL AND LABOR.

The first man to use a stick or a cudgel or an implement of the crudest possible form was the first capitalist. The moment he had something besides his hands with which to help his work, however primitive it may have been, then the capitalist was born; and each man seeks to be a capitalist, and is one. There can be, therefore, in the nature of things and under a true philosophical consideration of them, no antagonism between capital and labor, for capital is labor. There should be no antagonism between the representatives of capital and the representa-

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tives of labor; and whether the representatives are the owners or not, makes no difference to the problem nor to society. The absolute necessity, therefore, of a complete knowledge of the conditions of production and of the confidence which comes through a common venture is easily seen. There is weakness in individual effort; there is strength in association, and modern industry is strong because it is the result of associated interests. It would be a sad result of such association to have the representatives of the various interests living in constant, irritating warfare. There is no sense in such warfare, and there is no necessity for it. The warfare of society depends upon the stability of industry, and the stability of industry depends upon the moral sense which enters into its conduct. With a proper recognition of these principles there can be no failure; there are always strife and disturbance of the community and interference of trade when they are not recognized. The manufacturer and the artisan, in the final analysis, are one and the same; they are only different names for the different phases of the one great power which centers in the individual—the power of association through the exercise of moral attributes—and it is this power which makes for social development and which constitutes industry, the greatest of social forces, for organized industry always reaches down and lifts the lowly to a higher plane. The great question, therefore, for employers and employees is: Will they, in the conduct of their mutual affairs, excite the militant spirit, or invoke that peaceful consideration which leads to the adoption of the highest elements of business interests?

Oklahoma Experiment Station Bulletin.

The press bulletins issued by the Oklahoma Experiment Station are in every case valuable to the farmers of that Territory, while in nearly every subject treated there are suggestions which can not fail to benefit the farmers of Kansas. Following is the bulletin of May 19, 1903:

ANOTHER FRAUD.

The Oklahoma Agricultural Experiment Station at Stillwater received the

following communication from a Pawnee County farmer on May 6, 1903:

"When at Pawnee a few days ago, I met a man who was selling farm rights for a preparation which he claimed would destroy borers when put on trees and would clear an orchard of gophers when buried in the orchard. He said that the Experiment Station had offered him \$3,000 for a half-interest in his patent. Is the whole matter a fraud and a lie or not?"

It is. The station knows nothing of such a preparation, has made no offers for interests for patents of any sort, and warns farmers against expending their money for this and other varieties of "blue sky." It is impossible to follow all of the fakes which are hatched up for the purpose of getting the farmers' money, but the station is always ready to place any information which it possesses at the disposal of farmers and others who request it.

BERMUDA GRASS IN OKLAHOMA.

The Experiment Station at Stillwater is receiving many inquiries regarding the extent to which Bermuda grass was affected by the past winter. With the exception of two plats which were started from the same lot of seed, all of the Bermuda grass on the station farm began growing from March 15 to April 10, depending upon the exposure and the covering of grass which was left for protection during the winter. The two plats mentioned were very slow in starting and portions of them appeared to be killed, though it is possible that they may finally come as they have in former years. The station has received a few reports from farmers in western Oklahoma who state that much of the Bermuda grass was winter-killed. More of these reports are wanted and it is hoped that all farmers who have Bermuda grass will write a postal-card to the station giving the area in grass, when started, and whether from seeds or roots, time growth started this spring, and present condition. If enough reports are received, it will add to the stock of information about the hardiness of this grass which promises so much as a means of replacing the native grass pastures which are rapidly deteriorating under heavy pasturing.

MAKING BLUE-GRASS LAWNS.

Oklahomans who came from Northern States are persistent in their ef-

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Information cheerfully furnished on application to

F. A. LEWIS, City Ticket Agent,
525 Kansas Avenue. 'Phone 53.

J. C. FULTON, Depot Agent. 'Phone 34.

forts to secure a sod of Kentucky blue-grass on their lawns. Where grown successfully, blue-grass is one of the most satisfactory grasses for the lawn. Its establishment in Oklahoma is, however, a matter of extreme difficulty.

The usual experience is that the seed germinates well and a fine stand is secured. When the weather becomes hot, much of the blue-grass turns brown and dies and crab-grass and weeds fill in the spaces. Usually isolated bunches of blue-grass survive and seem to withstand all sorts of unfavorable conditions. The usual custom of keeping the grass and weeds cut short prevents the blue-grass from spreading. It is in these small bunches of blue-grass which survive that the hope of the lawn-maker lies. Many cases have been observed in which the blue-grass was allowed to mature seed which was then cut and scattered over thin spots. By keeping this up through several years, nearly perfect stands of blue-grass have been secured. The rainfall during the past fourteen months has been quite heavy and conditions have thus been favorable to the growth of blue-grass, but lawns that were set by this method went through the exceptionally hot and dry season of 1901 without serious injury.

Those who lived in Iowa and eastern Kansas before moving to Oklahoma tell of their repeated failures to grow blue-grass there until after the "wild nature got out of the soil." Is it not more probable that the few plants which survived from each sowing produced seeds which were better acclimated and in turn produced hardier plants? Under normal conditions, seed produced in a given locality is better adapted to successful growth there than seed brought from distant places. It seems more reasonable to suppose that this, rather than the elimination of the mythical "wild nature of the soil," accounts for the success with which blue-grass now grows in Iowa.

Oklahoma lawn-makers who prefer blue-grass to Bermuda grass are advised to sow purchased seed, both in the spring and in the fall; to pull the weeds and crab-grass to prevent their seeding; and to allow the small bunches of blue-grass which survive to mature seed which should be cut and scattered over thin places. Moderate shade is almost essential for the growth of blue-grass here and with it, the above plan may possibly result successfully.

THE HESSIAN FLY IN OKLAHOMA.

A fly, which is, in all probability, the Hessian fly, is reported to have done considerable damage in some of the wheat-fields of Kay County. The entomologist of the Experiment Station has examined some of the affected fields, and found that nearly all of the maggots of the fly have passed into the stage which is called from its appearance, the "flaxseed." It is expected that they will remain in that stage until after harvest, and not do any further damage to the stalks which are not yet infested with the maggots. The recent rains have aided the wheat in sending out new stalks to replace those which were killed or stunted by the parasite.

The fly is a small, two-winged gnat, which lays its eggs on the leaves of the wheat. When these hatch, the maggots crawl down between the leaf sheath and the stem. They feed on the juices of the plant, and, when they reach full size, become transformed into the "flaxseed" stage, which corresponds to the chrysalis of the butterfly. The gnat-like flies emerge from the "flaxseed" puparia in the fall and spring in largest numbers.

One of the methods of checking the fly is by turning the stubble under by deep plowing, and afterwards rolling the fields to compact the earth so as to bury any flies that may mature.

All volunteer wheat, rye, or barley should be destroyed, as it is liable to harbor the insects during the summer or early fall. It may be used as a trap and destroyed after the eggs have been deposited on it in the fall.

Rotation of crops is advisable wherever practicable. In some seasons late fall planting saves the wheat from injury, because it comes up too late for the flies to lay their eggs on it. For southern districts it has been recommended that the planting be done between October 10 and 15. Comparison of fields planted at different dates last fall should show whether any wheat escaped severe attack by reason of having been planted late. But some of the late-planted wheat may have been infested by the brood of flies which emerged in April from neighboring fields which were infested in the fall.

ALFALFA AND BLUE-GRASS.

(Continued from page 577.)

The field was pastured and never a case of bloat occurred after the blue-grass became a factor. But the blue-grass gradually encroached upon the alfalfa and at the end of four seasons had practically exterminated the alfalfa. To the writer's inquiry whether he continued to use it as a blue-grass pasture, he replied that he could not afford to so use it, for an acre of alfalfa would produce six times as much feed as an acre of blue-grass.

But the blue-grass was plowed up. The rotten alfalfa roots were no obstruction to the plow. A portion of the land was sown to wheat. It grew to twice the usual height but the straw was so rank that but little grain was formed. A portion was planted to corn and made a fair yield in 1901 when corn on adjoining land made almost nothing.

Mr. Short's experience with this land has confirmed his belief that the most successful Kansas farmer will work more humus into his soil as a protection alike against wet and dry weather.

Here seems to be a solution for two difficulties with alfalfa. It can be gotten rid of readily and profitably by sowing blue-grass among it and pasturing both. If further experience shall confirm that here given in the use of the mixture with blue-grass, with immunity from bloat, pasturage more abundant and profitable than was formerly known is available for the alfalfa-farmer. What money can not the Kansas stock-farmer make if he can safely allow his cattle to harvest his alfalfa?

Some farmers have discovered that if they pasture alfalfa it is better that the pasture and the meadow shall be one and the same. If stock enough be put on to keep the alfalfa down the stand will be injured. But if the stock only about half keep it down, a half crop of hay can be made with scarcely any extra expense and the stand will remain good. Whether this plan would keep blue-grass from crowding out alfalfa in a mixed pasture is an unanswered question.

HESSIAN FLY.

EDITOR KANSAS FARMER:—For two weeks farmers have been complaining that their fine prospects for a big crop of wheat were not coming on very flatteringly, to say the least. Some blame the freeze, others dry weather, etc. I have been examining the wheat, and enclose you some from my field, also some from a neighbor's field. You will readily see what is the trouble. My wheat is beginning to go down now. What I would like to know is, how many Hessian flies will one produce, that is now in the "flaxseed" state, in the next five weeks? If they increase very rapidly they certainly will do great damage in this part of the State.

We have had so much wet weather lately that the blades of the wheat are badly rusted. To what extent that will injure the crop I am unable to say. Samples of wheat were taken from Erie Township, Sedgwick County, which borders on Eden Township, the banner wheat township of Sumner County. Therefore if the wheat crop is in as bad shape all over the State, you can cut the big estimates of the 1903 Kansas wheat crop square in the middle, and then have it plenty big enough.

Sedgwick County. H. D. COMPTON.

The damage is done by the Hessian fly before it reaches the "flaxseed" stage. One "flaxseed" hatches under favoring conditions into one Hessian fly. This, if a female, may lay as many as 100 or 150 eggs. Those which will hatch from the present crop of "flaxseeds" will lay their eggs upon volunteer wheat, if they can find it, and will then die. If they fail to find volunteer wheat many of them will prolong their lives and reserve their ovipositing until the early-sown wheat comes up, when they will lay their eggs and die. These eggs will soon hatch into little worms, which will feed on the juices of the wheat-plant and eventually become dormant in the "flaxseed" state, in which they will pass the winter to transform to flies in time to lay eggs for the spring brood. These eggs will hatch into worms next spring, damage the wheat, go into the "flaxseed" state, as in the samples sent with the above inquiry. There are thus two broods of the Hessian fly. By some it is thought that, when volunteer wheat is abundant, there are three broods, the volunteer wheat giving sustenance to a summer brood which is thought to hatch under favorable conditions in time to infest even late-sown wheat.

Farmers should now lay their plans for combating this enemy for the crop of 1904. The first step after harvest should be to plow up all volunteer wheat, turning under completely and compacting the soil above it. If all land intended for wheat, especially all wheat-stubble, shall be thus plowed early and all volunteer wheat shall be kept down by frequent disking, harrowing, or other cultivation, there should be little chance for a summer brood.

The second point is to defer sowing the main crop until late in the fall. This will cause the flies to deposit their eggs in the wheat of the neighbor who sowed early and he will suffer most of the damage. A commendable plan is for each wheat-grower to sow, early in the season, narrow strips of wheat through his intended fields. The flies will lay their eggs in these strips and die. The strips may be pastured and late in the season plowed very deeply, rolled thoroughly and sown with the main crop. It is believed that in this way any neighborhood can reduce the Hessian-fly pest to such an extent that it will do no serious damage.

There are parasitic enemies of the Hessian fly. These do much to keep the pest in check. It is to be hoped that our entomologists will some day find means to promote the production of these enemies of the fly and friends of the wheat-grower to such an extent that the fly shall conclude that this country is not suited to its style of beauty.

WESTERN CONDITIONS.

Much has been said of late in the daily and weekly press in regard to the threatened devastation of the Hessian fly in the immense wheat-fields of the wheat-belt. Scareheads have also been used to show how the wheat and other crops have suffered through storms and floods. In order to get at some of the real facts in the case the writer has recently made a somewhat lengthy trip over the Union Pacific, well toward the Colorado line, and over the Rock Island near the Nebraska and Colorado lines. During this journey, which included a great many miles of travel by team, every effort, both by inquiry and observation, was made to get at the real facts in the case. Our findings are as follows:

The wheat prospect in the region covered was never better in the history of civilization in Kansas. There is no fly or other insect pest whose ravages are apparent. The wheat has been very generally pastured during the winter, and this fact, together with the higher altitude, will make the crop slightly later at harvesting than will be the crop in the south and east portions of the State. This, however, is the normal condition. Many fields of wheat were not seeded at all last fall, but are composed entirely of volunteer plants which have grown so rapidly, that the only danger which seems to threaten them now is that of lodging. If the present prospect for the wheat crop is realized, the capacity of the railroads running into this section of Kansas will be taxed to the utmost and Kansas will have another record-breaking wheat crop to her credit.

The rather heavy rainfall and cool weather which have so fostered the wheat-plant have served to make corn planting late, and much of the corn ground is not yet occupied with crops. This fact occasions no alarm as the season is ample for the maturing of the corn crop, even though the planting be not yet done.

Apparently the conditions which favor the wheat crop have also been favorable to the oats, and the writer has never seen so good prospects for an oat crop extending over so large an area as may now be found in this particular section of Kansas.

The grass, which is one of the most important crops in this or any other country, was never better than now, so far as growth is concerned. It is true that the somewhat unusual amount of moisture which has fallen in this section this spring has contributed more to growth than to quality in the grass, but the abundance of the crop is a matter of satisfaction to all farmers and stockmen.

The alfalfa, which is the foundation of agricultural prosperity in any country where it will grow, is a marvel to look at this spring. Not only are the valleys and bottom-lands pretty much occupied with it, but in many localities it is creeping up the hill-sides and covering their tops. The first crop, which will be harvested in a few days, will be an enormous one. We notice, too, that in this section of the State, while about the same amount of seed is used, the habits of growth of the alfalfa-plant are somewhat differ-

ent from those of the South and East. Out here the plant develops largely as foliage and is not characterized by the heavy, woody stem that is sometimes found in thinly sown fields southeast of here. This insures hay of a very fine quality while its rapidity of growth makes an abundant crop.

The farmers of this section are prosperous and as happy as it is given farmers to be. Thus far the writer has discovered but one locality in which any serious cause for discontent seems to exist. This was a neighborhood in which climatic or other conditions had resulted in the serious loss of the spring pig crop. One farmer reported that his pigs were all farrowed in good shape but that the late snow-storm and cold weather came upon him so suddenly that his loss was heavy. Two farmers were found in another neighborhood who lived near together and who reported that their pigs this spring were nearly all born dead; while another one a few miles distant and representing another breed reported that the same condition existed in his herd, although he had been able to save a few by mechanical means. Of course with the abundance of pasture, all kinds of stock are doing well, but our remarks are intended to apply more particularly to pure-bred stock, as we gave no time to the ordinary range cattle and grade hogs.

In addition to these ordinary sources of prosperity which have been mentioned may be found an unusual activity along dairy lines. With the introduction of the hand-separator and a better knowledge of correct methods, the farmer has found that a sure, steady, and profitable source of income may be derived from the milk-cow, and in localities where he is fully alive to these facts he is making the most of them.

