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The Value of Barnyard Manure

By ALVIN J. REED.

"A manure is any substance that will directly supply one or more of the elements of plant food in which a soil may be deficient; or that will operate indirectly to feed crops by its chemical effects upon the soil or which may exert a beneficial influence by amending the physical condition or texture of the soil."

Barnyard manure might consist of the excrement voided by any one of the domestic animals with varying quantities of different kinds of litter. However, it is generally understood to mean the excrement of cattle alone while more specific terms are applied to the other kinds. With this excrement there is generally enough refuse hay or straw to prevent a sloppy condition in the yard. The manure is often left to accumulate in sheds during the winter months. Even with the few conditions named, hardly two lots of manure can be found that are alike in value as the condition and age of the animal fed and for what purpose fed are the cause of considerable variation in the constituents of the voided material. The kinds of feed the animal receives affects the percentage of constituents to a large extent. For instance, animals fed on oil-meal or oil cake produce a very rich manure. The next in order of the value of manure in feed is the legumes, cereals and tubers.

It is rather hard to assign a cash value to barnyard manure per ton because of this great variation and also the variation of water content. Not until the nineteenth century was it discovered that barnyard manure is so deficient in real plant food that a soil continues to deteriorate even with heavy applications. This led to considerable investigation by chemists who found that barnyard manure in general is very low in such constituents as nitrogen and phosphoric acid. It was also found that greater fertility is contained in the liquid or urine which was generally allowed to waste.

CARE AND HANDLING.

There are various ideas concerning the care and method of handling the manure. One of the most erroneous methods is the loose piling of the manure so that it will heat. When allowed to heat the nitrogen is lost in the form of ammonia gas which escapes from the heap into the air. Not only is the nitrogen lost but even the crude fibre will be completely oxidized if left and the carbon of which it consists, if rightly treated, could be converted into humus and not lost in the shape of carbon-dioxide gas. Where the ordinary method of piling the manure out in heaps from the barn window is employed, not only does great loss occur from heating, but it is exposed to the weather where leaching occurs and a large waste follows, not only from the rain but by being close to the eaves it gets the heavy streams from the room which furthers the destruction. Manure that has been allowed to deteriorate by heating and then withstand heavy rains by which nearly all the soluble plant foods are carried off, is of very little value as compared with the original. While its effect on the soil and crops will be beneficial, it will be mostly because the physical condition of the soil that will be benefited and not because of the plant food, since that has been lost.

Manure may be left to collect in

sheds or covered barns for a considerable length of time and with the use of plenty of litter the quarters for the stock will not be uncomfortable nor objectionable. The manure will not be exposed to the weather for leaching, neither will it heat because of the firmness with which it is packed. This packing is done by the tramping of the stock and being closely packed the air is excluded and, since the supply of oxygen is cut off, oxidation is impossible. This method is considered by many to be a most practical and economical method of storing manure, especially because all the liquid is saved and the resulting manure is made considerably richer in nitrogen. However, in many cases this is impossible as the manure must be removed every day. In this case a pit may be provided which is water tight so that no liquid may be lost. It will also need to be roofed so the rains will not interfere. These pits are expensive and a great deal of labor is necessary in packing so that heating will not take place and also the removal from the pit will cause for quite a large

expenditure of time and energy. A great many practical farmers insist on removing the manure from the barn every day to the fields where it is spread. This is a very economical method as none of the manurial value is lost by heating or leaching. It is also the most economical in labor as the least labor is required to take out the fresh manure directly to the field and spread it immediately.

A most common fault in applying manure to the fields is in putting it on too thickly and unevenly. Here is where a plea might easily be made for the manure spreader. With the use of the manure spreader the manure can easily be applied and, by being put on thinner, a great deal more land will be covered each year and the resulting benefit will be greater than a small area thickly covered. With the spreader a light top dressing can be put on the meadow or wheat during the winter which will result in a much increased yield the following season. This cannot be done by hand because it is almost impossible to tear apart and spread with a fork as efficiently as with a manure

spreader. Another thing that might be considered is that the farmer who owns a spreader has an efficient and easy way of disposing of the manure and therefore takes more care to save all of it by applying it immediately to the land so none of its value is lost.

IMPROVES PHYSICAL CONDITION OF SOIL.

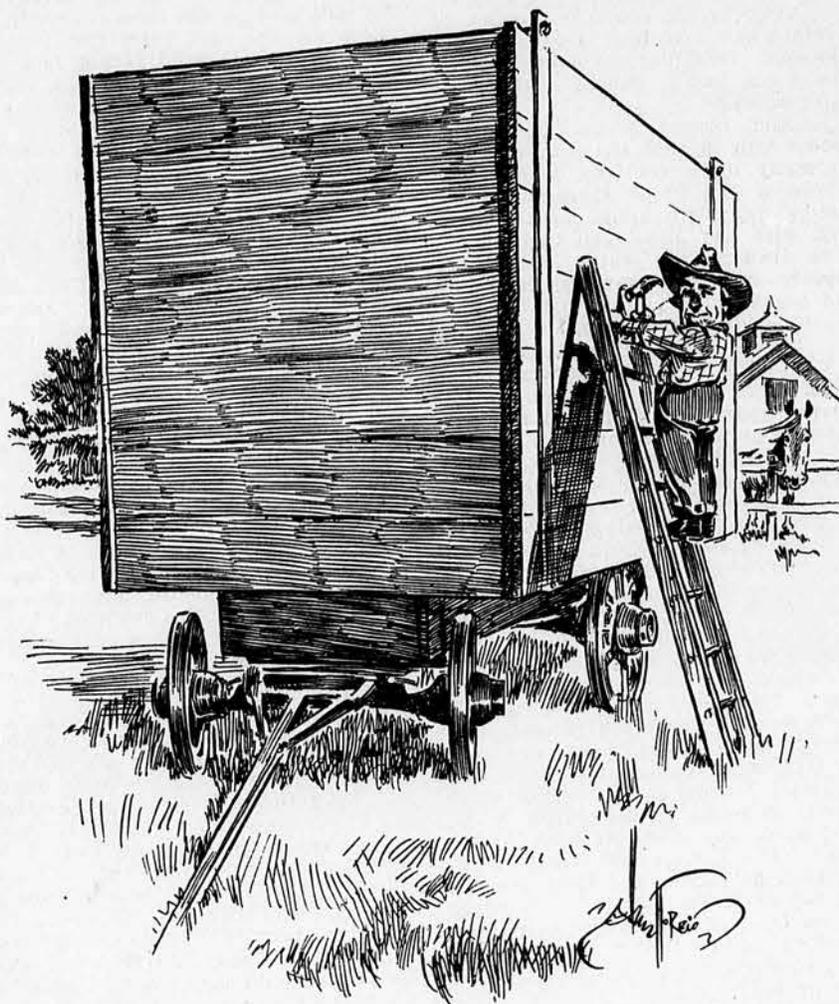
A great deal of the value derived from the barnyard manure is from the humus it adds to the soil, improving its physical condition and increasing its ability to retain water. Where large quantities of manure are applied to the land and then plowed under it may be very injurious to the crop as it will tend to hold the soil apart and leave large air spaces where the soil moisture will escape and the humus become oxidized and lost. The young plant roots will come to these spaces and there being nothing but space and undecomposed litter or stems the roots die and often the plant also. In arid and semi-arid climate a heavy coating of manure would work a positive injury to both soil and crops. Where there is a lack of water, bacterial action is very slow and the dried litter will remain for a long time and interfere with farming operations. Just what quantity to apply to the land must be determined by the local conditions. Very heavy applications of manure are rarely practical because of the possibility of a dry season when the crops would suffer from the extreme looseness of the soil which will cause an unusual loss of moisture. The waste of moisture and injury to crops will not be the only loss as the soil and manure will be exposed and a loss of humus will ensue by oxidation. Even with sufficient rainfall throughout the season, the necessarily heavy applications will oftentimes produce a large growth of leaves and stems at the expense of the fruit or grain.

Some are heartily in favor of plowing under the manure as soon as applied. This may have its merit, especially where heavy rains are liable to come and washing occur thereby losing the large part of the soluble constituents. Plowing under while the manure is freshly spread and still damp would probably hasten the decomposition and the soil more quickly become fertile. This is rarely an advantageous method, as it is often impracticable or impossible to plow under, except with the gardener or truck farmer. In general, the farmers will have the fields top dressed during the winter while the greater amount of manure is being made; also the fields being frozen, no harm or inconvenience results to the crop from driving even if they are wet otherwise. When the fields thaw out in the spring the plowing should be done, then turning under the manure. Very little fertility is lost by applying manure in the winter as the temperature prevents bacterial action and little or no loss occurs from leaching.

SOME BENEFITS.

While barnyard manure is quite deficient as a total fertilizer its benefits are very large for many reasons. A great many bacteria are added to the soil and also the food for them. Most arable soils are deficient in humus, as a constant loss is going on by reason of the constantly removed crops and also by direct oxidation,

(Continued on page 11)



"I don't know exactly what the crops will be yet, but it is just as well to be prepared."

SOIL MOISTURE PROBLEMS

How to Make Moisture Available to our Crops, by

H. R. HILTON,

Port Allegany, Pa., "Formerly of Kansas."

All decaying vegetable matter plowed under adds to the mechanical improvement and water-holding power of the soil. The quickest returns are obtained from the green vegetation, the most lasting from the dry, whether leguminous or non-leguminous. The latter, if not thoroughly placed in the soil to insure decay, are liable to dry out the soil. The mechanic who can devise a machine that will cheaply convert an old straw stack into a meal like alfalfa meal, to be sown broadcast and plowed under, will be a public benefactor, by supplying to the soil a mechanical improver standing second only to a good manure pile. In the form of meal the straw will help the mechanical condition of the soil from the start and not hinder in the first year as it would if plowed under as uncut straw.

CAPILLARY WATER FROM SUBSOIL.

Emphasis has been laid on the danger of turning under stubble or trash that would lie between the subsoil and the furrow slice preventing the contact that would restore the capillary connection destroyed by the plow. But capillarity is not going to lift much water from the subsoil into the freshly plowed surface soil however good the contact until the rain has first wet through the cultivated soil to the subsoil. When the disk has been used as a subsurface packer to fill the cavities and compact the subsurface immediately after the plowing, and this has in turn been followed by the drag or pulverizer and these by the harrow, then the soil is in condition to receive the rain. The weight of the stirred soil aided by the water percolating through will in a short time reestablish the connection between surface and subsoil so that film water can pass freely in either direction as tension may direct.

CAPILLARY RISE.

Many readers of farm papers need to have their minds disabused of the idea that water is constantly rising from the subsoil into the surface soil by the force of capillary attraction. It will do this if the subsoil is fully saturated or there is a ground water level within one to three feet of the surface, or in land where this water level has to be lowered by drainage. The percentage of such instances is small. In over 95 per cent of the cultivated land of the United States the water level is too far below to ever reach the surface by capillarity. It is surface tension or the movement that takes place between the thicker and thinner films within a limited area that is the great agency of transportation between the subsoil and the surface soil, or vice-versa. Film water moves more freely up and down than it does laterally, probably because the weight of the soil keeps the soil grains in closer contact vertically. As a soil containing clay loses its moisture, it contracts in bulk causing vertical cracks or fissures that interfere with the lateral spread of water. The circuit is broken. It is only while the soil is near half saturation or the films are thickest that movement for more than a foot or two laterally is secured. In one sub-irrigated garden, in which a small stream was kept running through the pipes part of every day, the water spread sixteen feet from the pipe line underneath the surface mulch. If the water had been applied only once in two or three weeks the lateral movement would have been but two or three feet so long as the subsoil could absorb the surplus. The movement of film water through the soil is a slow one in any direction under the most favorable conditions, except where gravity can assist, but it moves fastest when the films are nearest the maximum thickness. As the film grows thinner and clings tighter to its host, the soil grain, its movement becomes slower.

When the rain wets a dry soil down six inches its tendency to spread down further is very slight. As the depth of wetting increases, the influence of gravity increases, and when a dry soil is wet down 18 inches, and the rain has stopped, the water may spread downward to two feet from the surface before its downward progress is arrested or before surface

tension can overcome the force of gravity and the weight of the longer column.

PUDDLING THE SURFACE.

When the surface soil is made fine and dusty, a heavy shower converts it into a mud blanket. If the rain drops are large they strike into this mud with considerable force, increasing the puddled effect. This is one of the problems that every farmer has to deal with. It is one reason why the harrow should follow the roller and why a roller should not be used for the finishing work. The rain is needed and wanted, but the puddled surface is to be avoided. Does not common sense dictate that a roughened not a smooth surface should be presented to the falling rain drop? That clods and trash should intervene to break its force and lessen the puddling effect? A roughened surface also aids in maintaining the loosely compacted surface soil secured by so much labor to insure the most favorable soil conditions for high water content, sufficient air, active bacterial life and plant growth.

THE ROOT SYSTEM.

In the early spring, the fine fibrous roots of the growing plants are most abundant just underneath the dry top soil where it is warmest, but by the month of June, they fill the entire area as deep as the land has been plowed and in the warmest months crowd the bottom of this tilled area. Where the soil is finest without being impervious there the roots are most numerous, because there the plant roots find most water and most food. This emphasizes the importance of getting the fine soil at the base of the root zone and the coarse material on the surface to form the crown of our dry earth mulch. In more southerly latitudes a soil gradually deepened to 10 inches and enriched with humus will have its water supply better protected against surface evaporation than would be possible with a six inch depth of plowing. If Southern Kansas needs a three-inch dry earth mulch to protect the moisture supply, that would leave only three inches of feeding area for the roots in the six-inch plowing, as against seven inches in the ten-inch plowing. Doubling the depth doubles the work, but it almost doubles the farm acreage.

Another reason for leaving the surface rough is that the rain will find so many more crevices or openings where it can break through the resisting dry earth mulch to a connection with the moist soil underneath, thus drawing the water away more rapidly from the surface, lessening the tendency to puddle and the danger of drying out crusty.

TILLAGE TOOLS.

No tool has yet been devised that equals the plow in breaking up and jarring apart the compacted soil particles in preparation for plant life, but it has its problems. Deep plowing may leave the subsurface badly honey-combed and hard to reach afterwards with pulverizing tools. The disk or cutaway should precede the plow to prepare several inches of loosened soil that can be turned into the bottom of the furrow, reducing cavities to the minimum. A good disking following the plowing secures a good mixing of clay and silt and sand. The round disk is preferable where stubble, weeds or manure are turned under, as it presses equally at all points. A cutaway is preferable in clean ground as it brings more coarse material to the surface, and sifts more fine material below. The spike tooth harrow with tooth slanting back pulverizes and firms the soil for the seed, but just before seeding should be used once with teeth slanting forward to work the clods, stones, etc., to the surface, and sift the fine soil below.

