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## Agricultural Matters.

### SOIL FERMENTS IMPORTANT IN AGRICULTURE.

By H. W. Wiley, Chief of the Division of Chemistry, United States Department of Agriculture, from the Yearbook of the United States Department of Agriculture for 1895.

(Continued from last week.)

#### PRODUCTION OF NITROUS ACID.

The next step in the process of nitrification is the conversion of ammonia or its compounds into nitrous acid. With a moderate store of ammonia the oxidation into nitrous acid takes place as a rule without any of the nitrogen being lost in a free state or being volatilized as ammonia compounds. When, however, there is a large excess of ammonium carbonate, a considerable loss of nitrogen may take place. The practical deduction to be drawn from this fact is apparent. Nitrogenous fertilizers should be applied only in moderate quantities, so as not to increase the stock of material beyond the power of the active ferments to handle it.

The nitrous ferment is by far the largest and most vigorous of the nitrifying organisms. It is from three to four times as large as the nitric ferment, and under a high power of the microscope appears as minute globules, slightly oblate. These globules are multiplied by spores, which develop rapidly to perfect organisms of full size. In most cases the organisms appear as distinct globules, but many are congregated into masses where the distinctive cell structure seems to be lost.

#### CONVERSION OF NITROUS INTO NITRIC ACID.

The last step in the process of nitrification consists in the oxidation of nitrous to nitric acid. As a rule plants absorb nitrogenous food only as nitric acid, but it cannot be said that the nitrogen may not be used by the plant in other forms. Some experiments seem to show that ammonia and its compounds may be directly absorbed by plants, but if this be true it must be only in a very limited quantity. The final step, therefore, in nitrification is necessary to secure this valuable food in its most highly available state. The nitrifying organisms are much smaller than their nitrous cousins, and of the same general shape but more globular.

It must not be supposed that these steps in the preparation of a nitrogenous food are performed with entire distinctness. The impression might be obtained that the ammoniacal ferment exerted its activity, converting the whole of the nitrogenous supply into ammonia, and that in this state only the nitrous ferment would become active and convert the whole product into nitrous acid which finally, under the influence of the nitric ferment, would form nitric acid. In point of fact, however, in arable soils and under favorable conditions the steps of nitrification may be almost synchronous. In the case of a growing crop, a chemical examination or repeated chemical examinations might find only traces of ammonia and nitrous and nitric acids. As each particle of ammonia is formed it is converted without delay into nitrous acid, and then at once into nitric acid. The nitric acid formed would be absorbed by the growing plant, and thus it might seem that the activity of the ferments present in the soil had been reduced to minimum, when in point of fact they were exercising their functions with maximum vigor. The separate stages of nitrification mentioned above can only be secured in the laboratory by a skilled bacteriologist patiently working to separate the different genera of nitrifying organisms until he procures them in an absolutely pure form. As may be supposed, this is very difficult to accomplish.

#### CONDITIONS FAVORING NITRIFICATION.

The further discussion of the character of the micro-organisms producing nitrification and their relations with each other, although highly interesting from a scientific point of view, would have no great interest for the practical farmer. For him the most important thing is to know how to secure in the field the most favorable conditions for the development of those soil ferments

upon whose activity the abundance of his crops so intimately depends.

#### INFLUENCE OF POSITION.

The vitality of a nitrifying organism is as a rule greatly diminished as it occurs at a greater depth below the surface. For this reason it is found that these ferments occur in the greatest numbers and with a maximum vitality near the surface of the soil. It follows from this that the conditions favoring the development of these ferments are largely found in good drainage and good cultivation. In experiments conducted in this division it has been found that in low, wet lands, especially those standing under water for a good portion of the year, the nitrifying organisms are almost unknown. Such a soil may be rich in stores of nitrogenous material, but even after the water has been withdrawn and crops are planted it will be found that they do not grow luxuriantly by reason of the deficiency of the number and vitality of the nitrifying ferments. Practical farmers know very well that in reclaimed lands, after the water has been removed, it is found necessary to thoroughly plow the soil and leave it exposed for one or more seasons before good crops can be produced. One of the chief reasons for this delay is doubtless due to the fact that it requires a considerable time for the nitrifying organisms to be developed and properly distributed through the soil.

#### EFFECT OF TEMPERATURE.

Another condition favorable to the activity of soil ferments is warmth. As has already been indicated, a maximum activity of these organisms is shown at a temperature of from 85° to 95° F. Everyone who has lived upon a farm knows how rapidly the growth of a crop will be checked by a fall of temperature. It is evident, however, that this depression of temperature does not diminish in the least the quantity of prepared food to which the plant has access. The unfavorable influences of a low temperature are doubtless found not alone in the sluggishness of the movement of the sap through the cellular tissue of the plant, but also in the fact equally as patent that the diminished activity of the soil ferments prevents the rootlets of the plants from absorbing their normal rations of food.

#### ACTION OF LIGHT.

At this point attention might be called to a fact showing the difference between the activity of the soil ferments and of the plant cells. It is well known that in the latter case, viz., the activity of the plant cells, the influence of light is of the utmost importance. It is true that while plants may grow to a certain extent when deprived of direct sunlight, yet such plants grown in semi-darkness never reach maturity, and the products of their vitality are often quite different from those of the normal plant. In etiolated plants—that is, those grown in the dark—are often found products which do not occur at all in those subjected to normal growth. The action of sunlight is therefore indispensable to the full functional activity of the supra-terrestrial parts of plants. On the other hand, it is seen that the action of sunlight is highly prejudicial to the development of the soil ferments. Exposed to a bright light, the activity of these ferments is diminished until it reaches practically the vanishing point. Happily, the surface of the soil, being almost impenetrable to light, preserves the organisms lying even near the surface from the deleterious action of the sun. Warm nights, therefore, are even more favorable to the development of soil organisms than warm days, and all are familiar with the phenomenal growth which many plants make during the night.

#### BENEFIT OF AERATION.

From what has been said above it can be inferred that a proper aeration is also necessary to the development of the functional activity of the fermentative germs. Good drainage and cultivation secure a free circulation of air through the soil and this is essential to the process of nitrification, which is simply oxidation produced by low vegetable organisms. While it is important, as indicated above, to remove the excess of water to secure proper aeration, it should not be forgotten that a certain

amount of moisture is necessary for the life of the micro-organisms. Experience has shown that when the soil contains from one-third to one-half of the total moisture it is capable of holding, the proper quantity of water is supplied for the most rapid growth of the nitrifying ferments.

#### UTILITY OF TILLAGE.

Among the influences which favor the process of nitrification tillage of the soil must be mentioned. A thorough breaking up of the soil and of the upper layers of the subsoil is necessary to the aeration which is an indispensable condition to the progress of nitrification. The cultivation of the soil, therefore, in this way not only makes it possible for the rootlets of the plants to extend to a greater distance and thus secure larger quantities of food, but actually increases the available quantity of nitrogenous food in the soil. In connection with thorough drainage the best tillage of the soil thus tends to make available its stores of inert nitrogen.

#### NECESSITY FOR LIME.

Since the final action of the nitrifying organisms results in the production of nitric acid, it is highly important that the soil contain some substance capable of combining with this acid and thereby preventing its accumulation in a free state. The activity of these ferments is diminished by the presence of an acid and increased by a moderately alkaline environment. If the acid be allowed to accumulate to a certain point, not only is the activity of the ferments suspended, but a positive injury may be done to a growing crop. All practical farmers know how poorly sour lands respond to cultivation, and this injurious influence is due not only to the action of the acid upon plant growth but also in a high degree to its effect in preventing the evolution of the nitrifying organisms. It is well known that a soil which has an abundant content of carbonate of lime is, as a rule, fertile. The value of lime as a fertilizing agent in many soils is well attested, yet it is certain that this favorable effect is not due to the fact that an additional amount of lime is necessary for plant food. Soils are rarely found which do not contain an abundant supply of lime for all the nutritive needs of plants. It is certain, therefore, that the chief value of the use of lime in agriculture is to be found in some indirect influence which it exerts upon the soil. Heretofore three special methods have been pointed out in which lime exerts a beneficial influence. In the first place, it profoundly affects the physical structure of stiff soils, producing a flocculation of the silt and thus preventing its deposition in individual particles. A well-limed soil is thus apt to be open and porous and easily tilled. In the second place, the lime exerts a certain soluble influence on undecomposed particles of rock, thus favoring their speedy decomposition and the consequent freeing of the potash and phosphoric acid which they contain. In the third place, the added lime tends to correct any acidity of the soil which may be due to the accumulation and excess of humus, or which may arise from imperfect drainage.

It must be admitted, however, that one of the chief benefits of the introduction of lime into a soil is derived from the fact that it favors in a high degree the evolution and development of the nitrifying ferments.

The lime which is used for fertilization is, as a rule, chiefly in the form of oxide or hydrate, that is, slacked lime. After its incorporation in the soil, however, both the oxide and hydrate of lime are rapidly changed to carbonate under the influence of the carbon dioxide (carbonic acid) which is found in the atmosphere of the soil in notable proportions; in fact, in a much higher percentage than in the air. The soil thus becomes permeated with lime carbonate in a fine state of subdivision, a condition especially well suited to favor the growth of the nitro-organisms. Hereafter, therefore, in discussing the benefits of the application of lime, this function of it must receive due consideration. It will not be at all surprising if future investigations should establish the fact that this

## The Only One To Stand the Test.

Rev. William Copp, whose father was a physician for over fifty years, in New Jersey, and who himself spent many years preparing for the practice of medicine, but subsequently entered the ministry of the M. E. Church, writes: "I am glad



to testify that I have had analyzed all the sarsaparilla preparations known in the trade, but

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use of lime is of far more importance in agriculture than any of the others above noted.

(To be continued.)

#### Sees Good Times Coming.

EDITOR KANSAS FARMER:—In my travels over this part of the State, and, in fact, from here to the Missouri river, corn is very fine and the people are now sure of the largest corn crop Kansas has produced for years. The feeling among farmers and merchants is much better since they know for a certainty that they are to have this great corn crop.

My opinion is that we are just entering upon another era of prosperity, and the result will be that Kansas will again be the place for the home-seekers to come.  
C. F. DEITRICH,  
Of Deitrich & Gentry, Richmond, Kas.  
Minneapolis, Kas., July 22.

#### Saving Green Corn in a Pit.

EDITOR KANSAS FARMER:—I have read the FARMER now for over a year, and have read much good advice, but I would like to read something about ensilaging corn for winter feed. I was back in Ohio last fall and I saw plenty of it there, but never saw a silo here and heard but little of it in this country. How would it be to dig a hole in the ground, like a cellar, about six or eight feet deep, throw the dirt all around, then fill that up, put several boards on the ground between the ensilage and dirt outside, then fill up round, will say about like a corn pile on the prairie? then throw dirt all over it again. A little old hay or straw might be put between the ensilage and dirt. Now, this dirt would have to be tramped down tight, so the dirt would be heavy and press down the ensilage. If any of the readers have experience with this plan, with good or bad results, I would like to hear it. Now, my brother farmers of this State, let us hear of some plan to build a cheap silo and particulars about ensilaging corn. I have it in my head to try it once on some plan.  
D. E. MAST.

Hutchinson, Kas.

In 1890 Col. Chas. H. Eldred, then of Medicine Lodge, Kas., saved some hundreds of tons of sorghum leaves from the sugar factory in a manner quite similar to that proposed by our correspondent. His excavation was probably twice as deep as suggested above and was to that extent better. The cane leaves when covered with earth and protected from the rains kept admirably. A trial of our correspondent's plan on a small scale with corn would involve little risk.

Young men or old should not fail to read Thos. Slater's advertisement on page 15.

## Preparation of Wheat Land.

EDITOR KANSAS FARMER:—As the time is now at hand to prepare the ground for the next wheat crop, it will be a good time to discuss the different methods of doing it—plowing, harrowing, drilling, the best style of drills, etc.

For the last three years many fields of wheat have been ruined by the dust being blown back and forth across the young wheat in the spring. Some claim that we have harrowed too much and got the ground too fine, and propose as a remedy that we leave the ground as rough as possible—not to harrow or pulverize the ground in any way. Others claim that cloddy ground will dry out more and become dustier than where the ground is compact. Some landlords have it in the contract with their tenants that they shall not harrow the ground any.

Last year we sowed some wheat in corn; left all the stalks standing as late as we could; did not break those on the wheat until after corn planting, and those on ground adjoining wheat we let stand as long as we could before plowing it for spring crops. On one field we had about ten acres of standing stalks. About the time the corn was large enough to work the dust began to blow on the farm south of us. It killed all the wheat and the most of the young corn until it struck the standing stalks. It did not extend over twenty rows into the stalks. They made a perfect windbreak. On the south side of the stalks all crops were injured; on the north of the stalks they were not hurt.

We are having abundance of rain—has rained every day for five successive days. The streams are full and water is standing in the low places in the fields. Good prospect for a large crop of corn and Kafir. Ground too wet to plow. But little threshing done on account of wet weather. What has been threshed did not turn out as well as expected. Wheat yields from five to ten bushels per acre, oats about fifteen.

D. M. A.

Rome, Kas., July 20, 1896.

## Fertilizing.

EDITOR KANSAS FARMER:—I am a young farmer, with practically little experience to draw from. For one or two years I paid much more attention to thorough preparation and cultivation of the ground for a corn crop than to fertility. Now I am convinced that that is a grand mistake, and that others are making it, as well as myself. The result of preparing and working the ground is meeting with much more attention, both in agricultural papers and in farmers' institutes, than the one of enriching the soil. But is not the latter equally or more important? I have one corn field in which some corn promises to make sixty or seventy bushels per acre, while corn not three rods away, which, of course, has received the same attention, with the same conditions, will not exceed twenty-five or thirty. The only explanation is that the first part receives the drainage from the barn yard and pig pens. Now I would like to have my whole farm that kind of soil. How can I do it, or at least approximate it? What is the best way of enriching the soil? Hauling manure, of course, is good, but besides being slow and for large fields rather expensive the supply of manure is soon exhausted. I have one field which I sowed to cane for feed but do not need it; would the crop plowed under be of much value? Would it be as good as a crop of rye plowed under, or as clover sod?

Wellsville, Kas. C. C. WATERS.

The KANSAS FARMER would like the experience of farmers who have plowed under cane. It has been suggested that a heavy crop of cane may hold the soil in so open a condition that it will dry out badly. It will doubtless produce good effects the second and third years. No kind of green manuring has ever been found equal to the legumes, of which clover is the one usually plowed under.

To make the hair grow a natural color, prevent baldness, and keep the scalp healthy, Hall's Hair Renewer was invented and has proved itself successful.

## The Stock Interest.

## THOROUGH-BRED STOCK SALES.

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

SEPTEMBER 17—W. H. Wren, Poland-Chinas, St. Joseph, Mo.  
OCTOBER 1—E. E. Axline, Poland-Chinas, Oak Grove, Jackson Co., Mo.  
OCTOBER 23—Gudgell & Simpson and J. A. Funkhouser, Herefords, Independence, Mo.  
OCTOBER 30—J. R. Killough & Sons, Poland-Chinas, Richmond, Kas.

## SUMMER SUGGESTIONS.

EDITOR KANSAS FARMER:—Seeing and reading so many useful hints and suggestions in the FARMER, I concluded that to offer a few random shots on subjects that I am familiar with might better the condition of some one and give him a "cut off," rather than have him learn by experience. In fact, we older ones are pleased to offer advice, believing we know; also a desire to appear in print, or to indirectly get a cheap advertisement. All this I have outlived.

The fighting of flies on domestic animals, also the heat and other causes, making calves' eyes sore, partial blindness, and affecting the eyes of older cattle. A remedy that is cheap and effective is as follows: When eye is sore and inflamed wash it off with soap and soft water; then wash it with a solution of copperas, say a teaspoonful to one quart of soft water. This will be enough for a dozen or more. This I consider the best astringent to use, but if a scale or growth has formed use calomel to remove this or any foreign growth. This can be injected with a quill or straw by blowing it in. Do not use calomel same day of using copperas.

Look well to the eyes of old cows and have your calomel on hand and attend to it at once. Do not wait for ulcers to form. This often causes lumpy-jaw and is hard to cure. To remove lumpy-jaw in early stage cut out or open well and fill cavity with concentrated lye. Twice is usually sufficient—three days from first operation will answer. Should this fail to kill the growth you had better kill the animal.

It is well to have a preparation on hand to ward off flies. Make this of pine tar, fish oil, carbolic acid, about in this proportion: One gallon pine tar, one gallon fish oil, one pint carbolic acid (crystal), boil until well united. Use strong soapsuds to make more quantity. Apply with a whitewash brush, or, better, with cloths tied on stick. Confine cattle in stall or otherwise. Add any old grease to mixture at any time—rancid grease answers well. We think it pays to relieve animals, if only for a few days.

I have well-nigh exhausted my resources on weeds. They come so quick and seed so well that they surely hold their own. It seems to me it would have been more humane to have had some kind of fruit spring up by the roadside, that the passers-by could relish, instead of thistle. The morning glory is another source to try one's patience. I know of no way better to suppress this pest than to smother it with alfalfa or clover. Sand-burs, morning glories and cockle-burs are not in it with alfalfa or clover well seeded. There is a weed we call cottonweed, seed black, very numerous, resembles the jimson in odor and other ways, that is, hard to get rid of. Surely, think I could have bettered either. Then we can expend hundreds of dollars to get blue grass, with wait and hope, and all kinds of weeds fighting for the ascendancy, while there is a species of grass that nothing likes, called foxtail, that appears to grow and thrive well with sunshine and moisture and has the character of maturing seed twice a month, and maintained, too, as a grass, worse than the sand-bur or smartweed. The whole arrangement seems a mystery. Why not have some rest? We are now advised of a mustard that travels with the wind and seeds as it goes, said to be worse than the Canada thistle.

I have tried to impress it on my boys and other people's boys that thorough culture is surely the road to prosperity. But they take the negative and say we will have weeds anyway—that if we push out one another takes its place, possibly worse. If life is worth the

living it seems that alfalfa and clover will make the bulk of feed for our cattle and hogs, and with corn, which we can raise cheap, accept the times. If there is a hereafter and no better than this life we think but few desire it. And I assume this, that if those here had been consulted prior to birth there would have been less here.