Another source of profit which has been developing rapidly of late is poultry-raising. With abundance of natural food, a free range, and the climatic conditions which prevail, together with the steady and rapidly increasing market for poultry products, the farmer has found that the once despised hen is no mean source of income, and it is now not unusual to find an incubator and brooder on any well-managed farm.

With a knowledge of the conditions which surround him and the adaptation of crops to these conditions, the western Kansas farmer has solved the problem of material prosperity and his land now presents a picture that would be well worth a trip from the drouth stricken regions of the Eastern States to see.

TAMWORTH HOGS.

Of late during the prosperous times among swine-breeders much interest has been developed in breeds which were formerly but little known in the State, and other breeds which are the possessors of such qualities as recommend them for profitable stock for the farmer have been introduced and have found more or less favor. Among the breeds which are less commonly known may be mentioned the Tamworths. It has been maintained for many years that the market in the South and West made no demand for a bacon hog, yet the success with which the Tamworth has been introduced indicates that there may be a good field for this typical bacon breed. Professor Shaw is a great advocate of the bacon hog for Minnesota and other Northern sections of our country, and it has been conceded that the Tamworth with its wonderful reproductive powers and its ideal bacon type has met the demands of that market more successfully than any rival.

Realizing that the farmers of the West do not as a rule have a good acquaintance with the Tamworth breed of hogs, and knowing that there is but one herd of any considerable size within the State of Kansas, the writer recently made a tour of inspection to visit this herd and report his findings to the farmers and breeders of the State. This herd is located at Clyde, Kans., and is the property of C. W. Freelove. It consists of about 140 head and offers an excellent opportunity for a study of the characteristics of this breed. These animals are all out of registered animals, bred by the Iowa Experiment Station, and may be considered as the best animals of the breed that are obtainable.

The Tamworths are an English breed which has been bred with the utmost care for more than sixty years, and without any infusion of foreign blood. The result of this is a great uniformity as to color and type. This color is a cherry red or dark chestnut; the red being characteristic of the young animals and the chestnut color of the old-

er ones. Other colors never appear. The form of these animals is ideal for bacon production and is characterized by a long, trim body with very light offal, smoothly covered with firm flesh, indicative of a desirable mixture of fat and lean. To the Poland-China breeder a Tamworth seen for the first time is an uncouth animal. His great size, rather long nose, and red color shows a type entirely different from that with which our Western breeders are most familiar. A careful study of the Tamworths during the few hours of the writer's visit shows the accomplishment of the object for which they are bred. They are very kind in disposition, wonderfully prolific, and are extra good feeders. They have very deep bodies, splendid, arched backs, and remarkably good feet and legs. Their backs are not broad like the lard hog and their hams would seem very deficient to a breeder not accustomed to the bacon type. Viewed from the side, they appear immense in depth, showing a large expanse of the best bacon parts. Many of the farmers adjacent to the Freelove herd are buying these hogs for crossing with other breeds and find the first cross most satisfactory. Mr. Freelove showed the writer ten litters that numbered 121 pigs, farrowed in April, and every one saved. He mentioned that he had been breeding these hogs for a number of years and that his losses amounted to almost nothing.

The animals are extremely vigorous and have wonderful feet and legs. They are not and can not be competitors in the same market with the Poland-Chinas. They are bred for bacon primarily, and this fact, together with their kind disposition, wonderful reproductive powers, and early maturity to great weight, makes them ideal for the purpose. The writer was shown one sow which had lost a part of her third litter on account of the cold and wet, and which Mr. Freelove thought he would hold for a few weeks until she weighed a thousand pounds and then sell on the market. The writer confesses that he went to visit this herd not with any prejudice against it, but with a lack of enthusiasm for it. But after careful inspection he is prepared to announce it now as his belief that no breed yet introduced in the West will so well meet a demand for bacon hogs as will the Tamworths, and the only thing for the breeder to decide is whether he prefers a comparatively new breed that is prolific, hardy, early of maturity, and of great weight, to those breeds which are better known because older in this section. Mr. Freelove's herd numbers about 140 head and is headed by Freelove's Choice 894 by Victor 376, out of Station Maid 469, all bred by the Iowa Experiment Station.

Mr. Freelove reports the sale at one time of two and a half carloads of Tamworth hogs, for one and one-half cars of which he received the top market price, and for the other car 5 cents above the top market price.

We are convinced that the Tamworth has very many valuable qualities which recommend it to hog-raisers, but we desire to repeat that the type is entirely different from the hogs which we have been accustomed to here, and this fact may be an index to the real value of the Tamworth. While not an advocate of grades or cross-breeds, the writer is acquainted with the fact that many men will attempt nothing else. To such breeders the Tamworth with its large litters, hardy habits, and early maturing qualities, will commend itself for crossing with other breeds which show less pronounced characteristics along these lines. To the breeder of pure-bred hogs we can only suggest that it will pay to investigate the Tamworth and see whether this breed may not be just the one that will suit the breeder.

THE SKIM-MILK CALF.

One of the problems which confronts the up-to-date farmer is that of raising his calves on separator skim-milk. The hand-separator is here and it has come to stay, provided it does not interfere with the raising of good calves, upon which of course the whole future of the dairy industry depends. The experiment station at Manhattan has obtained good results by limiting the amount of skim-milk fed to the calves and by combining with it a small amount of ground Kafir-corn. As is well known, the butter-fat or cream of the milk which has been taken away is by no means the most valuable part of the milk for the growing calf. When whole-milk is used the butter-fat simply keeps up the heat of the body and supplies fat for the tissues. The parts of the milk which comprise the growth-making materials are the casein and

albumen. These materials are the muscle- and bone-forming elements; hence it is true that a calf fed on skim-milk is not generally as fat during the first six months of its life as is the one fed on whole-milk, but later the difference in quality and growth is likely to be in favor of the skim-milk calf, provided he has been properly fed. The addition of the ground Kafir-corn to the skim-milk ration serves in some measure to supply the fatty elements which have been removed by the skimming process, and at the same time it offsets any tendency to scour, which so frequently appears when calves are over-fed, or are given sour or tainted skim-milk. Hon. Geo. Morgan, of Luray, Russell County, who has been a practical dairyman in Kansas for more than thirty years, has adopted the same plan and feeds a small allowance of Kafir-corn in the skim-milk ration.

Whether it be in the breed of cattle, or whether the method is better, it is certainly true that the writer has never seen a better looking lot of calves than an experimental lot which is now being fed on skim-milk by the Red Poll breeder, Chas. Morrison, of Phillipsburg. Like other skillful feeders, he limits the amount of skim-milk in the ration allowed for each calf, but instead of using ground Kafir-corn, he uses whole shelled Indian corn. This compels mastication on the part of the calf and any tendency to scour is counteracted by the addition of a small quantity of blood-meal to the ration. Nature teaches and the experience of all cattlemen confirms the necessity for feeding young calves small and frequent rations. The colostrum, or first milk of the cow, must always be given to the calf. Milk from another cow will not do. The young calf's stomach is not capable of holding and assimilating large amounts of food-material, and any carelessness in feeding at this period is sure to result in indigestion and scours. For the first two weeks five or six quarts, or from ten to twelve pounds of milk per day, is all that the calf should be allowed. The amount will vary with the individual. Young calves should be fed three times a day at least, and with their development the amount of skim-milk may be increased and the feeding-times decreased to two times per day. It is rare that a calf will ever need more than eight or nine quarts of milk. It is a mistake to suppose that the calf needs more milk because the cream has been removed from it. Over-feeding is undoubtedly one of the most prolific causes of inferior calves. It is extremely important that the milk fed to young calves should be both warm and sweet, and a little study of the proper methods of handling the skim-milk as a ration for calves will result in the raising of better calves and the fuller development of the cow as a milker than will the old method of allowing the calf to feed itself.

The best treatise that we have seen on this subject is a little pamphlet issued by the Vermont Farm Machine Company, manufacturers of the United States Separator, Bellows Falls, Vt., entitled "The Value of Skimmed-Milk, Its Uses and Abuses." This pamphlet also contains information on the value of skim-milk for both swine and poultry, and may be had free by addressing the publishers as above, mentioning the KANSAS FARMER.

RED POLLED CATTLE.

With the increased interest which has lately been aroused in Kansas along dairy lines has come increased interest in breeding and feeding problems as well. As this office is frequently in receipt of inquiries in regard to special dairy breeds and as our advice heretofore has been to milk the cows already on the farm and improve them from time to time as tests may demand, rather than undertake the more difficult proposition of breeding special dairy-purpose cattle, it was a matter of pleasure and satisfaction to be able to inspect and report upon some cattle that seem to come nearer the dual-purpose requirements of the average farmer than any other breed. While the four great beef breeds are not highly commended, as a rule, as milk-producers, and while an infusion of strictly dairy blood in the farmer's herd makes it difficult for him to mature a profitable beef animal, it is claimed that the Red Polls will come nearer to the requirements of the milk-farmer than anything that can be offered. Believing that the way to get the best information in regard to any breed is to go where the breed in question can be seen to its best advantage the writer recently took a trip to Phillipsburg, Kans., to inspect what is probably one of the largest and best herds of Red

Polled cattle in the West. The object of this visit was twofold. First, to inspect the typical herd of dual-purpose cattle, and second, to observe the work done by these cattle under the conditions peculiar to the section in which they live. Realizing that the alfalfa region of Kansas, formerly called the "short-grass country," is already the home of some of the best beef herds to be found in the West, and realizing that this so-called "short-grass country" has become the best dairy district in Kansas, it occurred to the writer that it might as easily be the home of a milk-producing herd in the same degree as it has proved itself the home of the beef-producing breeds.

Red Polled cattle, as now known, are a product of the last 120 years. They are characterized by their hornless heads, solid red color, good milk-producing qualities, and their ability to produce beef as well.

Originally there seems to have been two different types which came from Norfolk and Suffolk, England. Apparently the Norfolk type was of more slender build and more nearly approached the dairy type while the Suffolk was heavier with more beefy characteristics. The blending of these two has produced the modern Red Poll. The Red Poll of to-day is a milker first and has won a great record as a beef-producer as well. The herd inspected at Phillipsburg belongs to Mr. Chas. Morrison, and is the best and largest that it has been our privilege to see. We have seen other herds which included excellent animals but none which was so even in type and so uniformly good throughout as is the Phillips County herd. The old bull at the head of this herd is King of Valley Lawn 4989 by Willow King 966 out of 2690 Cherry Blue, all of V 5. The younger females now in the herd are of his get and he has proved himself a most remarkable sire, in fact it is almost possible to select calves of his get by passing through the herd and following his well-known type. His heifers are characterized by their especially good udders and good milking qualities, and they are now being bred to the second herd-bull, Actor 7785 by Iowa Davyson 10th 3149 out of 11084 Cherry Bell 3d, all of W 3. Actor 7785 is a 3-year-old and the best Red Poll bull we have ever seen. In Secretary Coburn's report on Polled cattle for the quarter ending September, 1902, appears the picture of a Red Polled champion bull which could be almost taken for a perfect likeness of young Actor.

The result of Mr. Morrison's skill in breeding has been a continuous sale of his young bulls at handsome prices and the present possession of some young stuff which he will exhibit at the Louisiana Purchase Exhibition provided nothing shall prevent. As a matter of fact, it is not generally known, perhaps, that Red Polls of the quality found in this herd exists in Kansas at all, and we predict that when this information becomes more generally published it will result in an increased demand for animals of this type. Mr. Morrison lives some miles north of Phillipsburg but his magnificent farm, stocked as it is with the best Red Polled cattle, the choicest strains of Poland-China swine, and his Partridge Cochins, and Mammouth Bronzes, together with the hospitality with which the visitor is welcomed, makes the drive well worth while to any one interested in good stock and with it the development of his community.

A milch cow which does not produce 250 pounds of butter per year is not worth keeping as a milch cow on the farm and should be ruthlessly disposed of in favor of a better animal. On the other hand, an animal which will make a good milk-record and at the same time be capable of producing good beef, approaches very near to the ideal demanded by the average farmer. The Red Polls furnish this class of cows, but as in any other breed, the nearer they are to purity in blood the better and more profitable they will be to their owners.

Knocking Out the Beet-Seed's Eyes.

The latest scheme of the ever busy and resourceful Secretary of Agriculture is to invent some plan to make beet-growing less laborious and more profitable. It seems that the beet-seed has several eyes or germs, and seed may produce one, two, three or four plants or sprouts, and in thinning, all but one of these have to be pulled out. The task is a laborious one, the cost per acre is very considerable, and the necessary disturbance is injurious to the beet.

"If the beet-seed, on the other hand," says Mr. Wilson, "had but one eye, it would be an easy matter to plant the

seeds by machine at the proper distances. Now the plan that we are working on is to eliminate, by selective cultivation, all but one eye from the beet-seed. This, of course, will require some time and it takes two years for beet-seed to mature. This first year you grow the beet-root, and the second year it makes the seed. Still, I think by careful selection it may be possible to get a single-eyed beet-seed in three or four generations. If so, it will overcome much of the prejudice against beet culture in this country, which necessitates a man getting down on his hands and knees, and nearly breaking his back."—American Farmer.

Seining Fish.

EDITOR KANSAS FARMER:—Is it against the laws of Kansas to seine for fish on another man's land with his permission? What are Government streams? L. W. HIGGINS, Allen County.

ANSWERED BY THE STATE FISH WARDEN.

I think one answer will give the desired information to the two questions. All waters within or bordering on the State are under the jurisdiction of the State and fully protected by the State laws; it would, therefore, be unlawful to seine for fish in any waters within or bordering on the State except in a private pond with the owner's consent. D. W. TRAVIS, State Fish Warden, Pratt, Kans.

Alfalfa Questions.

EDITOR KANSAS FARMER:—I have thirty-five acres of alfalfa. It is my first crop. Please have some one tell what tools I need, and especially how to rig a fork to stack with a horse. I have a fork and a mower and a two-horse rake. Please tell everything in regard to cutting and curing and how is the best way to stack the hay to save it. I have to stack the most of it outside. I have not mow-room for it. Tell me if it is best to put salt on the hay or slaked lime in stacking. Some say that either will keep the hay from heating. I will have to cut it soon. A SUBSCRIBER.

Crawford County.

KANSAS FARMER'S NEW WALL ATLAS.

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

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

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

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

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.

Christian Scientists'

meeting in Boston, June 28-July 1. It will be to your advantage to obtain rates applying over the Nickel Plate Road before purchasing elsewhere. No excess fare charged on any of our trains. Tickets on sale June 25, 26 and 27. Final return limit August 1st. Call on or address John Y. Calahan, General Agent, 113 Adams St., Room 298, Chicago, for particulars as to stopovers, train service, etc. (7)

SHARPLES TUBULAR CREAM SEPARATOR

Buckets, Buckets, a Multitude of Buckets.

Buckets full of radish graters, buckets full of discs, buckets full of vanes, buckets full of blades, buckets full of contraptions. All separators have these "bucket bowls" except just one, the Tubular; a distinct type, an improved separator entirely different from all others. Simple, convenient, safe, durable and efficient. Skims closer and requires less power to run than any other separator. Free catalogue No. 165.

THE SHARPLES CO., Chicago, Illinois. P. M. SHARPLES, West Chester, Pa.

In the Dairy.

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

The Covered Milk-Pail.

The demand for sanitary milk is constantly increasing. Consumers of milk have too long been satisfied with a product in which filth and uncleanness is only covered by the character of the production.

It is enough to turn the stomachs of many to sit at a hotel table and after drinking a glass of milk see the sediment at the bottom; matter consisting of particles of manure, scales of skin from the cow, hair, or bits of feed.