Any tool or tools that will firm the soil recently plowed, sift the fine soil down where the roots should grow and bring the rough material to the surface for protection against pud-

dling, are desirable. The roller or plank drag can do good work before the final harrowing, but should rarely follow the harrow or press drill that covers the seed. The exception would be sandy soils or newly turned sod.

Every one who farms sandy soil tries to get it as compact as possible to increase its water-holding power. On the clay soil, the aim is to keep it just loose enough that air and water can circulate freely. Decaying vegetable matter is one of the most valuable mechanical aids in securing the results aimed at in both these soils.

LIME.

Besides its value as a medicine in curing soil acidity and its chemical aids in the preparation of plant foods, lime is a valuable agent in granulating compact clays that the water and air may circulate with greater freedom. Put some fine clay in two milk bottles filled with water. Shake the bottles to show a muddy or cloudy appearance. Add a little lime water to one, and note how much sooner the clay particles will settle to the bottom leaving the water clear. The action of the lime assembles the clay particles into little masses like the curdling of milk, and these gaining weight soon settle to the bottom. The lime in the soil acts similarly to assemble a number of soil particles into one mass which the water films surround as if it were a single soil grain. Lime makes a clay soil look and act like a loam soil.

THE MECHANICAL WORK OF ROOTS.

A pointed fence post driven into the ground forces the surrounding soil grains into a very close arrangement that holds the post firmly in place. The growing roots are doing a similar work in the soil. Root hairs are microscopic in size, and how can they absorb the water and food in solution if not brought in contact with very fine soil particles? The larger corn roots exert a pressure that surrounds them with a more compact formation of the soil for an eighth to a quarter of an inch from their surface. The fibrous roots bring an appreciable pressure on the surrounding soil, and on the newest growth of these are the root hairs that project into this compressed jacket insuring a better contact with the film water on the surfaces of these soil grains.

The compression by the roots increases not only the water holding but the surface tension power of the soil around the roots so long as there is continuous film water to draw from. Thus does nature provide a way that the plant can work out its own salvation. Prof. F. H. King estimates that the roots of a vigorous corn plant all laid end to end would equal a mile in length. With roots permeating every cubic inch of the tilled soil that contains moisture, we can readily understand what a force is at work in the soil to concentrate the water of the soil on its root system. We can also understand why the evaporation of water from the surface is so small three days after a good wetting when we think of these myriads of intercepting root hairs sucking water from the films nearest them and starting a movement of the soil water from the thicker films towards these root hairs.

CAUSE AND EFFECT.

A dairyman gets an amount of milk from five cows in a pasture that gives them all they can eat and no more. He gets no more milk by doubling the number of cows in the same pasture and he may get less. A farmer may get a one-pound ear from each stalk of corn that is given four square feet of surface and has enough food and moisture at all times to properly nourish it. Doubling the stand and dividing the food and water of one plant between two, so that no one plant has quite enough may bring the average ear far below half a pound. It is as important to know the available food supply and water capacity of a certain field and gauge the thickness of seeding thereby as it

is to know how many head of cattle a certain pasture will properly care for. A perfectly developed plant gives promise of a more profitable return than can be possible from a partially developed one. The critical period in the life of each plant and the time when it needs most abundant water supply is from the time the bloom begins to set until the seed is well formed.

A short water supply during this period will mean defective nourishment and a greatly reduced yield of grain.

Each corn plant in the field is a pump, and the larger the leaf surface on each stalk the greater the capacity to pump water from the soil into the air. In southerly latitudes the corn plant has a tendency to develop a larger leaf surface, and unless thinly planted is liable to exhaust the soil water before the seed is perfected. This is one reason why it is so important to plant varieties that develop largest or best filled ears in proportion to the thickness of stem and size of the leaf.

RAINFALL NOT USED.

The normal rainfall for Eastern Kansas during the five growing months April to August inclusive, is 18 inches. There is almost invariably four inches of available water in the soil at the end of the winter. It is possible to save and utilize one-half of the summer rainfall from evaporation, run off and drainage for the use of growing crops. This would be nine inches added to four inches already stored in the soil, making 13 inches of water available in each average year. On the basis of the Wisconsin formula of 300 pounds of water to one pound of dry matter, in corn this 13 inches should produce 70 bushels of corn per acre on the average soil in fair state of fertility. As the average production of Kansas does not exceed 30 bushels, it is evident that not much more than six inches or one-third of the growing seasons rainfall is being utilized and that a doubling of the corn production is possible through this one agency alone, of saving from waste what is possible to save of our annual rainfalls.

The deeply plowed, well pulverized, root filled, dry topped humus soil, will give to the growing crop 13 inches of water each season, and this crop will give to the farmer 70 bushels of well filled ears.

There are many wastes and leaks on a large percentage of our farms, but none greater than the wastes of available soil moisture.

COOPERATION AND HARMONY.

The great laws of nature are cooperation and harmony. The soil must have all the essential food elements, and these in harmonious proportions that the plants may grow. The four great master workmen, water, air, heat and light must cooperate and work in harmony that the plant may thrive. It is the mission of every tiller of the ground to give to the soil its opportunity to nourish the plant, and to give to each and all of the four workmen their opportunity to take the seed and the nourishment and from these build up the perfect plant that will ripen its grain in due season.

Because They Have a State Fair.

It may not be generally known, but Iowa has sent forth more championship animals of the beef breeds than any other state. During the winter of 1907-08 a Shorthorn calf was being used in short course work at one of Iowa's best short courses. He was seen and admired by many people, they little realizing at the time that in less than eight months he would be crowned as the grand champion Shorthorn bull of America. Who knows but what there are many others to be found within our state equally as good? The real worth of this bull was not shown until he was brought out and shown first at the Iowa State Fair, where he was made junior champion, afterwards at other shows, including the American Royal at Kansas City and the International at Chicago, at both places being placed grand champion over such bulls as Whitehall Marshall, Whithall King, and others. A test in the show ring shows the real worth of the animal.

FARM INQUIRIES



ANSWERED BY
Prof. A.M. Ten Eyck

Preparing Soil for Alfalfa—Loose Smut in Wheat.

I have a field which I intend to sow to alfalfa this fall, part of the land is in wheat and part in oats. The oats land was plowed deep, early this spring. I am going to manure this land and if I take the harrow and pulverize the manure I thought double disking the land would put the ground in good shape. Or would plowing be the better way? I also have some wheat, the seed of which I bought from the TenEyck Co. of Concordia, Kansas, that has a good deal of smut heads in it. Would treating it with formaldehyde kill the smut in it? I have tried it on oats with success. This is not the so-called stinking smut.—Hjalmar Anderson, Burdick, Kan.

If you can manure the ground and harrow and disk it after harvest before the weeds start too much your plan to disk in preparing the seed bed for the fall seeding of alfalfa may be preferable to plowing. However, if the weeds start too much, especially since you intend to manure the ground, it may be advisable to plow shallow not over 3 or 4 inches. Then by the use of a good harrow pulverize the soil and get it into good seed bed condition for sowing about the first of September. If you do not have our Bulletin on Alfalfa Seeding and Culture you may secure a copy by addressing E. H. Webster, Director of the Experiment Station.

The loose smut of wheat to which you refer is not readily destroyed with formaldehyde. This smut is as apt to have come from infection of the soil as from the seed. The infection of the crop may occur both from the seed and from the soil. We have several times treated grain, especially barley with the formaline solution to destroy loose smut but without much success. The treatment of the seed grain with hot water is said to be the best remedy for loose smut, but the treatment must be so severe as to kill part of the wheat kernels. Perhaps the most successful method for reducing the loose smut which has really become quite prevalent in the grain fields is to rotate crops, being careful not to follow small grain with other small grain and in this way prevent the infection of the soil with the loose smut spores. You observe that these spores brush off or are blown off by the wind, having disappeared by harvest time. Some of these spores may lodge in the grain

but most of them doubtless reach the ground. Thus the land which is kept continually in grain becomes badly infected with loose smut. The smut spores which are really the seed of the smut plant are said to germinate or sprout and grow inside of the wheat kernels. The maturity of the grain checks the growth of the smut but does not destroy it, and in fact it is very difficult to destroy loose smut by the ordinary treatment which destroys stinking smut.

In order to eradicate this disease which causes considerable loss in grain fields the farmers should take care to secure seed as free from smut as possible or treat a small quantity of the grain with hot water so as to destroy the smut in the grain and then grow grain in rotation on land free from smut. For further information on this subject I am mailing you a circular on "Some Wheat Problems."

Seed Wheat for Western Kansas.

Do you know of any variety of winter wheat that is better than the so-called "Turkey Red" to raise in N. W. Kansas? I live seven and one-half miles N. W. of McDonald in Cceyenne county.

I make raising wheat a specialty, raise barley and oats on the side. I have been experimenting on the culture of wheat lands. Last summer I listed 160 acres or one quarter section in the month of May, in June I re-listed or split the middles of the same, then cultivated down and continued to cultivate and harrow at intervals until seeding time in the fall. I drilled it to Turkey red wheat. The result is that I have as fine a field of wheat as I ever saw.

I am doing the same thing again this summer on another quarter-section. My implements are a two row lister and two two-row shovel cultivators. My horse power is eight good ones. I use six on lister and four on each of the cultivators.

I wish to seed a part of this land to some other variety, if you can advise me where I can get the seed, that in your opinion will be as good or better than that which I have.—J. L. Payne, McDonald, Kan.

Your method of preparing the seed bed for sowing winter wheat is a good one. I have mailed you a copy of circular 9 on wheat culture in which you will find some information on this subject.

You doubtless have a good strain of the Turkey wheat, though it may not be equal to our improved strain of the Kharkof, Improved Turkey, Crimean,

etc. We have been distributing seed of these and several others of the best producing varieties for several years and will have a couple thousand bushels of good seed wheat for sale this fall. The Ft. Hays Station (Hays, Ellis County Kansas) has also been distributing seed of these improved varieties during the past few years but has no seed for sale this fall, since their crop was destroyed by hail.

A number of farmers throughout central and western Kansas have secured seed wheat either from us or the Ft. Hays Station and will have seed for sale. We will have a list of these farmers in a few weeks and will be pleased to mail it to you at any time. It may be better for you to secure seed from farmers further west than to secure wheat grown at this Station. I have mailed circulars 11 and 16, on seed-wheat.

Alsike Clover.

Would you please let me know if your department has tested or had any experience with Alsike clover, and results. I have a small tract of about four acres on my farm on the south Canadian bottoms that is wet and spongy and does not drain well. Had thought some of sowing it to timothy this fall but it might be that Alsike is better adapted to this kind of soil. Where is the seed for sale, how much should be sown to the acre and when sowed?—John McGlover, Norman, Okla.

We have grown Alsike clover in comparison with medium red and Mammoth red clover. This experiment was carried out on the upland of the state farm which is not very well adapted for growing Alsike clover. The yields have favored the red clover varieties as compared with the Alsike as an average for two seasons (04-05), which are compared as follows: Medium red clover yielded 7,580 pounds of field cured hay per acre. Mammoth red clover yielded 4,456 pounds of field cured hay per acre. Alsike clover yielded 3,110 pounds of field cured hay per acre.

The Alsike clover is better adapted for the low wet lands than the red clover. However timothy has succeeded well on moist fertile land and unless this land is extremely wet a planting of timothy should give good results. I would recommend to sow a combination of timothy and Alsike clover in preference to Alsike alone or timothy alone. Sow ten or twelve pounds of timothy seed with four to six pounds of Alsike clover seed per acre.

You may secure seed of Alsike clover and timothy from the regular Kansas seed dealers.

A field of alfalfa is one of the best investments available in 1909. Sown during the last half of August the first coupon is ready to be clipped by the last of the following May and four times a year thereafter. The size of the coupon compares favorably with the size of the investment.

Alberta Wheat.

Please give information regarding Alberta seed wheat. Do you recom-

mend to import this wheat from Canada for planting in Iowa—W. A. Applegate, Des Moines, Ia.

We have made some tests of the growing of Alberta wheat in Kansas. Have planted it for two years in succession. The crop from the Alberta wheat last fall was a very fair one, practically equal in yield to our Kharkof and Improved Turkey varieties, and possibly somewhat superior in grade, but this difference was not very marked. The Ellsworth Mill & Elevator Co., Ellsworth, Kansas; and the Walnut Creek Milling Co., Great Bend, Kansas each imported a car of Alberta wheat three years ago. This wheat has been planted for two seasons. I was furnished with a list of those securing the wheat from the Walnut Creek people and wrote these men, requesting a report and samples of the wheat produced from the Alberta seed. On the whole the reports were not very favorable. Farmers were often disappointed with the wheat, the product proving, on the average, only about equal to the ordinary Turkey wheat. Some of the reports were more favorable.

There is no question about the quality of the Alberta grown wheat. Much of the wheat which we can secure from Alberta is No. 1 hard. However, the objection to the wheat is its mixture and lack of breeding. I mail copy of press bulletin which I wrote just after my trip to Alberta in 1907. From this report you will see that the Alberta wheat is nothing more than the product of scrub Turkey wheat imported into that country from Kansas and Nebraska.

New varieties of wheat which we have introduced in more recent years from Russia and which we have carefully bred and selected at this station and the Ft. Hays Experiment Station in Ellis county are, in my judgment, superior to the wheat which we can import from Alberta, and I do not hesitate to recommend the growing of these varieties of wheat in Kansas in preference to the best samples which we are able to secure from Alberta.

At this station (Manhattan, Riley county) we are not always able to produce the best quality of hard red winter wheat because of the unfavorable weather conditions, the season often being too wet. However, in the central and western parts of the state a better quality of wheat may be produced. We have distributed seed of several varieties in nearly every county of this state during the past five years and it is estimated that one or two thousand acres of this improved wheat of the Kharkof and Improved Turkey, are now growing in Kansas. I mail circular 16 giving further information on this point, also circular 13 giving information regarding wheat for sale. We can supply seed at \$2 per bushel.

Now while I have no question as to the superiority of this improved wheat, yet there may be some question as to whether or not the wheat will be fully hardy for growing in Iowa, especially if it is brought from too far south. If you do secure some Kansas bred wheat, would advise that you secure it from some northern (Continued on page 9.)



A bunch of drafters imported by W. L. DeClow, Cedar Rapids, Iowa. The kind included in his sale to be held on August 18. Ask for catalog.