I intended saying something in this article on black-leg in calves, being reminded by circulars and otherwise as to vaccination, etc. Will briefly state that the disease is a myth, and no such disease does or will exist. So-called black-leg is a gorged state of the third or ruminating stomach, causing extreme heat, which may be called fever, which increases unless an action on this part of the stomach is reached with oil or some purgative, which would be almost impossible to reach from the swallow. This compaction of the manifolds is something similar to the murrain in older cattle. I have carefully examined many of each. A calf may become bloated with only milk if thriving rapidly. Usually when it has milk and other rich food, thriving fast, with extreme fullness, this is the danger period. The remedy is prevention. If the calf is fed so as to have its bowels regular, and keep the third stomach acting, there is no danger whatever. But if this stomach becomes clogged no medicine can reach it in time to save life. The manifolds become dry, fever becomes hotter, the heated blood is forced to the surface, and settles in the weakest place. It may be on the head, hip or back, or, as it often is, on the leg. We believe and know that if calves are learned early to lick bran, with little salt, which they soon relish, and if a calf is forced with feed and its mother's milk, there is more danger of compaction in this case and will require more care for the animal to have relaxing food. I sometimes give a little saltpetre or sulphur in their feed, and always use oil meal for those I am raising in flesh fast. This is it in a nutshell: Put a little salt on their feed regular—no clog, no compaction, no black-leg. The eminent Dr. Randall, after exhausting almost every remedy known on sheep, etc., settled down on this—that no better remedy existed than sodium (common salt). So I say on ruminating animals, but be sure and give it to them if forcing or fattening fast. R. A. STEELE.  
Belvoir, Kas.

## What Horses to Breed.

A noted horse dealer says in an Eastern exchange: "The Hackney cross on our American-bred or thoroughbred mares produces an animal with more dash and vim than the pure-bred Hackney, and with his beautiful shoulders, short back, long, blood-like neck and head, and powerful quarters, not only fills the eye but is able to go a rattling good pace, and the hour or two that the man of business can afford to drive him is a delight to the animal as well as the reinsman.

"One thing about which the farmers make a mistake in breeding horses nowadays is that they breed to suit themselves. They must stop this if they wish to make money; they must breed to suit the market. I think that the future of horse breeding is brighter to-day than it has ever been, because the knife is being used more and more every day on the poor stallions, and the quality and individuality of the horses are being constantly raised. People who are fond of driving must have stylish animals, and it will pay the farmer not only to breed such animals, but after he has bred and raised the colts to make them. By this I mean matching them up, biting them thoroughly, accustoming them to the sights and sounds usually seen in the country or city streets, and having them ready to go to work the moment they are sold.

"If I might offer advice to the farmers of to-day who think of going into horse breeding," continued this veteran horseman, who handles in the neighborhood of 10,000 animals a year, "I would advise them to secure mares sixteen hands high, with some warm blood in them, well ribbed out, good quarters, oblique shoulders, deep through the heart, with plenty of room

## More

Medical value in a bottle of Hood's Sarsaparilla than in any other preparation.  
**More** skill, more care, more expense in manufacture. It costs proprietor and dealer  
**More** but it costs the consumer less, as he gets more doses for his money.  
**More** curative power is secured by its peculiar combination, proportion and process.  
**More** wonderful cures effected, more testimonials, more sales and more increase. Many more reasons why you should take

## Hood's Sarsaparilla

The One True Blood Purifier. All druggists. \$1.

Hood's Pills are the only pills to take with Hood's Sarsaparilla.

for the lungs, and with, above all things, an intelligent, blood-like, bony head. Breed for level-headedness, and above all things, forbid the man or boys about the place teasing the young colts. If the farmer will get two or three mares of the above description and mate them constantly to the same Hackney horse he will get colts easy to match and animals always in demand in our best city markets."

## To Keep Hogs Healthy.

EDITOR KANSAS FARMER:—I send a good recipe to keep hogs healthy and doing well, and in return I want some reader of the KANSAS FARMER to give us a good recipe to stop the hair from coming out and make the hair grow. Here is my recipe: Ten pounds sulphur, 6 pounds copperas, 3 pounds air-slaked lime. Pulverize and mix a pint of mixture to a gallon of salt and a gallon of wood ashes. Feed once a week. J. M. F.

## "American Sheep Breeder" Notes.

The New York butchers pay a high compliment to Canadian sheep and lamb feeders by labeling their finest carcasses "Canadian mutton."

At the present rate of absorption by the Colorado, Nebraska and Kansas feeders, there will not be a lamb of either sex left in New Mexico by the first day of November.

There is nothing better to sustain the vigor of the ram than a liberal feed of wheat bran. It has nearly all the phosphates of the wheat, and these nourish the nervous system.

The owner of a nice little flock of 7,000 sheep finds it to be a most profitable thing to dip the sheep twice or even three times a year. The increase of wool alone has paid the whole expense, for a healthy fleece can only grow on a healthy, clean skin.

## Important to Breeders.

Every one interested in improved stock should have the *Breeder's Gazette*, of Chicago, as well as the KANSAS FARMER, which we furnish for the price of one—both papers one year for only (\$2) two dollars; or we will supply the *National Stockman and Farmer*, of Pittsburgh, Pa. (the best general farm and stock journal in this country, price \$1.50), and the FARMER, for \$1.50. Send for sample copies to the papers direct, and save money and get a big benefit by sending your subscription to KANSAS FARMER, Topeka, Kas. No progressive farmer or breeder can afford at this low price to be without this great trio of farm magazines.

The wool market, like all other markets, seems to become more depressed under the pressure of the gold standard.

Don't waste the straw. It may not be as nutritious as good hay, but it contains enough food and fertilizing properties to be worth husbanding.

When skim-milk is fed to pigs the best results are obtained when at least one pound of dry food, such as shorts, oat meal or corn meal, is added to three pounds of milk. Skim-milk is easily digested, but to make a perfect ration some grain should go with it.

Kalamazoo, Mich., is famous for celery—also as the home of Thos. Slater, whose advertisement appears on page 15.

# Irrigation.

## THE FIFTH NATIONAL IRRIGATION CONGRESS.

By C. M. Heintz, Secretary National Executive Committee, in *Wind and Water*.

As the time draws near for the Fifth National Irrigation Congress to assemble at Phoenix, it becomes a matter of interest to briefly review the irrigation movement and what it has and proposes to accomplish. The first irrigation congress was held in Salt Lake City, Utah, in 1891. It was called more in the interests of a movement to secure the cession of the arid lands still under federal control of the several States and Territories comprising the arid West, rather than to treat the subject of irrigation in its utilitarian phases. The sentiment of that congress was decidedly in favor of seceding these lands, and for the several States to develop them upon lines of practical irrigation. Resolutions asking for the cession of the arid lands were unanimously adopted and provisions were made for calling future meetings.

The second congress was held in Los Angeles, in October of 1893. It was a representative body of men fully in touch with the aspirations and longings of western America, and represented on broad-gauge lines the best thought and experiences bearing on the irrigation problem in all its phases. The public mind in the interim between the Salt Lake and Los Angeles meetings had veered somewhat from the declared principles of the former meeting for ceding the arid lands to the States to that favoring national control. The subject was ably discussed by the two contending parties, but no definite action was taken other than a recommendation to refer the entire question to a national commission. The address issued to the country made a strong plea for uniform State and national legislation, and the Congress also provided for the formation of State commissions to study the irrigation problems under the peculiar conditions prevailing in their respective sections of country. This congress, beyond the actual work accomplished, was noticeable for the large attendance, including delegates from seventeen States and Territories, and also from many foreign countries, the Dominion of Canada, and Mexico.

The third congress was held in Denver in September, 1894. The problem of ceding the arid lands was somewhat removed from active discussion by the passage by the federal Congress of the Carey law, which cedes to [each of certain of] the States 1,000,000 acres of land—subject to certain conditions and restrictions—for the purpose of developing water thereon and making them accessible for the production of orchard and field crops. While the champions of national control, and the development of water under the federal government made a gallant fight, a vote was nevertheless passed endorsing the Carey law. That congress also advocated by resolution the repeal of the desert land laws; the appointment of a national commission vested with the supervision of such irrigation works as the federal government might construct; that the several Territories be included within the provisions of the Carey law; that the federal Congress be importuned to make appropriations for discovering waters applicable to the reclamation of arid lands, and for the prosecution of surveys necessary to determine the location of lands susceptible to irrigation, and the selection and segregation of reservoir sites; that reservoir sites already reserved shall be released and made at once available. Touching State legislation it made a strong plea for uniformity and effective administrative systems; the continuance of the State commissions were advocated, and the calling State conventions to devise ways and means for at once bringing into practical operations the conditions embraced in the Carey law. In force of numbers and discussions the Denver congress sustained the interest in the irrigation movement.

The Fourth National Irrigation Congress was held at Albuquerque, N. M.,

September 10-21, 1895. The attendance was large and embraced delegates from nearly every State in the Union, the Dominion of Canada, and Mexico. The results of its deliberations are succinctly stated in the address it presents to the country. This document is happily free from demagoguery, calm in statement and lucid in expression. [This address has already appeared in the KANSAS FARMER and is therefore not repeated here.]

Following out the lines indicated in the address, the National Executive committee in the interim as a whole has not been idle. Congressmen and Senators from the arid States have been kept fully informed as to the trend of things, and in some respects gratifying results have followed. It will not be necessary here to mention detailed particulars, only that some advance has been made in the awakening of the public conscience to the importance of the conserving of the remaining forest lands still in the hands of the federal government by the appointment of an expert commission to examine the whole problem and report upon the best remedial legislation. The Carey law has been supplemented with an act introduced by Congressman Hermann, of Oregon, which enlarges its scope and affords the States wider latitude in making use of its provisions. Some advance has also been made in making legislation calculated to facilitate the exploitation of our water resources in the sub-humid States.

The Fifth National Irrigation Congress will be held at Phoenix sometime during the coming month of December. Should the Supreme court of the United States decide the Wright district irrigation law [of California] unconstitutional, the matter of legislation, both State and national, will come up strongly in its deliberations. Ways and means for the reclamation of the arid West will, as usual, be the object and aim of this congress. The selection of Phoenix as the place of meeting was indeed a happy one, and merits a word in conclusion. Possibly in no other section of arid America are better object lessons to be seen and studied in the way of irrigation farming and the development and utilization of water to moisten the parched plains and convert a barren and inhospitable desert into a garden yielding bounteous crops of fruit and field crops. There is nothing of the easy-going Mexican life about Phoenix; it is a hustling metropolis dominated by American enterprise and Yankee thrift. The city proper lies on a gently sloping plain, and about two miles from Saltriver. The mountains lie equidistant about ten miles to the north and to the south. On either hand stretches the far-famed Salt River valley, with its celebrated orchards and vineyards. The situation is charming, and reflects the sound judgment of the founders of the town. Not only is it the largest city in Arizona, but also the most substantial and the wealthiest.

Phoenix was laid out as a town site in 1872. Population was slow in coming till 1879, when the completion of railway connections opened a way thither for the home-seeker, and the increase was more rapid. March, 1895, witnessed the completion of the Santa Fe, Prescott & Phoenix railroad, running from Ash Fork, on the main line, to Phoenix, a distance of 134 miles, which insured railroad competition. From that date Phoenix threw off her swaddling village clothes and assumed the air of a modern metropolis, with miles of electric railways, fine churches and schools, large mercantile and manufacturing enterprises, and all the appurtenances of a prosperous and thriving community. This is all the result of irrigation farming. The total mileage of all canals is approximately as follows:

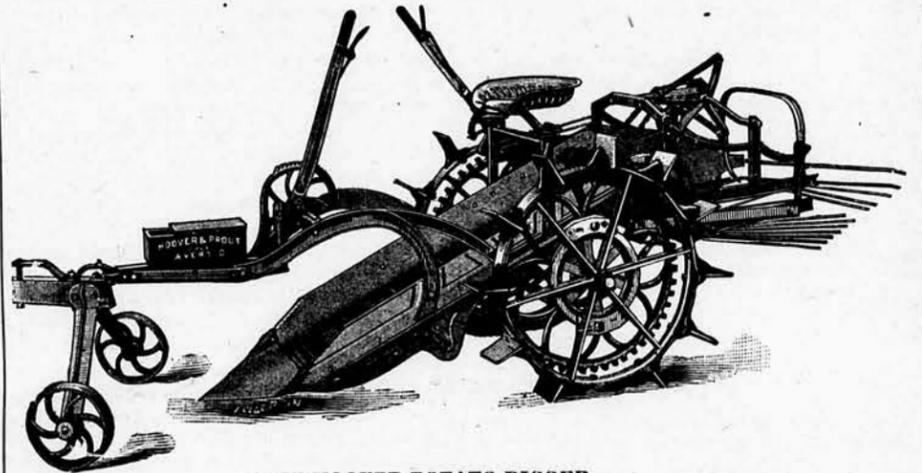
North side names—	Miles.
Arizona canal.....	47
Grand canal.....	27
Maricopa canal.....	26
Salt River Valley canal.....	19
Water Power canal.....	4
Farmers' canal.....	5
St. John's canal.....	12
South side—	
Mesa Consolidated canal.....	40
Highland canal.....	22
Tempe canal.....	30
Utah and Eureka canal.....	20
San Francisco canal.....	6
Total.....	238

And now a word as to the people and their interest in irrigation. It was my good fortune to be in Phoenix at a mass meeting of her public-spirited citizens, a few months ago, and let me say right here, I never met a more enthusiastic lot of business men in my life working in the interest of irrigation and the reclamation of the arid West. Rest assured that the Fifth National Irrigation Congress will prove historical in the work it will accomplish. The friends of irrigation from every quarter of the country will be invited to participate. Reduced railroad fares and excursions to points of interest are assured; prominent speakers on all phases of the subject, many of national reputation, will be present to participate in the deliberations of this congress and to read papers on live subjects. The application of water to a dry soil is as essential in Illinois as in Arizona; it is as sure to insure crops in New Jersey and Georgia as in California and Utah. These facts are being impressed upon the people with convincing force every day, and the results can only lead to a wider appreciation of practical irrigation. The coming congress has much before it, not the least of which is its great educational influence. When people of the nation once learn of the economic value of irrigation, the reclamation of arid America will be an established fact.

The National Executive committee

### A Fight With Bugs.

EDITOR KANSAS FARMER:—I want to tell you about my experience with potato bugs. I call them all potato bugs, though there are four or five kinds of them. There is a thick red slug or bug, small black bugs, green bugs with yellow spots, and big, long, brown bugs with "wings to fly away," only they never do it. Little bugs, big bugs, young bugs, old ones. Fathers, uncles, aunts and cousins; swarming on every vine by dozens. Where the red slugs or bugs are the vine at a distance might be almost mistaken for a blooming rose, and where the long brown ones predominate it is just a crawling mass of bugs. When the red bugs first arrived, early in June, I concluded to come modern science over them. So I put in a night reading up in the last report of the Kansas Horticultural Society, also back numbers of the KANSAS FARMER and *American Horticulturist*. I read pages and chapters and essays and reports innumerable on the tarnished plant bug, the apple aphid, the tent caterpillar, the codlin moth, the plum curculio, *Anthonomus signatus*, and bugs whose names are simply a terror. Bugs galore. Everything but plain potato bugs. There was white hellebore, kerosene emulsion, London purple, Paris green, Bordeaux, sulphate of copper, ammoniacal solution of sulphate of copper,



THE HOOVER POTATO-DIGGER.

The Hoover Digger is one that separates the potatoes from the vines and other foul matter, the potatoes being delivered behind the machine. In a narrow row, on clean ground, while the vines are carried to the left side, the upper set of rods doing this work, with the aid of constantly-moving forks. Growers should give this improvement great weight in buying a digger. If you want a machine that will run everything—grass, vines, weeds and potatoes—over together, like straw over the top of a straw-carrier, don't get a Hoover. "She isn't built that way," say the manufacturers. It will

be noticed by the cut that the power is taken by a drive-chain from the large sprocket wheel on either side and immediately transmitted to the shaft at the upper end of the elevator; this in turn sets the back rack in motion, also the forks. The forward lever, so convenient to the driver, regulates the depth, while the side lever regulates the position of the back rack. The shovel is of special design and composition, which is guaranteed against stumps and stones. They have a special hinged shovel for stony land. For further particulars write to the manufacturers, Hoover, Prout & Co., Avery, Ohio. Mention KANSAS FARMER.

is alive to the work it has in hand, and no effort is being spared to bring about the largest gathering of people interested in practical irrigation and the reclamation of arid America ever seen in the history of the movement. In conclusion, let me say that any of the National committee will cheerfully answer all letters of inquiry, and particularly the Hon. E. R. Moses, Chairman, of Great Bend, Kas., and James McClintock, member for Arizona, at Phoenix. As for myself, it is needless to add that my services as Secretary are subject to command from any one interested in any way with irrigation development.

#### One Fare.

One fare for the round trip to Abilene, August 3, 4 and 5, and to Topeka, August 9, 10 and 11, via the Union Pacific from points in Kansas. For full information call on or address F. A. Lewis, city ticket agent Union Pacific system, 525 Kansas avenue, Topeka, Kas.

#### For the Biennial Encampment

of the Knights of Pythias, Uniform Rank, at Cleveland, August 23 to 30, the Nickel Plate Road will sell tickets, available on all trains August 22, 23 and 24, from Chicago to Cleveland and return, at \$8.50 for the round trip, good returning until August 31. This is a saving of \$1.50 on the round trip as compared with other lines, and our passenger service includes fast trains, drawing-room sleeping cars and unexcelled dining service. For further particulars address J. Y. Calahan, General Agent, 111 Adams street, Chicago, Ill. 125

copper carbonate and ammonium, carbonate mixture, and copper arsenic solution, besides a whole list of others. Then there was pyrethrum, and buhach, and tobacco dust, not to mention "anti-pest" and "slug-shot." With such a list as that who couldn't kill bugs?