We are glad to see the increasing interest in the production of what may be sold truthfully under the name of sanitary milk. Around the large cities many dairies are making a specialty of producing this class of milk. Those of them selling a really clean product have no trouble in disposing of it at a considerable advance over the ordinary price of milk. They have only to convince their customers of its quality by showing how carefully they are guarding all points in the process of producing this article of food so easily spoiled by uncleanly and careless methods.

A recent report (Bulletin 25) from the Connecticut Station at Storrs gives some interesting results of an experiment carried on there to show the value of the covered pail in sanitary milk production.

Many devices have been used both in this country and in Europe for clarifying milk and removing dirt and impurities. None have proven satisfactory or practical. The chief difficulty with these different methods is that much of the dirt which gets into milk is more or less soluble and can not be removed by any mechanical device. We have all sorts of strainers to strain the dirt out of milk, and while it is important to use a good strainer, more thought must be given to keeping the dirt out in the first place. No strainer ever made can remove the bacteria which gain access to the milk by means of dust, particles of hay, hairs, scales of skin, particles of manure, etc.

The stable should be clean, no dust should be in the air at milking-time, the cow should be clean, the milker should have clean clothes, and the udder and parts adjoining should be wiped off with a damp cloth just before milking. In spite of all these precautions, however, various forms of dirt will drop into the pail during the process of milking. The covered pail is a still further aid in keeping the milk perfectly pure.

The pail used in the Connecticut Experiment Station has a tight-fitting cover with an opening in one side into which is soldered a funnel four inches across having a fine gauze strainer soldered across the bottom. It also has an arrangement whereby a cheese-cloth strainer is used above the wire gauze. A similar pail is used at the Kansas Station in milking the dairy herd.

The main points of the bulletin referred to are summarized by the author as follows:

Two sets of tests were made. In one case, milk drawn into an open pail was compared with milk drawn into

a pail with a cover devised for excluding dirt during milking. In the other case, milk drawn into an open pail was compared with the same milk strained immediately after milking.

The amount of dirt in the milk in the covered pail was only 37 per cent of that in the open pail, while the amount of dirt in the strained milk was 53.4 per cent of that in the milk not strained. In other words, the cover excluded 63 per cent while the strainer removed less than 47 per cent. The differences in the two samples differed more widely in the latter tests than in the former. In the strained milk the amount of dirt removed depended largely upon the nature of the dirt.

By the use of the covered pail, an average of 29 per cent of the total number of bacteria and 41 per cent of the acid-producing bacteria were excluded from the fresh milk. By straining the milk as soon as drawn into the ordinary open pail, an average of but 11 per cent of the total number of bacteria and 17 per cent of the acid-producing species were removed.

After the milk had stood fifty hours at a constant temperature of 70° F., the samples from the covered pail contained a smaller number of bacteria in the majority of the tests than did the milk in the open pail, yet the covered pail sample frequently contained the larger number. In each test the number of acid-producing bacteria was smaller in the sample from the covered pail. In the strained milk, both the total number of bacteria and the number of acid-producing bacteria were larger than in the milk not strained. While the data at hand will not warrant any positive conclusions, yet it is probable that the larger numbers in the strained milk are due to the rapid growth of certain species still remaining and able to develop more rapidly because of the removal of certain other species which if present would antagonize their growth.

The milk from the covered pail usually curdled somewhat sooner than that from the open pail, the average difference being about seven hours. Likewise the strained milk in most cases curdled sooner than the milk not strained, the average difference being also about seven hours.

The fact that the keeping properties of the milk were not increased is of little practical value, since the milk used in these tests kept on the average nearly two and one-half days at a constant temperature of 70° before curdling. This means that it would keep for about five days had it been kept at the usual temperatures for handling and marketing milk. This is considerably longer than milk is ordinarily required to keep.

The demand of the public at the present time is not for milk which will keep for a greater length of time, but for that which can be used for food without danger to health. It is an acknowledged fact that large numbers of children, especially in our cities, die each year of cholera infantum, or of other intestinal troubles which are caused by certain species of bacteria taken into the system in cow's milk. The species of organisms which cause these troubles naturally inhabit the filth of the stable and it is highly probable that the exclusion of this filth from the milk supply of our cities would result in greatly reducing sickness and death from this class of diseases.

The results of these tests indicate that the covered pail is much more efficient for the production of pure milk than is the straining of milk drawn into an open pail. It is quite evident also, that to keep the dirt out of the milk in the first place is much better than to strain it out after milking. A considerable portion of the dirt dissolves quickly in the warm milk, and thus introduces a contamination that can not be strained out.

These tests were made in a dairy where the conditions of cleanliness are good, as is shown by the small quantities of dirt found even in milk from the open pail. The use of the covered pail will doubtless prove to be more efficient where conditions are not so good.

This bulletin is to be regarded as a report of progress rather than a complete treatment of the questions discussed, and the station hopes to give more light upon some of the still unsettled problems, in a later bulletin.

Grain to Cows on Pasture.

With the coming of spring and summer conditions, the question arises "Shall we feed grain to our cows still, and how much?" Dairymen are in the business for profit and if they can produce milk on that cheapest of feeds,



HEY, THERE! JUNK MAN!

I want to know how much you will give me for one of those separators that claim to be "just as good" as the

DE LAVAL CREAM SEPARATORS

I put in one of them last year because the agent claimed it was "just as good" as a DE LAVAL machine and was \$10.- cheaper. I have looked about and gotten some separator experience since then and I find now that I could have bought a DE LAVAL machine of greater actual capacity for less money in the first place, while I have lost money every day through the imperfect skimming of this machine, aside from hard running and trouble of all kinds from infernally poor construction.

I am going to have a DE LAVAL machine now if I have to "junk" this old one for scrap-iron. I know it will save its cost the first year of use and should be good for twenty years. I find all well-informed dairy farmers are using DE LAVAL machines and that there are over 400,000 of them.

A De Laval catalogue may save this experience.

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NEW YORK.

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 neisy 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,

Blue Valley Creamery Co.

Is the Butter You Eat made from Cream

Separated by a U. S. SEPARATOR?

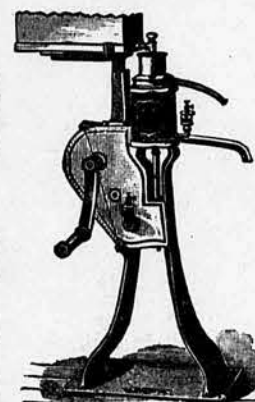
IF NOT, YOU SHOULD SEE THAT IT IS.

In buying butter or cream, always ask if the milk was run through an Improved U. S. Cream Separator. If it was not, you may be sure the product is not as good as it might be, for

It Takes the Best to Make the Best, and it has been proved many times that The U. S. Separator Excels All Others.

At the Pan-American Model Dairy it Won World's Record for Clean Skimming, averaging for 50 consecutive runs .0138 of 1%.

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

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The EMPIRE CREAM Separator.

The Easy Running Kind.

Will give better satisfaction, make you more money and last longer than any other. Our book shows why. Send for it.

Empire Cream Separator Co., BLOOMFIELD, N. J.

good pasture, without feeding the expensive grain ration it will be to their interest to reduce the grain-feeding to as low a point as possible.

The Cornell Experiment Station studied the results of grain-feeding in connection with good pasture through several seasons. The first season the cows receiving grain in addition to luxuriant pasture produced less milk than those on pasture alone, but an equal amount of fat.

The second season the cows on pasture with grain and those on the same pasture without grain produced equally well. In the third trial, the cows were soiled on grass and those receiving grain in addition produced just enough more fat to pay for the grain fed. A fourth test was made under ordinary farm conditions, the experiment being conducted with the herd of a private individual. The cows were divided into two lots of eight each, both lots running on the same pasture.

The grain lot received four quarts daily of a mixture of two parts cornmeal, one part wheat bran, and one part cottonseed-meal. When the pasture became poor in the late summer both lots were fed green fodder-corn, and later green millet, and finally fresh meadow grass was cut and fed to the cows. Late in October pumpkins were fed to both lots. This trial began May 23 and lasted twenty-two weeks. The results are tabulated in the station report. The cows fed grain gave 4,931 pounds more milk, or 28 per cent more than the cows with no grain.

In the three previous trials conducted at the station, the test was made only while the pastures were very luxuriant; or in other words, at their best, a condition which prevails for only a few weeks of the year.

In the fourth trial it will be noted that the falling pastures were helped out by feeding soiling crop; and even with these extra efforts to keep up the green part of the ration, the cows having the grain ration produced 28 per cent more milk.

The following year it was further noted that with the same herd all on pasture with no grain, the eight cows fed grain the previous year gave 16 per cent more milk than the eight with no grain. Professor Roberts writes, "It seems reasonable to assume that this increased production was due to the grain feed the preceding year, especially in the case of the younger animals."

Professor Shelton at the Kansas station reports in 1888 a gain of from 16 per cent to 31 per cent in milk flow by feeding grain in addition to pasture but this increase did not pay for cost of grain fed.

These experiments would lead us to the opinion that where pasture is very luxuriant it might not pay, directly at least, to feed grain.

The condition of the pasture must be watched, however, and any tendency to a decrease in milk flow caused by drying and scanty pasture should be met with grain ration sufficient to keep up the flow if possible. A herd once down is very hard to get back even with reviving pasture or extra green forage. Dairymen should plan to have an abundance of green forage provided for the period of dry and scanty pasture which is bound to come. We believe the silo is the mainstay of the dairyman who would be independent of periods of drouth and falling pasture. In no way can corn-fodder be utilized so economically and so conveniently as by the silo. It will furnish succulent feed at any time of the year that it is desired.

The dairyman who has a silo can come very near creating June conditions the year round in so far as cheap

and succulent feed is concerned. In fact some of the most successful dairymen rely on the silo entirely for their summer feeding. G. C. W.

A Letter from a Kentucky Housewife.

All of us who have lived in the famed blue-grass country think that there is nothing equal to our butter, milk, and cream. Yet I have seen butter made here which was far from first-class. It had an old taste and a peculiar flavor caused by the cream having been kept too long. The housewife who made it may have been neat and cleanly, and but for this serious mistake of overripening her cream, might have easily secured a fancy price of 50 cents per pound the year round for her product from special city customers.

Milk and butter take on impurities more quickly than any other products, hence the great necessity of guarding against it in every way possible. There is nothing gained by patching up old utensils about a home dairy. We should always remember that seams in cans and other utensils which appear clean to the naked eye may in reality be teeming with millions of microscopic organisms.

The oft-quoted methods of properly cleaning milk utensils need constant reiteration. They should be first rinsed in tepid water, then thoroughly washed in hot water in which borax has been dissolved, using a tablespoonful to a gallon of water. Borax will destroy many germs, and by using water hot enough the utensils may be made really clean and free from many forms of harmful bacteria. S. H.

Why Want Good Roads.

PRESIDENT ROOSEVELT'S ADDRESS AT THE NATIONAL GOOD-ROADS CONVENTION AT ST. LOUIS.

The fact that the Nation's Chief Executive attended the National Convention at St. Louis and participated in the proceedings indicates the importance which the good-roads movement has attained. The fact that the Convention unanimously endorsed the National-aid plan also indicates the trend of sentiment in that direction.

The President's entrance was signaled by cheers from the assembled delegates. He was introduced by President Moore of the National Good Roads Association and spoke as follows:

Mr. Chairman, Ladies and Gentlemen—When we wish to use descriptive adjectives fit to characterize great empires and the men who made those empires great, invariably one of the adjectives used is to signify that that empire built good roads. (Applause.) When we speak of the Romans, we speak of them as rulers, as conquerors, as administrators, as road-builders.

There were empires that rose overnight and fell overnight; empires whose influence was absolutely evanescent, which passed away without leaving a trace of their former existence; but whenever the Roman established his rule, the traces of that rule remain deep to-day, stamped on the language and customs of the people, and stamped in tangible form upon the soil itself.

Passing through Britain fifteen centuries after the dominion of Rome has passed away, the Roman roads as features still remain. Going through Italy, where power after power has arisen, and flowered, and vanished since the days when the temporal dominion of the Roman emperors transferred its seat from Rome to Constantinople; going through Italy after the Lombard, the Goth, the Byzantine and all the peoples of the middle ages have ruled that country—it is the imperishable Roman road that reappears. The habit of road-building marks in a nation those solid, stable qualities which tell for permanent greatness.

RIGHT TO DEMAND GOOD ROADS.

Merely from the standpoint of historical analogy, we should have a right to ask that this people which has tamed a continent, which has built up a country with a continent for its base which boasts itself with truth as the mightiest republic that the world has ever seen, which we firmly believe will in the century now opening, rise to a position of headship and leadership such as no other Nation has ever yet attained (applause)—merely from historical analogy, I say, we should have a right to demand that such a Nation build good roads (applause).

Much more have we a right to demand it from the practical standpoint. The difference between the semi-barbarism of the middle ages and the civilization which succeeded it, was the difference between poor and good



Every mother possesses information of vital value to her young daughter. That daughter is a precious legacy, and the responsibility for her future is largely in the hands of the mother. The mysterious change that develops the thoughtless girl into the thoughtful woman should find the mother on the watch day and night. As she cares for the physical well-being of her daughter, so will the woman be, and her children also.

When a young girl's thoughts become sluggish, when she experiences headaches, dizziness, faintness, and exhibits an abnormal disposition to sleep, pains in the back and lower limbs, eyes dim, desire for solitude, and a dislike for the society of other girls, when she is a mystery to herself and friends, then the mother should go to her aid promptly. At such a time the greatest aid to nature is Lydia E. Pinkham's Vegetable Compound. It prepares the young system for the coming change, and is the surest reliance in this hour of trial.

Case of a New York Girl of Interest to Every Mother and Daughter in the Land.

"DEAR MRS. PINKHAM:—I hope you will publish this letter, for I want all mothers to know how much good your medicine did my young daughter. Her health broke down about six months ago, and although she is large for her age, I did not understand what was wrong with her; the doctor did not, either, for he treated her for her heart, which pained her a good deal; but he did not do her any good, and we were afraid heart trouble would carry her off. Every day she kept getting whiter and thinner. She had no appetite, and she sat around without any ambition, and was always too tired to do anything. All night long she would moan in her sleep, as though in terrible pain.

"I felt terribly discouraged; I was spending money for doctor's bills right along, but she was receiving no help. At that time I was taking Lydia E. Pinkham's Vegetable Compound, and I read in one of your books about young girls. I decided to drop the doctor, and give her your medicine. I wish you could see the change in her, and the pink cheeks Lydia E. Pinkham's Vegetable Compound has given her. She had taken but half a bottle when menstruation started again and her heart trouble went away like magic. I had her continue the medicine, and now she is fat, rosy, and perfectly healthy. Menstruation is regular and painless, and I owe my thanks to you and to your wonderful medicine for her good health."—MRS. MARGARET PHELAN, 673 Tenth Avenue, New York City.

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It is well to remember these facts when some druggist tries to get you to buy something which he says is "just as good." That is impossible, as no other medicine has such a record of cures as Lydia E. Pinkham's Vegetable Compound; so do not experiment with untried medicines, but insist upon the one you know is best.

\$5000 FORFEIT if we cannot forthwith produce the original letter and signature of above testimonial, which will prove its absolute genuineness. Lydia E. Pinkham Medicine Co., Lynn, Mass.

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means of communication. And we, to whom space is less of an obstacle than ever before in the history of any Nation, we who have spanned a continent, who have thrust our border westward in the course of a century and a quarter, until it has gone from the Atlantic over the Alleghenies, down into the valley of the Mississippi, across the great plains, over the Rockies, to where the Golden Gate lets through the long-heaving waters of the Pacific and finally to Alaska and the Arctic regions, to the islands of the Orient, the Tropic Isles of the sea—we, who take so little account of mere space, must see to it that the best means of nullifying the existence of space are at our command.