KANSAS FARMER

EDITORIAL



It is estimated that 1,000,000,000 cubic feet of natural gas is wasted into the air every twenty-four hours, and that the total supply will be used and wasted in about twenty-five years—about as long as it has been used.

Fourteen approved methods of irrigating, adapted to practically every kind of land and the various tree, root and vine crops, will be demonstrated on a 15-acre tract in the Spokane valley within a stone's throw of the city limits in connection with the 17th session of the National Irrigation Congress in Spokane, August 9 to 14.

A bulletin of the U. S. Department of Agriculture notes enormous increase in the values of hay lands during the five years 1900-1905. The greatest increase occurred in Illinois where the average, \$57.24 an acre in 1900, had grown to \$78.89 in 1905. The increase in Kansas was from \$17.47 an acre in 1900 to \$27.53 in 1905, or 57.6 per cent.

The statistics of pig-iron production in 1908 show that Alabama's output was 17 per cent less than in 1907, while in Illinois the percentage of decrease was 31 per cent; in Virginia, 33 per cent; in Pennsylvania, 38 per cent; in Ohio, 45 per cent; in Maryland and West Virginia, 65 per cent; and the average for the entire United States 38.2 per cent.

The progress of "dry farming" is marked by a statement of the condition of crops in Washington county, Colorado, just issued by J. E. Payne, president of the farmers institute of that part of Colorado. He says: "The crops are very promising now, and we should like every farmer in the county to see them." Mr. Payne probably refers to the crops on the Government experiment farm which is under his supervision.

The U. S. Geological Survey estimate is that if the present rate of increase in the consumption of coal should continue, all easily accessible coal would be exhausted by the year 2040 and all coal by the middle of the twenty-first century. But the growing scarcity of coal will raise prices and check consumption so that the end will not probably come during the lives of the grandchildren of the present generation.

An Illinois educator is quoted as saying: "A boy is best educated if he is so educated that he can do the most useful things with his mental and physical limitations. What do I care whether he knows Greek and Latin, but I do care whether he can concentrate his thought, and do the thing he means to do exactly as he means to do it. An Alton engineer said to William Hawell Smith, 'A man is educated when he is onto his job.'"

A theory concerning rain-fall on the slope from the Rocky Mountains to the eastern borders of Kansas and Nebraska, proposed in the early seventies, was to the effect that heavy snows on the mountains would cause abundant precipitation on the plains during the following summer. If the snow was packed solidly in the gulches, as was the case last winter, so as to be late in melting, the rains on the plains were expected to be copious and to continue late in the summer.

THE SHAWNEE ALFALFA CLUB.
The regular monthly meeting of the Shawnee Alfalfa Club for July promises to be one of unusual interest. The subject for discussion is "Soil Inoculation," and Prof. H. F. Roberts, head of the botanical department of the Kansas State Agricultural College, will give an address full of facts gathered from the investigations made by his department at Manhattan and elsewhere about the state. Hon. Bailie P. Waggener of Atchison, who is one of the greatest of alfalfa enthusiasts and who made alfalfa to grow abundantly on his Atchison county farm by means of soil inoculation when it was thought that it could not be raised in that portion of Kansas, has also been invited to be present and give his experience. Remember the date is Saturday, July 31 at 2 p. m. sharp and the place is the Com-

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OUR GUARANTEE.—It is our belief that all advertisements in this paper are from reliable persons or firms. To show that we are in earnest in protecting our subscribers we guarantee the trustworthiness of our adver-

tisers under the following conditions: We will make good the loss of any ad up subscriber who suffers by dealing with any fraudulent advertiser in our columns, provided complaint is made to us within thirty days after the transaction. This guarantee means just what it says. It does not mean that we guarantee to settle all trifling disputes between a subscriber and an advertiser, though we offer our good offices to this end. We do, however, protect you from fraud under the above conditions. In writing to advertisers be sure always to say: "I saw your advertisement in Kansas Farmer."

CONTRIBUTIONS.—Correspondence invited on all farm topics, live stock, soil cultivation, grains, grasses, vegetables, household matters, recipes, new and practical farm ideas, farm news. Good photographs of farm scenes, buildings, live stock, etc., are especially invited. Always sign your name, not for publication, unless you desire it, but as an evidence of good faith. Address all communications to
KANSAS FARMER COMPANY,
Topeka, Kansas.

mmercial Club, 612-614 Kansas Ave., Topeka, and you are invited.

DOUGLAS COUNTY HORTICULTURAL SOCIETY.

The Douglas County Horticultural Society, the oldest in Kansas, met July 17 at the residence of the president, B. F. Smith, whose berry patches and lawns are being rapidly surrounded by the city of Lawrence. Mr. Smith and his testifiable wife settled at their present location nearly thirty years ago. The trees then planted have grown to great size. One that was measured was found to be over nine feet in circumference. Most of them are maples. They are so disposed as to furnish the right amount of shade with least obstruction to the breezes. The large blue-grass lawn is a delight.

The Smiths have just moved into a new house, not quite as large as the old one, but situated on the same lawn. With good taste, Mrs. Smith brought into the new home the furniture she had accumulated in the old. She also brought out and put into use an all-wool portier made 80 years ago by her mother who spun and wove the elegant drapery. It is in bright colors and represents farm animals, birds, buildings and scenes. It is a work of the weaver's art, pleasing as well as rare.

Horticultural societies of the present are composed largely of aged people, people who are passing away. President Smith showed a photograph of the Douglas County Society taken a few years ago and pointed out the faces of those who have passed on. They were more numerous than the survivors. Who will produce the fruits after the remaining patriarchs shall have departed? Who will carry on the meetings?

The proceedings of the meeting began with an elegant picnic dinner, after which the more formal program of the meeting was considered.

K. S. A. C. FAIR EXHIBITS.

At a recent meeting of the Regents of the Agricultural College it was decided to inaugurate the plan of fitting up exhibits for county fairs. The work was referred to the extension department with the aim to make valuable agricultural exhibits, including grains, fruits, vegetables, etc. with samples of modern tools, dairy utensils and apparatus. Demonstrations will be given each day in the handling of certain apparatus, the Babcock test, cream separators, etc. Instruction will be given at certain hours by means of apparatus, and short lectures will be given using the exhibits and apparatus as illustrative material.

As there is no state appropriation to cover this line of work, each fair will be expected to pay the actual cost of transportation and the expense of handling the exhibit but nothing for the services of the men belonging to

the regular college departments. It will be impossible to state the exact cost this year, but two exhibits will be made up, one to cost not to exceed \$50 and the other not to cost over \$100. Fair associations interested in these exhibits should write to the Superintendent of Agricultural Extension, Manhattan, Kan., at once.

PROFIT AS A BASIS OF CONTESTS.

The advantages of contests for prizes for excellence of products of the farm have long been recognized. The ability to grow fine specimens is well worth while. Plates of fruit, ears of corn, samples of wheat, oats and grasses show how excellent a product the exhibitor has been able to produce. But in practical farming the important question is the margin between the cost of production and the market value of the product. It is well to have ears of corn all alike. It is interesting to know that an acre of corn has yielded as many bushels as grow on five average acres and to see samples from the notable acre. But if the great yield cost more than the value of the crop, the man who has to make a living from his farming does not see his way clear to indulgence in such luxuries.

There is utility in pure breeds of live stock and of grains, and other crops. Uniformity of type is well worth cultivating. It is interesting to know that phenomenal crops can be produced at phenomenal expense. The expectation that excellencies, however produced, will probably reappear in later generations is to be counted in favor of exhibition prize contests. But it will be well if in addition to these there shall be competition for prizes based on the margin between the value produced and the cost of production.

PICTURES OF ROAD-MAKING.

Moving pictures of work being done on the roads of the country, showing just how the work is done, the machinery used and the result of a little work converting a bad road into a regular speedway, is the latest bit of novelty which the Department of Agriculture is to offer the farmers and business men of the country.

Work has just been started on 2,000 feet of films which show the road work. The first film taken was in Virginia where the convicts are making every road in the state as good as paved. This is a unique "ribbon" as the men in stripes give it a regular picture show appearance.

Other pictures are to be taken in the West, where the states will not stand for convict labor, but where enterprising farmers in some sections have devoted a little time to road improvement to the great benefit of the state.

Views along rural postal routes; wagons stuck in the mud; mail hours behind because of the bad roads; farmers practically marooned and unable to get to market at certain seasons of the year because of the poor

roads, all these scenes will be shown at the National Corn Exposition in Omaha, where the pictures will be seen for the first time. Following the exposition in Omaha, the Department of Agriculture plans to loan them to fairs and farmers institutes next year, thus giving thousands the benefit of the pictures.

DOMESTIC WATER-SUPPLY ON THE FARM.

A correspondent is planning to build a kitchen and asks some advice regarding the water supply.

He has a well and windmill about 250 feet from the house or he can dig a well 25 or 30 feet deep where the building is to be erected. The purpose is to "get water in this kitchen so it will be the most convenient either by having a pump inside or by some other means."

He asks advice.
The problem of providing water for domestic purposes presents so many variations of conditions that an answer exactly suited in one case may need much modification to adapt it to another.

The first essential is that the water be pure. The well should on this account be located at a distance from any source of contamination such as the barn yard, the depository for kitchen slops, etc. In sections where "drive wells" are used, they should draw the water from very deep water bearing strata. In all cases the surface drainage should be kept away from the well. Health officers find that many cases of fevers in both country and town are traceable directly to contamination of the source of domestic water supply.

If our correspondent's well 250 feet from the house is located at or near the barn yard, it will be safer to make a new well where it will be free from danger of pollution. If, however, the well has proper surroundings and affords an abundant supply, the fact of its location at some distance from the kitchen is not fatal to its use. The water supply of the city of Topeka is piped for a distance of about two miles before it reaches the consumer nearest to the pumping station.

The cost of a one-inch galvanized pipe laid in the ground is not necessarily prohibitive. In this correspondent's case the cost of piping is to be compared with the cost of an additional well and perhaps the maintenance of an additional pumping outfit.

In planning for a supply of water for domestic purposes, it is well to consider the fact that for very many farmers the time is near at hand when not only a kitchen supply but a bath-room supply as well will be considered a necessity. This means that a good deal of water will be used; that large quantities will be wanted at times when everybody is too tired to pump it that the windmill or a gasoline engine must be requisitioned for the work. It means a storage tank located somewhere. It means a system for conveying all waste water and sewage to a safe distance from the house and so disposing of it that it will not be offensive.

A cistern pump in the kitchen is quite satisfactory, but a pump that is to lift water from a well thirty feet deep is certain to need repairs that will be very inconvenient to make in the kitchen. A pump may be placed just beyond the edge of a porch and near to the kitchen door with advantage. But there should always be over-head working room sufficient to permit taking out the piston rod and piston, the lifting of the lower or check valve, or the removal of the entire pump for overhauling.

Our correspondent has a windmill at his well. Knowing no reason to the contrary, the writer will assume that he may pipe water from this well to the house. The storage tank may be placed on a tower near the well or at any point on the pipe line leading to the house. In general it will be better to place the tank near the well unless the pipe be large enough so that there will be little friction of water in the long pipe even when the pump is driven very rapidly. Inattention to this may cause great hardships to both windmill and pump.

The use of a closed, or compression, tank in the cellar instead of the elevated tank possesses the advantage of keeping the water cool in summer

and of reducing danger of freezing in winter.

In the accompanying drawing the writer has attempted to illustrate the installation of water supply and bath-room fixtures in a small house by the aid of a windmill and elevated tank. It will be better to place the tank higher than here shown. The tank, if large enough, may be used as a reservoir for stock water also.

The pump is provided with a valve in the spout. This is to be closed when pumping into the tank. A 2-inch horizontal pipe under ground joins at a (Fig. 2) to a vertical 2-inch pipe which leads to the tank. A check valve is placed in the horizontal pipe at c (Fig. 2.) This prevents water from the tank returning to the well through leaky pump valves. The horizontal pipe is reduced at d (Fig. 2) to one inch and extended to the house. The vertical pipe is protected by three thicknesses of boxing with air spaces between as shown at g (Fig. 2). If these boxes are made tight there will be little danger of damage or inconvenience on account of freezing in the pipe. The horizontal pipe should be placed deep enough to prevent freezing.

In the drawing (Fig. 2) the side of the house is cut away to show a portion of the kitchen and the bath room. In every house not provided with furnace heat, it is essential that the bath room be adjacent to the kitchen. A system of heating the bath room is illustrated. R is the kitchen range or stove. The smoke pipe, I, is inclosed with a sheet iron jacket, J, which extends from a boxed-in space, under a part of the bath room and kitchen floors, to L (Fig. 2) near the ceiling where it discharges warm air into the bath room. A register is placed in the bath room floor at W (Fig. 2) through which cold air from the floor of the bath room is permitted to enter the boxed-in chamber under the floor to take the place of that withdrawn through the jacket, J, on account of the upward current caused by the heat of the stove pipe.

It will be readily understood that since the water pipes are always full of water it is absolutely necessary that they be protected from freezing. Any who may be not duly impressed with this necessity will not need to be further reminded of it after experiencing one freeze-up. The water pipes under the floor are therefore placed in the boxed-in chamber, which is warmed by the circulation of air through the packet, J, and the bath room. It is well to place a large wooden valve, or small trap door, in the bath room ceiling at V (Fig. 2) so that the warm air can be allowed to escape or the bath room can be ventilated without opening the window. If it be desirable at any time to confine all of the heat in the kitchen, this may be done by opening a small door into the jacket, J, just above the kitchen floor and another in the same jacket just below the kitchen ceiling, and closing the register, W, (Fig. 2) in the bath room floor and the valve, L, (Fig. 2) near the bath room ceiling.

To return to the water system: The horizontal water pipe terminates, under the bath-room, in a vertical pipe which branches to the kitchen sink, K S, (Fig. 1), to the bath tub, to the wash bowl, W B, to the range heater, R H, to the flushing tank (not shown) for the water closet, W C, and to the range heater, R. H. The range heater is joined by pipes i and k to the coil, s s, in the fire box of the range. Hot water is served through this pipe and connections to the bath tub, the wash bowl and the kitchen sink.

The "stack," K, receives the waste water from the bath tub, the wash bowl and the kitchen sink all through the trap T. It also receives, through a large trap not shown, the discharges from the water closet when the latter is flushed. The stack must extend above the roof and be connected un-

size the entrance to the bath room should always be from a hall, never from a private room.

In the city the use of more or less complete modern conveniences is almost necessary to health. The family which has once enjoyed the advantages of an always ready water service, modern conveniences and sewage disposal would ever after consider lack of these an almost unbearable privation.