Well, now I want to tell you how I killed them. I took one gallon of water boiling furiously, containing a pound or a pound and a half of home-made lye soap, carried it away from the fire, then added one-half gallon of kerosene and stirred vigorously for perhaps five minutes. I took nearly one-half of a teacupful of this and added it to a gallon of well water, but I couldn't get it to mix well. With this I sprinkled all the cucumber, tomato and melon vines on the place and killed practically every bug I found. I tried it on crickets, roaches, chinch bugs, grasshoppers, and even on the common tumbling bugs. In fact, I couldn't find a bug that it wouldn't kill, and kill at once, if he was liberally sprinkled with it, and I was enthusiastic. But it was nearly all gone when I got to the potato patch, so I only killed the bugs on a dozen or two hills. Then I went to the house, satisfied with that day's work. The next morning I went to look at the results again. I took my enthusiasm with me. I went to the potato patch first. There stood those dozen hills, every leaf as black and dead as if frost-bitten, and under them a pile of dead bugs, but I couldn't find

my enthusiasm anywhere. Next I went to the melon, cucumber and tomato vines. They had not fared nearly so badly, however. Now, why did it kill the potato vines and not the others? Was the last of the mixture stronger, or were the potato vines more sensitive to it? I ended my experiments with the emulsion right there, and, not knowing, I guessed it was the latter. That was about June 1, and the potatoes were early potatoes and large enough for use, so I just let them go. But a little later I planted a patch of late potatoes near by. These came up at once, but the bugs never touched them until about a week ago, when they touched them all at once.

I now tried London purple. First I sprinkled the vines with a solution of one-half teaspoonful to a gallon of water. There were no results. Next I repeated the operation, using a level teaspoonful to a gallon and coloring it to a bright purple color. About the only result I could notice the next day was about all the bugs seemed to be up on top of the vines, anxiously looking to see when I would come and water them again. Well, I came, and I used a great heaping teaspoonful—nearly equal to two level tablespoonfuls—of the purple to a gallon of water. Results, I still have my bugs and my bugs have the potatoes, or soon will have them.

And now, Mr. Editor, will you or someone else who has had bugs and potatoes and succeeded in parting with the former and keeping the latter please tell me how to do it? I think I would like to lease an old turkey hen and her brood if I could. I wonder if Brother Norton would lease his?

A. T. ELLISON.  
Bunceton, Mo., July 21, 1896.

**Weekly Weather-Crop Bulletin.**

Weekly Weather-Crop Bulletin of the Kansas Weather Service, for week ending July 27, 1896, prepared by T. B. Jennings, Section Director:

**GENERAL CONDITIONS.**

The temperature continued slightly below the normal for the week. In the extreme southwest and northwest little or no rain fell; in the central counties of the middle division and the northern and east-central of the eastern division light rains fell, while fine rains fell in the central counties of the western division, the northern and southern counties of the middle division, and the central and northeastern counties of the eastern, with heavy rains in the southern counties of the eastern.

**RESULTS.**

**EASTERN DIVISION.**

A fine week for growing crops, but very unfavorable for grain in the shock and stack in the southern counties. Corn and grass still in prime condition, with much of the corn hardening rapidly. Peaches and grapes are ripening, but the wet weather is rotting many potatoes.

Allen county.—All standing crops growing rapidly, but the wet, cloudy week has rotted much of the flax.

Brown.—Another good week for corn too damp for threshing and stacking and much grain is spoiling in the shock.

Chautauqua.—The wettest week of the season, the ground flooded and streams swimming; the best weather on the corn crop.

Cherokee.—Crops of all kinds damaging badly in the stack and field by the excessive rains.

Douglas.—Fall plowing commenced; ground in good condition.

Elk.—Too much rain for flax; the unstacked is spoiling; corn doing well but needs sunshine; pastures good.

Johnson.—Favorable for threshing; fruit prospect very good.

Labette.—Too wet for work; corn fine; peaches ripe, many rotting on trees; potatoes rotting; apples dropping; grass abundant; overflow in bottoms destroyed much wheat in stack.

Marshall.—All crops doing fine; corn prospect very flattering.

Montgomery.—This wet week insures a large corn and fodder crop; much flax damaged, also some wheat where poorly stacked.

Morris.—Corn and cane doing well; these heavy rains stopped threshing

and millet and flax harvest; oats not worth threshing.

Osage.—Good week for all crops, and everything doing finely; early corn hardening and late growing rapidly.

Pottawatomie.—A growing week; corn and pastures doing well; second crop alfalfa in the stack, was heavier than the first; much of the stubble plowed; sweet potatoes doing well and unusually early.

Riley.—Corn certain to make a good crop; the conditions at present could scarcely be better and farmers are selling their old corn.

Shawnee.—A heavy corn crop is nearly assured; pastures in fine condition.

Wilson.—Big corn crop assured; this wet weather bad on flax, sprouting some; ground fine for plowing; potatoes rotting; grapes ripening.

Woodson.—Too wet for threshing; just right for corn; two-thirds of the corn crop made, good prospect for the other third.

**MIDDLE DIVISION.**

A splendid growing week and all standing crops in very fine condition. Early corn has very nearly matured. But little has been done in threshing or plowing on account of dampness.

Barber.—Best growing week in the history of the country; large corn crop assured; cane, Kaffir and millet never better.

Barton.—Fine week for growing crops but bad for millet harvest and grain in stack; apples and pears dropping badly; bad week for saving the alfalfa for seed.

Butler.—Corn, pastures and meadows growing finely; much millet cut,

Reno.—Good growing week, but much hay damaged by rain.

Rush.—Good growing week; corn maturing rapidly; forage crops immense; threshing progressing slowly.

Saline.—Splendid corn weather, but too wet for threshing and plowing.

Smith.—Corn doing as well as it possibly could, some of the early is already made; prospects never so good as at present.

Sumner.—Another good corn week, and the earliest about matured; too wet for threshing and haying; some wheat sprouting in the stack.

Washington.—Corn conditions excellent; all corn earing, and early corn will make a good crop without any more rain; oats very poor; flax fine; some started to sprout on account of the wet weather.

**WESTERN DIVISION.**

The week has been quite favorable to the various crops. Corn and forage crops are doing very well, but in north-western and south-western counties rain is needed. Harvesting is over and threshing and haying have begun.

Cheyenne.—Corn looks well, but grasshoppers are eating it some; everything needing rain.

Ford.—Another fine growing week; corn doing finely; pastures very good; cattle in fine shape.

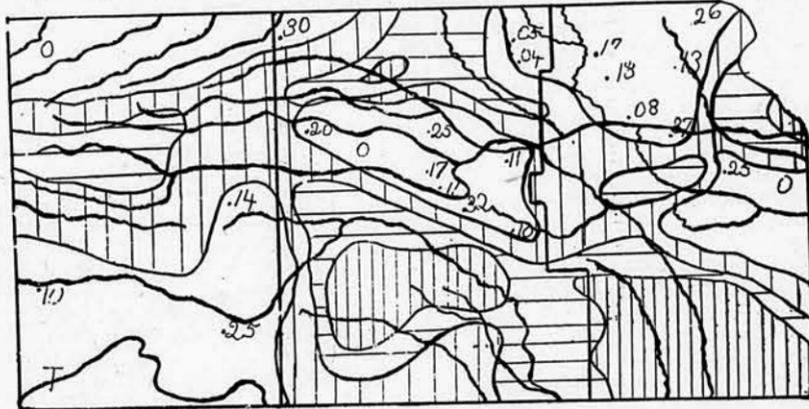
Gove.—Splendid corn weather; best corn prospect we ever had.

Graham.—Fine growing week; cloudy weather and rains great help to growing corn.

Greeley.—Fair showers during week were very beneficial to grass and forage.

Hamilton.—All crops under irrigation revived.

Morton.—Crops and pastures at a standstill, but doing well where the showers have fallen.



Scale of shades less than 1/2, 1/2 to 1, 1 to 2, over 2. Trace. ACTUAL RAINFALL FOR WEEK ENDING JULY 25, 1896.

badly damaged by the wet weather; some flax also damaged; large grape, apple and peach crop.

Clay.—Potatoes rotting from excessive rain and heat; early corn assured, late corn, sorghum and Kaffir corn very promising; newly-stacked and unstacked grain damaged some by the excessive rains.

Cloud.—Very favorable week and everything looking fine.

Cowley.—Rain keeps farmers from plowing, but corn and weeds are growing fast.

Dickinson.—A good week for corn; all but the latest corn is made, sure of a good crop; Kaffir corn, sorghum and hay will make large crops.

Harper.—Weather cool and pleasant; crop conditions continue favorable; old corn moving rapidly.

Harvey.—Too wet for threshing or plowing; corn crop now fully assured and is immense; hay and pastures very fine.

Kingman.—Threshing at a standstill and tops of most of the wheat stacks growing.

Marion.—Light rains with cloudy and good growing weather; corn and stock doing well; pastures good.

McPherson.—Fine week for corn, it is now out of danger and will make very large crop; sorghum, Kaffir and millet immense; potatoes rotting; fruit poor.

Mitchell.—Favorable every way for growth; a large amount of the early corn now considered safe; insect pests numerous, but the outlook is very encouraging.

Ottawa.—Conditions for an immense corn crop remain good; too wet for fall plowing and threshing; early potatoes rotting in the ground.

Phillips.—A remarkably fine growing week; corn doing finely; threshing commenced, yield light.

Pratt.—All vegetation flourishing; wheat in stack too wet to thresh.

Ness.—Harvesting ended; prospect for corn excellent.

Sheridan.—Harvesting about done and threshing commenced; corn promises immense, also forage crops; broom-corn fine.

Thomas.—The late rains have improved corn some and the past week was very favorable for it, but it will need more moisture soon; grasshoppers still bad.

Trego.—Suitable weather for late fodder crops, and where the fields are clean the growth is very rapid; haying has commenced.

Wallace.—Good growing weather; wheat harvest about over; corn looking very well; grasshoppers and the gray bugs are doing their work.

Thos. Slater has a message for every man on page 15.

**Low Excursion Rates to the East, via "Burlington Route."**

National Republican League, Milwaukee, August 25 to 27.

Ask ticket agent for tickets via Vestibuled "Eli" to Chicago, and via Vestibuled Limited to St. Louis.

Both trains supplied with the most modern equipment.

L. W. WAKELEY, Gen'l. Pass. Ag't., St. Louis, Mo.

**If You Would Keep Cool**

take the "Twin City Special" any evening from Kansas City, Leavenworth or St. Joseph, on the Chicago Great Western Railway (Maple Leaf Route), and spend a few days at the beautiful Minnesota lakes. Summer excursion rates now in effect. Through sleepers, free chair cars and cafe dining cars. Full information as to desirable resorts in the Northwest will be cheerfully furnished by G. W. Lincoln, Traveling Passenger Agent of the Chicago Great Western Railway, 7 West Ninth street, Kansas City, or F. H. Lord, G. P. & T. A., Chicago.

**Home-Seekers' Excursions--Cheap Rates via Burlington Route.**

On August 4, 18, September 1, 15, 29, October 6 and 20, the Burlington Route will sell excursion tickets at very low rates to points in Kansas, Nebraska, Wyoming, Utah, Black Hills and other territory. Ask your ticket agent.

L. W. WAKELEY, G. P. A., St. Louis, Mo.

**EYE MENTO EYE BALM** cures granulated and sore eyes in three days. No caustic, no pain. 50c. at all druggists or express paid. **Are You Deaf? Aura-Cura** cures or permanently benefits, or money refunded. \$1 per bottle. Circular free. Mento Remedy Co., Exeter, Neb.

**EMPORIA** is the great educational center. The EMPORIA BUSINESS COLLEGE, the actual business practice school. Students here learn by doing. Book-keeping, Shorthand, Typewriting and Penmanship courses. All interesting and valuable. Graduates are successful. Board, \$1.65 per week. Tuition low. Sixteenth year opens September 1, though students may enter at any time. Send for fine catalogue. Mention KANSAS FARMER. Address C. E. D. Parker, Pres., Emporia, Kas.

**THE STRAY LIST.**

**HOW TO POST A STRAY. THE FEES, FINES AND PENALTIES FOR NOT POSTING.**

BY AN ACT of the Legislature, approved February 27, 1866, section 1, when the appraised value of a stray or strays exceeds ten dollars, the County Clerk is required, within ten days after receiving a certified description and appraisement, to forward by mail, notice containing complete description of said strays, the day on which they were taken up, their appraised value, and the name and residence of the taker-up, to the KANSAS FARMER, together with the sum of 60 cents for each animal contained in said notice. And such notice shall be published in the FARMER in three successive issues of the paper. It is made the duty of the proprietors of the KANSAS FARMER to send the paper, free of cost, to every County Clerk in the State, to be kept on file in his office for the inspection of all persons interested in strays. A penalty of from \$5 to \$50 is affixed to any failure of a Justice of the Peace, County Clerk, or proprietors of FARMER for a violation of this law.

Broken animals can be taken up at any time in the year.

Unbroken animals can only be taken up between the first day of November and the first day of April, except when found in the lawful enclosure of the taker-up.

No persons, except citizens and householders, can take up a stray.

If an animal liable to be taken up, shall come upon the premises of any person, and he fails for ten days, after being notified in writing of the fact, any other citizen and householder may take up the same.

Any person taking up an estray, must immediately advertise the same by posting three written notices in as many places in the township, giving a correct description of each stray, and he must at the same time deliver a copy of said notice to the County Clerk of his county, who shall post the same on a bill-board in his office thirty days.

If such stray is not proven up at the expiration of ten days, the taker-up shall go before any Justice of the Peace of the township, and file an affidavit stating that such stray was taken up on his premises, that he did not drive nor cause it to be driven there, that he has advertised it for ten days, that the marks and brands have not been altered; also he shall give a full description of the same and its cash value. He shall also give a bond to the State of double the value of such stray.

The Justice of the Peace shall within twenty days from the time such stray was taken up (ten days after posting) make out and return to the County Clerk, a certified copy of the description and value of such stray.

If such stray shall be valued at more than \$10, it shall be advertised in the KANSAS FARMER in three successive numbers.

The owner of any stray may, within twelve months from the time of taking up, prove the same by evidence before any Justice of the Peace of the county, having first notified the taker-up of the time when, and the Justice before whom proof will be offered. The stray shall be delivered to the owner, on the order of the Justice, and upon the payment of all charges and costs.

If the owner of a stray fails to prove ownership within twelve months after the time of taking, a complete title shall vest in the taker-up.

At the end of a year after a stray is taken up, the Justice of the Peace shall issue a summons to three householders to appear and appraise such stray, summons to be served by the taker-up; said appraisers, or two of them, shall in all respects describe and truly value said stray, and make a sworn return of the same to the Justice.

They shall also determine the cost of keeping, and the benefits the taker-up may have had, and report the same on their appraisement.

In all cases where the title vests in the taker-up, he shall pay into the County Treasury, deducting all costs of taking up, posting and taking care of the stray, one-half of the remainder of the value of such stray.

Any person who shall sell or dispose of a stray, or take the same out of the State before the title shall have vested in him, shall be guilty of a misdemeanor and shall forfeit double the value of such stray and be subject to a fine of \$20.

**FOR WEEK ENDING JULY 16, 1896.**

Sherman county—E. D. Adams, clerk.

HORSE—Taken up by J. W. German, of Lamborn, June 22, 1896, one gray horse, scar on left hind foot, end of tail clipped, short rope around neck.

Pottawatomie county—Frank Davis, clerk.

HORSE—Taken up by G. C. Kirby, in Lincoln tp., June 15, 1896, one horse, 9 years old, white spot in forehead, left hind foot white, four feet eight inches high; valued at \$20.

Montgomery county—J. W. Glass, clerk.

MULE—Taken up in Caney tp., one bay mare mule, harness marks, fourteen hands high, 6 years old.

MULE—By same, one brown horse mule, fifteen hands high, harness marks, 9 years old.

**FOR WEEK ENDING JULY 23, 1896.**

Shawnee county—Chas. T. McCabe, clerk.

HORSE—Taken up by James Graham, in Silver Lake tp. (P. O. Swinburn), one three-year-old iron gray horse.

**FOR WEEK ENDING JULY 30, 1896.**

Cherokee county—T. W. Thomason, clerk.

HORSE—Taken up by R. W. Miller, in Logan tp., July 10, 1896, one sorrel horse, sixteen hands high, both hind feet white; valued at \$12.50.

HORSE—By same, one bay horse, white hind feet, white spot in forehead, branded S on left shoulder; valued at \$12.50.

Cheyenne county—G. A. Benkelman, clerk.

MARE—Taken up by Jacob Weist, in Cleveland Run tp. (P. O. St. Francis), May 15, 1896, one sorrel mare, 3 years old, branded 1 inside of larger U; valued at \$15.

MARE—By same, one gray mare, 6 years old, brand and value same as above.

COLT—By same, one yearling mare colt, roan; valued at \$10.

## The Home Circle.

### OUR FAIRYLAND.

'Mid the green depths of shade, in the forest we strayed,  
And its aisles with our voices were ringing,  
Through its grand Gothic arches the songs that we made  
Rose and fell for to swell with bird's singing.

There the daintiest of ferns and the greenest of moss  
Harmonize with the cypress wreathed ceiling.  
And the vines there entwine to and fro and across,  
And the stream 'neath brown shadows is stealing.

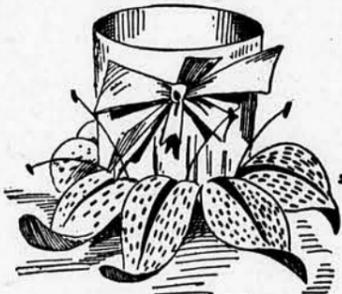
There the smooth shining snakes glide away as we pass,  
With a delicate tremulous motion,  
Scarce moving the blades of the pendulous grass,  
As the deep undercurrents of ocean.

This is our fairyland, and gay fairies are we  
In this magical region of story;  
Here our revels we hold till the merry hours flee,  
And the sun gilds our castles with glory.  
—Good Housekeeping.

### UNIQUE AND USEFUL.

A Pretty Ornament in the Form of a Homemade Flower Vase.

A charming flower vase may be made in the following manner: Cut imitation petals of the tiger lily in stiff white muslin; sew a tiny line of fine wire down the center of each leaf, and finally cover with white velvet, which should be gummed onto the muslin and then cut to its shape with very sharp scissors. When quite dry paint the dots and lines on each petal with oil paints, using it as dry as possible. Now make the stamens of wire, which must be painted, and gum an atom of brown velvet onto the top of each. Make a foundation of thin cardboard covered with silk or velvet, and sew the various petals and stamens onto this, arranging them in as perfect a manner as possible. Draw them together so as to make a hollow space in the center of the flower, and into this insert an old vase or a cheap glass tumbler; tie this round,



UNIQUE AND USEFUL.

about half way up, with a pretty, bright-colored ribbon, arranged as shown in the sketch, and use the tumbler itself for holding flowers, or even a small fern. Various flowers may be effectively copied in this way and used as a foundation for a pretty flower vase, the scarlet poppy, purple clematis, crimson peony and white water lily being among the most suitable for this purpose; while the cost is infinitesimal, as quite small scraps of material are usable, and even the crinkled papers make up very charmingly if velvet and silk are not at hand.—Chicago Chronicle.