RAILROADS NO SUBSTITUTE.

Of course, during the last century there has been altogether phenomenal growth in one kind of road wholly unknown to the people of old—the iron road. The railway is, of course, something purely modern. Now, a great many excellent people have proceeded upon the assumption that somehow or other, having good railways—a substitute for having good highways—good ordinary roads. A more untenable position can not be imagined. (Applause.) What the railroad does is to develop the country, and, of course, its development implies that the country will need more and better roads. (Applause.)

A few years ago it was a matter, I am tempted to say, of National humiliation that there should be so little attention paid to our roads, that there should be a willingness not merely to refrain from making good roads, but to let the roads that were in existence become worse; and I can not too heartily congratulate our people upon the existence of a body such as this, ramifying into every section of the country, having its communications in every State of the country, and bent upon this eminently practical work of making the conditions of life easier and better for the people who of all others we can least afford to see grow discontented with their lot in life—the people who live in the country districts. (Applause.)

INDUSTRIAL DEVELOPMENT.

The excessive, the wholly unheard-of rate of our industrial development during the past seventy-five years, together with the good sides has had some evil sides. It is a fine thing to see our cities built up, but not at the expense of the country districts. (Applause.) The healthy thing is to see the building up of both the city and the country. But we can not expect the best the most eager, the most ambitious young men to stay in the country, to stay on the farm, unless they have certain advantages. If farm life is a life of isolation and mental poverty, a life in which it is a matter of great difficulty for one man to communicate with his neighbor, you can rest assured that there will be a tendency to leave it on the part of those very people whom we should most wish to see stay on the farm.

It is a good thing to encourage in every way any tendency to check an unhealthy flow from the country to the city. (Applause.) There are several tendencies in evidence. The growth of electricity as applied to means of transportation tends to a certain degree to exercise a centrifugal force to offset the centripetal force of steam. Exactly as the uses of steam have tended to gather men into masses, so now electricity as applied to transportation has tended to scatter them out again. Trolley lines running out into the country are doing a great deal to render it possible to live in the country, and yet not lose the advantages of the town. The telephone is not to be minimized as an instrument with a tendency in the same direction. Rural free delivery is playing its part along the same lines. But no one thing can do as much to offset the tendency toward an unhealthy trend from the country into the city as the making and keeping of good roads.

EFFECTS OF GOOD ROADS.

They are needed for the sake of their effects upon the industrial conditions of the country districts, and I am almost tempted to say that they are needed even more for their effect upon the social conditions of the country. If winter means to the average farmer the existence of a long line of liquid morasses, through which he has to move his goods if bent on business, or to wade and swim if bent on pleasure; if winter means that, if an ordinary rain comes, the farmer's girl or boy can not use his or her bicycle, if a little heavy water means a stoppage of all communication, why you have got

to expect that there will be a great many young people of both sexes who won't find farm life attractive.

It is for this reason among many others that I feel the work you are doing is so pre-eminently one for the interest of the Nation as a whole. I congratulate you upon the fact that you are doing it. In our American life it would be hard to overestimate the amount of good that has been accomplished by associations of individuals who have gathered together to work for a common object which was to be of benefit to the community as a whole. And among all the excellent objects for which men and women combine to work to-day, there are few indeed who have a better right to command the energies of those engaged in the movement, and the hearty sympathy and support of those outside, than this movement in which you are engaged.

The Poultry Yard.

Caring for Turkeys.

Turkey-raising is by many considered the most arduous labor called for in the poultry-yard. Many farm-wives we have known who would like to raise turkeys, but on account of the poult being so tender and hard to care for they made no attempts in that direction. With us no variety of poultry thrives unless cared for assiduously. Perhaps Pekin ducks have come nearer caring for themselves than any other variety of poultry, but we have found lack of attention to the water supply fatal to the ducklings as well as the same danger from drowning in storms that beset all our poultry. In case of a wetting, the ducklings would survive where a turkey would not.

When we were very new in poultry management, we did not know that the poults would wander from the mother and be lost if they were given their liberty. We were much surprised to find them wandering about and paying no attention to the frantic cluck of the hen that hatched them. For the benefit of beginners we mention this. We now make pens for the tiny turks, just as we do for the ducklings. When the young turkeys are well acquainted with their mother and coop, we take away the pen. Any old boards stood on edge will answer for the pen and a few feet of room is enough for a few days.

A large, roomy run attached to a shed-roofed box that is warm and dry for a roosting-place is a necessity if one would succeed in bringing the poults to maturity. Absolute cleanliness must be observed. We are old-fashioned in some of our methods, so we grease the old mother with lard and coal-oil in the proportion of one tablespoonful of coal-oil in a cup of lard. It makes our little white turks horribly dirty, but it is a success in absolutely ridding them of lice. A coop that has a floor that you may confine the poults in, or let them run at will is an ideal place in which to raise turkeys.

Shade ought to be provided where the turkeys are hatched rather late. We have had fine turkeys hatched August 1, and they began laying April 1 following. Bronze turkeys might not mature as quickly as the Hollands.

In our opinion, the coop and other surroundings, including cleanliness, are of more moment than the feeding. We feed carefully, however, bread crumbs and oatmeal being the food for a few days. Curds form a part of their diet. We use chopped green onions liberally and believe it is necessary to do so unless the poults are where they can help themselves. After the poults are a few days old, we feed corn-chop, wheat, or anything we would feed chicks.

When the feathering process begins we must be wary. Lack of shade or water matters much. We read from good authority that clipping or pulling the flight feathers from the wings of the poults will assist them wonderfully. This summer we shall try it for ourselves.—Mrs. Hattie Byfield, McCook, Neb., in Poultry Topics.

Chicken Chatter.

Plenty of exercise hunting and digging in straw for grain, a comfortable winter house, and a diet resembling a summer ration is the proper caper for having eggs in winter. Give it a trial.

Grit, greens, animal food, and clover must not be neglected, for they are an absolute necessity if winter eggs are wanted. What we call protein must be supplied or we will not have the eggs. Pea-meal and milk help a lot.

A mash made from cornmeal,

wheat bran, and middlings, ground oats, and pea-meal scalded with hot milk, will bring the eggs; with this give some green cut bone or good meat-scrap, and you will have an egg-producing ration that will produce.

Clover hay cut very small or short in the hay-cutter and thrown for the hens to dig among and eat what they want is one of the very best substitutes for summer greens. Nothing is better. This with a little cabbage, beets, and turnips will do. Too much cabbage and turnips will taint the flavor of the eggs.

The good summer layer is the good winter layer when the conditions can be controlled. A good warm house, with plenty of grain and an abundant supply of green feed, with a small quantity of meat and bone and plenty of grit and shell, will produce eggs, if the hens can be made to exercise enough to keep in good health and with good appetites.

The best way to be rid of all contagious diseases is to go with a club in one hand and a fire brand in the other. Kill and burn should be the battle-cry, so long as there is a single fowl left with a contagious ailment. To have them about or to breed from them not only courts disaster but scatters destruction wherever any of your flock may be sent, and the use of any such, either in your flock or other flocks, sows the seed of ruin for years to come.

Have well-constructed hen-houses with dry floors, cover these floors with dry sand and straw, keep the houses clean, feed your fowls properly, make them dig and hunt all the time for their grain food, feed small or broken grains so they must hunt the longer to find enough to satisfy them, and your fowls should be healthy and do well. Neglect, filth, lice, and dampness will destroy all chances for success with your poultry. Only those who care for the wants or demands of their poultry succeed. All the balance fall in one way or the other. It is far easier to succeed than not to succeed.

There are but few who realize the importance of the poultry industry of the country. A writer in Leslie's Weekly says, as a producer of wealth the American hen is a marvel. To illustrate the increased earning powers of this industrious autocrat of the barnyard, it may be stated that in Missouri during the fiscal year the sum derived from the sale of poultry and eggs ran \$17,000 ahead of all the other products of the farm combined. The totals show that the old hen, neglected and left by the farmer to forage for herself while he devoted his attention to the field crops, outstripped them all, including corn, wheat, oats, flax, timothy-seed, clover-seed, millet-seed, cane-seed, castor-beans, cottonseed, tobacco, broom-corn, hay, and straw.—The Feather.

Finishing Fowls for Market.

The old term, fattening fowls, is not applicable to the modern notion of putting them in condition for market. It is easy to fatten fowls, as all that is necessary is to furnish them all the feed they will eat, and feed them until they will not put on more weight.

Such fowls will bring a good price, but not the best one. To meet the demands of those who are willing to pay the highest price in these days, fowls must be finished in a special way that not only makes them fat, but improves the quality of the flesh, making it sweet, tender, and juicy.

There is no secret process by which this is done and every one who has poultry to sell should inform himself on the best method of finishing it.

Old hens finished in the new way sell at high prices and are as delicate in flavor and as toothsome as young pullets. Speaking of finishing fowls for market, the Ontario Agricultural

POULTRY BREEDERS' DIRECTORY.

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

EGGS—For hatching at half former price. To still farther introduce my White and Barred Plymouth Rocks, I will sell eggs at \$1 per 15 from White Rocks scoring 94 to 96½ and Barred 90 to 93. Circular free. You can have only one setting. Order at once. Herbert Johnson, Live Stock Auctioneer, Chanute, Kans.

BARRED PLYMOUTH ROCKS—Special summer prices. 15 eggs, 60 cents; 30, \$1. E. J. Evans, Box 21, Fort Scott, Kans.

I RAISE W. P. ROCKS EXCLUSIVELY—Owen's strain. Eggs for sale, 75 cents per setting of 15. These birds are large and very white, in quality unsurpassed. Mrs. Alvin Griffiths, Ozawie, Kans.

B. P. ROCK EGGS—15, \$1.50; 100, \$4. Mrs. J. W. Holsinger, Cottonwood Falls, Kans.

FANCY Buff and Golden Wyandottes, and Rhode Island Reds. Bred from Boston and New York prize winners. Eggs low price. J. R. Douglas, Mound City, Kans.

CHOICE Black Langshan eggs, 15 for \$1. Mrs. Geo. W. King, Solomon, Kans.

FOR SALE—Light Brahma cockerels, \$1.00 each; four for \$3.00. WANTED—White Holland turkeys. Nellie E. Stallard, Sedan, Kans.

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

D. M. TROTT, Abilene, Kansas. Choice Barred Plymouth Rock eggs, \$1. per 15.

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.

CORNISH Indian games, White Plymouth Rocks; score 93½ and 94; eggs \$1.50 for 13; \$2.50 for 25. C. I. G. cockerels, \$1.50 to \$3, scored. Mrs. J. C. Strong, Moran, Kans.

COCKERELS—Indian Games and Black Langshans, farm-raised, price \$1 each, if taken soon. H. Baughman, Wymore, Neb.

SILVER LACED WYANDOTTES—Exclusively the American Beauties. Choice birds. Sixteen years a breeder. Eggs \$1.50 to \$1 per 15. D. Tennyson, Frankfort, Kans.

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

EGGS—At \$1 per setting from our White Plymouth Rocks or White Wyandottes that will produce fine stock. W. L. Bates, 1829 Park Ave., Topeka, Kans.

REDUCED PRICES on eggs balance of season. \$1 per setting, \$4 for five settings on R. C. W. Leghorns, White Guineas, Fine R. C. Leghorn cockerels cheap. Mrs. Winnie Chambers, Onaga, 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.

WHITE WYANDOTTES EXCLUSIVELY—Eggs—15, \$1; 50, \$2.50; 100, \$5. MRS. E. F. NEY, Bonner Springs, Kans.

BLACK MINORCAS—World's greatest laying strain, beautiful in shape, color, and comb, grand winter layers. Eggs \$1.50 per 15, \$6 per 100. George Kern, 817 Osage st., Leavenworth, 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 Belle 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 Romany Ringlet, best service at our kennels. G. W. Bailey, Seattle, Kans.

Sunny Summit Farm Pure-Bred Poultry.

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

VILA BAILEY, Kinsley, Kans.

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From Prize-winners. Rouen duck eggs, 20 for \$1. Buff Wyandottes, Houdans, Cornish Indian Games, Buff Cochins, Barred Rocks, Silver Laced Wyandottes, S. C. Hamburgs, Golden Seabright Bantams, Buff Leghorns, Pearl Guineas, Brown Leghorns. Poultry eggs, 17 for \$1. I also breed all kinds of high-class fancy pigeons and will sell reasonable. I send everything out under a strict guarantee. Correspondence a pleasure. Write D. L. BRUEN, Box A, Oldenbusch, Nebr.

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

Barred Plymouth Rocks, White Plymouth Rocks, Buff Cochins, Partridge Silver Wyandottes, White Wyandottes, Silver Spangled Hamburgs, Brown Leghorns, and Belgian Hares. First-class Standard Stock of Superior Quality. Stock For Sale. Eggs in Season. Write Your Wants. Circular Free.

A. H. Duff, Larned, Kans.



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Rose Comb Brown Leghorns

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



TWO GIRLS

hatch 2,183 chicks; one woman 716; one man over 2,000. New System again beats incubators. Hatched free. F. GRUNDY, Bertram, Mo.

College experiment farm report for 1903 says:

"Most of the chickens we fattened were sold in Montreal, and the remainder in Toronto. The chickens sold in Montreal were for local use, while the greater part of those sent to Toronto were for export. So far as I can gather from the dealers, they want a plump, five-pound, white-skinned chicken. The larger chickens, weighing from seven to nine pounds each, come into competition with the small turkey, and are therefore not as salable as the smaller birds. Moreover, the average householder does not care to buy a very large chicken, when a medium-sized bird furnishes all the meat required for the family. The dealers do not, however, complain so much about the size as about the quality. They want birds that are plump, with plenty of meat on the breast, whether they weigh three pounds or seven pounds. During the season, I have had a few shipments of fatted chickens rated as No. 2, owing to the fact that their breast-bones were too high, or too deep, and their legs too long. The dealer in each case said the birds were plenty fat enough, but they lacked breast meat, or plumpness. It is evident, therefore, that we must be careful in the selection of our breeding stock, and see that they are of a blocky type—wide and full in the breast but only moderately deep. The back should be wide and not too long; the legs short and well apart. Our experience during the last few years has been that we have to be quite as careful in the selection of the females as in the selection of the males. Many a fine cock bird has left badly shaped chickens when mated with the leggy type of females.

"As a rule, the birds that are plump when they weigh about five pounds, never mature into large, heavy-weight birds. They are mature, or fully developed, at nine pounds or under. It appears to me that, to make the greatest possible profit, we need to develop strains (no matter what breeds) that will mature quickly, and be plump when weighing from five to six pounds each.

"My experience is, that to produce a ten- to twelve-pound male, we must have chickens with long bodies and legs, which are generally associated with deep breast bones. When one has a good market for large chickens, there is no doubt that this class of birds will best serve his purpose; but it is very doubtful if they are as profitable as birds of the blocky, quick-maturing type.

"We found it impossible to buy finely ground oats during the latter part of August; so we tried cooking rolled oats, barley, and cornmeal. The grains were used in the proportion of 50 per cent of rolled oats and 25 per cent each of barley and corn. These foods could not be used in the cramming machine without being first cooked.