The cost of these in the country need not in most cases greatly exceed their cost in the city. The item for which the cost is usually believed to be greater in the country than in the city is the water under pressure. This will bear investigation. The writer has not at hand statistics of many city water plants, but it is probable that the figures in the case of the Topeka water works at the

dition of \$150 to the cost necessary to provide water in the usual way on a farm will probably pay for the elevated tank and the necessary connections to bring the water into the house.

The installation of the several appliances in the house will cost little if any more on the farm than in the city. There is then left for comparison the cost of provision for disposing of the sewage. Sewers in cities are very expensive because of the distance to which they have to be laid to secure eligible outlets. But the nearness of houses to each other makes it possible to divide the cost among many. Still the cost is considerable. It varies greatly, but an estimate of \$50 for each user is probably within the mark. This pays for the sewer along the alley back of the house and does not include cost of laying

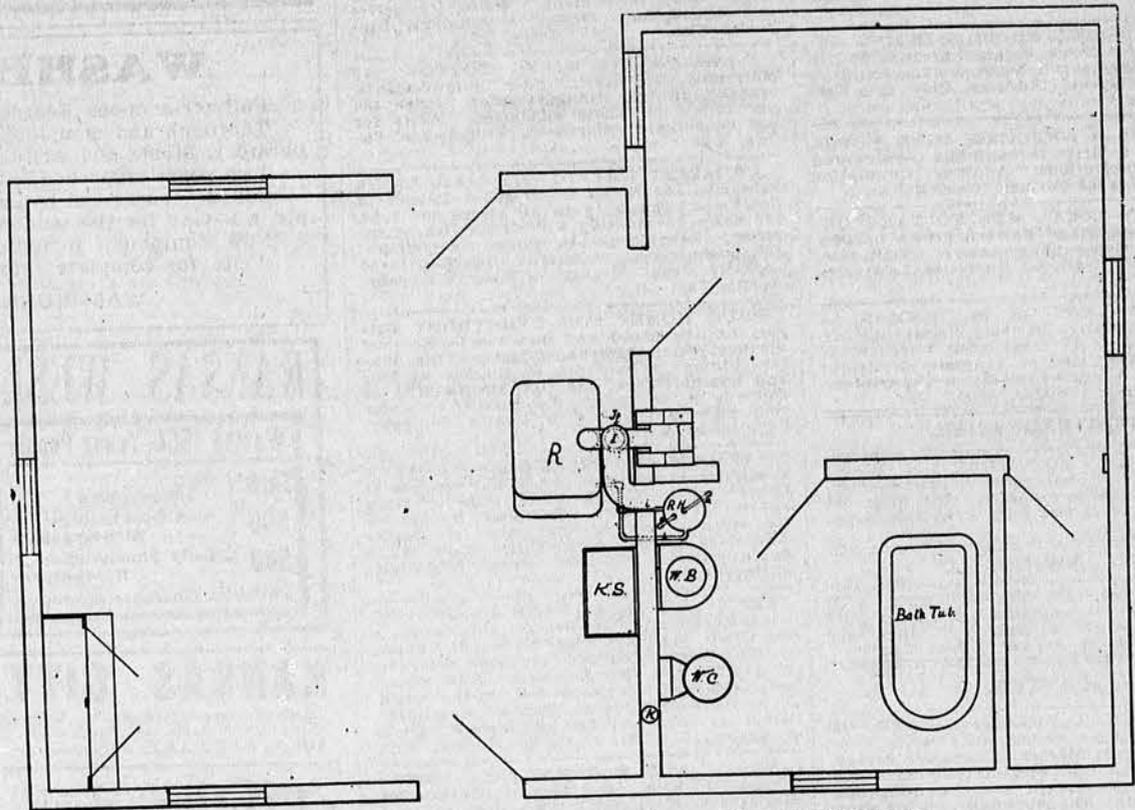


Fig. 1. Plan—Modern Conveniences in a Small House.

der ground to a pipe leading to a septic tank or to a spot where offensive odors will not interfere with the comfort or well being of anybody. The stack is usually a 4-inch cast iron pipe. It should be leaded together at the joints. After leaving the building the horizontal pipe may be of vitrified tile and should be cemented at the joints to prevent contamination of the soil near the house or the well. This discharge pipe should not be quite horizontal but should be laid with fall enough to insure a current so that the water can carry away all solid matter.

Arrangement such as is here illustrated for a small house will be found suitable for more elaborate home except that for a family of considerable

date of their purchase by the city may be taken as fairly representative. The city paid for this plant the sum of \$620,000. There were then a little over 3,000 service taps on the distributing mains, or the plant cost about \$200 for each residence or other property served. True, protection from fire was an essential consideration so that it is not fair to charge the entire cost against the domestic service. It is probable, however, that an estimate of \$150 as the cost of each service would be reasonable.

The city water plant simply brings the water to the street in front of the property served. Its service may be compared with that of a farm plant that pumps the water and pipes it to say 50 feet from the house. The ad-

the pipes from the soil pipe in the house to the sewer line, an average distance of perhaps 75 feet. There are few locations in the country in which the cost of sewage disposal need be greater than in the city.

It thus appears that the fairly well-to-do dweller in the country can have the advantages of ever ready water supply, modern conveniences and sewer at no greater cost than is paid by persons of like circumstances in town.

This rather extended answer to our correspondent's inquiry is given not for the purpose of urging readers to invest in modern conveniences, but to furnish information often asked as to the practicability of such installations in the country.

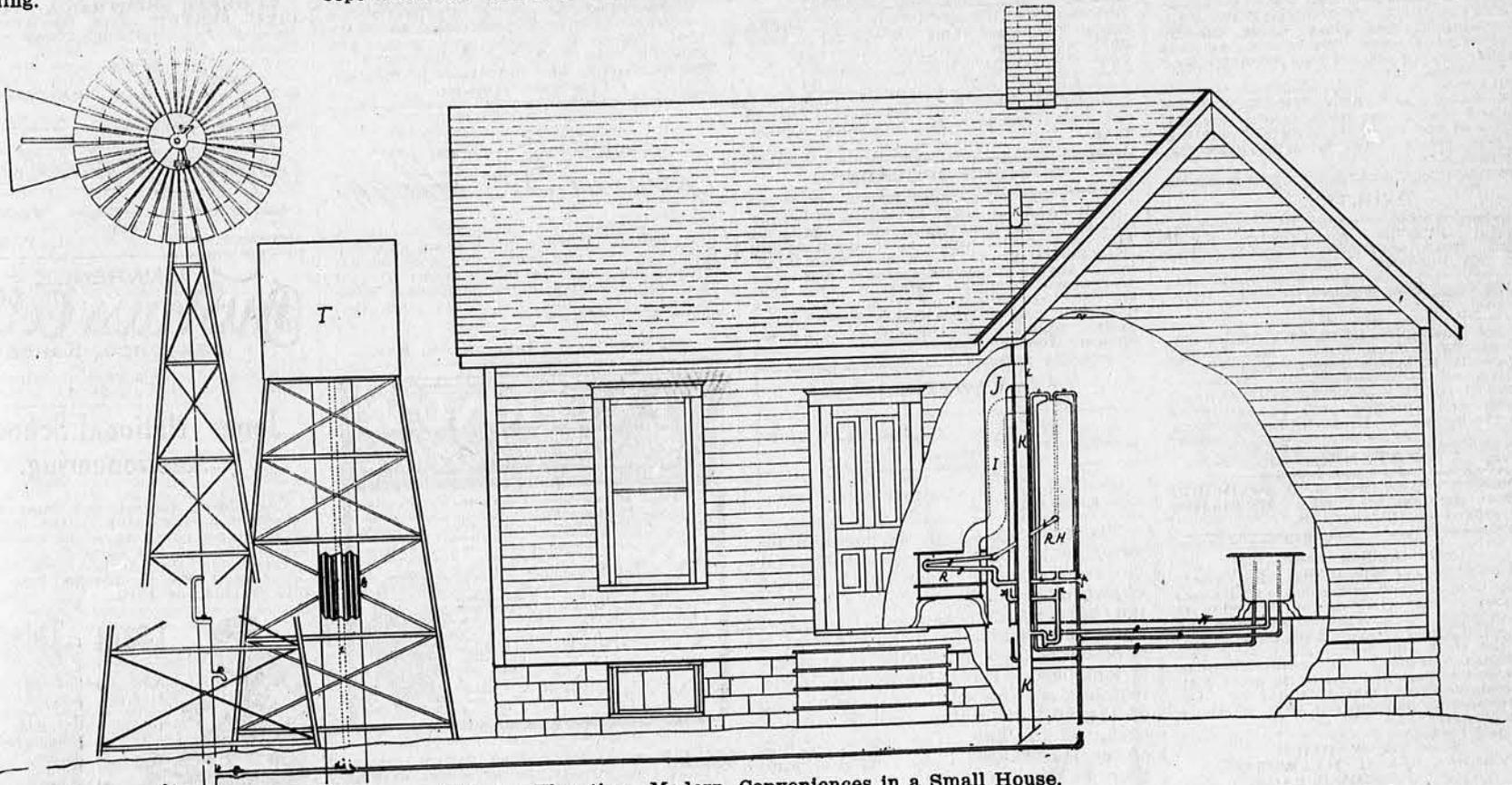


Fig. 2. Elevation—Modern Conveniences in a Small House.

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160 ACRE farm bargain, 7 miles northeast of Ness City. Small frame house 2 rooms, frame barn for 4 horses, hen house, small granary, good well and windmill, 75 acres in cultivation, 35 acres in wheat, one-fourth with place, 12 acres alfalfa. Land can be plowed, nearly level, 1 mile to school. Price \$2,500. \$2,000 must be cash. **J. C. LOHNES & SON, Ness City, Kan.**

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If you would like to live in the most beautiful city in the West, with unsurpassed educational, business and religious advantages, in a city clean, progressive, where real estate values are low, but steadily advancing, where living expenses are reasonable, a city with natural gas at lowest prices, address the Secretary of the Commercial Club, Topeka, Kan.

ARKANSAS—"Don't you wish you had bought when you were here before?" That is what they all say; and then, buy before it doubles up again. What have you got that half equals it? You can't find it in America. Think of the money bags being hauled in by a single farmer. Thrashing and hauling \$1,000 a day and more—getting the cash the same day. We have other propositions that will beat your best; besides, the best climate, best roads, best water and fine people, and anything else you want. I own the cheapest land on Grand Prairie and can make you terms—won't price you out. Also, fine timber lands. **F. W. HOUSTIN, Stuttgart, Ark.**

LOOK AT THIS.
No. 503.—Here is a ranch of 2,960 acres, that we can recommend as good a cattle ranch as there is in the country; all under fence, plenty of water, 600 acres fine bottom land, suitable to grow alfalfa; the improvements, stone house, barn 50x35, stone shed 100 feet long, and all other necessary improvements that are required on a ranch of this kind. The survey of the new railroad running from Garden City to Stockton, runs near or through this place. Rural telephone and post office on the place. Price \$12.50 per acre, part time will be given. **TEED & ORBISON, Jetmore, Kansas.**

SOLOMON VALLEY LAND.
We have farms for sale in Ottawa and adjoining counties, good upland improved, at from \$25 to \$60 per acre. Bottom land improved at from \$60 to \$125 per acre. You have not seen the best till you see the Solomon Valley. **A. E. ROBINSON LAND CO., Minneapolis, Kansas.**

BARGAINS IN KANSAS LANDS.
400 acres in Morris county, 2 sets of improvements, \$50 per acre. 240 acres one mile from Herington, well improved, \$75 per acre. City property in Herington to exchange for land. Farms in Kiowa, Gove, Ford, Rush and Ness counties at various prices. **ROBT. SUTHERLAND, Herington, Kansas.**

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The cream of the Pecos Valley. Now open. All river front sections. The best alfalfa and fruit lands in America. Sold in 40-acre tracts, which will provide a permanent annual income of \$1,500 or more annually. Price \$40 per acre on 5 years' time, without interest or taxes, including perpetual water-right, 50 cents per acre as first payment. Address **THE HEATH COMPANY, 109 West Seventh St., Topeka, Kansas.**

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No farmer should think of buying a home before seeing a copy of THE FARM AND REAL ESTATE JOURNAL. It contains the largest list of farm lands, city property and stocks of goods of any paper published west of Chicago. It reaches 50,000 readers each issue, 85 per cent of whom are farmers. Every one who has any property they wish to advertise will find this journal one of the best advertising mediums published. Advertising rates, 2c per word each insertion. Send 75c and we will mail you the Journal for one year, or for 10c in silver or stamps we will send it for two months on trial and stop it at the end of the two months unless you renew your subscription. **FARM AND REAL ESTATE JOURNAL, Traer, Iowa.**

490 ACRES meadow land nicely located, well fenced with 4 wires, all lies in a body, and can be used for pasture. Within 40 rods of switch on Mo Pac. R. R. Could be divided into a nice farm and is a bargain at \$30 per acre. **C. R. CANTRELL, Fredonia, Kan.**

90 ACRES CREEK BOTTOM.
and upland, 75 acres in cultivation, balance meadow, no other improvements, 3 miles from town. Price \$3,800. A snap as 40 acres of it is in fine alfalfa ground. **J. S. BOYLE, Bennington, Kansas.**

McPHERSON COUNTY.
80 acres, 3 1/2 miles Salina all in cultivation, \$4,500.
240 acres in Saline county, 80 in cultivation, all fenced, fair improvements, 1/2 mile school and church. \$25 per acre. **WM. KINDT, Marquette, Kan.**

J. W. BRADSHAW, The Land Man, of Herington, Kansas, is offering a section of land with two sets of improvements, six miles from Herington, for \$45 per acre. 200 acres under cultivation. A snap well worth \$50 per acre.

BLACK & BLAKE.
The real real estate firm of Holton, Kan. Come in and see us if you wish to either buy or sell a farm or city property. We have the best bargains that are for sale. 240 acres, best dairy farm in Eastern Kansas.

MARSHALL COUNTY BARGAINS.
Large list of improved farms for sale at \$40 to \$100 per acre. 200 trading propositions. Can match you on anything. Write for complete list. **TROSPER & BLACKNEY, Frankfort, Kansas.**

IRRIGATED FARMS FOR SALE.
In the famous Arkansas Valley of Colorado and the Pecos Valley of Texas, reasonable prices; good terms. If you want a money making investment or an ideal home write for further information. **J. F. CURRY, Lamar, Colo.**

960 ACRES of good farm land in Chase county, Kan., close to market, well improved, 80 acres alfalfa, 200 acres in cultivation, balance meadow and pasture. Price \$25 per acre.