### Good Way to Test Linen.

A way to test linen, by means of which the introduction of cotton among the linen threads may be detected, is to cut off a small piece of the material, to unravel the threads and then to examine them under a strong magnifying glass. The characteristics of flaxthreads are very marked. They are in the form of cylindrical stalks, divided at intervals by knots, in the same way as bamboo or sugar cane stalks. Cotton threads are long and flattened like ribbon, waved, twisted in spirals and granulated on the surface.

### How to Get Rid of Flies.

Flies dislike the oil from bay leaves. It is not an expensive drug, and if a very little is kept in a dish in the window ledge, or if the doors and window casings are coated with any color of fresh paint to which four per cent. of oil of bay has been added, insects will shun them.

"A Stitch in Time."—A dose of Ayer's Pills has saved many a fit of sickness; but when a remedy does not happen to be at hand, slight ailments are liable to be neglected, and the result, frequently, is serious illness; therefore always be supplied with Ayer's Pills.

### EASTERN FAMILY JARS.

Pots Like Those in Which the Forty Thieves Were Pickled.

When the clever servant of Ali Baba brought the redoubtable "Forty" to their untimely ends, it will be remembered that each one of the two-score thieves was squatted inside a jar of huge dimensions in the courtyard of the man they had come to murder. The manner of their taking-off, it will also be recalled, was decidedly oleaginous (with strict regard for the etymology of the term), as they were drowned in a bath of hot olive oil. Whether the oil smothered them or the heat killed them has never been satisfactorily ascertained by the readers of the "Arabian Nights;" but one thing has at last been established beyond a doubt—that the thing was possible, so far as the size of the jars was concerned. To an occidental mind, which has never been



AN EASTERN NURSERY JAR.

called upon to grasp the conception of a jar much bigger than a bean pot, the apparently exaggerated dimensions of these in which the thieves came to grief is the least credible part of the story. But even to-day, in regions of the orient where western customs have not prevailed, such as Turkey in Asia, Algiers and Morocco, a well-to-do family would not consider itself at all well-equipped without a jar or two big enough to contain at least 40 gallons of oil or wine.

Not alone in the far east, but in old Spain which is in many things a thousand years behind the times—the peo-



A CART LOAD OF SPANISH TINAJAS.

ple cleave to the earthen antiquities of their ancestors. In that country they are known as "tinajas," and are manufactured in Valencia and along the eastern coast of the peninsula.

Jars equally large and of similar shape have been found in the graves of Peruvian Incas, containing the remains of royal personages who "went to pot" hundreds of years before the Pilgrim fathers landed on Plymouth rock, and before Boston became famous for the production of that esculent which can only be baked to perfection in an earthen receptacle.

### THE PERFECT MILLINER.

Originality and Neatness Are the Things That Count.

Originality in designing and individuality in style are qualities which count for most in the milliner of to-day.

Variety is now the keynote. Instead of one particular style there are many. The day of "one idea" in a season has passed.

To discover some new arrangement

for prevailing trimmings, to put a new curve into a popular and becoming shape, these are marks of genius.

Just such ideas as these or the lack of them, simple and insignificant as they may seem, make the difference between the high-salaried and poorly paid milliner, and bring success or failure to the department in which she is employed.

Perfection in detail is another essential to the successful milliner. To be artistic the trimming on a hat must in effect be carelessly and gracefully arranged.

Stiff and prim looking hats are rarely becoming, yet at the same time, however careless the arrangement may seem, the must be no slighting of the work.

The most loyal patrons will become disgusted with stitches that loosen after a few times wearing, leaving flowers tumbling off, feathers awry, and ribbon bows at "sixes and sevens."

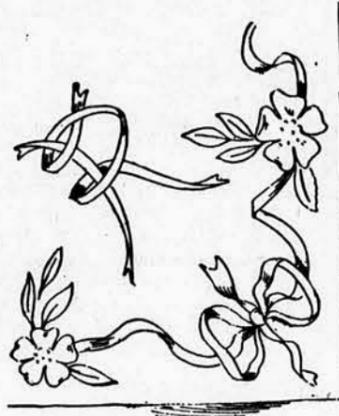
To genius in designing and painstaking work add artistic taste for colors, which must include not only a knowledge of harmonies and contrasts, but also good judgment as to becoming shades for individual types.

Combining these three qualities in one individual, you have what is rare indeed, the perfect milliner.—Chicago Inter Ocean.

### EMBROIDERY DESIGN.

Suitable for Center Cloths, Table Covers or Lounge Cushions.

The accompanying sketch shows only the corner, but the design repeats itself—first, a low knot, then a flower spray, all along the edge of any piece of fancy work, as represented. The ribbon initial is a pretty feature of the



design, but for some pieces of work it should, of course, be omitted.

For a small linen doily allow a bow knot for each corner and only a single flower spray for the middle of each side, connecting all with the rippling ribbon. Use Asiatic flo floss in wild rose tints for the flowers, tender olive green for the leaves, and darker olive, or golden yellow, for the ribbons. Or work the whole with a single shade of any pretty color that will harmonize with the rest of the table appointments.

For the border of a linen center cloth, work the design solidly in satin stitch, with Asiatic twisted embroidery silk, which is the best silk to choose for embroidery on any piece of work made of medium weight goods, neither very fine nor very heavy.

For a felt or denim table cover or a lounge cushion, outline the design with Asiatic Roman floss, which is effective for such work. A big cushion of yellow denim with the border outlined upon it with black Roman floss, edged with a frill of black satin with scattered yellow dots worked upon it with the same floss, would be strikingly handsome and in the best style.—American Agriculturist.

### Salt in the Household.

A little salt rubbed on the cups will remove tea stains. Salt put into white-wash will make it stick better. Use salt and water to clean willow furniture, applying it with a brush and rubbing dry. Gingham or cambrics rinsed in salt and water will hold their color and look brighter. Salt and water make an excellent remedy for inflamed eyes. Hemorrhages of the lungs or stomach are often checked by small doses of salt. Neuralgia of the feet and limbs can be cured by the use of salt.

### WATER LILY CUSHION.

When Properly Made It Will Be an Ornament to Any Room.

A very pretty pincushion is made like a water-lily. The center is of a round piece of golden-yellow velvet, four inches in diameter. This is gathered, stuffed with cotton, and drawn into a flat cushion, measuring about 2 1/2 inches. The six petals are formed from



WATER LILY PINCUSHION.

heavy, white satin ribbon. The length required for each petal is six inches, folded into a loop as shown. Instead of ribbon, white satin may be folded into strips like ribbon. The five leaves are of green plush, with a crinoline lining. The stem is of wire, wrapped with cotton, and bound with green ribbon, or covered with a strip of plush.—Anna Hinrichs, in Rural New Yorker.

### Keeping Butter in Summer.

To cool butter in warm weather, place a deep earthenware pan in a box, surround it with wet sand, place the butter in the pan, cover it over, and place the lid on the box to exclude the air. Keep the sand wet with plenty of cold water. For small quantities of butter a small tin will be found useful. Every few days the sand should be emptied out and rinsed in plenty of water.

### Dentistry for Widows.

Widows of Russian officers who are not entitled to pensions are to be provided with a novel means of obtaining a livelihood. In the autumn ten vacancies at one of the principal schools of dentistry will be open to them, and, after a two years' course of instruction, the successful candidates will be in a position to practice.

### Hint Worth Remembering.

When bedclothing is not sufficiently warm, two or three newspapers spread between the blankets will secure a comfortable night. This is a hint worth remembering by those who travel much, and who do not carry about a supply of rugs.

ARE YOU TIRED all the time? Then your blood needs to be enriched and purified by Hood's Sarsaparilla, the One True Blood Purifier. It gives vigor and vitality.

Hood's PILLS are easy to take, easy to operate. Cure indigestion, biliousness. 25 cents.

**FREE** trial in your home. Cut this out and send for catalogue. Prices to suit you. Oxford Sewing Machines awarded World's Fair Medal. DOES WHAT ANY WILL DO. FULL SET OF ATTACHMENTS. TEN YEAR GUARANTEE. FREIGHT PAID. ADDRESS: OXFORD BROS. CO., 240 Wabash Ave., CHICAGO.

**FORTY FOR \$1.00.**  
For the next 60 days we make this extraordinary offer on our **HIGH-ARM SINGER MACHINES.** On receipt of \$1 we will send our No. 3 High Arm on 30 days' trial (price \$12.25), or our No. 1 (price \$15.75). Our machines are the best made; our No. 1 beats the world; 10 years' guarantee with each. Deal with a reliable house; buy at factory prices. H.R. Eagle & Co., 70 Wabash, Chicago.

When you write mention Kansas Farmer.

## DISEASES

of the Liver, Kidneys and Bladder are quickly relieved and permanently cured by using

**Dr. J. H. McLEAN'S LIVER AND KIDNEY BALM**

For sale at Druggists. Price, \$1.00 per bottle

THE DR. J. H. McLEAN MEDICINE CO. ST. LOUIS, MO.

# The Young Folks.

## A MISSPELLED TAIL.

A little buoy said, "Mother, dear,  
May I go out to play?  
The son is bright, the hair is clear,  
Owe, mother, don't say neigh!"

"Go fourth, my sun," the mother said.  
The ant said, "Take ewer slay,  
Your gneiss knew sled, awl painted read,  
But dew knot lose your weigh."

"Awe, know!" he cried, and sought the street,  
With hart sew full of glee—  
The wether changed—and snow and sleet  
And reign fell steadily.

Threw snowdrifts great, threw watery pool,  
He flue with mite and mane;  
Said he, "Though I wood walk by rule,  
I am not rite," 'tis plane.

"I'd like to meat some kindly sole,  
For hear new dangers weight,  
And yonder stairs a treacherous whole—  
Two sloe has bin my gate.

"A peace of bred, a gneiss hot stake,  
I'd chews if I were home;  
This cruel fete my hart will brake,  
Eye love knot thus to Rome.

"I'm week and pall, I've mist my rode,"  
But hear a carte came past;  
He and his sled were safely toad  
Back two his home at last. —St. Nicholas.

## REVEILLE ON SHIPBOARD.

The Bugle Calls All Hands to Lash Up the Hammocks.

Let us spend a day on board of a man-of-war and see how this is done. Let us suppose that she is in port. We take our place on her deck very early in the morning. The heavens are bright with stars, and about us masts and rigging, smokestacks and ventilators rise up in shadowy outlines, while the big guns loom ill-defined and ghostlike. In the gangway sentinels are pacing; on the bridge a quartermaster keeps his lookout; and back and forth on the quarter-deck paces an officer, alone. By the light of a lantern he presently consults a book for the "morning orders," which have been written by the executive officer the night before; and then he directs the quartermaster to call the boatswain's mate, the hammock stowers, the master-at-arms and the bugler. Then passes a period of ten minutes, during which a few shadowy figures appear on deck and take their stand



THE SHIP'S BUGLER.

beside the long, trough-like places in the ship's bulwarks known as the hammock nettings, opening them up and preparing them for the reception of the hammocks. Then, at the time assigned in the morning orders, the officer of the deck gives his first routine order; "Sound the reveille! Call all hands!"

At once there ring out in the hitherto silent ship those merry bugle notes known to almost all of us. To them have been fitted the words:

I can't get 'em up;  
I can't get 'em up;  
I can't get 'em up in the morning.  
I can't get 'em up;  
I can't get 'em up;  
I can't get 'em up at all!

The captain's worse than the sergeant;  
The sergeant's worse than the corp'ral;  
The corp'ral's worse than the private;  
But the major's the worst of all!

I can't get 'em up;  
I can't get 'em up;  
I can't get 'em up in the morning.  
I can't get 'em up;  
I can't get 'em up;  
I can't get 'em up at all!

The last note is followed by the shrill whistle of a boatswain's mate and the prolonged, hoarse cry: "A-a-a-ll ha-a-nds!"

Then on the decks below you can hear the master-at-arms rushing from hammock to hammock, giving the sluggards a slap and a shake and repeatedly crying:

"Heave out; heave out and lash up!"

Run below and watch the feet and legs dangling from the swinging hammocks; see the sailors drop from them to the deck like bats from the limbs of trees, then neatly fold their blankets, roll them up with the mattress in the hammocks and pass around the latter seven times a rope lashing until each resembles a huge sausage. Then, unslinging them from the hooks overhead, they carry them hastily on deck to the nettings; for in ten minutes after that bugle call of reveille every hammock must be stowed away, and anyone who comes later with his hammock is reported for punishment by the officer of the deck to the captain.—Lieut. John M. Ellicott, in St. Nicholas.

## NEW NOISE PRODUCER.

A Suggestion Picked Up by a Traveler in South Australia.

Boys, here is a way by which you can make a new noise—new, at any rate, to this part of the world. It has been heard many a time over in South Australia ever since I do not know how long ago. And very likely those who love peace and quiet have often been saying: "Boora gaboora-boora corroboree!" which Jack is informed means: "Stop that racket!" or something of the sort. Now look at this picture, and do as the young Australian does when he takes it into his woolly head to make a perboregan, and you will have some-



thing to see and especially to hear. Get a stout stick of stringy-bark wood (or if you can't manage that, some other stout wood, like ash or hickory, will do) and see that it tapers like a whip handle and is about 18 inches long. Next, cut from a shingle, if you can't get a good slice of Australian wattle bark, a three-cornered piece, about four inches long, of the shape shown in the sketch. When he has these two ready, the young black fellow asks his mother to make for him a cord out of the twisted sinews of a kangaroo's tail. If your mother doesn't find it convenient to do this, probably a bit of stout fishing-line will answer the purpose. Tie your three-cornered piece of shingle to one end of the cord, and then tie the other end of the cord around a groove in the top of the handle so that it will turn freely, and so that the lash will be about as long as the stock of this whip. Now your perboregan is made, and you are ready to begin having fun with it. Get off by yourself—in the middle of a ten-acre lot would be about right—and swing the thing around your head as hard as ever you can. Then stop it suddenly with a peculiar twist or jerk, and it will crack like a horse-pistol. They say it can be heard two miles on a still day; but perhaps it would be well to prove this, if you can, by going about that distance from other folks whenever you practise.

## About Some Queer Birds.

The woodpecker can climb up the stem of a tree like a flash, but he can't climb down it to save his life. The little sapsucker of the same family can do both. The kingfisher dives under the water and catches its fish in its mouth. The crane stands in the water and fishes and spears its prey with its long, sharp bill, as you might spear an eel with a gig. The crane rises with the fish impaled on its bill and flies away home. I shot a six-foot crane once on the wing that had a two-pound trout impaled in that way. The fishhawk drops into the water like a plummet and seizes its fish in its talons.

## Too Affectionate.

Mamma—You know, Johnnie, that when mamma whips her little boy she does it for his own good.

Johnny—Mamma, I wish you didn't think quite so much of me.—Tit-Bits.

## THE KANGAROO CAT.

One of These Strange Creatures Is Owned by a Chicago Man.

One of the most curious animals in the world is the kangaroo cat. These funny creatures are very scarce. You might easily travel all over the world without seeing one.

They have fur and claws and whiskers, just like any other cat, and they are fond of hunting mice, but otherwise they resemble the kangaroo.

The nose of the kangaroo cat is long and sharp, just like a shepherd's dog,



THE KANGAROO CAT.

and they sit up on their hind legs, and have a long, stout tail; they jump about just like a kangaroo, too, and you know the kangaroo is a famous jumper.

A Chicago man who owns one of these queer pets has had it since it was a wee kitten about six weeks old. This odd little fellow can jump from the ground to the top of a high board fence, and a blow from his thick, hard tail would break your arm.

You can see from the portrait of the kangaroo cat published with this what a peculiar feline the animal is, and how funny he looks when he is sitting down.

## GEORGIA'S BOY DWARF.

Although Eighteen Years of Age, He Is But Three Feet High.

Down in Georgia, in a little town called Tweed, lives a tiny bit of humanity who is probably the smallest 18-year-old boy alive. The name of this junior midget is Henry Rutherford Ricks, Jr. He looks very much as Tom Thumb looked at the age of 18, and he's as bright as a new dollar.

Young Ricks is only 35 inches tall, and weighs but 48 pounds. He is a fully developed boy, and is as ambitious as he is small, which is saying a great deal.

Henry is a great reader and has an honest, open face. He is also very good natured, and, considering his size, is very plump. He is a pupil of the Farmers' academy, and his teacher speaks of



SMALLEST BOY IN AMERICA.

him in the highest terms; she says he is one of her best scholars and learns more quickly than the other boys.

The Lilliputian has a sleek-coated dog named Gyp, and the two are familiar to everyone around about Tweed. Gyp is a gentle dog; it is lucky for Henry that this is so, because if Gyp was rough, he might easily kill little Henry, who barely reaches to the shoulder of the dog when standing beside him.

Henry is strong for one of his extremely diminutive size. He enjoys a big appetite—big for him—and there really does not seem to be any reason for his dwarfishness, since both his father and mother are persons of ordinary size. You might think to look at him that young Ricks was a lad of eight, though his manner is that of a gentlemanly youth of 18. He scorns the idea of showing himself in museums, though he has had several very liberal offers from well-known people in the theatrical business.

Some day this new Tom Thumb means to visit New York. If he takes this trip he will be the most conspicuous little man in the metropolis, and, with his dog Gyp, he would easily become the center of all attention; so much so that Dr. Depew, Mr. Roosevelt and Mayor Strong would have to look to their laurels in the matter of popularity.—N. Y. Recorder.

## Queer Experience at Sea.

A unique experience, even in the annals of the sea, was that of the bark Alice, which reached Portland, Me., after a stormy voyage of 19 days from Turk's island, in the Caribbean sea. The bark carried a cargo of salt, and she had been out but a day when it was found that the salt had soaked through into the water butts and every drop of fresh water was spoiled. The captain hoisted signals of distress and made provisions for condensing water, but all he could do was to provide half a cupful a day for each man. It was seven days before a vessel was sighted and a small supply of water secured.

## How Lincoln Kept Books.

In his early life Abraham Lincoln had a primitive method of keeping books. At the time his law partner, John T. Stuart, represented the Springfield district in congress, Lincoln was forced, much against his will, to keep an account of some kind. The plan he adopted was somewhat remarkable. When he received a fee he divided it in halves. His half he put in his pocket; Stuart's portion he put in an envelope and, labeling it "Stuart's half," threw it into a drawer until his partner's return from Washington.