"Two groups of twelve birds were fed from the trough, one group for two weeks, and the other for one week, with the following results:

"Group 1 consisted of twelve grade Plymouth Rock cockerels. They weighed, when placed in the crates, a total of 35¼ pounds. During the two weeks they consumed 103 pounds of cooked food, or equal to thirty-four pounds of uncooked grain. They made a gain of five pounds. At the end of the two weeks the birds were very thin and sickly, their digestion being very bad. One of them died. The others were turned out on a grass run, and two of them died the second day they were out. The remainder are beginning to pick up again.

"Another lot of twelve Rock chickens, weighing sixty-two pounds, which had been fed the previous week on raw food, were given cooked food. During the week they were fed on cooked food they lost in weight, and three of them became so sick they died. The remaining nine were placed on uncooked food for the next week, and made a gain in weight of more than three-quarters of a pound each.

"Two hundred chickens were crammed with cooked food. Few of the birds gained slightly, but the majority of them lost in weight. After having been fed in this manner for one week, a few of the best were shipped to a Toronto dealer, who complained about there being no meat on the breast. They sold for 9 cents per pound, and had they been well fattened they would have realized at least 13 cents per pound. The remaining birds were turned loose on a grass run.

"The chief difficulty with the cooked food appears to be that it damages the chickens' digestion. Some of the birds that were put out on the grass run after being fed on cooked food, have not

recovered yet—three weeks after being turned out.

"Cooked food can, no doubt, be fed to advantage in conjunction with raw food, but an all-cooked ration that is of a forcing nature appears to be entirely unsuitable for fattening fowls.

"These chickens were practically a total loss. Those that were turned loose never fully recovered, and were not sold until about the beginning of December. When the food from September 1 to December 1 is figured, together with the decline in prices, there is a heavy loss."

It will be seen from the above that feeding cooked food is not good for finishing fowls, but that raw food is preferable. It has been found that for ordinary farm practice fowls kept in a small yard and fed on ground food, having plenty of grit and some green stuff, make very satisfactory gains and come out in fine condition for the best trade. The feed is mixed with water into a thick batter and fed regularly, none being left in the pens from one feeding to the next, as such mixed food soon ferments and becomes a source of danger. The feeding-troughs should be cleansed, rinsed, and dried between each two feedings.—Commercial Poultry.

Good Layers.

My pen of birds that were entered in the Australian egg contest which commenced April 1, 1903, were Rose Comb Brown Leghorns. In choosing these hens only those that I knew were exceptionally fine layers and whose pedigree as layers reached back many generations were selected. In establishing this strain I have each year selected the heaviest layers, endeavoring to keep as near the Standard in regard to shape, color, etc., and bred them to cocks from hens that were extra good egg-producers, sometimes inbreeding for one year and then introducing new blood, being careful to always look out for the egg-producing capacities of the cocks' ancestors. I am not trying to raise show-birds, but hens that will fill the egg-basket. Although my birds are all Standard-bred I would not sacrifice an extra fine layer for a show-bird. What we Western breeders want is poultry for practical purposes. I say keep them all pure-bred, but don't try to breed them so fine that the general utility of the flock is destroyed. My hens are all farm raised and have free range. They are very strong, vigorous, and were all hatched in incubators. In these days it does not pay the farmer to raise common fowls, when pure-breds will pay three times the profit.

The breeding alone will not always produce fine layers. They must have care from the time they leave the shell. A chick well raised is half the battle. A great deal also depends on the feed. There is nothing like a variety for laying hens. I use wheat, cane, and millet-seed. These are excellent to scatter in litter for them to scratch while yarded, thereby providing the exercise necessary to insure good, strong, fertile eggs. Free range is best of all, if possible to give your breeders. To be successful with poultry you must look after them yourself; be with them and know from personal observation which are the hens that are the workers, and cut out the drones. Know them and let them know you, and you will soon have mastered half the difficulties that are ever in the poultryman's path. It is the bright, active hen, with a red comb and watchful eye, that is the layer. Select only eggs for hatching from the best hens, mated to a cock that is Standard-bred and one you know comes from good egg-producers and soon you will be surprised to see the improvement of your flock and the increase in the number of eggs.—Mrs. A. H. Mansell, Loup City, Neb., in Poultry Topics.

Flies as Carriers of Bacteria.

The pestiferous mosquito has had a share of public censure for the part he plays in carrying malaria from his haunts of stagnant water to the human subject. Now, the unclean fly is receiving attention for his part in propagating disease. The Scientific American gives the following interesting discussion of this subject:

"There is, of course, nothing new in the theory that flies may be active agents in the spread of bacteria, but a forceful demonstration made under the auspices of John Hopkins University, which has been recently brought to our notice by a member of the medical staff of that institution, is well worthy of record in these columns. The experiments were conducted with a box that was divided into two compartments in the first of which was exposed some food material infected with an easily recognizable species of

bacteria—harmless bacteria, of course, being used—while in the second compartment was placed an open dish containing a sterile nutrient such as is used as a culture medium for bacteria. Flies were placed in the first compartment, and, as soon as a number of them had been seen to walk upon, or eat of, the infected material, they were allowed to pass through a small door into the second compartment, where they had a chance to come in contact with the culture medium in the dish. The result was that bacteria deposited upon the surface of the sterile nutrient, multiplied there, and formed characteristic colonies. In these experiments molasses mixed with a growth of yellow bacteria was spread on a plate in the first compartment, and a dozen flies were put into the apparatus. Half an hour later, the door between the two compartments was opened, and as soon as several of the flies had been seen to come in contact with the sterile nutrient, the dish that contained it was covered and put away to develop. A few days later there had grown on the nutrient over a hundred colonies of yellow bacteria. The experiment was repeated with red and violet culture, and colonies of corresponding color were obtained. To prove that the germs from which these colonies grew came from the infected material in the first compartment, and not from accidental sources, further experiments were made with other groups of flies, but with no infected material in the first compartment. In this case, however, none of the dishes used in the second compartment developed yellow, red, or violet colonies. To prove further that the flies were the only means of transmitting the bacteria, experiments were made with infected material in the first compartment, but with no flies in the apparatus. The dishes containing the nutrient in these experiments also developed no colonies; and from these results it was considered to be absolutely demonstrated that flies are capable of carrying bacteria from one place to another, if they have an opportunity to come in contact with material containing these organisms."

A Great Carrier of Farm Products.

Americans are getting ready to handle a share of the carrying trade between this and other countries. The latest steamship to be added to J. P. Morgan's great shipping concern, the International Mercantile Marine Company, is an American-built vessel and a vessel designed especially to carry the agricultural products of the South and West to Europe. This is the liner Maine, constructed for the Atlantic Transport route from Baltimore to London. She was built at Sparrows Point near Baltimore, and is just going into service. The Maine is one of the greatest freighters on the ocean. She is 507 feet long, 58 feet wide, and 43 feet deep. A channel at least 27 feet, 4 inches wide is requisite to float her when she is fully loaded, and she then displaces the enormous quantity of 17,200 tons of water. The Maine can carry 10,400 deadweight tons of cargo. Her fuel-supply is 1,300 tons of coal. She will steam at sea about 12 miles an hour, which is rather above the average speed of cargo vessels.

It is seldom that a steamship crosses the Atlantic with a cargo made up exclusively of grain. But if the Maine were full of wheat she would contain 536,000 bushels, or the yield of about 40,000 acres.

Besides grain, the Maine is built to carry provisions, raw cotton, and also the agricultural and other machinery the United States exports to foreign lands. She has an unusually large equipment of steam-winch and derrick-booms for the swift and economical handling of her cargo.

Moreover, the Maine will convey American cattle to Europe. She has stalls for 750 head, and these cattle-spaces are supplied with running water and the best of ventilation.

There are only two other American steamships besides the Maine regularly employed in exclusively cargo-service between our ports and Europe. The others are the Massachusetts and Mississippi, also of the Atlantic Transport Company and the International Mercantile Marine. A fourth ship, a sister of these, called the Missouri, is now being completed at the Sparrow's Point yard.

Take a Trip

over the Nickel Plate Road and be convinced of its superior train service. Sold through daily express train between Chicago, Ft. Wayne, Findlay, Fostoria, Erie, Buffalo, New York City and Boston American Club Meals, ranging in price from 35c to \$1.00, served in Nickel Plate dining-cars; also service a la carte. Rates always the lowest. No excess fares charged on any train on the Nickel Plate Road. Chicago depot: Harrison St. and Fifth Ave. City Ticket offices 111 Adams

After Twenty Years

The Story of Mrs. Maxwell of Waitsville.

"For over twenty years I was afflicted with rheumatism and, in addition to that, a trouble which only women can have," says Mrs. Thomas Maxwell, of Waitsville, Vt. "I was hardly able to do my work about the house and could walk but a few steps out of doors. My fingers were growing out of shape from the rheumatism, my heart palpitated awfully, my stomach was so affected that I could eat hardly anything and it pained me horribly. The female trouble made me almost crazy. Oftentimes it was so bad that I had to go to bed and very often was obliged to neglect my housework entirely. Things continued in this way and nothing seemed to do me any good.

"A friend in Waterbury was cured of a trouble like mine by Dr. Williams' Pink Pills and, upon her recommendation, I began to take them. Before the first box was used up I could see that the pills were helping me and after using them faithfully for a while longer, they entirely cured me. Now I can eat anything I want, can sweep and do my own work and walk a mile without trouble. There is no rheumatism whatever in my system and it is all due to Dr. Williams' Pink Pills."

Rheumatism is a disease of the blood and external remedies can do no more than give temporary relief. To cure the disease permanently it must be attacked at the root, that is, treated through the blood. The pills which cured Mrs. Maxwell act directly on the blood and nerves and in that are different from any other medicine. They cure locomotor ataxia, partial paralysis, St. Vitus' dance, sciatica, neuralgia, nervous headache, after-effects of the grip, palpitation of the heart, pale and sallow complexions and all forms of weakness either in male or female. Dr. Williams' Pink Pills for Pale People are sold at all druggists, or will be sent direct from Dr. Williams Medicine Co., Schenectady, N. Y., postpaid, on receipt of price, 50 cents per box; six boxes for \$2.50. Do not be deceived when a clerk tells you that he has a blood and nerve pill "made from the same formula as Dr. Williams' Pink Pills for Pale People." He does not know what the formula is and he could not make the pills if he did.

St. and Auditorium Annex. John Y. Calahan, General Agent. 113 Adams St., room 298, Chicago. (2)

Our Great Cook Book Offer.



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

Address, Kansas Farmer Company, Topeka, Kans.

Young Man
STRIKE out for yourself with one of our Latest Well Drilling Machines. They are great money-makers! Think it over and write for catalogue.
LOOMIS MACHINE CO., Tiffin, Ohio.

Miscellany.

Farm Notes.

N. J. SHEPHERD, ELDON, MO.

Good care will add to the value of any stock.

The surplus horses on many farms eat up the profits.

Heavy salting destroys the flavor of good butter.

Keep no more stock than can be fed and handled properly.

Never punish a horse for something he can not help.

Nothing will atone for poor processes and lack of care in butter-making.

Badly constructed stable floors have injured more horses than hard work.

It is rather poor economy to have nice, white honey stored in old dirty boxes.

During the summer sawdust can be used for bedding with the horses to good advantage.

It does not hurt a horse to heat him up driving or working if he is not cooled off too suddenly.

In feeding grain to hogs, even in summer, it is best to feed on a clean, tight feeding-floor.

Keeping the wagons and buggies well oiled is one way of being kind to the horses.

The most profitable beef, pork, or mutton is that put upon the market early.

Excessive fat is detrimental to all kinds of breeding animals and more especially hogs.

Allowing the manure to accumulate in the stables may be convenient but it is unhealthy for the animals.

Clover should be cut as soon as the greater part of plants are in full bloom. If left until too ripe there is less nutriment.

Grass is more valuable for hay when cut in blossom. If allowed to seed it loses a portion of its feeding value.

It is not too late to sow a forage crop.

Plan and work to have the cultivated crops in as good a condition as possible before wheat harvest begins.

When potatoes are planted as late as this it will usually be found a good plan to mulch them well with straw.

Have the harvesting machinery all in thorough repair so that when harvest begins there need be no delay.

After a crop has been shown all reasonable care should be taken to harvest at a stage when the best quality of product can be secured.

Clean cultivation not only increases the growth and yield of the crop but materially lessens labor of harvesting the crop.

When fall pigs are wanted the early part of June is a good time to breed the sows. This will give time for the pigs to get well started to growing before cold weather sets in.

Whence Come Our Sugars.

During the five years 1896 to 1900 inclusive, the average imports of sugar into the United States was 1,950,000 short tons, or say 1,755,000 long tons, and it is interesting to note whence these sugars came. Our largest receipts were from Java, averaging for the five years 357,300 long tons. Next came Germany, who sent up 320,400 tons per annum of beet sugar; Cuba, now resuming her place as our chief purveyor, who during the five years covering the Spanish war and since, averaged 313,200 long tons. Hawaii stands next with an average of 202,500 tons. These were our four chief places of supply, and rating them in percentages of our total imports, they stand for the five years:

Java, 20.37 per cent.
Germany, 18.27 per cent.
Cuba, 17.84 per cent.
Hawaii, 11.54 per cent.

These form 68 per cent of the whole and the other 32 per cent are composed of sugar from all quarters of the world, the British West Indies furnishing 6 per cent and British Guiana 4 per cent, or a total of 10 per cent, suggesting the profound interest our British cousins must have in our market. Brazil and St. Domingo each year gave us about 3 per cent. Egypt and Porto Rico each about 2½ per cent; the Philippines 1.78 per cent; Austria 1.61 per cent, and Belgium 1.13 per cent, while of some thirty other sources of supply none furnished as much as 1 per cent.

Cuba now exceeds Java and Germany in the quantity of sugar sent us, but in 1897 Germany led all the rest of the world in sending us sugar, we purchasing from her that year some 722,000 long tons. No wonder she squirms now that we have practically ceased using German sugars.

That old Egypt should send us 44,000

tons of sugar per annum is instructive to us here, living on the banks of our American Nile, when we reflect on the fact that Jacob sent his sons to Egypt for grain 3,000 or 4,000 years ago, when his supply was short in the land of Canaan. We go there now for sugar, but hope soon to get all we want at home.—Louisiana Planter.

Common Sense for Housekeepers.

The busy housekeeper, whose time is mostly spent indoors, should devote five minutes each morning, noon and night to simple exercises, in order to develop the muscles and ward off weariness and disease. A correct standing position—head up, chin in, chest up, hips back—should be practised always, even when washing dishes. It will soon become a habit and add more elegance to the appearance than any amount of money spent in fine clothes. Deep breathing should be practiced almost constantly. Have always an abundance of fresh air and all the sunlight you can possibly admit to your rooms. Housework is excellent exercise if one goes about it in the right way. Have the sink and cooking-table so high that you need not bend over when at work. If one constantly stands or sits in a stooping position, the internal organs become crowded, and disease is often the result. Remember that good housekeeping is easy housekeeping, and no woman need wear herself out. Her health is of prime importance when the happiness and comfort of a family depend on her. The woman who does her work alone must plan systematically, and study to save time and strength, in order to have the recreation necessary to the well-being of every one. Instead of spending time and good material in making pies, cake, etc., which often impair the digestion, study rather the simplest foods which can be prepared with less labor and are valuable to repair waste.—Woman's Home Companion.

I'LL LIVE FOR THE LIVING.

A new mound rose near the foothills,
And my heart was underneath.
My friends were good, for they strewed it
With blossom and clinging wreath;
A voice came, borne on the stillness:
"Though the way seem hard, be true;
On—live thy life for the living,
As the dead have lived for you."

I raised my hand unto heaven
And a pledge I made that day.
(The Voice had shown me my duty
And a light shone on the way.)
And these the words of the promise,
That my constant guide shall be:
"I'll live my life for the living,
As the dead have lived for me."