HALE & ENGLISH, Dodge City, Kansas.

A NESS COUNTY BARGAIN—400 acres 11 miles from Ness City, 100 in cultivation, well fenced, good house, barn, well and windmill, 18 feet to water, all smooth, half mile to school. Price \$5,000. Reasonable terms. This is only one. Come and see. **LOHNES & CASON, Ness City, Kan.**

WASHINGTON COUNTY LAND FOR SALE
160 acres 4 miles from county seat, one mile to school, all fenced, one set improvements, orchard, well, 120 acres cult., 40 pasture. \$50 per acre; terms on half. **W. J. GORDON, Washington, Kan.**

FARMS FOR SALE in South Missouri. I have several good farms for sale on easy payments from \$5 to \$10 an acre. Please write me for full particulars. **WILLIAM BOWEN, Houston, Missouri.**

GOOD HOME CHEAP—160 acres, 130 in cultivation, all fenced, 3 room house, barn, cow shed, poultry house and well and windmill, only 4 miles to R. R. where an elevator will be built this summer. Will take a small cash payment and give 5 years on balance. Price \$2,500. **KIRBERG & MILLER, Ness City, Ness Co., Kan.**

FOR SALE—320 acres of good wheat land in the famous wheat belt of Logan Co., Kan. 4 miles from Monument, and 3 miles from Page.

40 acres in cultivation. Price \$12.50 per acre. Purchaser to assume R. R. contract for about \$1,700. This is a snap. **W. H. LINVILLE, Beloit, Kansas.**

Reno Co. Farms.
320 acres, 12 miles from Hutchinson, Kan., all in cultivation, improved land, at \$21,000. Also 320 acres, 3 miles from Burrton, Kan., well improved, 200 acres in cultivation, balance pasture, at \$11,500. **CHARLES PETERSON, Hutchinson, Kansas.**

SCHUTTE & SHINEY, the Rush county Kan., real estate hustlers; 30 years in the same old place. Good farmers raised from 28 to 47 1/2 bushels of wheat per acre here last season. We can sell this land at from \$20 to \$35 per acre. Good improved ranch land, 1/2 good farm land, at \$15 per acre. Good bottom land not over 5 miles from market at \$25 to \$35 per acre. Well improved and running water, plenty of timber. See us, or write us at La Crosse, Kan.

Buy Western Kansas Land.
Should you want to buy any western Kansas land for speculation or for a home, don't fail to write me. I am selling land throughout all counties in western Kansas. I am myself farming extensively on the kind of land I offer for sale. I can sell you land that will make you money. Write me at once for prices. Address **EUGENE WILLIAMS, Minneola, Kansas.**

KANSAS FARMS.
Real Bargains, 240 a. 8 mi of Manhattan, 1 1/2 of Zoandale, \$16,000. 144 a. 4 mi. of Wamego, a dandy at \$75 per a. 400 a. 8 mi. of Manhattan, \$16,000. We have a large list of Manhattan city property and can save you money in buying a home. **FROST REAL ESTATE CO., Manhattan, Kansas.**

ROOKS COUNTY LAND

One Hundred Farms for Sale. Write for Lists. **C. H. DEWEY, Stockton, Kan.**

MORRIS AND NORTH LYON COUNTY farms for sale. Write for list. We have a few bargains that will not be on the market long. Property for sale and trade. **F. L. JOHNSTON & CO., Dwight, Kansas.**

HOMES AND INVESTMENTS.
In reach of all in a growing locality. For information write, **WINN REALTY CO., Jetmore, Kansas.**

Hodgeman County Lands.
Choice wheat and ranch lands. Write for price list and county map. **F. M. PETERSON, Jetmore, Kansas.**

Ford County, Kan. Lands.
For sale. Write for price list and crop reports. Cooperation solicited. **BROWN & VERNON, Dodge City, Kansas.**

HELLO FARMERS!
Have you read my list of GREENWOOD CO. FARMS? The best corn, alfalfa, clover, cattle and hog country in the west. Fine blue stem pastures. Write for list and prices to P. D. STOUGHTON, Madison, Kansas.

800 ACRES FOR SALE.
This land lies in Ness County, Kan., in one of the best wheat and general farming districts of the state; soil a rich dark loam, the kind that raises crops every year and is increasing in value rapidly.

Of the 800 acres, 160 by itself is fine smooth wheat land and every foot tillable, 640 acres of rolling prairie land, the best of the pasture. All well fenced and 240 acres of leased land fenced with it (lease will be assigned purchaser if desired). Well of splendid water with windmill, tank, etc. This property is well located, being within 3 miles of railroad point on Santa Fe road and within 4 miles of elevator, etc., 11 miles from Ness City, the county seat. Ness is the county that took first prize and silk banner at the Garden City exposition, also first prize of \$500 in gold at the Kansas City exposition for best display of products of the soil, tree growth and natural resources. For a home or for a profitable investment, or both, this is a first-class proposition.

Price of this fine ranch is the small sum of \$7.50 per acre. Terms \$4,000 cash and 5 years time on the balance at 6 per cent interest. Call on or write **LACY HARPER, Ransom, Kansas.**

A SNAP.

320 acres of good smooth wheat and corn land, rich soil, good neighborhood, excellent water, 1 mile to school, only \$12.50 per acre. This cannot be beat for the money. Send for list of bargains. Address **G. F. WEYAND, Spearville, Kansas.**

Ozark Fruit Farm For Sale.

120 acres, 60 acres in cultivation, balance fine timber. Good 3 room house, 3 fine springs, fine apple orchard, large thrifty trees, other fruits. 1 mile from town. Good reason for selling. Price \$1,000. Write me for full particulars. **JOHN D. BAKER, Ava, Douglas County, Missouri.**

YOU CAN'T DUPLICATE THIS in Iowa or Illinois for twice the money. 205 a. farm, 45 a. detached, four miles from this city. The 160 all in blue grass pasture surpassing anything growing in Iowa or Illinois, 25 native hay and 20 corn on the 45 a. tract. Free gas for all purposes, house plumbed, excel lent improvements, 3 room house, good cellar, large barn and other nice outbuildings, young orchard, splendid shade and lawn, abundance of good water. Another 160 one mile away good 3 room house, large barn, large orchard and small fruit, 35 a. timothy and clover, balance under plow. All of the above for \$20,000, or second 160 for \$8,000. This cannot be beat. Will carry large loan if necessary. Come and see. Will refund expenses if not as represented. **DONAHUE & WALLINGFORD, Mound Valley, Kan.**

I WANT TO SELL TWENTY ACRES OF IRRIGATED LAND

I have twenty acres of unimproved land in Pecos Valley, Texas. I want to sell because I need the money. I'll sell for less than you can get land in the same locality. I'm not taking all the profit; I'm leaving much more for whoever takes up this offer. Terms easy. Pay \$390 down and balance at \$10 per month for 61 months. No interest; no taxes until land is paid for. Address

OPPORTUNITY, Care Kansas Farmer, Topeka, Kan.

\$100 REWARD for every farm you can find where we have sold above the owner's price. Call on us or send for new list of land. \$5 an acre up. **G. N. DAVIS & CO., Cimarron, Gray County, Kansas.**

A REAL FARM BARGAIN.
160 acres 5 miles from Wakefield, Kan., (Clay Co.), 125 acres broke, 25 acres pasture, small house, barn, etc., good water. Price \$6,500. **J. C. WEAVER, Wakefield, Kan.**

160 ACRES 2 1/2 miles of Wiley, phone and R. D. 70 acres cultivated, 40 meadow, 8 clover and alfalfa, 4-room house, barn for 8 horses, crib, poultry house, cellar, well and mill. Very level. \$50 per acre. **O. G. FITTLE, Wiley, Kan.**

320 ACRES CHOICE ROOKS COUNTY LAND, \$6,400.
Nearly all tillable. Some in cultivation. 5 miles from station. **STEVENS & RUBY, Stockton, Kansas.**

ELLIS COUNTY, KANSAS.
310 acre wheat and corn farm, improved, 3 1/2 miles from Hays City, convenient to State Normal School. 480 acres, improved, 7 miles from Hays City, school on the place, 25 acres alfalfa. Fine for dairying. Write me for prices and terms. **H. W. OSHANT, Hays City, Kan.**

WE HAVE A FINE LIST of improved farms in Marion County, Kan., from \$25 to \$50 per acre. Some fine Greenwood County ranches, improved, from \$15 to \$17 per acre and lots of fine western wheat farms from \$10 to \$15 per acre. Write us what you want. **SOUTHWESTERN LAND COMPANY, Geneseo, Kansas.**

DO YOU WANT A HOME?
We have 100 of the best farms in southeastern Kansas on the easiest terms of any land sold in the state. Send for copy of the Southeastern Kansas Homeseeker, the best monthly land paper published—it is free. Address **THE ALLEN COUNTY INVESTMENT CO., Longton, Kansas.**

WELL IMPROVED 334 acre farm, Jefferson Co., Kan., 2 miles station, 4 miles town of 1500 population, 50 miles Kansas City, 50 miles St. Joseph, Mo., 24 miles Topeka; 220 acres dry bottom, fine for alfalfa; this is a snap at \$60 per acre, time on \$8,000, if desired. **ADAMS BROS. & HAMM, Atchison, Kan.**

WABAUNSEE COUNTY LAND—160 acres 80 cultivated, 4 room house, fair barn, 8 miles town, nice level land, a great bargain at \$35 per acre. 80 acres near Eskridge, well improved, \$50 per acre. Three quarters of good grass land \$23 per acre. **F. L. McCOY, Eskridge, Kan.**

A Free Trip Through Texas and Oklahoma. Go with us. Your carfare and expenses paid if we do not show you that we advertise facts. Talk facts. Hot air doesn't pay. Ten years of experience in locating homeseekers in Kansas, Texas and Oklahoma should enable us to find some good bargains. Our experience is your gain. Take notice—1,280 acres of improved valley land, deep, rich soil, sub-irrigated, alfalfa land (pure, soft water, no gyp), all in cultivation, nearly all in corn that will make 50 bushels per acre. This fine valley land is located in Oklahoma within 7 miles of a beautiful little city of 15,000 population; 1 1/2 miles from a small town. Can be sold in any sized tracts to suit purchaser. Price, \$20 to \$30 per acre. We also have 3 sections of nice, smooth prairie land at \$15 per acre. Texas lands—improved farms, all level land, good soil, near town, \$20 to \$40 per acre. Unimproved prairie land, good location, from \$5 to \$20 per acre. Write or call on us for further information, which will be cheerfully given.—**Newton & Eaton, Clay Center, Kan.**

EXCHANGE COLUMN.

If You Want a quick deal, list your trading property with us. We trade while the other fellow sleeps. We have exchanges for land, merchandise, live stock, or anything of value. Try us. **NEFF REALTY CO., Olathe, Kansas.**

Trades Wanted
direct from owners of farms, ranches, income property, merchandise and hardware stocks, hotels, livery stocks. List your property with us, giving complete description. We can get what you want. No sale, no pay. Buyers wanted for good farms. **BERSIE REAL ESTATE AGENCY, Eldorado, Kansas.**

500 TRADES.
We have the largest list of farms, ranches, income property, merchandise, hardware, hotels, liveries, etc., of any firm in the West. We print description of your property on our list, and will get you a good honest trade of just what you want. **GRAHAM BROTHERS, Eldorado, Kansas.**
Real estate ads continued on page 12.



Phone 295. Office 201 Pointz. **FROST REAL ESTATE CO., Manhattan, Kansas.**

DAIRY



Legislatures do many amusing things. It has been discovered that the Missouri legislature, after creating the office of state dairy commissioner, failed to make an appropriation to enforce the law. The only remedy is an extra session of the legislature to make the appropriation for enforcing the law.

Newspaper stories have been in circulation to the effect that the Standard Oil Co. has perfected a process of making an imitation butter from petroleum. Of course the story of making an edible fat out of mineral oils is purely imaginary and the man who owns a cow will continue to market her product at good prices.

The hand separator system has made possible the sale of cream on a cash basis. In the West it is the rule to pay spot cash for cream. In no section of the country aside from those in which the hand separator is in general use is cream sold for cash like corn, wheat and hogs. The hand separator has made dairying easy and profitable.

At the recent convention of Iowa Swine Growers it was stated that federal inspection at the abattoirs of the country shows that two per cent of the hogs slaughtered are affected with tuberculosis; and among the list of causes for this condition the federal investigators designate feeding raw skim-milk and slop from creameries as the leading cause. In this country buttermilk is the only creamery feed returnable to the farmer for hog feeding and in most every instance the buttermilk is from pasteurized cream.

In the production of good butter the creamery has an important obligation to fulfill. The most important obligation rests with the cream producer. A buttermaker's journal of authority says: "Hand separator cream if secured from clean separators, if properly cooled to 40 to 50 degrees F. and if delivered at least every other day may be made into as fine butter as comes from a creamery at which the whole milk is separated." The emphasis is placed on the "if." When these requirements are complied with the hand separator system takes no back seat.

The contest to determine who owns the best dairy cow in Iowa is starting out most encouragingly. This contest is stirring up a remarkable amount of interest all over the state. It was made possible by W. W. Marsh who donated \$1,000 to be given in prizes to the owners of the best cows in the state as determined by a year's test for butter-fat. The only expense for this contest is \$1 per cow entry fee. The owner will also be required to provide a pair of milk scales and to meet the tester from the Iowa State

College, who will visit his farm once a month, at the railroad station, take care of him during the day and return him to the station.

While other states are wrestling with the enforcement of laws providing for compulsory pasteurization of skim-milk returned from the creamery, Kansas farmers are feeding their own skim-milk warm and sweet from the hand separator. The pasteurization of skim-milk returned from the whole milk creamery is intended to

an average crop. Some of this land must lie idle every year to "rest up" for the next crop. Good land sells at a good price in that locality.

Machine Milking in Wisconsin.
The agricultural department of Wisconsin University has made careful tests to determine the efficiency, economy and influence of the milking machine. The trials were for 20 months with 29 cows in the University herd. Forty separate trials were made and cows were milked continuously by the machine for periods of from 4 to 62 weeks, or an average of 26 weeks.