The robin and the wren are the only birds that sing all the year round. All the other warblers have periods of silence.

Remember—only such medicines were admitted for exhibition at the World's Fair as are accepted for use, by physicians, in the practice of medicine, Ayer's Sarsaparilla, Ayer's Cherry Pectoral and Ayer's Pills being included in the list. They are standard medicines.

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(Cut this out for future reference.) Dr. S. STEWART, 1406 Holmes St., Kansas City, Mo.

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Published every Thursday by the

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To insure prompt publication of an advertisement, send cash with the order; however, monthly or quarterly payments may be arranged by parties who are well known to the publishers, or when acceptable references are given.

All advertising intended for the current week should reach this office not later than Monday.

Every advertiser will receive a copy of the paper free during the publication of the advertisement.

Address all orders—  
**KANSAS FARMER CO., Topeka, Kas.**KANSAS FARMER and Semi-Weekly *World* (N. Y.), you can have for \$1.65 one year.

J. S. Campbell, of Anthony, Harper county, asks KANSAS FARMER readers to give, through these columns, "the best methods of subsiding as to distance apart, depth, etc."

William H. Barnes, Acting Secretary State Horticultural Society, will go to Troy on Saturday, August 8, to address the horticulturists and organize a horticultural society for Doniphan county.

The State Horticultural Society has received a picture of its first President, William Tanner, late of Leavenworth. The picture is the work of his daughter and was presented by her mother at a meeting of distinguished persons at the residence of President Wellhouse, in Topeka.

The Labette County Fair Association will hold its next annual fair at Oswego, Kas., September 29 to October 2, 1896. This association held a successful fair last year and paid all purses and premiums in full. This year it proposes to extend the list of premiums and make them still more liberal. For further information address Secretary R. J. Elliott, Oswego, Kas.

Mr. F. H. Newell, in charge of the hydrographic division of the United States Geological Survey, is now in Kansas, giving personal attention to the several branches of the work in this State. Congress made liberal provision for this work and it is safe to say that under Mr. Newell's supervision the best possible use will be made of the appropriation.

Two leading Kansas newspapers have written to the KANSAS FARMER asking the loan of the engraving of map of Kansas, published last week, showing Gen. Z. M. Pike's route through the State in 1806. Both letters are exceedingly strong in their appreciation of the enterprise of the FARMER in finding something interesting in these times of surfeit of political matter. The map engraving will be loaned to papers in the order of their application.

The *Scientific American*, of New York, has signalized its fiftieth anniversary by the publication of a very handsome seventy-two page special number, which consists of a review of the development of science and the industrial arts in the United States during the past fifty years. It was an ambitious undertaking, and the work has been well done. The many articles are thoroughly technical, and they are written in a racy and popular style, which makes the whole volume—it is nothing less, being equal to a book of 442 ordinary pages—thoroughly readable. It is inclosed for preservation in a handsome cover, and is sold at the price of 10 cents.**UNITED STATES HYDROGRAPHIC SURVEY.**

Ever since people on the plains began to realize the necessity of irrigation they have sought and found wanting certain points of information of prime importance. The first essential to irrigation is an adequate supply of accessible water. The determination of this supply as to quantity, distribution and accessibility is a work of such magnitude and of such a public character as to clearly make it a public function. This position has been more or less clearly stated by every irrigation convention in which the people of the great plains have had a prominent part. In some cases other demands have been coupled with that for this necessary information, and these other demands have not in all cases been free from the incubus of personal aspirations for place.

The importance of the subject was so impressed upon the last Kansas Legislature that it provided for a commission to undertake the work according to plans outlined in the law creating the commission.

The United States Geological Survey, which has for many years been conducted under the supervision of the Department of the Interior, investigated the irrigation problems of the mountain States several years ago. Its work has recently been greatly extended. The hydrographic division is under the direction of a tireless and conscientious worker of long experience, though still a young man, Mr. F. H. Newell, who did much of the work in the mountain regions. Under the late acts of Congress he is charged with the examination of the water sources of the entire country from the Atlantic to the Pacific and from the British possessions to the Gulf and the republic of Mexico. In New England the investigation is made with reference to water-powers; in the South, water-powers and supplies of healthful drinking water; in the West, irrigation.

In Kansas Mr. Newell is co-operating with the Irrigation Board and with the State University in its geological survey by Prof. Erasmus Harworth, who is investigating the underground water supplies, being just now engaged in the southwestern part of the State. The engineer of the Irrigation Board, Mr. W. G. Russell, is employed by Mr. Newell on behalf of the government hydrographic survey, to attend to the gauging of streams of the western part of the State. Prof. E. C. Murphy, of the State University, is also co-operating in determining the power of windmills.

Of the work Mr. Newell says: "It is practically classified into two divisions, the survey and examination of surface waters, and the same study of the underflow or percolating waters. The investigation of the underflow is one of the most difficult parts of our work. It requires an exhaustive study of the geologic conditions and of the structure and position of the rocks. The character of the rocks is by no means uniform. In places thick beds of shale underlie the surface soils, and in these it is hopeless to drill expecting to obtain large quantities of sweet or fresh water. In such localities a supply for irrigation can only be obtained by storage of the storm waters. In other places the pervious gravels and sands afford a supply practically inexhaustible to ordinary pumping machines. By storage or by pumping it will be possible to secure sufficient water to irrigate a few acres, at least, around each homestead, allowing the farmer to raise sufficient vegetables for his own use and to surround his home with fruit trees and shrubbery. By utilizing the resources at hand the settler can secure a comfortable living and can afford to try his luck in the cultivation of larger areas of the cereals. Should the season be propitious he can utilize the grazing areas surrounding his home by the pasturage of stock, wintered in part, at least, by the products of his irrigated land.

"The objects of our work are to ascertain the facts regarding the water supply, the limitations and the possibilities, and to state these plainly as a

guide to the best development of the country; to prevent, if possible, wasting of money in sinking wells where the chances of obtaining water are dubious, and to encourage the construction of irrigation plants where it is reasonable to suppose that success will follow. Local advice and direct information will only be possible after a thorough study of all the conditions, but from time to time the facts of importance are being published in a series of pamphlets designed for popular distribution. The first of these on pumping water for irrigation will be followed shortly by others dealing with the application of water, its storage and other details of interest to the irrigator."

**CONVENTION EVENTS.**

The third, and probably the last, national political convention of the year was held last week at St. Louis. It was the convention of the Populist party. Its declarations were mainly in line with the former platforms of this party. On the statement of principles of the party there was practical unanimity. The contest, and it was a spirited one, came on the question of candidates. The fact that the recently-made Chicago platform is in harmony with Populist principles, so far as it goes, and the fact that the nominee of the Chicago convention has always worked in harmony with the Populists of his State, created an irresistible demand for his nomination by the St. Louis convention. The opposition to this course came almost entirely from the Southern States, where the Populists and Republicans have heretofore either fused or co-operated in much the same way that Populists and Democrats have fused in the Northwest. The differences of opinion resulted in a compromise whereby ex-Congressman Tom Watson, of Georgia, was first nominated for Vice President, after which W. J. Bryan, the Democratic nominee, was made also the Populist candidate for President.

It is generally thought that in most States some arrangement will be made whereby the entire free-silver vote will be concentrated on one set of electors, with the understanding that they will all be given for either Mr. Sewall or Mr. Watson, the entire vote being given to whichever has the largest vote, in case the election of one of them can be secured in this way and in no other.

**FOR A HORTICULTURAL DISPLAY.**

The Executive committee on horticultural display during Fall Festivities met at the rooms of the State Horticultural Society, in the State capitol, on Saturday, July 25. The members examined the beautiful rooms set apart for the display and were pleased with them. It was decided that summer fruits must be gathered at once and placed in cold storage. Everybody interested in horticulture in Kansas is requested to forward fruits in their season, carefully packed and plainly labelled with name of variety, grower and postoffice. These products will be at once placed in cold storage until the exhibition. The exhibition will be held open during the reunion, and will be free. No premiums are offered.

The Executive committee is as follows: President, F. Wellhouse, President of State Horticultural Society; Secretary, William H. Barnes, Acting Secretary State Horticultural Society; Mrs. J. F. Cecil, North Topeka; Mrs. Wm. Sims, Topeka; Miss Lucy Popenoe, Berryton; J. F. Cecil, Liberty Stock, J. M. Priddy, North Topeka; Philip Lux, A. H. Buckman, W. H. Coultis, John Armstrong, A. B. Smith, Topeka; J. L. Jordan, Wakarusa; G. W. Van Orsdal, B. F. Van Orsdal, A. L. Entsminger, Silver Lake; A. E. Dickinson, Meriden; James May, Dover; Jacob E. Maus, Vidette; J. L. Campbell, Auburndale.

All communications should be addressed to William H. Barnes, Secretary, State House, Topeka, Kas.

The Santa Fe has just announced a flat rate of 9 cents per 100 pounds on all grain shipments from Kansas City to Chicago. This is the lowest rate yet made. We expect next to hear of a 9-cent rate to the Gulf.

**GRAIN RATES SOUTH AGAIN REDUCED.**

Notwithstanding the great efforts of Eastern railroad magnates to prevent the adoption of such schedules as shall change the direction of Western grain shipments towards the natural outlet via the Gulf of Mexico, the rates of Gulf roads make frequent breaks, to the great advantage of the producers of the West, and especially the producers of Kansas.

On July 24 the Kansas City, Fort Scott & Memphis railway made a bold bid for a big share of the grain business by cutting the export grain rate from Kansas City to the Gulf of Mexico nearly in two. It announced a rate of 12 cents per 100 pounds and 10 cents on corn from Kansas City to Southport, La., effective July 28. The rate formerly in force was 19 cents per 100 pounds. The slash made by the Memphis is the deepest yet made since the present grain war was started. It will greatly benefit grain producers in the West and is a hard blow at Chicago, St. Louis and Atlantic ports. It will have the effect of attracting grain to the Gulf and will probably result in a bitter rate war between the Gulf of Mexico lines and the Eastern lines. Rates to Atlantic seaports, as well as to Galveston, will necessarily be forced to come down. The Memphis also announced a proportionate rate on grain of all kinds and grain products from Kansas City to Memphis, effective July 28.

It will now be necessary for those interested at Galveston to awake from the dream that they can have a monopoly of the Gulf trade of the West. It has been said that one of the obstacles to the development of this trade has been the monopoly enjoyed by some old fogies of the Galveston shipping front. If they now conclude to be reasonable they may have a share of the trade of the Southwest. But if inclined to be unreasonable the mighty grain crops now made and making can get to the Gulf very readily via big steamers from Memphis or via the Louisiana port.

The new rate war probably means an advantage of several cents per bushel to the Kansas producer on the enormous crop he is now maturing.

**IS SILVER MONEY LEGAL TENDER?**

EDITOR KANSAS FARMER:—Please answer the following questions in your next issue of the FARMER. (1) Is the silver dollar a legal tender in an unlimited amount? (2) If it is, in what year was the law passed giving it that power? If you are in the habit of answering questions of finance you will greatly oblige the readers of your paper here by answering these questions for our benefit.

HUGH McLAREN.  
Hope, Kas.

The KANSAS FARMER has enough to do without entering the field of political discussion, a field already ably occupied on both sides. But partisan papers have to some extent lost the confidence of inquirers after facts on account of the unscrupulousness of some of them in making partial and misleading statements. In answering the above inquiry, however, it is not intended to turn the tide of this class of inquiries towards this office. It is advised that each voter take during the campaign political papers, one representing each of the parties to the present contest.

The question raised by our correspondent is answered by the *Detroit Tribune* (silver) as follows:

"The silver dollar is unlimited legal tender where not otherwise expressed in the contract. It became so by the law of 1878 authorizing its coinage."

The *Chicago Inter Ocean* (gold) answers as follows:

"The silver dollar coined by the United States is an unlimited legal tender and has been since 1878. Not a bank or business house ever refuses a silver dollar in full liquidation of any debt, unless by stipulation in contract the debt is made payable in gold."

Either of the above representative papers can be had during the campaign by enclosing 25 cents in addition to a KANSAS FARMER subscription, or both for 50 cents additional.

A lady correspondent inquires whether an asparagus bed should be mown during the summer. Referred to market gardeners.

**EXCERPTS FROM GOVERNMENT CROP REPORT FOR JULY, 1896.**

**WHEAT.**—The returns from a large corps of correspondents show that the condition of winter wheat is 75.6, against 77.9 in June and 65.8 last July. The percentages by States are: New York, 70; Pennsylvania, 70; Kentucky, 64; Ohio, 50; Michigan, 73; Indiana, 66; Illinois, 80; Missouri, 75; Kansas, 75; California, 100; Oregon, 95; Washington, 100. The condition of spring wheat is 93.3, against 99.9 in June and 102.2 in July, 1895. State averages are: Minnesota, 88; Wisconsin, 97; Iowa, 96; Kansas, 90; Nebraska, 90; South Dakota, 99; North Dakota, 96; Washington, 97; Oregon, 93. If spring is combined with winter wheat, the average condition of the whole crop is 83.4 per cent.

Correspondents report with regard to winter wheat that in Pennsylvania it was much winter-killed; that the fly and rust greatly damaged the crop in Ohio both as to quantity and quality; that in Michigan during the preceding month the crop improved in condition, but that it has suffered much from rust, insects, and the unfavorable conditions at the time of seeding last autumn, so that in some of the heaviest wheat counties hardly more than half a crop is expected; that in Indiana threshing discloses the low yield of 9.3 bushels per acre; that in Kansas, where a large portion of the crop has been harvested, the grain is found to be of light weight and the quality below expectations; and that on the Pacific coast the spring has been very favorable for wheat.

With regard to spring wheat it is reported that in Minnesota the crop had a rapid and lusty growth but that rust appeared in the middle of June, which after all may not do much damage if the weather conditions are favorable.

In the principal winter wheat States the returns are compared with those of July in recent years, as follows:

States.	1896.		July.	
	July.	June.	1895.	1894.
Pennsylvania.....	70	70	88	98
Tennessee.....	80	84	86	74
Kentucky.....	64	65	85	88
Ohio.....	50	50	60	96
Michigan.....	73	73	69	92
Indiana.....	66	70	52	95
Illinois.....	80	87	50	94
Missouri.....	75	80	68	91
Kansas.....	75	85	42	56
Oregon.....	95	98	95	97
California.....	100	98	82	51
United States (average).....	75.6	77.9	65.8	83.9

The present condition in the principal spring wheat States, with the returns for July of 1894 and 1895, is presented in the following table:

States.	1896.		July.	
	July.	June.	1895.	1894.
Wisconsin.....	97	110	98	95
Minnesota.....	88	92	112	74
Iowa.....	96	103	109	78
Nebraska.....	90	105	80	40
South Dakota.....	99	111	112	44
North Dakota.....	96	103	102	68
United States (average).....	93.3	99.9	102.2	68.4

**CORN.**—The report on the acreage of corn, which is preliminary, shows 98.7 as compared with that of 1895, a decrease of 1.3 points. This makes in round figures 81,000,000 acres, against 82,000,000 acres planted last year.

The averages for the principal corn States are: Ohio, 106; Michigan, 106; Indiana, 103; Illinois, 103; Iowa, 97; Missouri, 99; Kansas, 105; Nebraska, 102; Texas, 83; Tennessee, 94; Kentucky, 96. The average condition of corn is 92.4, against 99.3 in July last year. [In the following table the condition for July last year is given as 92.4.

—EDITOR.] The averages of condition in the principal States are as follows: Ohio, 106; Michigan, 100; Indiana, 111; Illinois, 98; Iowa, 94; Missouri, 81; Kansas, 102; Nebraska, 103; Texas, 39; Tennessee, 90; Kentucky, 97.

Reports from the correspondents in seven leading corn States may be summarized as follows: In Texas there is a general complaint of dry, hot weather and hot winds, so that corn fields are parched; in Indiana excessive moisture in a few counties has not prevented the State's crop from having a fine condi-

tion; in Illinois the stalks are in fine condition, and are unusually forward for this time of the year; complaints of wet weather come from Iowa and Missouri, but this does not seem to have affected materially the crop in Iowa; corn has made rapid growth in Kansas, and wet weather has not prevented a high condition; the crop is in excellent condition in Nebraska, and discouraging reports are inconsequential.

Table showing the July condition and the crop of corn for five years in ten leading States.

States.	1891.		1892.		1893.		1894.		1895.		1896
	Condition July 1.	Crop in thousands bushels.....	Condition July 1.	Crop in thousands bushels.....	Condition July 1.	Crop in thousands bushels.....	Condition July 1.	Crop in thousands bushels.....	Condition July 1.	Crop in thousands bushels.....	Condition July 1.
Texas.....	95	70,635	95	73,642	89	61,171	94	69,339	39	107,906	39
Tennessee.....	96	82,552	92	61,274	92	63,650	89	68,060	90	83,133	90
Kentucky.....	95	82,735	93	68,805	90	68,008	90	67,892	97	93,339	97
Ohio.....	93	94,092	80	83,853	93	64,487	93	71,974	106	92,783	106
Indiana.....	95	123,022	72	103,334	96	85,369	96	96,888	111	121,436	111
Illinois.....	90	234,880	70	165,327	92	100,550	99	169,121	98	255,137	98
Iowa.....	94	350,878	75	200,221	98	251,832	100	31,344	94	338,503	94
Missouri.....	94	203,210	75	152,489	92	158,198	101	116,012	81	238,072	81
Kansas.....	82	141,893	81	145,825	93	139,457	96	41,798	102	204,790	102
Nebraska.....	90	167,652	84	157,145	91	157,279	96	13,856	103	125,685	103
United States.....	92.8	2,060,154	81.1	1,628,464	93.2	1,619,496	95.0	1,212,770	92.4	2,151,139	92.4

**RYE.**—Winter rye has the average condition of 83.8 per cent., the average for last year at this time being 82.2 and for June of this year 85.2. In principal rye States the condition is: New York, 87; New Jersey, 93; Pennsylvania, 81; Virginia, 84; North Carolina, 91; Kentucky, 82; Ohio, 77; Michigan, 92; Indiana, 62; Illinois, 80; Kansas, 70; California, 84. About seven-eighths of the spring rye crop is raised in Wisconsin, Minnesota and Iowa, and the condition of the crop in these States is, respectively, 102, 101 and 95. The average for the United States is 98.6. Last year spring rye had the average condition of 77 July 1. Some damage to this grain by rust, insects, and worms is reported from many of the Northern States.