The dead since the earth was created,
Lived they not for you and me?
They made the world that we live in
Such a glorious place to be!
Take me for your life's motto—
It will make you strong and true;
And live your life for the living,
As the dead have lived for you.

—L. W. Gillilan, in the Baltimore Herald.

\$19.00 to Boston and Return \$19.00
with membership fee of \$2.00 added, account of annual meeting of National Educational Association. Tickets will be on sale via the Nickel Plate Road July 2d to 5th, inclusive, good returning from July 8th to 12th inclusive, without being deposited with Joint Agent. Additional limit to return not later than September 1st can be obtained by depositing return portion of ticket with Joint Agent and payment of 50c per execution. Superior train service and excellent dining-car meals, on American Club Plan, ranging in price from 35c to \$1.00, also la carte service. Write John F. Calahan, General Agent, 113 Adams St., room 298, Chicago, for time of departure of trains from Chicago and other detailed information. (3)

Garden Spot of the Earth.

The fertile fields of eastern Oregon or Washington yield, in overflowing abundance and in the highest perfection, every grain, grass, vegetable and fruit of the temperate zone.

To enable persons to reach these favored localities without unnecessary expenditure of time and money, the Union Pacific has put in effect Round Trip Homeseekers' Excursion rates as follows from Missouri River, May 19, June 2 and 10: \$32.00 to Ogden and Salt Lake City. \$34.50 to Butte and Helena. \$44.50 to Spokane. \$52.00 to Portland, Tacoma, and Seattle.

Also One-Way Rates every day until June 15, to many points in the States of California, Oregon, Washington, Montana, and Utah.

For full information address F. A. Lewis, City Ticket Agent, 525 Kansas Avenue, or J. C. Fulton, Depot Agent.

The Nickel Plate Road

Is a short line to the East and the service equal to the best. You will save time and money by traveling over this line. It has three through daily express trains, with through vestibuled sleeping-cars and American Club Meals, ranging in price from 35c to \$1.00, are served in Nickel Plate dining-cars; also a la carte service. Try a trip over the Nickel Plate Road and you will find the service equal to any between Chicago and the East. Chicago depot: Harrison St. and Fifth Ave. City Ticket Offices, 111 Adams St. and Auditorium Annex, John Y. Calahan, General Agent, 113 Adams St., Room 298, Chicago. (1)

WEEKLY WEATHER-CROP BULLETIN.

Weekly weather-crop bulletin for the Kansas Weather Service for the week ending May 26, 1903, prepared by T. B. Jennings, Station Director.

GENERAL CONDITIONS.

Warmer weather has prevailed this week. The rainfall is excessive, except in the western division, and in the southeastern counties it reached six inches and in Marshall over five inches. Hail-storms occurred in many parts of the State, and some severe local storms have been reported.

RESULTS.

EASTERN DIVISION.

Wheat is generally in good condition and is heading as far north as the Kaw river. Allen and Shawnee report some rust, while Chautauqua reports much destroyed by water. Corn has come up fairly well but grows slowly and needs cultivation; most of the planting is finished in the north but there is much yet to plant in the central and southern counties; much replanting is required in all parts. Oats are in very good condition. Grass is growing rapidly and pastures are fine. Alfalfa is doing well and is ready to cut. Flax is growing finely in Coffey, and potatoes are doing well in Morris. Apples were not much damaged in Bourbon, but in Greenwood, Jefferson, and Pottawatomie the crop has been greatly reduced.

Allen.—All farmwork at a standstill; wheat rusting some; half the corn yet to plant. Bourbon.—Farmwork at a standstill; less than a third of the corn planted; apple crop not much damaged; grapes all killed; strawberries a good crop.

Brown.—Considerable corn yet to plant; ground too wet to work; early planted corn not a good stand in some fields; wheat a rank growth; oats and grass good; fruit prospects very poor.

Chase.—No farm work done during the week; unplanted corn ground and that which needs replanting will be put into forage crops; corn needs cultivating badly; alfalfa nearly ready to cut; heavy rains have done considerable damage to crops.

Chautauqua.—No farmwork done this week; heavy rains and floods have done much damage to all crops; considerable corn to plant yet; strawberries a light crop.

Coffey.—First half of week favorable for

Rainfall for Week Ending May 23, 1903.



Minimum temperature shown by broken lines.

SCALE IN INCHES.

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

work, but too wet the last half; considerable ground to plow; a great deal of corn to replant; flax growing nicely; strawberries a fair crop; beginning to ripen.

Crawford.—The wet weather is bad on the crops; farmers discouraged over their corn; wheat heading, damaged by high water on bottoms.

Doniphan.—Corn-planting delayed by rain; wheat looks fairly well; oats good; pastures and grass doing well; will have some fruit.

Douglas.—Too wet to work; ground thoroughly soaked; pastures and meadows in fine condition.

Elk.—Farmwork all at a standstill; much corn washed out and stock drowned by the floods.

Franklin.—Corn not more than half planted; early planting doing fairly well; but the late planting is much injured and much will have to be planted over; ground thoroughly soaked; pastures and meadows in fine condition.

Greenwood.—Farmwork badly hindered by wet weather; corn not all planted; getting weedy; most unplanted corn ground will be planted to Kafir-corn or cane; all grasses doing well; cattle gaining rapidly; strawberries nearly a full crop; only a few apples.

Jackson.—Good week for growing crops but too wet to finish planting corn; most of the corn is planted except in the bottoms, and is up and needs cultivation.

Jefferson.—But little work done in the fields; grass and oats growing well; corn rather a poor stand; fruit prospects poor; apples nearly all gone; new shoots and blossoms on grapes; blackberries in bloom.

Johnson.—Much corn will have to be planted over; corn that is up is getting weedy; too much rain for wheat; pastures good; all crops need dry weather.

Leavenworth.—The first part of the week was very favorable for all crops, but considerable damage was done by wind and hail during the latter part; wheat beginning to head; much corn to replant; pastures good; alfalfa nearly ready to cut.

Linn.—Too wet to get into the fields; wheat injured by wet weather; pastures are good. Marshall.—Considerable damage done by heavy rains, and farmwork delayed; much corn washed out; wheat doing finely; grass making a rapid growth; meadows fine.

Miami.—A very wet week; not more than half the corn planted, and much to be planted over; oats and grass doing well.

Montgomery.—Forage seeding and planting of Kafir-corn made rapid progress during the first part of the week, before the rains set in; some corn has been plowed, but much of it is becoming weedy; late corn a good stand; many fields are under water in the bottoms.

Morris.—All farmwork is behind; corn needs more sunshine; potatoes doing well; alfalfa ready to cut, but ground too wet; pastures fine and stock doing well.

Pottawatomie.—Corn-planting delayed by the wet condition of the soil; alfalfa doing well, ready to cut; early wheat not looking so well; apples dropping rapidly.

Riley.—Fine week for wheat, oats, and grass, but too wet to plant corn in some fields; some corn up, needs plowing; alfalfa nearly ready to cut; apples are falling; unusually large crop of strawberries.

Shawnee.—Wheat heading; some rust in it; corn is being cultivated as the weather permits; considerable of replanting; oats and grass growing finely; cattle fattening well.

Woodson.—Too wet for farmwork; corn not all planted; considerable of replanting; alfalfa ready to cut; wheat looking fine; stock doing well on pasture.

Wyandotte.—A good growing week; wheat in full head, some corn a poor stand; latter part of week too wet for farmwork; pastures fine; alfalfa ready to cut.

MIDDLE DIVISION.

Wheat is beginning to head as far north as Osborne and, generally, is in good condition; there is some damage by the fly in Reno, McPherson, Harvey, and Butler, and some injury by rust in Kingman and Sumner, with chinch-bugs in Washington. Much of the corn has been planted and the crop is coming up well but is generally making slow growth though in Barber it is growing rapidly; considerable replanting has to be done. Oats are in good condition and doing well except in one or two counties. Rye is heading in some counties and is in bloom in others. Alfalfa is doing well, growing rapidly, and in many counties is ready to cut. Grass is in fine condition and growing rapidly.

Barber.—Soil too wet to work; wheat and rye heading; corn, oats, and potatoes growing rapidly; some cane and Kafir-corn planted; alfalfa ready to cut; apricots, cherries, and plums dropping; blackberries in bloom; grapes reviving; vegetables of all kinds plentiful; cattle on range getting fat and sleek.

Barton.—Wheat, rye, oats, barley, and corn are in good condition, except some stubble wheat that is poor; rye headed and in bloom; wheat beginning to head; all vegetation growing well.

Butler.—Corn mostly planted; replanting will begin as soon as the ground is in condition; some wheat is good, some damaged by excessive rains, and some damaged by fly; apples and peaches all right; small fruit damaged some by the freeze.

Clay.—Too much rain; considerable corn yet to plant; replanting will be necessary on lowlands, but the upland corn is doing well; will begin cutting alfalfa as soon as the ground is dry enough; wheat, rye, and oats in good condition.

Cloud.—Very little work done during the week, ground too wet; considerable wheat and rye destroyed by hail.

Ellis.—Wheat making good growth; farmwork much delayed by rains.

Harper.—Too much rain and cool weather for corn; wheat and oats doing well.

Harvey.—Too wet for farmwork; corn is



shows the most complete line of new 1903 model gentlemen's, ladies' and children's bicycles at prices so low as to be really startling, for everything in bicycle sundries and supplies for the most astonishingly liberal offer ever heard of, cut this advertisement out and mail to SEARS, ROEBUCK & CO., Chicago, Ill.

tatoes can not recover from the effects of the freeze.

Reno.—Ground too wet to work; alfalfa and grass growing well; wheat generally looks poorly, (being damaged by fly), though some fields are not affected and look well; corn grows slowly; ground too wet for cultivation.

Republic.—Wheat, oats, alfalfa, and grass doing well; corn planting delayed by rains; too wet to plant cane and Kafir-corn; apples, peaches, apricots, and cherries almost a failure.

Russell.—Farmwork still retarded by rains; corn not all planted; wheat beginning to head, but needs sunshine.

Saline.—The storms did much damage to wheat in places.

Sedgwick.—Wheat is heading and looks fine; oats and rye are very good; corn becoming weedy; ground too wet to cultivate; fruit prospects good.

Smith.—A cloudy, wet week; all crops doing nicely, except that cane and corn were washed out badly by the heavy rains; alfalfa beginning to bloom; pastures are good and stock look well.

Stafford.—Wheat is beginning to head and looks fine; rye headed out and looking well; corn backward but beginning to grow.

Summer.—A cloudy, wet week; some wheat headed out, hard, heading; wheat rusting badly; oats growing rapidly; no corn cultivated; grass fine; cherries ripening.

Washington.—Corn badly washed out and covered up; much must be replanted; grass and alfalfa growing rapidly; wheat and rye doing well; chinch-bugs and cutworms are plentiful; too wet for gardens; poor prospects for fruit.

WESTERN DIVISION.

Wheat continues in good condition and is heading as far north as Decatur. Corn-planting is nearly finished, the corn is coming up well and is needing cultivation. Rye is headed out. Oats and barley are in good condition, and in the south barley is heading. Alfalfa is ready to cut in several counties and in general is a good crop; the first crop will be light in Finney and has been delayed in Decatur, while in Lane much of the spring sown has been lost. Range-grass is very good, affording ample feed, and stock are improving.

Clark.—Crops doing pretty well; barley and wheat heading out; first bloom appearing on alfalfa.

Decatur.—Small grains of all kinds look fine; wheat beginning to head; rye well headed; pastures afford ample feed; corn-planting about completed, early planting a good stand; first crop of alfalfa delayed by freeze, but will soon be ready to cut.

Finney.—A warm, dry, windy week; pastures good; wheat and rye very promising but will soon need rain; oats and barley growing nicely; first crop of alfalfa will be light on account of the freeze.

Ford.—A good growing week; wheat continues fine; alfalfa and oats good, barley fair; damage by hail is general.

Gove.—Good growing week; alfalfa has not recovered from the freeze and will have to be cut before it will grow; grass looks fine; corn up and growing rapidly; cane and millet look well; wheat fine; oats and barley not quite so good.

Hodgeman.—Wheat very promising; alfalfa looks fine; millet is coming up; cane is being sown; potatoes and gardens doing well.

Lane.—Wheat, barley, corn, and grass growing nicely; spring seeding of alfalfa will probably nearly all be lost because of heavy rains after sowing; cattle are improving.

Ness.—A dry, windy week but favorable for farmwork and all growing crops; wheat, rye, oats, and barley making good growth except some wheat turning yellow; rye headed; wheat jointing; grass fine; stock doing well; potatoes looking fine; gardens improving.

Norton.—Much corn planted; some damage to crops by hail; wheat ready to head; good growing week.

Thomas.—All crops doing well; early planted corn coming up, some to replant; ground in good condition to work.

Trego.—Early wheat jointing; rye headed; alfalfa about ready to cut; corn beginning to need cultivation; potatoes are up.

Wallace.—Corn all planted; cane and Kafir-corn being planted; barley, wheat, and rye doing fairly well; range-grass good; cattle doing well; getting a little dry.

Thousands of brain workers and women whose health gives way under the strain of overwork, anxiety, the cares and worries of business or the home, suffer from severe stomach trouble, indigestion, headache, insomnia, or general nervousness. Many of these poor sufferers try various treatments for years without experiencing anything more than temporary relief. The reason is plain.

Briefly—they direct treatment to the symptoms instead of to the disease, a vital error.

These troubles can arise from but one cause, viz., a derangement of the nerves. No matter what the cause, the first bad effects of disordered nerves are usually felt in the stomach, the source of supply of nourishment for the whole body. Stomach trouble comes from loss of vitality and results in inactivity of the nerves, of the stomach and of its tributary glands. From this condition arise the attacks of indigestion, headache, sleeplessness, nervousness, irritability and incapacity for the daily work.

Since these disagreeable symptoms arise from a derangement of the nerves affecting more particularly the stomach, the natural remedy is one that gently stimulates the action of the stomach nerves while it strengthens and invigorates the whole nervous system.

Such a remedy is Dr. Miles' Restorative Nervine which, as its name implies, builds, replenishes and restores the nerves to a condition of health and strength. It is a true nerve tonic, creating strength and power in a permanent manner. It is in no sense a stimulant, whose action is purely temporary.

If you are suffering from a nervous dis-

order in even a slight degree you will find Dr. Miles' Nervine admirably suited to your case. It is especially good for weak, run down, nervous women. It is sold by all druggists on a positive guarantee to benefit you or your money will be refunded. We will be glad to help you to a proper understanding of your trouble. Write us to-day for free Treatise on Nervous Diseases.

Dr. Miles Medical Co., Elkhart, Ind.

THE MARKETS.

Kansas City Live Stock and Grain Markets.

Kansas City, Mo., May 25, 1903. With lighter runs of cattle at Chicago to-day, the market here braced up, opening 6@10c higher than the bad close had last week and closing steady. Tops sold for \$5, a drove of fancy 1,087-pound blacks bringing that price. There was a heavy supply in the quarantine division. The bulk of the best native steers sold at \$4.45 @4.80. All the Missouri River points received few hogs, but Chicago had an overwhelming supply and prices averaged 10 @15c lower all around the circuit. Tops here brought \$5.25 and the bulk of sales ranged from \$5.80@6.17. The break was one of the worst of the season and its magnitude was such that it has led many traders to believe a reaction will soon set in. Sheep receipts were moderate at 5,800 head, mainly Texans. The market was steady and fairly active. Fed Mexican short lambs from Zeandale, Kans., brought \$6.40. Top springs sold for \$7.25 and top Texans for \$4.75. Horse receipts were 500 head and the market was steady to weak with a pretty good inquiry.