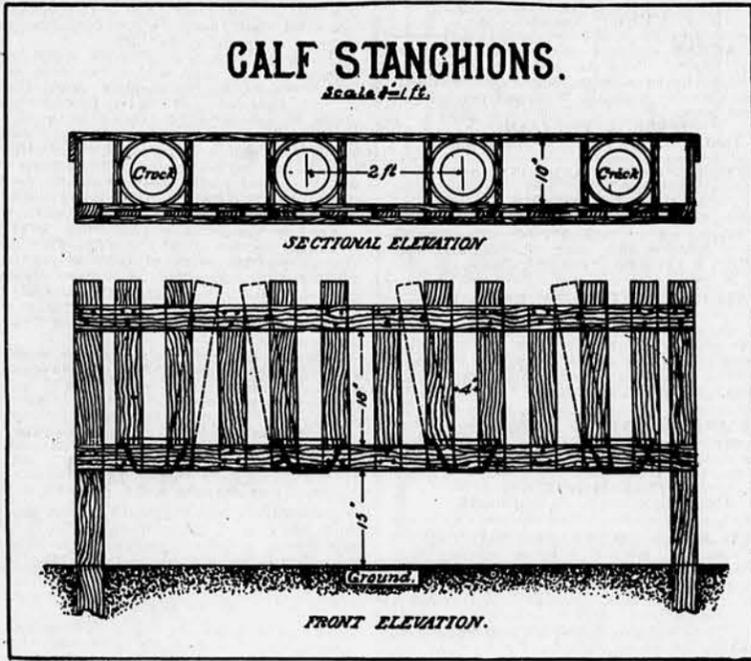
The effect and efficiency of machine milking on the cows was in general beneficial; most of the cows standing well; showing little shrinkage from change of hand to machine milking, with practically the same average decrease in production as when hand-milked. Comparison with preceding periods of hand-milking for the same cows showed practically the same average production. Stripping

Handy Device For Feeding Skim-Milk

A large part of the success in rearing calves on skim-milk depends upon the method of feeding. For the best results in feeding calf stanchions are almost a necessity. The accompanying cut shows the general construction of stanchions. A common milk crock is used for containing milk and such grain as is fed. The crock is

tion to accommodate ten calves, is as follows:

- 13 pieces lumber 1x 6x14 ft.
- 2 pieces lumber 1x12x14 ft.
- 2 pieces lumber 1x12x16 ft.
- 3 pieces lumber 1x 4x14 ft.
- 20 bolts 3/8x3/8 in.
- 4 six-inch strap hinges.
- 4 hooks.



sanitary and the calf thoroughly cleans it after each feeding.

The distance between the partitions is two feet and the stanchions are three and a half feet high. The front board on feed trough is hinged and will turn down, allowing the feeder to sweep out the trough in a few seconds. This arrangement gives the calf an individual feed box. Milk pails for feeding skim-milk can be set in the box.

The lumber and hardware for a sec-

Common fencing boards can be used for four and six inch stuff, and hard pine sheeting free from knots, for feed box and partitions. Any farmer after careful study of the cut can take the lumber given, and some rainy day build his own stanchion. It is, of course, understood that the calf is confined in the stanchions only while eating. After feeding in the stanchions the calf should be released and have his liberty.

prevent the spread of tuberculosis and the object is worthy. There is always a chance that the milk is not properly pasteurized and some authorities claim that the pasteurized skim-milk does not have so high feeding value as the raw milk, other conditions being equal. Thus again the hand separator comes into its own. The hand separator is an economic necessity wherever dairying is done along with general farm operations.

A few miles from Carbondale, Ill., reports the State Agricultural College, a man now well along in his nineties is living upon the 120-acre farm which he secured from the government about 60 years ago, at \$1.25 an acre. The place has never been transferred to another person. It was good ground and used to produce 35 bushels per acre of wheat, but has been farmed so constantly to corn and wheat without any intelligent rotation or provision to return the plant food taken off in crops, that now the produce of the land barely enables the occupants to exist. The last wheat crop was two bushels per acre. Probably less than 10 bushels per acre of corn were raised this year. The land can be counted on for little if any more than a quarter of

by hand after machine-milking was found necessary in some cases.

The economy of machine-milking is due to a saving in time and in help necessary to milk a large herd. About five minutes per cow is saved where four cows are milked at once and more time when one man operates three machines, milking six cows at one time.

The experiences of 41 dairy farmers covering periods of one month to over two years indicated that a majority of them are favorable to the machine. Some 27 reported favorable, eight were undecided and six were unfavorable.

The conclusions are: the success of machine-milking depends largely upon the man operating the machine; in herds of 30 cows or more machine-milking is both practical and economical and the machine itself seems durable and efficient, provided it is properly cared for by an efficient operator.

Silo Advantages Again.

A bulletin from the agricultural department of Wisconsin on silos and silage is written by Dan Otis, formerly of Kansas. Excerpts from the bulletin are:

Of the various palatable feeds, corn

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CREAM
SEPARATORS
THE DE LAVAL SEPARATOR CO
185 BROADWAY, NEW YORK
42 E. MADISON ST., CHICAGO.

silage is without doubt the cheapest and most effective to add to the ration. It is valuable for dairy and beef cattle and also for horses, calves and sheep. Many of the leading Wisconsin farmers find that silage can be handled as cheaply, if not more cheaply, than the corn crop can be handled in the usual manner. Silage furnishes a succulent feed with very little waste, and is always ready to use.

In combination with alfalfa or clover, with a mixture of corn or barley for grain, silage furnishes an especially good ration, all grown on the farm and cheaper than mill feeds. The importance of palatability can not be overestimated, as it increases the amount of feed eaten and, when properly assimilated, the more the animal eats the larger product it will return.

A ton of mixed hay occupies 400 cubic feet of space, and eight tons of corn silage can be put in the same amount of room. The ton of mixed hay contains about 960 pounds of digestible dry matter, while eight tons of silage contains 2,560 pounds of dry matter. This one point of the economical storage of the corn crop, when put up in the form of silage, is worthy of attention where a large number of animals are fed.

The cost of handling the corn crop in the form of silage is less than when any other method is used. One of the leading Wisconsin farmers reports that it cost him 50c to 60c per ton or \$7 per acre to put his corn crop into the silo. The same area of corn would yield about 150 baskets, which would cost him \$8 for husking, while the cost of cutting, stacking, shredding, and grinding would be about double what it costs to put the same crop into the silo.

The advantage of summer feeding of silage, particularly during periods of drought, is fully appreciated by those who have tried it. During the latter part of the past summer Wisconsin suffered a severe drought, and corn silage was fed to the university dairy herd. The flow of milk was never kept up so well during the summer as it was by the use of this silage. The summer silo is sure to become a more important factor in successful dairying.

Corn and Hogs Subdue Bindweed.

In your issue of July 3, 1909, page 2, I read an article, "The Bindweed a Terrible Pest", by F. H. Roberts. On my farm, which I bought six years ago, is a piece of about 10 acres that was well set with bindweed. I planted it to corn and when the corn was just beginning to harden, I turned in hogs and let them hog it down.

For a few days I did not see anything unusual about it, and then I saw them tear down a hill of corn and eat off all of the vines, leave most of the corn, hunt another hill and proceed as before. So well have the hogs performed the task that after two seasons of pasturing the ground there are no vines left to tell how it was done.

I regard hogging down a field of corn as a profitable way of handling a portion of the crop each season. Plant to early corn a portion or all of your bindweed land, fence it hog tight and at the proper time turn in the hogs and be sure to turn in enough to clean up the field in a reasonable time and note the results. As soon as the hogs have finished their work plow the pasture and in the spring plant early and when the proper time arrives, give the hogs another chance, after which I think you will not be troubled with bindweed for some time to come, if you plow the field again that fall.—Frank Gragg, Denison, Kan.

1 MAN AND 1 HORSE
BALE
1 TON AN HOUR
Bale at Least Cost
Our Daisy SELF-THREADING, self-feeding one-horse hay press only one on which one man can do all the work. First successful self-threading device, automatic condenser increases results. Open side hopper. Free trial. Write today for Baler Book and prices. GEO. ERTEL CO., Quincy, Ill.

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Galloway
"BATH IN OIL"
High Grade Separator—Direct
Save \$25 to \$50 direct at my factory price—freight prepaid. Get the only Separator that runs in "Bath of Oil," like a \$5,000 automobile. This alone is worth \$50 extra, but costs you nothing extra.
90 Days'
Farm Test—Freight Prepaid
Why pay \$85 to \$110 to dealers or agents who cannot sell you a separator equal to the Galloway—closest skim-cream—easiest run—easiest cleaned—10-yr. guarantee. Send for **BOOK FREE** WM. GALLOWAY CO., 283 Galloway Bldg., Waterloo, Ia.

LIVE STOCK



Report has it that the high price of corn has resulted in the promise of a much larger acreage of Kafir corn than ever before. Experiments made privately and at the experiment stations have shown that both beef and pork can be cheaply and profitably produced by feeding Kafir corn, especially if it be fed with alfalfa. This grain is not yet fully appreciated because its value is not really known in this country. Its extensive use in older countries and its probable extension of territory in this would seem to necessitate the pushing forward of the Tropic of Kafir Corn.

On page 3 of KANSAS FARMER of June 26 was published a table of statistics concerning state fairs which was prepared by Hon. J. C. Simpson, Secretary of the Iowa State Board of Agriculture. Some of our friends in Missouri have expressed regret that their state with its splendid state fair was not represented in this table. None can regret this omission more than the writer. Missouri has made a wonderful showing in its state fair and we feel sure that the facts concerning it would have compared favorably with any that were included in the table. Missouri was omitted through no fault of ours but simply because it was not in the table furnished by Secretary Simpson.

It is doubtful whether unlimited pasture may be considered economical, except perhaps for brood sows. The proper amount of land to give over to pasture must necessarily vary according to its quality and other local considerations, and the length of time the pasture will sustain hogs likewise is dependent upon the climate, quality of the crop, age and number of the animals, and other varying conditions. For an average it may be said that an acre of red clover should support six to ten hogs for three or four months. Alfalfa the leading pasture for swine, should provide, if of vigorous growth, for 12 to 25 animals per acre, but an alfalfa stand should not be grazed by so many hogs that mowing will not be necessary for keeping it in the best condition. This practise with alfalfa will be able to keep back a rank or woody growth.—From Cornburn's "Swine in America."

The Alaska-Yukon-Pacific Exposition Live Stock Premiums.

Superintendent M. D. Wisdom of the live stock department of the Alaska-Yukon-Pacific Exposition announces that the final premium list for live stock is now ready for distribution. The management is putting forth unusual efforts in behalf of the live stock interests and their work promises to result in the greatest show of its kind ever held west of the Rocky Mountains. This is pioneer work for most breeders and the Exposition will serve to open up a new territory for those of the Mississippi Valley and eastward. Stock shipments will be made from the Minnesota state fair at Hamline.

Sheep as Weed Killers.
Every fence corner and unused place on the farm is a breeding place

for noxious weeds. Every weed on the place or adjacent to it makes more work for the farmer. It seems impossible for the individual farmer by his own efforts to clear his place of weeds when his neighbors do not as their weeds will reseed his farm. He can however, call to his aid a means that is not only effective in the destruction of weeds but is the means of making good money as well. Sheep will do this. A few sheep will work wonders in the orchard or in the corn field after the crop is laid by and they are but little more trouble than the chickens. They afford the only cheap and practical means of combating weeds, their wool and flesh commands a good price, they cost almost nothing to raise and they enrich the soil as nothing else can.

Draft Breeds For Kansas.

There is perhaps no better territory open to the cultivation of the draft horse importer and breeder than the state of Kansas. The experience of Hon. Geo. B. Ross of Alden, Kan., who, by April 10 of this year had sold every Percheron he had to spare with 11 head in his last shipment, illustrates this.

A large proportion of these horses, especially the mares, were shipped to the wheat belt, where a few years ago it was thought impractical to raise anything better than a "bronc." Senator Ross' experience has been duplicated by McLaughlin Bros. of Kansas City, Columbus and St. Paul, while H. G. McMillan the big breeder at Rock Rapids, Iowa, states, in effect, that he wants no better selling territory than Kansas. The wonderful record made by the Whitewater Falls Percherons at Towanda with the splendid Casino at the head, is in itself an object lesson. The reason for all this lies in the fact that it pays. In these days of scarce help and large farm operations the one great drawback has been the lack of motive power on the farm. This is supplied in abundance by the big, handsome Percheron, Clyde or Shire mares while they are raising colts and thus doubling their profitableness.

Improvements at Iowa State Fair Grounds.

While nearly all the fairs are making great additions to their equipment this year it is believed that Iowa will effect a greater change in general appearance than any of them. More is being done to perfect the grounds for the Iowa Fair than ever before. The legislature appropriated \$100,000 for this purpose, to which the department is adding from the fair funds about \$50,000 more. With this a great new steel grandstand is being constructed with new judges' stand, new band stand, etc., and the race track is being made anew. The speed barns were moved and reconstructed. The Department is building an immense amount of new walk, a new cattle barn is being erected and a band stand is being built on the plaza. A new rest room and hospital is being made, a balcony is being built in the Agricultural hall and the seating of the swine judging pa-

HORSE OWNERS! USE



CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, best BLISTER ever used. Removes all bunches from H. & S. S. Impossible to produce scar or bleed. Send for descriptive circulars.

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ABSORBINE

will reduce inflamed, swollen joints, Bruises, Soft Bunches, Cure Bells, Fistula or any unhealthy sore quickly! Pleasant to use; does not blister under bandage or remove the hair, and you can work the horse. \$2 per bottle at dealers or delivered. Horse Book 7 D free. ABSORBINE, JR. for mankind, \$1.00 per bottle. Reduces Varicose Veins, Vorticoseles, Hydrocele, Gout, Wens, Strains, Bruises, stops Pain and inflammation. W. F. YOUNG, P. O. F., 211 Temple St., Springfield, Mass.

The United States Cream Separators

Lead the Separator procession in every particular

The UNITED STATES make cream of any desired density from twenty (20) to sixty (60) per cent. butter fat.

Read what experts and users say:—

Montana Agricultural College and Experiment Station.

Bozeman, Mont., Feb. 8, 1909. This is to certify that the United States Separator that has been constantly in use here at the Dairy Building of the Montana Agricultural College has given us splendid satisfaction. In light running and durability, the machine is strong and in skimming capacity the No. 5 that we have at the present time has skimmed as close as .02 of 1 per cent. taking a 35 per cent. cream. W. J. Elliott, Prof. of Dairying.

Ohio State College.

Columbus, O., April 20, 1907. The No. 6 U. S. Separator in our laboratory with the low milk can is a great improvement. We have required it to take a thick cream over 40 per cent. fat and several times it has been over 50 per cent. The test of the skim milk is usually .01 to .02 per cent. fat. I am glad you still keep up the solid frame and fine workmanship on the running parts, as competition with cheap machines is getting keen. John W. Decker, Prof. of Dairying.