**BARLEY.**—Average condition 88.1, as against 91.9 last year. In California it is 67; Minnesota, 93; Iowa, 99; Wisconsin, 101; North Dakota, 82; New York, 93. These States produce more than three-fourths of the entire crop. Condition of this crop June 1 was 98.

**IRISH POTATOES.**—The acreage is 93.7 per cent. of that of last year, and exceeds it only in Arkansas, West Virginia, Kentucky, Iowa, Missouri, Nebraska and South Dakota. Among the larger potato-producing States New York has 91 per cent. of last year's area; Pennsylvania, 93; Ohio, 94; Michigan, 88; Indiana, 99; Illinois, 97; Wisconsin, 90; Minnesota, 79; Iowa, 106; Kansas, 99, and Nebraska, 106. The acreage last year was 107.9 per cent. of that of the preceding year. The reported condition of the crop is 99, as against 91.5 last year for July. A condition above 100 is found in Massachusetts, New Jersey, Pennsylvania, West Virginia, Kentucky, Ohio, Michigan, Indiana, Illinois, Wisconsin, Iowa, South Dakota and Nebraska, embracing the chief potato States except New York, where the condition is 99, and Minnesota, where it is 100. The crop is poor in most of the Southern States, owing to drought, and on the Pacific coast.

**OATS.**—The oat crop has a condition of 96.3, as against 83.2 last year, and is especially fine in the chief oat-producing States. Complaints of lodging come from the upper Mississippi river basin, where generally high conditions are otherwise found. The poorer conditions are in the Southern States.

**WOOL.**—The returns relative to the fleeces sheared in the fall of 1895 and the spring of 1896 make the average weight for the country 5.7 pounds. In 1893 and 1894 the average stood at 5.3 pounds, and in 1895 at 5.6 pounds. The lowest average for any State this month is 2.3 pounds for South Carolina, and the highest is 7.7 pounds for Wyoming. Present reports sustain the conclusion made in previous years that sheep are undergoing improvement, due to better selection and breeding.

**CLOVER.**—The average condition of clover on July 1 was 83.7, against 88.4 on June 1 and 73.9 a year ago. Among the States east of the Mississippi, Florida alone reaches a condition of 100,

while the important States of New York, Pennsylvania and Ohio give averages of only 55, 57 and 65, respectively. Of the States producing over one million tons in 1895 whose figures now exceed the general average for the country, all except Illinois and Wisconsin are west of the Mississippi. In general, newly-sown clover has fared best, but in some cases it has suffered considerably from grasshoppers. The

drought, including that of last fall, is the most common ground of complaint, and next in order is the effect of a hard winter, increased in some cases by deficient protection from snow.

**TIMOTHY.**—The average condition of timothy is 84.8, against 70.8 one year and 77.3 two years ago. Of the States whose averages exceed the average for the whole country, all save half a dozen States of comparatively small production are west of the Mississippi.

There are complaints of drought from a considerable number of localities, though often in the case of old meadows it is from the effects of drought last year, or even for two or three years past, that the crop has chiefly suffered. Winter-killing, late frosts in spring, hail, and the ravages of grasshoppers and other insects are mentioned among other causes of injury in particular localities.

**PASTURES.**—The general average for the condition of pastures fell during June from 94.5 to 91, which, however, is 12.3 points higher than the average of a year ago. Of the States that reach or exceed this general average (91), thirteen out of a total of twenty-two are west of the Mississippi; Minnesota, Iowa, Nebraska, the Dakotas, Nevada and Washington all rating above 100. Where the condition is low, drought is the usual cause. There are some complaints of grasshoppers, particularly in Michigan, and a few of the army worm.

**FRUIT.**—*Apples.*—The condition of this fruit declined from 71 to 64.6 during June. Prospects for excellent crops still continue in New England, New York, Pennsylvania, Michigan and Iowa. Conditions are also very fair in Nebraska and several of the mountain States. In other parts of the country the condition, is far below the average, being lowest in the Atlantic coast States, where percentages are generally below 50. In the Ohio valley and certain of the Western States not yet referred to the figures are somewhat higher, but nowhere above 67, which is the percentage returned for Illinois and Missouri.

*Peaches.*—Taking the country at large, the peach crop promises to be one of medium proportions. During the past month a fall of 12.9 points has taken place, leaving the general average now 51.8. Good crops are expected in Delaware, Maryland, Ohio, Michigan, Illinois, Indiana, Kentucky, Missouri and Kansas. The crop has suffered considerably in California, as is shown by a condition of 75, which is lower than any July condition in that State since 1890. In New Jersey the fruit is falling badly, and the condition with it. The Connecticut and New York orchards promise very little fruit, and in Pennsylvania condition is no better than in contiguous New Jersey at 52.

The meteorological conditions generally obtaining in Europe throughout June have been highly favorable to growing grains.

*United Kingdom.*—The condition of

all crops has been greatly improved by the rains at the end of the month, and the reports from nearly all districts indicate an average crop. Hay-making has been general during the past three weeks and the shortage on account of the long drought is not so great as was anticipated.

*France.*—It is expected that the wheat crop will considerably exceed that of last year. It is not yet safe to say that there will be a surplus, but it is confidently predicted that there will be sufficient for home requirements. All other cereals are looking most promising.

*Germany.*—The month has been generally favorable to the standing grain. Late telegraphic advices are not couched in quite such sanguine words as those from France and Austria, but fair average crops are predicted.

*Holland and Belgium.*—"Crops flourishing; a good average expected, and an early harvest."

*Spain.*—Favorable weather has materially improved the outlook for wheat, and an average crop is expected.

*Austria-Hungary.*—An unusually favorable June encourages belief in a large return of cereals—wheat and rye especially. The wheat is standing thick on the Hungarian plains, and the harvest is expected to be early.

*Italy.*—An average crop of cereals is expected.

*Bulgaria and Roumania.*—Suitable weather during June has brought wheat along wonderfully, and the prospects are now good. Maize is also looking well.

*Russia.*—Reports indicate a good average wheat crop, conditions being favorable except as to winter wheat in Kherson and Bessarabia.

**FARM DEPRESSION IN ENGLAND.**

Agricultural distress is very prevalent in Great Britain and a correspondent of an English paper puts the situation in the following way:

"Wheat used to be the farmer's main crop in the past. Now, through foreign competition, the wheat crop is an unprofitable one. In the past the wool crop was a very useful one for the farmer's pocket; now it is only worth half the money. Beef in the past was worth from 10s. to 12s. per stone. In the present day, through foreign competition, it only fetches from 6s. to 8s. per stone. Pork at the present day is hardly worth raising. Foreign competition again! Barley and mutton have been the only props left for the farmer to rely upon during the last few years, and even these seem ready to break under the strain of foreign competition. This has ruined thousands of farmers in the past, while many farmers to-day are turning milk-producers, growing market garden produce, cross-cropping the land, selling fodder and straw off to try to hold on a little longer, hoping for better times to come. Farming must be carried on on entirely different lines if we are to be successful. The foreigner, by combination, has gained a good foothold on our markets. It is only by combination that we can hope to regain our lost markets and make farming pay."

The New York Journal, which claims to be the only New York daily for the Democratic national ticket, offers a rate which enables us to furnish its Sunday edition for three months for 25 cents in addition to a KANSAS FARMER subscription.

In Scotland and Ireland the pig is the rent-payer, because it eats what would otherwise be wasted, making use of material of no value and turning it into legal tender for the landlord. On American farms a few pigs may be kept without any cost in excess of the care of them, and by providing clover pasture and early corn to be fed in the stalk green, and a few roots for winter, the number that can be kept at small cost can be largely increased.

**Homes for the Homeless.**

The opening of two Indian reservations in northeastern Utah to settlers opens up over three and one-half million acres of fine agricultural and stock-raising land for home-seekers.

The Uintah and Uncompahgre reservations are reached by the only direct route, the Union Pacific system, via Echo and Park City. E. L. LOWAX, G. P. & T. A., U. P. system, Omaha, Neb.

## Horticulture.

### SOME CAUSES WHICH AFFECT PRODUCTIVENESS.

By Prof. F. A. Waugh, now of Vermont Experiment Station, and read before the Oklahoma Horticultural Society.

The term "productiveness" in this paper is taken to mean simply the rate of fruit or seed production; and does not refer to the production of tubers, roots, foliage, etc., which would come under an entirely separate head. Productiveness as thus considered may be influenced by two distinct classes of agencies. First, those affecting a race of plants through several generations of breeding, and, second, those affecting an individual plant during its single lifetime.

The first class of causes are, in general, the most potent. The breeding of a plant determines to a large extent its productiveness, so that, though any special plant may be made to bear more or less by proper treatment, yet this range is comparatively limited. Thus it would take very heroic treatment indeed to make a tree of Hubbardston's Nonsuch bear as many apples as a tree of Missouri Pippin. Yet, though the influences exerted through breeding are much the more powerful, they are exceedingly hard to control. And, besides this, most of our trees and agricultural plants are not bred by the farmers and horticulturists, but are bought ready-growing or as seeds. Even the nurseryman seldom breeds plants. He simply propagates. It is only when a man systematically sets about the production of new varieties, like Mr. T. V. Munson, or Mr. E. S. Rogers, or Mr. Luther Burbank, that he expects to reach greater productiveness through this first class of causes.

The second class of causes, that is, those which affect the individual plant, are, therefore, of more importance to the general cultivator, even though their influence is not so marked. Of these causes there are also naturally two somewhat distinct classes, namely: First, those which take place through the fertilization of the blossom, and, second, those which act merely through the vegetative processes of the plant.

The fertilization of the flower is now known to be of great importance in the production of the fruits; for, although fruits are sometimes developed without fertilization, a failure in pollination usually results in a defective fruit or a total abortion; and any general interference with the proper pollination of a crop of blossoms is sure to materially reduce the subsequent crop of fruit. Many discoveries of relatively great importance have of late years been made in this branch of horticultural botany, and it is still one of the most promising fields for investigation.

Fertilization is influenced in many specific ways. In the first place it must not be lost sight of that certain plants are naturally better adapted to fertilization than others. This natural adaptation shows itself in various ways, such as abundance or scarcity of pollen; vigor or weakness of style and stigma; relative position of male and female organs; different seasons of maturity in anthers and stigma, etc. Some varieties, although possessing perfect blossoms, are difficult of pollination, and more especially are often weak as self-pollinators. As examples it may answer to mention the Lindley and Brighton grapes and the Bartlett and Buffum among pears, all of which exhibit considerable delicacy in fertilization and are especially difficult to fertilize with their own pollen.

Cross-fertilization is also found to exert a powerful influence on the fruit. This has already been alluded to in the case of the Lindley and Brighton grapes and the Bartlett pear, which will hardly bear at all when limited to their own pollen, and which are still relatively productive when cross-fertilized. This subject has recently been extensively investigated by Mr. M. B. Waite and Mr. D. G. Fairchild, of the United States Department of Agriculture, in many varieties of pears and apples. Among many valuable practical inferences they say that apples are much

more susceptible to the influences of cross-fertilization than pears even.

The weather must also be considered as having its due bearing on pollination and thus on the fruit crop. It has been frequently observed that damp, cold, cloudy weather in blossoming time disastrously affects the crop of apples, pears, grapes, strawberries and other fruits, even though the weather may subsequently be unexceptionable.

The wind is also, in some cases, a measurable accessory agent in fertilization. Certain species depend much more than others on the wind for the distribution of pollen. Grapes are of this class, and an utter calm lasting through the blossoming period may notably diminish the quantity of fruit set. It will be readily understood that this difficulty does not seriously threaten the grape-growers of Oklahoma.

Insects sometimes assist greatly in pollination, especially in places where cross-pollination is desirable. The bad effects of damp, cloudy weather are undoubtedly heightened by the fact that such weather interferes with the work of insects. Their good offices are so well recognized that in some cases bees are kept for the sole purpose of assisting in the pollination of flowers.

The other class of causes which influence the productiveness of individual plants, namely, those of a vegetative or physiological nature, includes many practical horticultural operations, all of which, however, act in the same general way. Before discussing them, however, it is pertinent to notice that productiveness in any individual depends physiologically first on a condition of maturity, which is normally somewhat constant in any variety. Thus an apple tree is not expected to bear till it is 4 to 6 years old, whatever its external circumstances. To be sure, maturity itself may be hastened or retarded, and in this way productiveness may be influenced to a limited extent. But any plant must eventually reach maturity if it lives, and when that is finally accomplished other methods must be adopted if productiveness is to be artificially regulated.

Root pruning and girdling are typical of those means which influence productiveness through the vegetative processes. In any case the amount of nourishment, and more especially of water supplied to the tree, is reduced, and this after a time, with other conditions favorable, results in increased productiveness for the individual plant so treated. Botanists, horticulturists and chemists have not yet developed the actual facts as they occur in this case. A common theory, and one which is useful in any practical investigation, supposes that when the flow of sap is diminished, or more directly retarded, the so-called "raw sap" lies longer in the leaf laboratories and becomes more highly elaborated. At the same time the growth of wood is checked, and buds which might otherwise have been pushed on to wood and foliage growth are allowed to quietly go through a series of further changes which transform them into fruit buds. It is generally accepted in theoretical botany that a blossom is just the same as a branch in structure, the difference being that the blossom has undergone a more extended development than the branch. Thus we are able to understand in a manner how productiveness is brought about by checking the flow of sap through root pruning and similar means.

Any mechanical injury, therefore, has a tendency to turn a plant from a production of wood to the production of fruit. A member of the Kansas Horticultural Society at one of the annual meetings related the case of an acquaintance whose knowledge of practical horticulture had outgrown his understanding of the theoretical, and who used to make it a practice to go through his orchard with a club, administering a vigorous beating to those trees which did not bear as much as they should. This treatment caused the recreant trees to bear; but the reasonable explanation is the same as though it had been girdling, that is, the flow of sap was checked and the further development of buds ensued. The same explanation applies to such

practices as driving nails into tree trunks; boring them full of holes and filling the holes with sulphur; slitting the bark; and dozens of other poorly directed efforts at checking a too-abundant sap flow.

The bending of branches which naturally occurs at the maturity of many fruit trees tends in the same way to increase their productiveness. The heavy loads of fruit which sometimes bend the branches quite to the ground very considerably interfere with the rapid flow of sap, and this is one reason why many trees soon overbear themselves, once they are started on a career of overproduction. In some places it is the practice to tie stones to the extremities of branches, and to resort to many similar means of bending the limbs in order to secure fruitfulness. In this country the opposite treatment is oftener to be recommended; and the thinning of the fruit or the bracing of the over-burdened branches is well worth while.

Drought, though seldom to be prayed for in this country, has often been noted as the occasion of greater productiveness. Many remarkable instances of blossoming and fruit setting were noted this year, incident upon our excessively dry winter and spring of 1895. The fact that the apple crop was not subsequently large was due to the falling of apples and not to any failure in setting an abundant crop. Just this week I had called to my attention the case of a four-year-old Missouri Pippin in an old nursery row. It was in a specially dry place, and added to this a part of its roots were washed out and exposed, and it had been girdled by borers, so that a great many of the "causes which affect productiveness" were at work upon it. Last spring this tree was loaded with blossoms and even set a few apples.

The moral is this: That as we look at this question all together we see that there are a great many widely different causes which effectually operate upon our trees, garden plants and field crops to make them produce more or less than they normally would of the crop desired. It is very evident, then, that the successful farmer or fruit-grower must know what all these causes are, how they operate, how to control them as far as possible, and then he must keep all these things constantly in mind as he goes about his work. Any man who has an idea that there is not as much in this subject to be learned as there is in the practice of law or the mixing of medicine does not at all understand the case.

#### New Ideas in Grafting.

The question has been raised whether by uniting portions of buds of different varieties of fruit, apples, for instance, an intermediate or different variety can be produced. The editor of *Mechanics Monthly* replies that he tested the matter, trying twelve sliced buds, using very dissimilar kinds, namely, the Red Astrachan and Rhode Island Greening. Only two grew. They were grafted on a bearing Baldwin tree on dwarf stock, so as to bring them into early bearing, and one of them frequently bore fruit. The fruit was pure Red Astrachan, although the flowers were whitish, like the Greening, and not colored, as the Astrachan flower should be.

A more definite experience is that of Mr. A. C. Thompson, of Duarte, Cal., who is the originator of a new navel orange which has attracted much attention because of its superiority to the original navel. The process by which the new variety had been originated was kept a secret until two years ago, when Mr. Thompson revealed his method. It was described by him as follows:

"In the box of oranges which I send you, you will find two pieces of orange wood, each with a waxed wrapper around it. Remove the wrapper and use a magnifying glass upon the bud which you see inserted in the usual manner. Look carefully at this bud and you will see, by the slit through it lengthwise, that it is composed of two half buds of the same size, put together and inserted as one, waxed over, after being concaved to fit the convex side of the stalk, and concaved

## FARMERS

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a little also in the split so as to bring both edges of the germ together closely. This has to be done, of course, with a very thin, sharp knife. Now, say, for instance, that one of the above half buds is a Washington navel and the other half St. Michael. These grow together and form one shoot. From this shoot next season take buds and from Malta Blood take buds of equal size and maturity; split and unite these halves as one bud, wax over lightly and cover with a wax wrapper. String will not do, as the bud will dry out. Next season again take the buds from this new growth and halve them with half buds of the Mediterranean Sweets. Here, then, you get a growth which includes all the varieties named. At the end of three weeks from budding, the wrapper has to be removed and the buds examined with a magnifying glass. If the union is complete at the crown of the germ, return the wrapper to exclude the sun and air until the bud starts to grow. Sometimes one-half of the bud starts to grow. All such should be cut out and the budding done over again. Sometimes both halves die or both halves grow separately. Then it has to be done over again on a new place on the stock. There ought to be at least fifty buds of each combination put in at the same time to cover failures."

Mr. Thompson's success with the orange is encouragement enough to induce experiments with other fruits, especially with apples. Thus, if the bearing and keeping qualities of the Missouri Pippin can, by such "double dealing," be established on a tree as good as that of the Maiden Blush, a valuable service will be done.

#### Thayer's Berry Bulletin for August, 1896.

For largest yield of perfect berries two favorable seasons are necessary—the first to perfect the root, the plant and the fruit bud. The root is the foundation on which success depends. The tint of flower and perfection of fruit proceed from the root. Its best development requires fine, rich soil, plenty of moisture and frequent cultivation. With good roots, vigorous plants and canes may be expected. Vigorous canes, well pruned, free from weeds and grass, and having sufficient room to grow, will form many strong vigorous buds for next season's fruit. These fruit buds are promises of future payment, and the first season's work is not done until they are carefully prepared for their long winter sleep.