Among the best droves of cattle sold here last week were: T. J. and Harvey Grace, Cheney, Kans., \$4.85; Albert Feldman, Humboldt, Neb., \$4.95; J. K. Cornelius, Dawson, Neb., \$4.80; McAlister Bros., Jackson County, Kans., \$4.85; A. N. Robinson, Canton, Kans., \$4.75; G. A. Robinson, \$4.75; A. M. Osborn, Augusta, Kans., \$4.75; John Clark, Dunavant, Kans., \$4.70; John Tucking, Boyle, Kans., \$4.55; J. M. Rhodes, Frankfort, Kans., \$4.50; Angus heifers, \$4.80; whitefaces, \$4.60; John Stampfy, Leeds, Kans., \$4.80 steers; Geo. P. Peterson, Cloud County, Kansas, \$4.70 steers; O'Bryan Bros., Welch, I. T., marketed steers in the quarantine division at \$4.70. Steers broke 10@25c last week, owing to depressingly heavy runs. The country is simply inundating the markets with fat cattle and there is no recourse for the packers but to offer cheap prices. There is a feeling among traders that the bottom has about been reached and that fed stock will soon begin to react. Until the runs let up, however, this will be almost an impossibility. Heifers half fat and weighing 450 to 600 pounds broke fully 20@40c during the week. Feeding cattle fell off in sympathy with fat grades, the decline averaging 25c. Decent feeders may now be bought for \$4@4.25, but fancy stockers are ranging at \$4.40@4.75; beef steers are worth \$4.40@4.75; beef steers are worth \$4.40@4.75 and cows \$3.25@4.

The best price reached for hogs last week was \$5.52, secured by Newhouse & Co., of Beatrice, Neb., on Tuesday. Receipts were heavy locally at 55,000 compared with 41,000 a year ago. Five markets received 297,000 against 310,000 a year ago. During the week values slumped 20 @25c and closed at the low point of the spring. Everybody looks for free marketings during the next few weeks and these of course mean a continuation of the steady decline in prices. Compared with a year ago swine are \$1 per cwt. lower. Two months back they were higher than they were the same time in 1902.

The big gap between sheep and lambs narrowed considerably during the week, muttons selling firmer and lambs declining 15@25c. Receipts were fair at 27,400 against 20,400 a year ago. After the opening of the week the market held nearly steady. Native spring lambs and Colorado woolled stock sold up to \$7.33, but at the close \$7.25 looked almost too high for tops. Native muttons are a little stronger, ewes commanding \$4.50@4.75 and wethers \$4.85@5.25.

The "warm weather" break in horses took place last week, quite unexpected and unheralded. Receipts were heavy and while the demand was large, buyers were cautious taking on stock. Values averaged \$10@15 per head lower, mainly on the plainer kinds of horses. Labor troubles in the Eastern cities are mainly responsible for the decline, as contractors are unable to use all the horses they buy. Top drafts brought \$210 but very desirable grades sold for \$150@175. Mules were practically unchanged. More big mules are needed at market. Messrs. Dooley & Petros, of Seattle, Wash., bought 16½-hand mules here this week giving \$400@750 per span for extra choice animals.

In spite of excessive rains in the country which should have boosted grains, wheat and corn closed a little lower last week. Cash No. 2 wheat at Kansas City is worth 11@11½c; No. 4, 62@64c; No. 2 corn, 41@42c; No. 4, 35@37c; No. 2 oats, 34@36c; No. 4, 31@33c; bran, 67@69c; tame hay, \$7@13; alfalfa, \$8@11; and prairie, \$4 @10.

Owing to a slack Eastern demand eggs lost about 1c last week, and are now selling at 12c; poultry held firm on account of light receipts. Spring vegetables are wanted at firm prices. Strawberries are worth \$1@2.75 per crate; hens, 9½c per lb.; springs, 12c; broilers, 17c; mature turkey hens, 9½c; geese, 5c; ducks, 10c; butter, 16@19c.

H. A. POWELL.

South St. Joseph Live-Stock Markets.

South St. Joseph, Mo., May 25, 1903. The liberal marketing of cattle at all points and the lower trend of prices had a bad effect on the local market, prices declining 15@25c, the heavy, plainish and unfinished grades suffering the most loss. Cows and heifers were in moderate supply, but values were on the toboggan to the extent of 15@25c, in sympathy with the break in beef-steer values. The movement of stock cattle to the country early in the week was light and supplies accumulated in second hands, but the decline of 15@25c bright in a good line of country buyers and the supply was thinned out at the close.

Under heavy receipts of hogs last week the trend of prices was again lower, but the demand was good at the lower range of values. The general quality was of de-

sirable average and weights ran strong. The tops to-day were at \$6.25 with the bulk of sales at \$6.10@6.15.

Owing to the bad condition of the Eastern markets and the sharply lower trend of values at competitive points, the sheep- and land-market here closed up last week 35@50c lower, with heavy ewes and ewes of common and medium quality suffering a loss of 75c in most instances.

New York Butter Market.

The New York butter market for last week is as follows: May 18, 22c; May 19, 22c; May 20, 22c; May 21, 22c; May 22, 22c; May 23, 22c. Average for week, 22c. This is the New York top.

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—Two shorthorn bulls, one my herd bull Belina Joe 149240 and General Washington 197284, Write W. H. Shoemaker, Narka, Kans.

FOR SALE—Five good, high-grade Red Polled bulls, 14 months old, gentle, price reasonable. K. H. Burt, Bronson, Kans.

FOR SALE—Recorded Hereford bull, 23 months old, weight 1,400 pounds. Write for further information. J. H. Renick, Leeds, Mo.

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.

RED POLLED BULL for sale, 4 years old, dark red, good individual, gentle, sure breeder, weight 1800 pounds, price \$125. A bargain for some dairyman. Charles Morrison, Phillipsburg, Kans.

FOR SALE—Five good 1-year-old registered Hereford bulls. Will be sold low if taken soon. Come and see them; they will suit. H. B. Clark, Geneseo, Kans.

FOR SALE—Two Scotch-topped bulls, from 10 to 18 months old, and a few cows with calves by their side. J. P. Engle, Alden, Rice County, Kans.

FOR SALE—10 head of registered Hereford bulls, 6 to 20 months old, good individuals, and in good condition. Visitors met at trains if notified. Farm 20 miles southwest of Wichita. A. Johnson, R. F. D. 2, Clearwater, Kans.

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.

SEEDS AND PLANTS.

FOR SALE—Siberian millet seed, 50 cents per bushel, new sacks 15 cents extra. L. A. Abbott, Wamego, Kans. Can ship over C. R. I. & P., Santa Fe, or U. P.

SOY BEANS—(Early yellow), \$2.25 per bushel. Sacks included. George Wheeler, Tyro, Kans.

500,000 Yellow sweet potato plants for sale at \$1.25 per 1,000 by A. G. Landis, Lawrence, Kans.

FOR SALE—50 cents per bushel, 1000 bushels first class Siberian millet. Sacks 15 cents. E. D. King, Burlington, Kans.

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.

POULTRY.

BLACK MINORCAS

Biggest Layers of Biggest Eggs. Eggs for hatching \$1.50 per 15. Also at same price eggs from choice matings of Light Brahmas, Dark Brahmas, Black Langshans, White, Silver and Golden Wyandottes, Barred and Buff Plymouth Rocks, S. C. White and Brown Leghorns, Rose Comb American Dominiques, Houdans, White Crested Black Pollish, Buff Laced Pollish. JAS. C. JONES, Leavenworth, Kans.

SILVER WYANDOTTES—Standard bred, farm range, prize winners for fourteen years. Eggs, 100 for \$4; 50 for \$2. Mrs. J. W. Gause, Emporia, Kans.

BARRED PLYMOUTH EGGS, 15 for 75 cents; none better. Ethel J. Williams, Agricola, Kans.

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

SWINE.

POLAND-CHINA FIGS—Eligible for registry, 2 months old, \$5 each; 3 months or older, \$10 each. P. H. McKittrick, McKittrick, Kans.

FOR SALE—Two choice Duroc-Jersey boars and five gilts bred. A. G. Dorr, Osage City, 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.

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

HORSES AND MULES.

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.

FARMS AND RANCHES.

SNAP No. 14—640 acres—100 acres cultivated, small improvements, orchard, vineyard, unfailing water, a good farm. Price \$8,000. Will consider trade for hog farm. 320 acres, 23 miles from Atchison, cheap; good terms. Garrison & Studebaker, Florence, Kans.

FARMS FOR SALE of any size, 160 acres of well-improved, in Wabunsee County, Kansas, 70 head of stock, 6 horses, 10 hogs, household goods, and 100 acres in crop. Price \$5,500, good terms. A line 253-acre farm, well-improved, at \$25 per acre, half cash. Write at once enclosing stamp. W. L. Seeling, Paxico, Kans.

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

FOR RENT—160 acres, s. w. ¼ of 5, 18, 36, near Leoti, and 160 acres n. e. ¼ of 9, 18, 36, near Selkirk, all in Wichita County, Kansas. Make offer to Ulrich Schwarz, Anacortes, Washington.

STOCK AND WHEAT RANCH—480 acres, one-half mile from Watonga, Blaine County, Oklahoma; 320 Indian land, 180 deeded, all fenced. Two wind mills, three tanks. 60 head of good cows and calves. All for \$4,500. E. L. Hutchins, Watonga, O. T.

FOR SALE—A 400-acre farm, two and one-half miles of Maple Hill, Wabunsee Co., Kans., good improvements, 130 acres in cultivation, school house adjoining. Address E. Worsley, Maple Hill, Kans.

SUBURBAN HOME FOR SALE—Forty acres adjoining city limits. Beautiful grounds, fine orchard, large brick house in good condition. Olin Templin, Lawrence, Kans.

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

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

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

MISCELLANEOUS.

1903 DIRECTORY of Atchison City and County, Kans.; 15 rural routes, tax list, business directory, 12,000 names, postpaid \$1. Paul Tousing, 203 N. Terrace, Atchison, Kans.

A BARGAIN SALE—One 16 horse Nichols & Shepard traction engine, 32 by 64 Avery Separator, self-feeder, wind-stacker, wagon-loader, water-tank and pump, all complete and in first class shape. If you are wanting a bargain write me at once. Henry Kratzberg, Greeley, Kans.

ANOTHER LITTER of those fine working Collies, bred by A. P. Chacey, North Topeka, Kans. Males \$6, females \$4. Rural Route No. 1.

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.

500,000 POUNDS WOOL WANTED—Write us for prices; send sample and we will offer you the highest market price by return mail. Western Mill Co., North Topeka, Kans.

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

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

The Stray List

Week Ending May 28.

Crawford County—John Viets, Clerk.

PONY—Taken up by W. D. Sale, (P. O. McCune), May 13, 1903, one sorrel pony, 8 or 9 years old, four feet eight inches high, white face, all four feet white, left hip down; valued at \$15.

Cherokee County—W. H. Shaffer, Clerk.

HORSES—Taken up by J. M. Keith, in Lyon tp. (P. O. Columbus), May 1, 1903, one grey horse, alt in left ear, 15 hands high, mane roached; valued at \$20. One sorrel mare, callus on each shoulder, one hind foot white, brand or scar on left shoulder, blaze face, mane roached, 14½ hands high; valued at \$10. One sorrel mare, blaze face, mane roached, 14 hands high; valued at \$20.

KIRKPATRICK'S Poland - Chinas

We offer for the first time in many years the tops of our fall and spring pigs, sired by Missouri Sunshine, Hadley U. S., and Kansas Perfection, out of dams by Chief Perfection 2d, Perfect I Know, Chief Tecumseh 2d, Frazer's U. S., and Klever's Model. Show pigs at moderate prices for next 30 days. Also our Chief Perfection 2d boar, Kansas Perfection, at a bargain price, because we have not so great enough not related to justify keeping so great a boar. Write your wants.

KIRKPATRICK & SON, WOLCOTT, KANSAS.

PHILLIPS COUNTY HERD

RED POLLED CATTLE, POLAND-CHINA SWINE, PARTRIDGE COCHIN CHICKENS, MAMMOTH BRONZE TURKEYS.

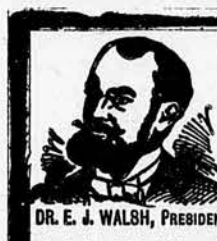
The herd bull, King of Valley Lawn 4989, for sale. Will book orders for young stock.

CHAS. MORRISON, Rural Route No. 2, PHILLIPSBURG, KANSAS.

\$30.00 PER WEEK and Expenses to Men or Women introducing our King Butter Separator and Aerator. Makes Creamery Butter from Sweet Milk or Cream in less than 5 minutes. Curtiss-Williams Co. Dept. 50. Chicago, Illinois.

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Grange Department.

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

Conducted by Ed. Blair, Cadmus, 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 Hibner, Olathe
Steward..... R. C. Post, Spring Hill
Chaplain..... W. H. Coult, Richland
Assistant Steward..... 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. Filer, Madison
Flora..... Mrs. L. J. Lovett, Larned
L. A. S..... Mrs. Lola Radcliff, Overbrook

EXECUTIVE COMMITTEE.

Henry Rhoades..... Ope
J. T. Lincoln..... Ope
A. P. Beardon..... McLouth

A Grange Trip.

Antioch Grange, near Osage City, was organized last October with thirty-three members. May 1 their number was sixty-six. Their meeting at that time was an open one. The house was well filled, and after an interesting program by members of their own grange, State Organizer W. G. Obryhim and State Master E. W. Westgate addressed the meeting. Four applications for membership were received.

This grange is a live, enthusiastic, working grange, and determined to have its share of influence in the Pomona Grange. In one respect, this grange presents a strong contrast with any other in the State that I have visited. It is composed almost entirely of young people; and in their worthy master, J. H. Mullen, they have a firm and wise guide to whose direction they will do well to yield a willing obedience.

A short secret service was held, at which instruction in the secret work was given which will be of advantage to the grange. Just as the wee small hours began to appear we started on our seven-mile ride to Osage City, and just at daybreak found ourself at the home of Bro. W. T. Dickson, worthy master of the Pomona Grange, about half way between Carbondale and Overbrook; and after a pleasant visit with Brother and Sister Dickson, and a warm breakfast, had forgotten about our "nary a wink" of sleep, and enjoyed the forenoon in looking over the fine stock and splendid farm of our worthy brother.

In the afternoon we visited the grange at Overbrook. This is one of the oldest and largest of the granges in the State; and as compared with the Antioch Grange, may be said to be living on its laurels. It has a successful grange store, and many policies in the Patron's Fire and Tornado Association, but almost no young people in its membership.

Nine o'clock p. m. found us in Topeka, too late for train to Manhattan. This gave opportunity to attend services at church in the forenoon of Sunday, and the large meeting of the Railroad Y. M. C. A. at the auditorium in the afternoon. The day was a profitable one to the writer.

E. W. W.

Young Folks in the Grange.

Words that tend toward encouragement for the younger and the very young people are always to be classed among words fitly spoken, since it is the younger and the very young people who most easily get discouraged. We old and older folks have been in the world so long; we have seen the beginning and end of such numberless experiences that we have become as expert with experiences as bankers are with coins. We can tell by the ring of them whether they are of genuine, honest origin and will endure, or if they are counterfeits that must be red-lettered as such and put out of circulation. To express the situation another way, without comparison, we older ones have learned who and what will do to tie to. People of all ages must bear in mind that their surroundings are as mirrors reflecting their personal images. Young folks in their plump freshness have quick eyes for plump freshness, while older ones are forced to see some reflection of staleness and wrinkles that time is sure to make.