Everett, Washington, Jan. 8, 1907.

I hereby certify that I tested a sample of cream and skim milk taken from Geo. Crocker's U. S. Separator some time ago and the cream tested 66 per cent. and skim milk a little less than two one hundredths of one per cent. I will further state that I am not now, nor never was, agent for the U. S. Separator. F. J. Adkins, Buttermaker, Everett Creamery.

Subscribed to and sworn to before me this 8th day of January, 1907.

Thomas W. Cobb, Notary Public in and for the State of Washington, residing at Everett.

We can furnish thousands of testimonials of like tenor.

Send for "U. S. Short Story" booklet, also Catalogue No. 91.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

vilion is being done. The total of premiums offered this year is \$58,000, of which \$15,500 goes for speed and \$23,000 in live stock classes. A number of new departments are being added and all premium lists have been enlarged. Secretary John C. Simpson, of the Department of Agriculture, is confident from all that can be known at this stage of the game that the Iowa State Fair of 1909 will be a record breaker. A great many entries have already been received, though live stock entries do not close until August 2. Iowa is gaining a great reputation for the way in which the State Fair is being supported by all the people of the state. The exhibitors more nearly represent every county in the state than in other years and there is very little criticism of the state for maintaining such a grade state fair.

Farm Inquiries.

(Continued from page 3.)

point. I enclose list of growers who had seed-wheat for sale last fall. Doubtless most of them will be able to furnish wheat, and perhaps in larger quantity, again this season.

We will be pleased to supply you with at least 20 bushels of seed grown at this college at \$2 per bushel.

I may add that we have supplied the Southern Alberta Experiment Station with some 60 bushels of our Im-

proved Turkey and Kharkof varieties of wheat and hope in this way to secure seed-wheat of our own breeding which has been grown for a year or two in that climate. We also have seed growing in Montana which may be increased by next year to several thousand bushels so that if by growing the wheat a year or two under those climatic conditions improves the wheat, we may then be able to secure such wheat for seeding again in Kansas. We have now growing in our trial plots, samples of the Kharkof and Turkey wheats which were taken to Southern Alberta and grown under those conditions for one season.

Blue-Jays and Chicks.

Sunday morning while sitting at the window my attention was attracted by the maneuvering of a blue jay, a little ways from the house. He seemed to have something in the grass that he was trying to kill, as he was angry. Not being interested enough to go see what he had I contented myself by sitting still and watching him. You may imagine my surprise when in a few minutes I saw him attempt to fly away with a young chicken, but he was not equal to the task as the chicken was heavier than he. We then took charge of the chicken and found it dead but still warm with a number of severe wounds from its head to its tail.

The chicken when placed on the scales weighed ten ounces, which is almost twice the weight of a blue jay. Scientists place the blue jay in the same family of birds with the crow, and it is well known that crows will kill young chickens, but this is the first instance of a blue jay committing the crime that has ever come to my knowledge, and from this day I have declared war on the blue jay.—Frank Slater, Pleasanton, Kan.

[Professor Dyche of Lawrence has written quite an exhaustive article on the depredations of blue jays in the chicken yard and also their habit of killing smaller birds than themselves. If blue jays are numerous around your poultry yards it behooves you to be on the lookout for them with a shotgun or your stock of chicks will be sadly diminished before the season is over.—Editor Poultry Dept.]

TRY THIS PLOW 30-DAYS' FREE TRIAL FREIGHT PREPAID

LOOK here, Men! I'm talking to you fellows that haven't asked for my Company's latest price quotations on the best Plow going. I have told you time after time in this paper just how Monmouth Plows are made and why they mean lighter work for you and your horses—And I've told you that I can name you the best values ever quoted. Now, I'm going on record here again that I can make you the best proposition you ever got. I'm going to prove it, too—if you'll let me. I see these other people's catalogs, have a stack of them here on my desk now—and I tell you my Company has them beat 40 ways on quality. It's up to us to sell 50% more plows this year than last. And we're going to do it, mainly because our implements stand up under what would be a breaking strain for other kinds. We're going to keep right on sending out these high-quality, low-priced implements on 30-Days' Free Trial and prepay the freight.

MONMOUTH SULKY AND GANG PLOWS.

Yes, Sir. I'll give you a chance to prove every claim I make and we'll pay the "damages," freight charges both ways if we "fall down" in a single assertion. I am going to give you all the leeway you want. Try out the Implement just as hard as you please, free. Let us pay the freight on the grandest, best Plow that ever turned a furrow. Get your name to me and know the Big Proposition my Company is holding open to you. Learn just how our Plows are made and how low our prices are. Put in your name to us on a postal—Address it to me, The Plow Man. I want to place before your eyes the Plow Proposition of a Lifetime. The quicker you write, the quicker you get action from me. We also make Disc and Spike Tooth Harrows.

"The Plow Man" with Monmouth Plow Co., 122 South Main Street, Monmouth, Ill.



Get Ready For Fall Plowing

Send for Free Catalog Today

POULTRY



It Pays To Caponize.

A capon bears the same relation to a rooster as a steer to a bull, and as bull meat is not equal to steer meat, so are roosters not equal to capons.

When cockerels become capons they cease to grow combs and wattles, do not crow and fight, grow much faster and finer flesh and bring more money than ordinary chickens.

If a cock weighs 10 pounds, a capon will weigh 15, and bring three to four times the price, \$125 often being paid for 100 capons.

It certainly pays to caponize surplus cockerels. A set of tools, with full instructions for using, cost \$2.50, and only ordinary skill is required.

For caponizing, cockerels must be less than six weeks old and weigh a pound or more.

This Hen Hard To Beat.

Mrs. George W. Applegate of New York state has an industrious and remunerative hen. Since April 25 up to May 25 this hen laid 130 eggs—unofficial report.

Although she has beaten all records at laying eggs, she is modest and retiring, and so far from boasting that she emitted not even a cackle.

No nervous collapse threatened the hen. She preserved her mental poise and attending to business strictly, laid seven more eggs during Thursday night. She kept up the continuous performance all day Friday.

The hen now appears to be in a good healthy condition, but there is a drooping air about her, which seems to indicate that she is disappointed at not having been able to improve her record.

Poultry Show.

In addition to the live stock exhibition to be held at the Alaska-Yukon-Pacific Exposition, September 27 to October 9, and in connection therewith, will be held one of the largest poultry shows ever contemplated in the West. A comprehensive premium list is now ready for distribution, giving a complete list of the prizes, medals and diplomas to be awarded, together with the rules and regulations governing the contest. Poultry fanciers from all over the Pacific slope, as well as many from the Middle West and Canada, will take part in this competition. The rules of the American Poultry Association will govern and part of the judges have been selected, including George D. Holden of Minnesota, S. Butterfield of Canada and others of national prominence. Pigeons and pet stock will be included in the show and William Stobehouse of Vancouver, B. C. will be a judge in this department. Ample accommodations will be prepared

for all entries and the liberality of the premiums offered insure a splendid exhibit two car-loads coming from Minnesota alone. The poultry industry is one of the growing ones of the Pacific Northwest and this branch of the live stock is bound to attract universal attention.

How Old Is Biddy?

English authorities hold that there is no certain test of age for fowls. But they admit that, in general, the spurs, both of hens and cocks, will distinguish a 2-year-old bird.

There are exceptions, however, in which really young birds develop old-looking spurs, while really second-year birds preserve the short, rounded spurs of a cockerel.

The texture of the leg is a guide to some extent, and so are the delicacy and freshness of the skin of the face and comb, but still an occasional hen will preserve her youthful appearance to a startling degree.

The skin of the body is a better test, as it becomes coarser and dryer-looking with age.

Formerly the wing feathers were considered an absolute test as between a pullet and a hen, even after the long practise of early breeding had made the molting of early pullets quite common.

An Austrian authority says that a pullet will show rose-colored veins on the surface of the skin, under the wings.

There will also be long silky hairs growing there. After a year old these hairs disappear, as also do the veins, and the skin grows white and veinless.

It is more difficult to judge the age of water fowls than of other poultry.

The Most Profitable Time to Buy Breeding Stock.

The question of purchasing breeding stock, the best time to buy as well as the advantages thereof, has frequently been placed before me of late. In answer I consider the months of July and August, as well as early September, the ideal time to get the foundation stock for our next year's breeding. If we are wanting old breeders we can usually, at this time of year, get them for about two-thirds of the price or sometimes at one half the real breeding value, as the owners are through with them for the present season and doubtless is overstocked and must make room for his young. This is both an advantage to the purchaser and the seller. The buyer can perhaps raise a few late chicks or prepare for early fall shows, while the seller makes room for his oncoming stock.

If we are wanting young stock and place our order with breeders of reputation we can get the best of birds for about one half what they would be worth late in the fall or early winter. Judging from the letters which I have received of late there are more than I who are in favor of early buying.

However there are some who think chickens cannot be safely shipped during warm, or rather as it is termed hot weather. But when we come to think about the place the chickens have in which to travel, in the express car, they are in the coolest part of the train and at the stations they are placed in the shade so it seems to me that chickens if properly crated can travel with as much comfort as people.

The best way I find to crate chickens for warm weather is to make light coops of lath and fasten one-half gallon molasses buckets to provide feed and water. Always upon receipt of a coop of chickens they should be watered before being fed. This prevents them from over eating and getting crop bound. The best food for first feed is wheat bran mixed with sweet milk. They cannot eat too much of this.—Mrs. Lizzie B. Griffith, Emporia, Kan.

Wagon Loads of Eggs.

Eggs by the wagon load, hauled for many miles over a rock road, in almost exactly the same manner as a western farmer transports his corn crop, is the way the Ozark region

BREEDING STOCK FOR SALE

In order to make room for growing stock I will sell a few dozen W. P. Rock hens at \$10 per dozen or less quantities at \$1 each. Such breeders would be worth from \$2 to \$5 each at breeding season. Some late chicks might yet be gotten out of them.

THOMAS OWEN, Station B, Topeka, Kansas.

For Sale

S. C. Buff Orpington and R. C. R. I. Red cockerels, \$1 to \$5 each.

White Plymouth Rocks, pullets and cockerels, for \$1 to \$2.50 each.

Also some of my breeding stock of Reds, White Rock and Buff and White Orpingtons, \$1 to \$5 each. Extra fine White Plymouth Rock 2 year old male bird \$2.50.

Mrs. Lizzie B. Griffith,

Route 3, EMPORIA, KAN

RHODE ISLAND REDS.

ROSE AND SINGLE COMB RHODE ISLAND REDS.

Eggs from any mating half price remainder of season. Mixed eggs Rose or Single Comb from several matings \$1 per setting. Red pullets hatched in midsummer will make winter layers Write for descriptive mating list. It is free.

H. A. SIBLEY,

Lawrence, Kansas.

BUFF COCHINS.

BEST BUFF COCHINS IN KANSAS. This variety exclusively. Can furnish eggs from prize winning stock at \$1.50 and \$2 per setting. J. C. BAUGHMAN, Topeka, Kan.

BUFF ORPINGTONS.

BUFF ORPINGTONS.—Chks., pens, baby chicks, eggs. More first prizes State Fair and State Shows than all other breeders. Poultry Book, containing information worth hundreds of dollars to farmers and for 10 cents. W. H. MAXWELL, R. 95, Topeka, Kan.

LIGHT BRAHMAS.

LIGHT BRAHMA EGGS from birds scoring 93 to 94 by Judge Rhodes \$1.50 per 15, large flock \$1 per 15, \$4 per 100. Baby chicks each month \$2 per dozen. MRS. A. P. WOOLVERTON, R. 8, Topeka, Kansas.

PLYMOUTH ROCKS.

BREEDERS.

Our White Rock breeders are for sale at right prices.

SMITH & KNOFF,

Route 2, Mayetta, Kan.

PURE BRED POULTRY.

SUNNY CREST.

Stock, fruit and poultry farm. Eggs to sell from M. B. turkeys, R. I. Reds and Leghorns. Registered Jersey calves and Poland China hogs for sale. Write me. WM. BRITE, Pierce City, Mo.

LEGHORNS.

SINGLE COMB BROWN LEGHORN eggs 15 for \$1, 100 for \$4. H. N. HOLDEMAN Meade, Kan.

poultry raiser gets his eggs to market. On the streets of West Plains, Mo., which, according to the St. Louis Republic, has become a great poultry and egg market, it is a daily occurrence to see wagon loads of eggs, many of them coming a distance of more than 60 miles

Filling a wagon with eggs so that they will ride without breaking is an art that requires skill. The Ozark huckster and freighter has this down to a nicety, and it is seldom that he breaks more than two or three dozen of the big load in the long journey over the mountains.

In loading a wagon with eggs a three-inch layer of straw is placed in the bottom of the wagon bed. Then the eggs are carried out to the wagon in buckets and small boxes. They are poured on the straw without ceremony, and the driver, with a broad stroke of his hand, scatters them out in a single layer. When the layer of eggs is complete another covering of straw is put on and more eggs are put in the wagon until the entire bed is piled high. Then boards are put on top of the load to hold it down. Usually the huge pile is much higher than the top of the wagon bed, and then it becomes necessary for several persons to get on the boards to bring

them down to a level with the top of the wagon bed, and they are nailed down.

A chain is wrapped around the middle of the wagon bed and on top of the wagon is put the driver's bedding and "grub" box, and sometimes a big bale of cotton. Eggs ride better this way than if they were packed in cases with strawboard fillers. Frequently the driver walks around on top of the wagon without fear of doing damage, and the jolting of the heavy load over the hills of the Ozarks does not crack many of the eggs. One thousand eggs is an average load, but many freighters bring more than this number if the condition of the roads permits and the hens have been busy.

In many respects an early yielding variety of corn is best in all parts of the country. In the north because it gets ahead of the earlier frosts, which are always a possibility, and in the south because it matures before the hot, dry weather comes. Now is the time to begin to plan for the variety to be planted next year and to hunt for the best.

When writing to advertisers please mention Kansas Farmer.

WOODYWORTH TREADS



Save Automobile Tires

They are tire protectors, made of chrome leather studded with steel studs held on the tires by spring wires on each side. Anyone can easily fit them to any make of tires.

They cost only about one-half as much as tires.

Puncture Proof Non-Skidding

Will save double their cost even on good roads. On rough, rutty or rocky roads they will save over half the tire expense, besides doing away with punctures and skidding.

The only protectors that never heat or chafe the tire.