The second season is a repetition of the first, as the same care that matures this year's plant also matures fruit on last year's cane.

The fruit-grower should then remember that in preparing the soil, in selecting plants, in hoeing, cultivating, pruning, thinning of fruit, protection, and in every little detail, he is performing an important part in the quality and quantity of his fruit one or two years hence. Neglect the work but a single week, and, like an ugly thread woven into a beautiful pattern, it shows imperfection ever after.

The eternal now is the time to grow good fruit. In many parts of the North-

KANSAS HOME NURSERY now offers choice Berries and orchard fruits of all kinds in their season. Fresh shipments daily by express. Prices to applicants. A. H. Griesa, Box J, Lawrence, Kas.

#### Garnahan's Tree Wash and Insect Destroyer

Destroys the bore worm and apple root louse, protects the plum from the sting of the carculio and the fruit trees from rabbits. It fertilizes all fruit trees and vines, greatly increasing the quality and quantity of the fruit. Agents wanted everywhere to sell the manufactured article. Address all orders to John Wiswell, Sole Mfr., Columbus, Kas., and Cleveland, Ohio.

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Hydraulic, Knuckle Joint and Screw Presses, Graters, Elevators, Pumps, etc. Send for Catalogue.  
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west strawberries have been almost a failure because of imperfect root growth last year. In many cases even staminate varieties were so weak and pollen so impotent that they could not fertilize their own blossoms.

Lack of pollenization is the direct cause of failure. This weakness of root growth extends to new setting this year, and great care will be necessary, even under favorable circumstances, to place new beds in good condition for next year's fruiting.

August is a critical month for the fruit-grower. The charm of growing leaf, bud, blossom and fruit is practically over. The hot, dry days are at hand. The weaker plants are struggling for existence and must have moisture to preserve life and vigor and properly mature the fruit buds. Let the work be thorough this month if you would have good results hereafter.

## In the Dairy.

Conducted by A. E. JONES, of Oakland Dairy Farm. Address all communications Topeka, Kas.

### Hand Separators on the Farm.

The Indiana Experiment Station sends out the following bulletin:

"During the past few months numerous communications to this station indicate that Indiana farmers are becoming much interested in the use of hand separators on the farm. Many wish to know if it will pay them to buy such a machine to replace hand skimming of milk.

"The hand separator consists of a small metal bowl, which is revolved with great rapidity by means of cog-wheel connections. Milk turned into the bowl separates into skim-milk, which accumulates in the outer portion of the bowl, and cream, which gathers near the center. After the separation in the bowl the cream and skim-milk escape from it through outlets into separate tubes, from which they are conducted into cans. This action of separation is continuous so long as the bowl is revolving at suitable speed.

"Separators are now commonly sold on the market that do satisfactory work, practically removing all the butter fat from the milk. On the average farm probably every 100 pounds of skimmed milk secured by the old-fashioned methods contains from one-fourth to one-half pound of fat. More is left in the milk than the farmers are often aware of. The properly run separator removes nearly all, if not all, of this.

"The writer believes that every person who keeps five or more cows with the object of making as much butter from them as possible, who makes gilt-edged butter, and who is interested in progressive dairying, would find in the hand separator a money-making machine. Other people are likely to be disappointed if they buy a hand separator.

"The following are some of the important arguments in favor of this separator: It effectually skims the milk, thereby saving all the cream or fat. Where impurities have fallen into the milk, such as hairs, dirt, manure, etc., the separator removes them, so that their influence on the cream is much diminished. In summer separator cream is free from milk curds, which often occur in cream skimmed by hand and cause trouble in butter-making. The separator is also a labor-saving device when one becomes familiar with its use and care. The necessity for caring for many pans and cans is done away with in a large degree.

"There are several excellent forms of separators on the market. Prices vary according to size and make, ranging from \$65 up, for first-class machines. For the above price a machine can be bought that will separate 175 pounds in an hour. A popular and standard size, which sells for \$125, will skim 350 pounds of milk per hour. Such a machine is used at this station and gives perfect satisfaction.

"The amount of force required to run a hand separator is not great enough to tire an average man seriously. The use of the tread-power is, however, becoming extensive. Small

dog or sheep-powers are made, selling for \$150 or so, that are used for running hand separators, and a larger tread-power, suitable for small bulls or ponies, is also used."

### An Oleomargarine Sale.

A tub of oleomargarine which Jesse Palmer, of Mt. Vernon, N. Y., purchased on June 2 from a peddler, for butter, has cost him \$50 in fines already and no end of worry and trouble. He was fined \$25 again in the city court recently on the complaint of State Inspector Archibald Clark.

"On June 2 the inspectors were in town and got a sample of Mr. Palmer's alleged butter. It was analyzed, and on June 25 Mr. Palmer was summoned to court and pleaded that he did not know it was oleomargarine. He was fined \$25. The inspectors had to remain in Mt. Vernon over noon and they took lunch at Baker's restaurant, on Depot place. When they sampled the butter it seemed to taste very much like oleomargarine. They asked Mr. Baker where he purchased it but he refused to say. When a complaint was made out against him he thought it was time to give information. He said he had purchased five pounds of it from Jesse Palmer, a tea merchant.

Mr. Palmer was served by a policeman with a summons to appear in court. He turned pale when he looked at the name of the complainant and saw it was the same as before. He went down to court and explained to Judge Bard how it happened. He said this butter Mr. Baker had bought was out of the same tub and sold on the same day that the inspectors got the other. The chemist's report showed the stuff to be oleomargarine, and on Mr. Palmer's admission Judge Bard had to fine him \$25.

Mr. Palmer said afterwards: "I'd give \$200 to catch the man who sold me that stuff. I never knew there was anything wrong with the butter. He was a peddler who said he came from Yonkers. As the chemist's report shows the stuff was half butter and half oleomargarine. He sold it a cent under the regular price and I had no idea but that it was all right. I used to buy cheese from him, too. Why, he used to have twenty tubs in his wagon at a time, and sold it all around town to different grocerymen. You see, I have no bill or receipt, or I could get at him. He must have suspected something, for he has not been around here in some time."

The inspectors who prosecuted Mr. Palmer are very anxious to get the man who sold him the oleomargarine.

### Prices for Butter.

The *American Cultivator* of July 11 quotes the price of butter in Boston as follows: Vermont and New Hampshire extra creamery, assorted sizes, per pound, 16½ cents; northern New York extra creamery, assorted sizes, 16½ cents; Vermont extra dairy, 14 and 15 cents; New York extra dairy, 14 cents; extra Western dairy prints, 16 and 17 cents; small boxes extra Western creamery, 17 and 18 cents; extra Western creamery, 16 and 17 cents; extra Western creamery prints, 17 and 18 cents. A few years ago Vermont and New York butter was rated the highest of any in the markets; now Western butter is taking the lead in grade and price among critical butter buyers of the east.

### Jewish Butter.

A creamery near Sycamore, Ill., has a contract to run two days of each week making "Jewish butter." The peculiarity of this brand is that it must be white, pure and unsalted. The Hebrews of Chicago are religiously particular about the quality of butter used in their families, and after testing samples from several factories decided that this creamery product came nearer the genuine article than the others.

Use only the very best salt. Too much stress can hardly be laid upon that, and also don't over-salt. It won't keep the butter a bit better, but especially if the salt be the common poor stuff generally used, the butter will be actually bitter to the tongue.

### Needed Improvement in Dairy Cows.

A very good annual average yield of milk is 5,000 pounds, instead of 3,000, and 200 to 225 pounds of butter per cow, instead of 125 pounds. Many herds kept in a plain, practical farm fashion attain still better results. There are manifestly many cows in the country, probably some millions, that do not produce the value of their annual cost, however cheap and wastefully poor their keeping may be. It is apparent that if but two cows were kept, of the suggested standard of production, in place of every three of the existing average quality, the aggregate products of the dairy industry of the country would be increased more than 10 per cent., while the aggregate cost to their owners ought to be less, and probably would be.

Every possible influence should be exerted to induce dairy farmers to weed out their herds and keep fewer cows and better ones. At least the average quality of cows kept for dairy purposes should be brought up to a profitable standard. For the present, the cow owner may reasonably require something over two gallons of milk per day for four months, then two gallons a day for the next four, and at least two months more in milk during the year, with constantly decreasing yield. This provides for an annual average yield of 5,000 pounds of milk, or about 575 gallons, which is a fair ideal standard for the dairy cow in the United States.

—Henry E. Alvord.

### Dairy Notes.

Don't cry over spilt milk, but try another cow, and one that doesn't kick.

Strainers of cotton cloth are better than wire. Several thicknesses should be used.

To get all the butter out of the cream, churn it at a low temperature and in a cool room.

Fat, blocky cows are fine-looking animals, but the lank and wedge-like ones are the best milk machines.

One of the regulations of the Illinois State Board of Health is that dairy cows shall be cleaned every day.

Thirty-two States in the Union now have laws prohibiting the sale of oleomargarine when colored in imitation of butter.

Have ready a good supply of green corn, fodder, green oats, rye or peas for the cows when the pastures begin to dry up.

Oleo dealers in Ohio are excited over the enforcement of the new laws in that State. They have been arrested and fined, but many of them have kept on selling.

The largest proportion of milk is made up of water, and this, too, from the water that is daily given the cow to drink; hence the importance of supplying pure water for the cows to drink.

Never let the sun shine in milk. Never put it away without aerating it. Neither let it stand open in the air after it has been aerated. Nothing is so susceptible to evil germs in the air as milk.

Lots of people will tell you that they can do just as well without a thermometer, and that they can tell the exact temperature of water with their hand. They can't do it at all times, or with any degree of certainty at all.

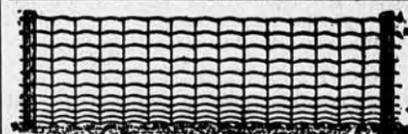
It is nearly impossible to get things sweet and clean if they are left for hours, or perhaps all night, with sour cream or buttermilk or melting butter on them, to be absorbed by the wood, so it will ever seem the same again.

A heifer that is to be raised for the dairy should be handled and made accustomed to all necessary manipulations from the time she is a calf until maturity. If this is done she will, in all cases, prove to be the better cow.

Some people boast that they keep the cow's udder clean, and perhaps they do, but all the rest of the animal is left in a filthy condition. This dirt dries into the hair, and then the act of milking shakes it down, like dust, into the pail, rendering the milk unfit for human food.

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Over 50 Styles. The best on Earth. Horse high, Bull strong, Pig and Chicken tight. You can make from 40 to 60 rods per day for from 14 to 22c. a Rod. Illustrated Catalogue Free. KITSELMAN BROS., Ridgeville, - Indiana.

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Get his 1896 catalogue. It tells all about The Best Farm Fence Made.  
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### The Only Buffalo Fence.

The late Austin Corbin firmly believed it to be the Page. He used it freely on his great park in New Hampshire, and when he donated half his herd of Buffalo to the city of New York, he attended personally to having our fence enclose them. Not every farmer owns buffalo, but no one objects to a strong fence.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Every man should read the advertisement of Thos. Slater on page 15 of this paper.

Many of KANSAS FARMER readers are familiar with the New York *Tribune*, the paper upon which Horace Greeley expended the best labors of a lifetime. We have perfected arrangements by which we can furnish one year's subscription to KANSAS FARMER and New York Weekly *Tribune* for \$1.25, received at this office.

### Union Pacific Route.

What you want is the through car service offered between Denver and Chicago via the Union Pacific and Chicago & Alton railroads, which is unexcelled by any other line. Magnificent Pullman sleepers, dining cars and chair cars, run through daily without change, Denver to Chicago via Kansas City.

### Jack Needs a Vacation.

All work makes Jack a dull boy. He should leave the office a while this summer, take Jill along, and go to Colorado.

An illustrated book describing summer tourist resorts in the Rocky mountains of Colorado, will be mailed free on application to G. T. Nicholson, G. P. A., A., T. & S. F. railroad, Chicago.

Tourist tickets now on sale at reduced rates to Pueblo, Colorado Springs, Manitou and Denver, over the picturesque line, Santa Fe Route.

### To St. Paul and Minneapolis via "Burlington Route."

Two splendid through trains each day from Missouri River points to the north via the old established "Burlington Route" and Sioux City Line. Day Train has handsome observation vestibule sleepers, free Chair Cars and Dining Cars (north of Council Bluffs). Night Train has handsome sleepers to Omaha, Council Bluffs and Sioux City, and Parlor Cars Sioux City north. Consult ticket agent.

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### No Room for Doubt.

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The facts are that the UNION PACIFIC is leading all competitors, is the acknowledged dining car route, and great through car line of the West.

The line via Denver and Kansas City to Chicago in connection with the Chicago & Alton railroad, with its excellent equipment of Free Reclining Chair Cars, Pullman Palace Sleepers and Pullman Dining Cars, demands the attention of every traveler to the East. Ask your nearest agent for tickets via this route.

E. L. LOMAX, Gen. Pass. and Ticket Agent.

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The Santa Fe Route personally conducted weekly excursions to California are deservedly popular. About one-third saved in price of railroad and sleeper tickets as compared with first-class passage.

The improved Pullmans occupied by these parties are of 1896 pattern and afford every necessary convenience. A porter goes with each car and an experienced agent of the company is in charge.

The Santa Fe's California line is remarkably picturesque, and its middle course across the continent avoids the discomforts of extreme heat or cold.

Daily service, same as above, except as regards agent in charge.

For descriptive literature and other information address G. T. Nicholson, G. P. A., A., T. & S. F. Ry., Chicago.

## The Apiary.

Conducted by A. H. Duff, Larned, Kas., to whom inquiries relating to this department should be addressed.

### Inquiries on Bees.

EDITOR KANSAS FARMER:—I keep a few bees, and have to hive of Italians; can I raise Italian queens, and how is it done? I wish to raise queens for the rest of my colonies.

I had a swarm come out last Tuesday, and there were four queens with it. I caught three of them and caged them up. I then examined the old hive to see if there were any more queen cells, and found three more ready to hatch. Would they have swarmed again if I had left the queens to hatch? One swarm came out on Monday from the same colony, much larger than the one that came Tuesday.

What are the best hives to use?

J. M. COLLINS.

Mont Ida, Kas, July 10, 1896.

There is scarcely a limit to the number of colonies that can be Italianized by the use of one queen. It would take a good-sized book to give the methods of rearing queens in detail, but we can, perhaps, give a few directions here so that you will succeed. First, take a frame of brood from your Italian colony and place it in a queenless colony—one that has no brood of their own less than six or eight days old. Great care must be used in selecting the frame of brood to select one that has eggs or young brood not over three days old, as good queens cannot be reared from older brood, and it is always the safe plan, if possible, to get a frame containing nothing but eggs. There are other ways of managing to get queen cells, and owing to the condition of your colonies you might adopt some other course. If your Italian colony is very strong you can divide it, and the division which is queenless will proceed at once to rear queen cells, so it is plainly seen that any queenless colony, large or small, will raise queen cells if it has brood of the right age to produce them.

A queen will hatch in sixteen days, and the cells are sealed over in eight days after the egg is deposited. At any time after the cells are sealed over, and we would prefer to allow them to remain two or three days after being sealed, they are ready for distribution. Cut out the cells, using a sharp, thin-pointed knife, and cut a little of the comb with them; that is, cut far enough from the cell that you may not injure it in any way, and it must be handled very carefully and not be allowed to exposure by being left out of the hive any great length of time. Previous to the cutting out of these cells, or it may be done at the same time, start some nucleus colonies; that is, take about two frames of bees, brood and honey and start a little colony; use the ordinary hive, and you must have one of these little colonies for every queen cell. Now insert each cell in one of the combs in each nucleus, and make a neat job of engrafting the cells in the combs. In selecting frames for these nuclei, get one comb at least that has young bees just hatching out to stock them with, as all the old bees will return to the old stand from whence they were taken, and the nucleus will become depopulated and the whole work is lost. These queens will hatch and become fertile in from ten to twelve days, when they are ready for service. These nuclei may be built up into strong colonies, or the queens may be taken from them and introduced to other colonies, and the nucleus may be provided with cells as before.

In regular swarming the first swarm issues eight days before the after-swarms, which issue daily for several days. Your report indicates that the swarms were all after-swarms. The old queen always comes with the first swarm, at which time there is no surplus of queens, hence we infer that your colony had cast a swarm some eight days previous to the time of the swarming mentioned. Your colony would have swarmed again, perhaps, if you had not removed the queen cells. Removing queen cells will check swarming under any conditions, with but few exceptions.

The Langstroth bee hive is used more extensively than any other. It goes by the name of "Simplicity," "Dove-tailed," "L. hive," etc.

### Bee Notes.

Each frame of comb in a bee hive should occupy about one and a half inches of space, and in spacing the frames it should be done with exactness, so that the frames will be one and a half inches from center to center.

Do not allow weeds and grass to grow up around the bee hives, so as to obstruct the entrance. Bank around the hives with some material so as to keep the weeds down. The entrances to hives is a very important matter. They should be of ample size, so the bees can pass out and in freely—three-eighths of an inch wide and ten inches long. Always have the entrances of hives adjacent to a large opening.

If you know of a good locality for bees, where bee pasturage is good, load up your bees and move to it. It is just as sensible as to move any kind of stock to good pasture. It is no trouble to move bees at any time during the summer. Fasten the frames solid in the hives, and either ship by rail or haul in a spring wagon. Keep your eye on the alfalfa, you will make no mistake by locating beside it. A few hundred acres of alfalfa will support a good-sized apiary.

### Profit in Exporting Wheat.

The Minnesota Railroad and Warehouse Commission has issued the following statement, showing market value of No. 1 hard wheat at Duluth on June 12, 1896, as compared with actual sale of 8,000 bushels Duluth No. 1 hard wheat on same day at Liverpool for delivery in London "c. i. f." (cost, freight and insurance):

	Cents.
Duluth quotation for No. 1 hard	58.50
Elevator and inspection charges	.85
Lake freight and insurance, Duluth to Buffalo	2.00
Elevator charges and commission at Buffalo	1.00
Canal freight and insurance, Buffalo to New York	3.00
Elevator charges, etc., in New York, viz.: Demurrage, towing, transferring and trimming	2.00
Ocean freight and insurance, New York to London	6.00
Shrinkage in weight, Duluth-London	.50
Cost in London "c. i. f."	74.75
Sold in Liverpool for London delivery 1,000 quarters (8,000 bushels) Duluth No. 1 hard wheat at 25s. 1½d. per quarter (480 pounds), or 75½ cents per bushel	75.38
Difference	.63

Showing that on that day the market in London was about ½ of a cent above that of Duluth.