It is evidently not the Divine purpose that any great gulf should be formed between the young and the old, between the freshness of youth and the wrinkles of age. They are to be kept well mixed and thus make the leaven work through the whole lump of humanity. Reciprocity is only another name for holding things at a balance,

and the best lives are those where age and youth practice reciprocity. Counseled and counsellors are enjoined in the scripture to walk together. Nor do we find in the Book of Books that the older people shall persist in doing all the leading, while the younger ones must do all the following and the looking on. It is exemplified quite the other way. The young and strong are set apart for valiant labor while the older and physically weaker ones sit aside to look on and give counsel warranted by age and experience. Some folks do not seem inclined to the belief that Bible ways are up to-date enough to be practical, especially in fraternities; but when our laws and customs are thoroughly sifted, we find everything goes through the sieve to float away like chaff but items that come from the teachings of Moses; and when we investigate this great teacher we find that he listened to the counsel of his venerable father-in-law who taught his division of labor and how to choose his workmen.

I have observed that, in the States where granges adopt this good scriptural way of choosing out the valiant ones for leading workers, there is grange life, grange health and growth, and grange prosperity that promises to endure.

In States where granges do not put the young members into harness for the long pulls, the strong pulls and the all-together pulls, the long, strong, all-together pulls do not take place.

Some weeks ago there appeared in the Bulletin a few delightful paragraphs from a wise Patron calling our attention to the necessity for giving our young Patrons the leading work to do in the grange—letting the offices be mostly filled by young members in order to hold their interest, teaching them self-reliance and the manners of good leadership; for there is no disputing it, the young folks of to-day will soon become the leaders and it is their right to be properly trained for the work they are so soon to do. That little article in the Bulletin had a "Sam Weller's Valentine" effect on me—made me wish there was more of it, for there is so very much that needs to be wisely spoken and written on this subject of young people in the grange. That grange will flourish that has strong, young members on the official roll where the greatest activities should be, with good, sympathetic, helpful members of all ages on the private rolls, all of them active, interested, and willing to perform all labors assigned, without any feelings of envy, jealousy, or covetousness about the seats of distinction. I have always tried to do my duty in a way that distinguished the duty for the pleasantness in the doing of it—and that has helped to make the seats I occupied, distinguished seats, whether they were official or non-official. When we reason together about leading offices and labors we will perceive without much logic being exhausted that the life, health, and growth of granges will be best supported by individuals who have physical ability to stem the tides of bad roads and inclement weather to attend meetings and incur the presence of a proper quorum for all regular meetings. There are times when people of advanced ages should remain at the home fireside—when they can do more good

at home than they could do by exposing their bodies to dangers that impair health and shorten their lives. Does some one say: "What is the difference between a quorum and a proper quorum?" Well, there is a little more difference than there is between tweedle-dee and tweedledum. To illustrate: Seven members is the least number that can make a quorum according to constitution and by-laws. To make it a proper quorum, four of the seven should be officers, but by all means there should be one officer at least in a quorum that holds a meeting and proceeds to do business.

This is simply good common sense; for no seven private members should have access to the regalia, rituals, and implements of the order that have been placed in the hands of those pledged to the proper care and use of these articles, without permission and oversight of one officer at least. It certainly is not an official proceeding when no officer is among those who proceed.

It is folly to imagine or argue that young members of the Grange will not observe parliamentary rules and do things with correctness. They will study to act with more care than older ones are apt to do. No matter how much the young folks get afflicted with the big-head they will not take for granted knowledge that they never had as elders sometimes do, and in so doing make a terrible muddle.

If Patrons anywhere have doubts about young people's capabilities in the Grange, let the doubters pack their grips and take a trip to some place where juvenile granges are in working order and see the little mites of boys and girls hold a juvenile grange meeting. Let me suggest Capitol grange, Lansing, Mich., for I've seen that juvenile band at work. I only wish that

BINDER TWINE. FARMERS wanted as agents. AUGUST POST, Moulton, Iowa

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I discovered a treatment which removes hair from face, neck, arm, or any part of the body instantly and permanently. Don't judge my treatment by unsuccessful attempts of others. Failure absolutely impossible. Skin left uninjured. Plain, simple, and safe. Don't suffer longer when relief is yours for the asking. Don't send any money, but write to Madame Kee-Nan, 240 West 42d St., New York City

YOU MAY HAVE A MILLION DOLLARS

but if you are as badly afflicted with constipation as I have been, I am richer than you. Send me 25 cents and I will tell you how I cured myself permanently without the use of a cent's worth of medicine. Your name very plain.

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STARK best by Test—75 YEARS. We **PAY CASH** WANTED MORE SALESMEN **STARK** Nursery, Louisiana, Mo.; Huntsville, Ala.

TREES kept dormant till May 15th. Peach trees one year from bud, 1 and 2 cts. each. Also pear, quince, Japan plums. Circular free. R. S. Johnston, Box 17, Stockley, Delaware.

PATENTS Obtained. Low Fees. Easy Payments. Free Advice William F. Hall, 1008 F St., Wash. D. C.

CALIFORNIA

\$25.00 One Way.
\$45.00 Round Trip.

If you expect to go to California, why not go when the railroad fare is low? From now to June 15, 1903, you may go there for \$25.00. You may buy a round-trip ticket May 3 or May 13 to 18, inclusive, for \$45.00, a considerable reduction from current rates. These round-trip tickets will be limited to July 15, and liberal stopover privileges accorded.

The one-way tickets will be accepted for passage in free chair cars carried on fast trains. If sleeper is desired, tickets will be accepted for passage in tourist sleepers on payment of customary Pullman charge. The round-trip tickets will be honored on any Santa Fe train.—Pullman space extra. **SANTA FE ALL THE WAY.**

A profusely illustrated folder issued by the Santa Fe describes the trip to California, and also contains complete schedules of the special trains to be run for those who avail themselves of the low rate made for the General Assembly of the Presbyterian Church and the General Convention of Master Plumbers. Sent free on request. Address

T. L. KING, C. P. & T. A., A. T. & S. F. Ry., Topeka.
Or T. M. James, 830 Kansas Ave., North Topeka.

IT WILL PAY YOU

to write for the prices we are **PAY-ING** for BUTTER and CREAM. We furnish packages FREE, guarantee accurate weights and tests, and buy any quantity any day in the year.

CHANDLER'S CREAM SEPARATOR is all right and easy to wash and care for. I am making **TWO POUNDS** MORE BUTTER than when I used the centrifugal separator.

MINNIE M. STEEL.
Gridley, Kans., April 30, 1902.

Its qualities are too numerous to enumerate here. Price and description furnished upon application.

AGENTS MAKE MONEY selling them.

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NEW OXFORD BALL-BEARING CREAM SEPARATOR

The latest and best production in Cream Separators. They skim, are easy to wash, run easy, simple in construction, neat in appearance. The most durable machine on the market.

Before you buy a Separator, see the New Oxford, or send for our Catalogue No. 187.

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COUNCIL BLUFFS, IA.
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The "Cream" of Them All

We can PROVE that the Plymouth Cream Extractor has more points of excellence than any other. Here are a few: Milk not mixed with water. Removable inner can. Inner can has center tube which is also water receptacle. Water distributed EQUALLY around and under inner can; also through center tube, giving greatest possible cooling surface. No water required five months in the year. New and original faucet; impossible to leak or sour. You'll be sorry if you buy any other before investigating this. We prepay express charges. Send for catalogue.

Plymouth Cream Separator Co.,
Plymouth, Ohio.

Don't Be Humbugged

by Cream Extractors that mix water with the milk, and do not extract.

THE SUPERIOR CREAM EXTRACTOR
(No Water Mixed with the Milk.)

Effects a complete separation in an hour by a circulation of cold water in an outer jacket. A trial convinces, and every can is guaranteed. Write us today for our Catalogue.

SUPERIOR FENCE MACHINE CO.,
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Michigan grange enthusiasm could become a contagion that would spread throughout the length and breadth of this continent. I wish that everybody could witness the beauties of some of our ritualistic work done by the young folks.

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We hope all elderly Patrons will urge the young people to join the Grange and yield to them in conducting the business and pleasure of it, without ever an elder being guilty of saying or doing anything that will offend the least of these, causing the young to turn from the Grange or regard it with indifference.—Katharine Stahl, Chaplain Illinois State Grange, in Grange Bulletin.

[Last week we mentioned letters received from Oklahoma and New Zealand making inquiries about the Grange. Since that time the following clipping from the Weekly Sun, of Toronto, came to us. Truly the morning light is breaking.—E. W. W.]

What a Farmers' Organization Has Done For Kansas.

At this same meeting of the Kansas Board of Agriculture an excellent paper was read by E. W. Westgate, Master of the Kansas State Grange. This paper showed what the Grange had accomplished for the people of Michigan and the people of the United States generally. During the discussion on the paper presented by Mr. Westgate, a statement was made by G. W. Glick, which shows how much a farmers' organization of this kind can do for people in the way of creating a more kindly feeling in a neighborhood. Before the Grange was started, said Mr. Glick, people who disagreed on political questions did not care to become acquainted with each other; but when these people came into the Grange, and got into the habit of meeting together there, and calling each other "brother," a kindlier feeling was engendered. Frequently men who had disagreed all their lives over political matters would get into the same wagon to go to the same Grange, and in time thus came to overlook the fact that they belonged to different political parties, and became warm friends.

Another speaker stated that the same sort of bitterness had existed even between denominations as between political parties, and that the Grange helped to smooth these over also. Not only this, but, as further stated by Mr. Glick, the Grange helped to prevent litigation among farmers—something to which farmers are altogether too prone. At the beginning of a dispute, officers of the Grange made it a point to go to the parties who were disputing, and to bring them together, and arrange an adjustment of the trouble. By this means, expensive and useless litigation was avoided, and a destruction of friendship prevented.

W. L. S.

Iron and Steel in 1902.

There is a theory that the iron and steel trade of the United States is a safe barometer of financial conditions. A great demand for iron products is usually accompanied by prosperous times. The approach of hard times is often heralded by depression in the iron trade. These facts lend interest to the report, now in press, on the Iron and Steel Trade for 1902, by Mr. James M. Swank, United States Geological Survey, which shows a continued advance in the annual domestic production of pig-iron, the excess over 1901 being 1,942,953 tons, or almost 12.24 per cent. The total production in 1902 was 17,821,307 long tons, as compared with 15,878,254 tons in 1901, 13,789,242 tons in 1900, 13,620,703 tons in 1899, 11,773,934 tons in 1898, 9,625,630 tons in 1897.

Notwithstanding this increase of production the imports of iron and steel in various forms amounted in foreign value in 1902 to \$41,468,828, as against \$20,395,015 in 1901, an increase in 1902 of \$21,073,811, or over 100 per cent. The total exports of iron and steel, including locomotives, car wheels, machinery, etc., amounted in 1902 to \$97,892,036, as against \$102,534,575 in 1901, \$129,633,480 in 1900, \$105,690,047 in 1899. The exports of agricultural implements, which are not included

above, amounted in 1902 to \$17,981,497, against \$16,714,308 in 1901.

The consumption of pig iron in 1902 was approximately 18,439,899 long tons, of which 625,383 tons were imported, as compared with 16,232,446 tons in 1901, of which 62,930 tons were imported. The increased production of pig iron in 1902 over 1901 was 1,942,953 tons; the increased consumption was 2,207,453 tons.

At the close of 1902 the number of furnaces in blast was 307, as compared with 266 at the close of 1901 and 232 at the close of 1900. At the close of 1902, 105 furnaces were out of blast—many being temporarily banked from lack of fuel—as against 140 furnaces at the close of 1901.

The production of Bessemer steel ingots and castings increased more than half a million tons in 1902—to 9,306,471 long tons; the production of Bessemer steel rails remained almost stationary. The production of open-hearth steel ingots and castings in 1902 was 5,687,720 long tons, an increase of 1,031,420 tons over 1901.

In the fiscal year 1902 there were built for mercantile service 106 steel vessels and one iron vessel, with a gross tonnage of 280,362 tons, as compared with 119 steel vessels and one iron vessel, with a gross tonnage of 196,851 tons, built in 1901. Of these 107 vessels, 49, with a gross tonnage of 161,930 tons, were built at ports on the Great Lakes.

The production of pig iron in Canada in 1902 increased to 319,557 long tons, over 30 per cent as compared with 1901; and the production of steel ingots and castings in 1902 was 182,037 long tons, as compared with 26,084 tons in 1901, an increase of 155,953 tons, or nearly 600 per cent.

The second part of Mr. Swank's report consists of an interesting and valuable series of tables presenting complete statistics of the production of iron and steel iron ore, and coal in the United States, Great Britain, Germany, France, and Belgium, to the close of 1901, thus showing the progress that has been made by these countries in the first year of the twentieth century.

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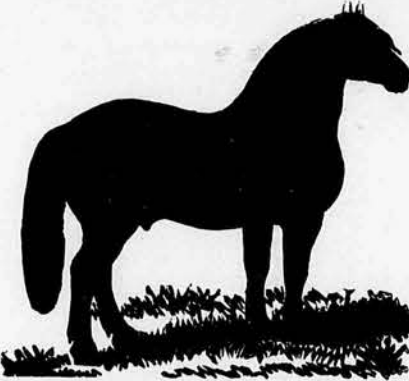
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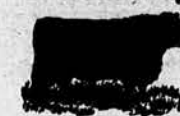
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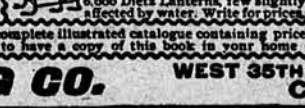
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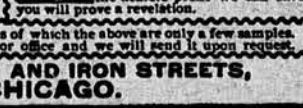
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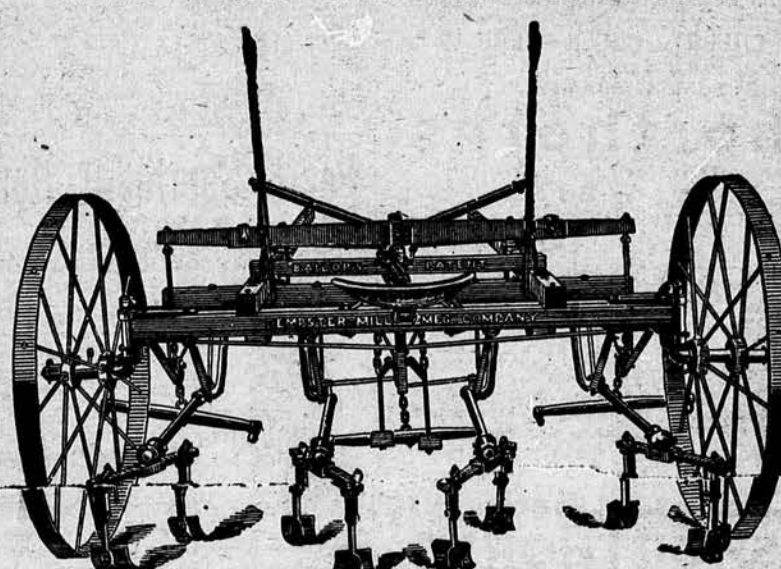
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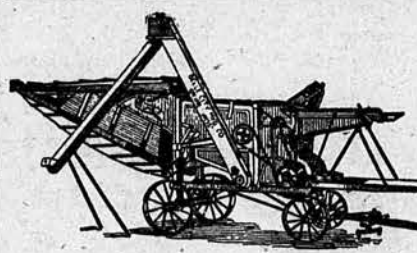
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