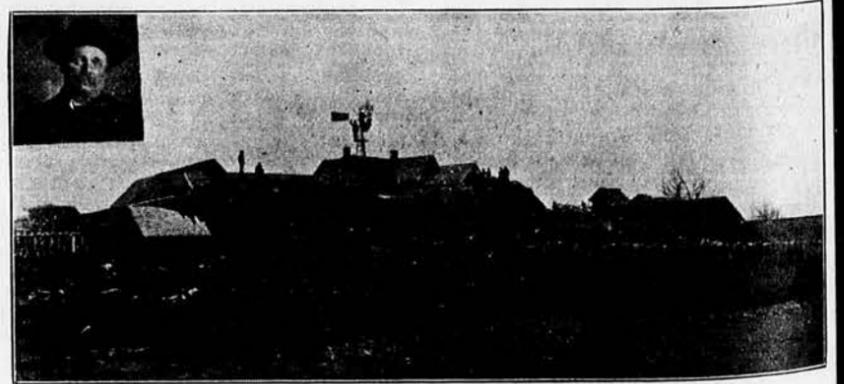
Guaranteed to give good service and to save the tire.

Over 40,000 sold in last three years.

Send for free catalog and our special offer.

LEATHER TIRE GOODS CO.

2402 Whirlpool Ave.,
Niagara Falls, N. Y.



Home of William Shirley and His Big Shorthorns, Milo, Kan.



Average weight 2,007 Pounds. Some of the Big Shorthorns Raised by William Shirley, Milo, Kan.

PUBLISHERS' NEWS

Stack Covers at Wholesale Prices.
Stack covers are more and more used by farmers. It would seem that nearly every farmer should have a supply of stack covers. They cost little. Sometimes they save a great deal. Their usefulness, in fact, is very apparent. The Kios Mfg. Co., Factory D, St. Joseph, Mo., makes good stack covers of the best grade of duck. See ad on page 11. The ad quotes prices.

A Roof That Needs No Painting.
Amatite Roofing is well known to many of our readers as a prepared roofing second to none. Its first cost is low, and it lasts. You can get a free sample for the asking, and also a booklet telling all about it. If you have been thinking of doing some roofing and have planned to use shingles, would it not be well first to look up the merits of such a tested roofing as Amatite? For sample address Barrett Mfg. Co. at one of the cities named in the ad on page 12.

Save Automobile Tires.
Readers of Kansas Farmer who have autos will surely be interested in the ad of the Leather Fire Goods Company, 2402 Whippool Ave., Niagara Falls, N. Y. See announcement on page 10. The ad describes "Woodworth Treads" for saving automobile tires. They are tire protectors. They are puncture proof and they will not skid. They are guaranteed. Their popularity is shown by the fact that over 40,000 of them have been sold during the last three years. They fit any make of tire. Send for free catalog and special offer to above address.

The Monmouth Plow Co.
The Monmouth Plow Company is one of the very best, most reliable firms manufacturing plows anywhere. This company tells about its sulky and gang plows which are sold by the makers direct to the farmers. You will be interested in the illustrated ad on page 9. Now is the time surely to look into the plow question. The Mammoth Plow is sold on 30 days' free trial freight prepaid. The company is making a very attractive proposition at the present time. At any rate it will pay you to send for the free catalog offered. Better send for it today. Address "The Plow Man," with Monmouth Plow Co. 122 South Main St., Monmouth, Ill.

The Topeka Packer.
The Topeka Foundry Company makes the well known Topeka Packer for dry farming. This packer is used in Kansas and other central western and southwestern states. Its use is growing yearly. It can be used to splendid advantage all over Kansas. See ad with illustration on page 13. Better drop a postal asking for booklet No. 1. Address Topeka Foundry and Machine Company. Say you saw the ad in Kansas Farmer.

School and College Advertisements.
Kansas Farmer is carrying in current issues a considerable number of school and college advertisements. We are proud to carry the announcements of these excellent institutions. They appear on page 6. Many of the young people in the families of Kansas Farmer readers are planning to go away to school this fall. We would respectfully suggest that such young people and their parents cannot do better than to send to these institutions for catalogs and for other information desired. When you ask for catalogs will you not say you saw the offer of the catalog in Kansas Farmer?

Missouri Auction School.
There was a period, in days of old, and days not so very old after all, when a system of education for auctioneers would not have met the welcome that has been given to the science of successful auctioneering, as it is today. It would have been deemed of no value, because unnecessary. In those days auctioneering was looked upon as an occupation not worthy of refined or gifted natures, and were not supposed to have need of any education whatever. It is true we have advanced a long way from those narrow views, and many of the successful auctioneers are bank presi-

INVESTIGATE--THEN BUY.

When a farmer contemplates buying a grain drill, he should, in his own behalf, investigate that implement before he purchases. The best way to do is to write to the manufacturer for his catalogue, read it carefully, and then go to the nearest retail implement dealer, and insist on seeing the drill before purchasing. That's what the American Seeding-Machine Co., incorporated, Springfield, Ohio, wants the farmers to do regarding the old, time-tried drill, the Farmers' Favorite. This drill has been on the market continuously for more than half a century, satisfying the most particular farmers in every section of the grain raising world. With it the user can sow any and every known seed from the smallest grass seeds to the largest beans. It will also handle successfully all known brands of commercial fertilizers. It is sold under a fair and square liberal guarantee to everything claimed for it. Therefore purchasers are at no risk in buying it. There are so many unique and valuable features on the 1909 Farmers' Favorite that it is impossible to tell about them here. Write for a copy of the Farmers' Favorite catalogue, read it carefully, and go to your dealer and insist on seeing the drill. Do not forget the Farmers' Favorite Horse Five Disc Drill for sowing between rows of standing corn. This drill will plant right, is easy to manage and fully guaranteed.

THE AMERICAN SEEDING-MACHINE CO
(INCORPORATED)
SPRINGFIELD, OHIO

dents, other are legal advisers and stand high in the business and social world; but it seems as if there is yet much room for improvement. Even in our own day the physician, the lawyer, the dentist the civil engineer and the members of various other professions, are all supposed to require a much better education than persons engaged in auctioneering. But is this true? We claim emphatically that it is not. If there is anybody who needs to dig down to law and principle, needs the filling in of knowledge and the drawing out of latent powers, which are both essential to thorough education it is the auctioneer, who bears the mighty burden of distributing the world's wealth. So if you have any idea of attending a school of this character, we would advise you to send for 80 page illustrated catalog. Address Col. W. B. Carpenter, Trenton, Mo., and kindly mention this paper.

Bargains in Kansas Land.
The Bersie Real Estate Co., at Cicero, Kan., are offering some valuable farms reasonable in Butler and other counties. If you are contemplating changing your location write them for prices. You will find this firm honest and reliable. They have the goods and will treat you right. Mention Kansas Farmer when you write.

Why Chicks Die in the Shell.
Last week Mrs. Lizzie B. Griffith answered this question, "Why chicks die in the shell." I think it is answered as nearly correct as any cause yet found. I had the same experience that she did. I was running two machines, was busy cleaning house, etc., and I forgot the date, so I tested out my eggs on the 17th day, supposing that it was the 18th day. On what I supposed was the 19th day no eggs piped. I took my chick diary and looked and discovered that it only the 18th day. I thought I had fixed things but could not help it, so I sprinkled the eggs and let them alone. The next morning, or the 19th day, I never saw so many eggs pipped. By the evening of the 20th day I took my traps out. I set 215 eggs, tested out 40 and hatched 164 chicks out of 175 eggs. I set my machine three times. The first hatch was a 70 per cent, the second (or where I quit turning eggs on 17th day) was 93 per cent. The next hatch was 72 per cent. I turned the eggs on the 18th day so you see that the hatch was 21 per cent. The best hatch was from these I stopped turning and airing on the 17th day.—Mrs. Mollie Buckman, Topeka, Kan.

How to Feed Chickens in Small Pens.
Please tell me what you consider the best feed for chickens, where they must be kept up in small pens as the city ordinances provide, so as to keep them healthy and make the hens lay? A great many of us who keep a few chickens in town will be glad to have your advice.—A. J. Ward, Emporia, Kan.

Ans.—It is contrary to nature for chickens to be penned up. They naturally love free range, but when compelled to restrict them to small yards in conformity to city ordinances, they must have extra care and attention.

When chickens are confined, it should be the aim of the owner to provide them with those things that they would naturally get if allowed free range; and first of all plenty of sharp grit should be in their yards at all times. Next should be meat in some form to replace the bugs and insects that they get when foraging. Green food should be provided in the shape of lawn clippings or if they are not available, alfalfa, clover, or some other forage plant. Plenty of exercise is also a necessity for penned-up fowls. As to the best feed; a variety of grains is better than any one kind. For a few fowls, there is no better chicken food than the scraps from the dining or kitchen table. Plenty of pure drinking water should always be provided. If the house and yard is kept clean with above directions for feeding there is no reason why a few hens in a city lot should not lay more than sufficient eggs to pay for their care.

The Value of Barnyard Manure.

(Continued from page 1)

where constantly tilled, exposing so much of the soil to the direct action of the air. The heavy clay soils are lightened by the humus and become more productive. They can retain more moisture because of the improved physical condition. A clay soil is inclined to pack and bake, and forming a complete capillary system, exhaust the reserve soil water. The addition of humus prevents this action to a large extent. In sandy soils which are very porous the humus tends to make them more compact, thus preventing the loss of soil water again though in another way. In



CORN IS A DOUBLE CROP FOR THE MAN WITH THE RIGHT MACHINES

THE grain—that is, the ears—represent only about 60 per cent of the feeding value of your corn crop. The other 40 per cent—almost half of the feeding value—is in the plant.

If you leave the stalks standing beyond the time that the corn has reached its maturity, the feeding value of the fodder dwindles to almost nothing. The wind and weather leave little more than woody fiber.

Then you get only the ears as your return on the crop. You make corn a single crop.

To make corn a double crop—to get your full 100 per cent feeding value—handle the crop so that the fodder will be about equal to timothy hay for feeding.

USE I. H. C. CORN MACHINES

You cannot harvest the corn rapidly enough by hand to conserve the nourishing elements of the fodder. To hire enough help to do this would eat up the profit. Go over the field when the ears begin to glaze, with a Deering, McCormick, Milwaukee or Osborne corn binder. One man and a team is all that is needed. The harvester will cut and bind the corn as fast as the team can walk, and dump the bundles in piles ready for shocking.

Then put the crop through the husker and shredder. A Deering, McCormick or Plano husker and shredder will husk the ears, cut the stalks, leaves and husks into fine shreds, giving you a roughage rich in protein, starch and sugar and one that the stock will relish.

That's the 100 per cent way of handling the corn crop—that is how thousands of farmers have doubled up on returns from their corn land.

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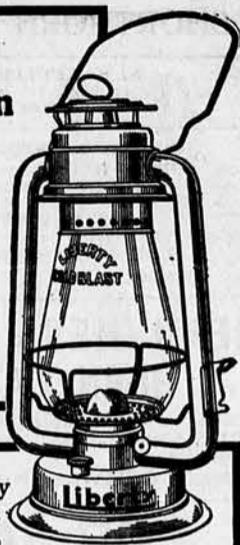
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arid soils the original supply of humus is considerably less than in humid soils, and the need of humus soon becomes more imperative than elsewhere. Barnyard manure may be profitably applied, but greater precaution has to be taken in applying it. In this case immediate plowing under would be a profitable practise so as to promote the most rapid decay

and not allow it to become dried. In conclusion it must be borne in mind that while barnyard manure is a valuable fertilizer it will not always suffice as it is deficient in potash, phosphoric acid and nitrogen, also that its chief value is the addition of humus to the soil, and that much of the benefit results from the improved physical condition.

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who is always alive and who knows Kansas conditions, writes: "The ball will start rolling at Conway Springs on August 3, when Jenkins & Clark will sell as good a bunch of Poland Chinas as have ever been offered in the Southwest. I should like to see every breeder and every lover of Poland Chinas at this sale or represented. The prospects for corn in Kansas and Oklahoma were never better. No doubt these hogs will sell at this early sale from \$10 to \$25 cheaper than they would later in the season. These gentlemen are putting into this sale stuff that is good enough to go into the best herds in the country and they certainly deserve a good attendance at this opening sale of the season. If Jenkins and Clark have a good sale on August 3 (and they certainly will with the offering they will put up) it will encourage every breeder and insure success of the sales which follow. Come and be with us at Conway Springs. I want to see that satisfied smile on your faces which I am sure to see if you attend this sale."

Col. Lafe Burger Live Stock Auctioneer,
Wellington, Kan.

Col. Lafe Burger, the well known auctioneer, spent a few days in Topeka a short time ago, and called at Kansas Farmer office and renewed his ad. Col. Burger will pay special attention to pedigreed live stock sales. Col. Burger, or "Lafe," as he is known among the live stock men, has lived in Kansas for 10 years and has been in the auction business more than 15 years. He is a man with ability, a tireless worker and



LAFE BURGER.

eminently qualified to render perfect satisfaction to any who may employ him. If you want an able auctioneer for your next sale it might pay you to write Col. Burger for a date. A first class and up-to-date auctioneer can often earn for the breeder employing him, his entire fee on the price of one animal sold. Col. Burger has a wide acquaintance and has made successful sales in several states. His charge is reasonable and he is prepared to give you first class service.

The Chandler Shropshires.

The advertising card of Chandler Bros., Charlton, Ia., in Kansas Farmer means much to the farmers of this and adjoining states. Kansas needs more sheep and she needs them badly. Kansas needs good sheep and the Shropshires have proved very nearly that kind. Kansas needs good Shropshires and the Chandler Bros. have them. In fact, there are none better as is abundantly proved each fall by the uniform success which they meet in the show ring. With their unrivalled facilities for inspection and purchase the Chandler Bros. are in a position to import better Shropshires than any other importers known to the writer. They maintain a branch office in England. In the very heart of the Shropshire breeding country and another in Canada from whence many of our best sheep are imported and these, with their big breeding farm at Charlton, give them the best of facilities. Just now they have landed an excellent importation which includes the second prize aged ram at the English Royal, first prize yearling ram, first and second yearling ewes, first and second ewe lambs. Where can one get better Shropshires?

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We wish to call the attention of our readers to the high class Poland China sale to be held at Conway Springs, Kan., Tuesday, August 3. This offering is of the quick maturing, easy feeding type. The type our market reports show bring the top price and what our markets are demanding is a smooth, well finished hog weighing from 225 to 250 pounds. Messrs Jenkins & Clark have consigned some of the very best

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