### Distribution of Department Bulletins.

The United States Department of Agriculture has issued the following statement: "The correspondence of the Department of Agriculture indicates that very few people yet realize the limitations imposed upon the publications of that department under the printing bill of January 12, 1895. Constant complaints are being received of the limitation of certain bulletins of a very popular character, such, for instance, as that on 'Nut Culture' and that on 'The Honey Bee,' of which only 1,000 copies—not one-twentieth of what is needed to supply the demand—were printed, and the so-called policy of the Secretary in limiting the number printed and in turning over the bulletins remaining in his hands after providing for those required for the official use of the department is the subject of frequent criticism. As a matter of fact, under the law referred to the Secretary is obliged to turn over to the Superintendent of Documents all copies of every bulletin over and above those required for official use, and the law is quite clear that 'official use' does not include a general distribution. This applies to all publications save those whose distribution is otherwise provided for by law, such as farmers' bulletins. As to the publication of small editions of 1,000 copies, that is a matter regulated by this law, which provides in terms for the limitation to 1,000 copies in any one year of any bulletin published which shall exceed in bulk 100 octavo pages. Members of Congress frequently prefer requests for documents which the department cannot under the law comply with, but not infrequently they criticize what they call the policy of the department in regard to the sale of its publications, which is a matter strictly belonging to the jurisdiction of the Superintendent of Documents."

### LOVE TURNS AWAY.

The Increase of Bachelorhood and Spinsterhood—III—Health Versus Marriage.

To the social philosopher one of the most discouraging tendencies of the times is the disposition of young men, and especially city-bred young men, to remain single and grow up to old bachelorhood. In the crowded eastern sections of our country the percentage of bachelors and spinsters to the total population is tremendous.

A wise old physician in discussing the situation said:

"You will observe that this tendency is in the main confined to the large cities and thickly-settled communities. The young men are by no means blameless, but innocently the young women are also at fault. The fact of the matter is that city and town-bred girls are too frequently semi-invalids without fully realizing it.

"One of the saddest things in life is to watch young women commit slow suicide. Of course they don't know what they are doing. Starting with good health, strength, and good looks, everything ahead of them seems promising. But they don't know how to live



and take care of their own health. Their mothers are mainly at fault. They bring up their daughters in an atmosphere of false delicacy and in utter ignorance of the anatomy distinctly feminine and its all-important functions.

"These young women study Latin and Greek, go in for mathematics and ethics, but are faulty in their habits of eating, breathing, walking, sleeping, dressing and working. Worse than all else, they are as ignorant as unborn babies of the real and sublime importance of capable motherhood, and of the graver results that follow neglect of the delicate organs that make it possible. Moreover, health is beauty, and health is happiness. Where there is health there is always amiability and some degree of beauty. There may be a sickly imitation of it, such as we see but too frequently on the city streets and in the city drawing-rooms. But this transient, hot-house loveliness of the invalid is such as to excite pity, sympathy and consideration, but not to awaken love in the heart of robust, hard-headed young men.

"And the consequence. Girls grow up into womanhood and pass on into unnatural spinsterhood, because of their ignorance of the importance of the health and welfare of the womanly organism. They suffer in silence from weakness and disease that rob them of their health, their beauty and their capability to perform the duties of wifehood and motherhood. They imagine, in their pitiful ignorance, that the ills from which they suffer are inherent in all women. They do not understand that health is the normal tendency of nature, and all illness abnormal.

"From these innocent sufferers love turns aside. The young man who is worth marrying is ambitious. He looks forward to making a fortune in business or a name in a profession. He understands that he cannot live always, and dreams of perpetuating that fortune or name in a line of healthy, capable descendants. He wants a healthy wife, who will preside amiably in his home and be a capable, motherly mother to robust and promising children.

"That kind of a young man, and it is

the only kind fitted for young husbandhood, shies at the evanescent beauty of the semi-invalid. He has seen invalidism in the homes of his friends, and if he is a city-bred man he has seen little else, and with modern hard-headedness wants none of it. While waiting for his ideal the habits of bachelorhood become fixed, with the result, as in France, that the government may soon have to drive men to marriage by a tax on bachelorhood."

There is no necessity for this deplorable state of affairs. If all young women were taught by their mothers the supreme importance of the perfect health of the organs that make wifehood and motherhood possible, invalidism among women would soon be a matter of ancient history. There is hardly a disease, either general or local, from which women suffer that does not have its inception in weakness of the distinctly feminine organisms. The suffering wife and mother, racked with pain, petulant, sickly and unfitted for the duties of life, is only at fault in so far as she is ignorant of her own physical make-up and the importance of her womanly health. If she will take the proper care of herself and resort to the right remedy any woman may be a healthy, happy, capable wife and mother, and in some degree beautiful.

For all weakness and disease of the delicate organs that bear the burden of maternity, Dr. Pierce's Favorite Prescription is a safe, sure and speedy cure. It acts directly on these organs, making them strong and healthy. It allays inflammation, soothes pain, and stops all debilitating drains. It banishes the discomforts of the period preceding motherhood and makes baby's coming almost painless. It insures the health of baby. It transforms a weak, nervous, sickly, fretful woman into a robust, healthy, happy and amiable wife and mother. It does away with the necessity for the embarrassing "examinations" and "local applications," so objectionable to modest, sensitive women. Thousands of women have testified that it is the best of all medicines for suffering women. Those who wish to know more about it should write to Dr. R. V. Pierce, chief consulting physician to the Invalid's Hotel and Surgical Institute, at Buffalo, N. Y. All good druggists sell it.

For her own sake, and that of her children, every woman should have and read Dr. Pierce's Common Sense Medical Adviser. It the best home medical book ever written. It contains 1,000 pages and 300 illustrations. Several chapters and illustrations are devoted to the reproductive physiology of women. It is written in plain, everyday language, with no confusing technical terms. It contains prescriptions and advice invaluable to women. Over 680,000 copies have been sold at the original price of \$1.50 each. A new edition has just been printed and will be given away absolutely FREE. If you want a copy, in heavy manilla cover, send twenty-one one-cent stamps, to cover the cost of mailing only. If you prefer a copy in fine French cloth, beautifully stamped, send 10 cents extra (31 cents in all). Address the World's Dispensary Medical Association, Buffalo, N. Y.

### How's This!

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O.

We, the undersigned, have known F. J. Cheney for the last fifteen years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by their firm.

WEST & TRUAX, Wholesale Druggists, Toledo, O. WARDING, KINNAN & MARVIN, Wholesale Druggists, Toledo, O.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price, 75 cents per bottle. Sold by all Druggists. Testimonials free.

### One Fare to Cleveland and Return.

For the biennial encampment of the Knights of Pythias, Uniform Rank, at Cleveland, August 23 to 30, the Nickel Plate Road will sell tickets August 22, 23 and 24 at \$8.50 for the round trip, Chicago to Cleveland and return, being \$1.50 lower than via other lines. Tickets available on all trains, returning until August 31. Further information cheerfully given on application to J. Y. Calahan, General Agent, 111 Adams street, Chicago, Ill. 124

The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the KANSAS FARMER.

PARALYSIS IN DOG.—I have a pup, 3 months old, of the St. Bernard and Mastiff breed, that has become palsied, or in some manner lost the use of its hind parts and falls down in walking a short distance.

Answer.—Give your dog 2 grains of powdered nux vomica twice a day for four days, then increase the dose 1 grain and if there is no improvement in the next four days add another grain.

Be sure to get the bulletins from the agricultural experiment stations. They are doing important work. Keep in touch with it.

Publishers' Paragraphs.

Emporia Business college, Emporia, Kas., is not one of the old-style text-book schools, but gives a modern course of training by actual business methods.

The KANSAS FARMER takes much pleasure in calling attention to the public sale announcement found elsewhere in this issue of Messrs. Gudgell & Simpson, of Independence, Mo., who will, on Friday, October 23, 1896, offer at public sale seventy-five head of Hereford cattle—twenty-five bulls and fifty one and two-year-old heifers.

Special Inducements

are offered to passengers traveling via the Nickel Plate Road to Cleveland on occasion of the biennial encampment Knights of Pythias, Uniform Rank, at Cleveland, August 23 to 30, inclusive.

Ho! for Cripple Creek.

Remember that the Chicago, Rock Island & Pacific is the only line running directly from the East to Colorado Springs, the natural gateway to the Cripple Creek District.

List of Kansas Fairs for 1896.

Following is a list of fairs to be held in Kansas during the present year, their dates, locations and Secretaries, as reported to the State Board of Agriculture and furnished by Secretary F. D. Coburn:

- Allen County Agricultural Society—H. L. Henderson, Secretary, Iola; September 8-12. Brown County Exposition Association—E. H. Hoyer, Secretary, Hiawatha; September 15-19. Chase County Agricultural Association—H. F. Gillett, Secretary, Cottonwood Falls; September 15-18.

Unequaled Service

Denver to Chicago via Kansas City is given via the UNION PACIFIC and Chicago & Alton railways. Through Pullman Sleepers, Pullman Dining Cars and Free Reclining Chair Cars leave Denver Daily.

"Among the Ozarks."

"The Land of Big Red Apples," is an attractive and interesting book, handsomely illustrated with views of South Missouri scenery, including the famous Olden fruit farm of 3,000 acres in Howell county.

To Chicago, St. Louis and the East via Burlington Route.

The traveling public is sure to find the best fast vestibuled trains from the Missouri river to the East via the "Burlington Route." Elaborate compartment sleepers (same rate as standard sleepers); free chair cars of luxurious pattern to St. Louis; standard sleepers, free chair cars, and dining cars to Chicago.

A Look Through South Missouri for Four Cents.

The Kansas City, Fort Scott & Memphis Railroad Company has just issued a magnificent book of sixty or more photo-engraved views of varied scenery in south Missouri. From these views an accurate knowledge can be obtained as to the productions and general topography of that highly-favored section that is now attracting the attention of home-seekers and investors the country over.

Olander & Isaacson, Live Stock Commission

Special attention given to the feeder trade. Rooms 65 and 66, first floor Stock Exchange. Kansas City Stock Yards, Kansas City, Mo.

MARKET REPORTS.

Kansas City Live Stock. KANSAS CITY, July 27.—Cattle—Receipts since Saturday, 5,911; calves, 1,083; shipped Saturday, 512 cattle, no calves. The market was about steady on the native side.

Table with columns: No., Ave. Price, No., Ave. Price. Rows include various stock types and prices.

Table with columns: No., Ave. Price, No., Ave. Price. Rows include Texas and Indian Steers.

Table with columns: No., Ave. Price, No., Ave. Price. Rows include Cows and Heifers.

Table with columns: No., Ave. Price, No., Ave. Price. Rows include Stockers and Feeders.

Hogs—Receipts since Saturday, 2,077; shipped Saturday, 477. The market was about steady. Following are to-day's sales:

Table with columns: No., Price, No., Price. Rows include various hogs and prices.

Table with columns: No., Price, No., Price. Rows include various hogs and prices.

Table with columns: No., Price, No., Price. Rows include various hogs and prices.

Sheep—Receipts, since Saturday, 2,905; shipped Saturday, 1,334. The market was 10c lower. Following are representative sales:

Table with columns: No., Price, No., Price. Rows include various sheep and prices.

Chicago Live Stock. CHICAGO, July 27.—Cattle—Receipts, 14,500; market 5 to 10c higher on natives; Texas and western steady; fair to best beefs, \$3.30 to \$4.45; stockers and feeders, \$2.50 to \$3.70 mixed cows and bulls, \$1.50 to \$3.50; Texas, \$2.50 to \$3.15.

Hogs—Receipts, 28,000 market steady at Saturday's closing; light, \$3.20 to \$3.50; rough packing, \$2.65 to \$2.85; mixed and butchers, \$3.00 to \$3.42; heavy packing and shipping, \$2.90 to \$3.25; pigs, \$2.90 to \$3.25.

Sheep—Receipts, 29,000; market 10 to 2c lower; native, \$1.75 to \$3.10; Texas, \$2.00 to \$3.00; western, \$2.40 to \$3.05; lambs, \$3.00 to \$5.60.

St. Louis Live Stock. ST. LOUIS, July 27.—Cattle—Receipts, 4,000; market steady; native steers, \$3.50 to \$4.30; Texas steers, \$2.60 to \$3.70.

Hogs—Receipts, 3,000; market steady to 5c lower; light, \$3.15 to \$4.00; heavy, \$3.00 to \$3.35. Sheep—Receipts, 1,000; market lower.

Chicago Grain and Provisions.

Table with columns: July 27, Opened, High'st, Low'st, Closing. Rows include various grain and provision types.

Kansas City Grain.

KANSAS CITY, July 27.—There were a few buyers of wheat here at about Saturday's prices, but most of the elevator men and local millers continue to insist that wheat at present prices cannot be handled without a loss.

Receipts of wheat here to-day, 50 cars; a year ago, 76 cars. Sales were as follows on track: Hard No. 2, 3 cars 53c, 1 car 52 1/2c, 1 car 52c; No. 3, 5 cars 51c, 6 cars 50c; No. 4, 3 cars 48c, 3 cars 47c, 4 cars 45c, 1 car 44c, 1 car 43c; rejected, 1 car 40c, 1 car 33c; no grade, 2 cars 35c; weevilly, 1 car 43c, 1 car 40c. Soft, No. 2 red, 1 car 5 1/4c. No. 3 red, 1 car 54, 1 car 53c; No. 4 red, 1 car fancy 50c, 1 car 49c, 1 car 44c, 1 car 41c, 1 car 43c; rejected, 1 car 40c, 1 car 35c; no grade, nominally, 3c.

Corn sold early at steady prices to 1/4c lower. Later river bids were reduced 1/4c, and the local bids 1c. At the close corn was offering freely at 22 1/2c, both mixed and white, with the latter harder to sell than white.

Receipts of corn here to-day, 310 cars; a year ago, 55 cars. Sales by sample on track: No. 2 mixed, 3 cars 22 1/2c, 5 cars 23 1/2c; No. 3 mixed, 3 cars 22 1/2c; No. 4 mixed, 1 car 21c, 1 car 20c; no grade, nominally 17 to 18c; white corn, No. 2, 6 cars 23 1/2c, No. 3, 6 cars 22 1/2c; No. 4, nominally 21c.

Oats were in good demand, with no sign of weakness in the market. Receipts of oats to-day, 14 cars; a year ago, 20 cars.

Sales by sample on track: No. 2 mixed, nominally 20c; No. 3 oats, nominally 18 to 18c; No. 4, nominally 14 to 15c; no grade, nominally 12c; No. 2 white oats, 2 cars, 23 1/2c, 4 cars 23c, 15 cars to arrive 22 1/2c; No. 3 white, 1 car 21c.

Hay—Receipts, 24 cars; market is steady. Choice timothy, \$7.00 to \$7.50; No. 1, \$6.00 to \$6.50; No. 2, \$5.00; No. 3, new timothy, \$4.00 to \$4.50; prairie, choice new, \$4.50 to \$5.00; No. 1 new, \$4.00 to \$4.50; No. 2 new, \$3.00 to \$3.50; No. 3 new, \$2.00 to \$2.50.

St. Louis Grain. ST. LOUIS, July 27.—Receipts of wheat, 182,032 bu.; last year, 14,000 bu.; corn, 261,620 bu.; last year, 23,755 bu.; oats, 20,950 bu.; last year, 71,930 bu.; shipments, wheat, 93,200 bu.; corn, 161,570 bu.; oats, 4,660 bu. Closing prices: Wheat—Cash, 58 1/2c; July, 58 1/2c; August, 59 1/2c; September, 59 1/2c. Corn—Cash, 22 1/2c; July, 22 1/2c; August, 22 1/2c; September, 22c. Oats—Cash, 18 1/2c; July, 18 1/2c; August, 18 1/2c; September, 17 1/2c.

Kansas City Produce. KANSAS CITY, July 27.—Butter—Creamery, extra fancy separator, 13c; firsts, 12c; dairy, fancy, 12c; fair, 10c; store packed, fresh, 7 to 8c; packing stock, 7c.

Eggs—Strictly candled stock, 7 1/2c per doz.; southern, 5c. Poultry—Hens, 6c; roosters, 15c each; springs, 8c per lb.; turkeys, hens, 6c; gobblers, 5c; old, 4 1/2c; spring ducks, 7 to 8c; old, 6c; spring geese, 7c; pigeons, \$1.00 per doz.

Fruits—Peaches, freestones ranged from 35 to 65c per third bu. box, according to quality; clings, 35 to 50c; 4-basket crates ranged from 60 to 75c. Apples, fancy home grown stock is selling from 60c to \$1.00; fair, 40c; common, 30 to 40c per bu. Grapes, Moore's Early, 8 to a basket or 4c a pound; Champions, 25c a basket or 2 1/2c a pound; little red Delaware from Arkansas, 75c a 6-basket crate.

Potatoes—Home grown, 10c per bushel in a small way; 10c in wagon loads. Sweet potatoes, 50 to 75c in a small way; new stock, \$2.00 per bushel.

Tomatoes—Choice to fancy, 75c to \$1.00 per bu.; inferior and common, 50c per bu.; peck baskets, 20 to 25c.

Consign Cattle, Hogs and Sheep to LONE STAR Commission Company

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on Tuesday, Wednesday and Thursday of each week. Private sales every day at the Kansas City Stock Yards Horse and Mule Department. The largest and finest institution in the United States. Write for free market reports.

W. S. TOUGH & SON, Managers, KANSAS CITY, MO.

KNOLLIN & BOOTH, Sheep Commission Merchants.

Rooms 304-305 Exchange Bldg., KANSAS CITY, MO. Direct all mail to Station A. Market reports furnished free to all sheep feeders or breeders on application. Correspondence solicited and prompt reply guaranteed.

Ben. L. Welch & Co. COMMISSION MERCHANTS, STOCK YARDS, KANSAS CITY, MO. And EAST ST. LOUIS, ILL.

Stockers and feeders bought on order. Liberal advances to the trade. Write for market reports and special information.

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We have a line of unsurpassed excellence. They are TRACTION, PORTABLE, SEMI-PORTABLE. They are both SIMPLE and COMPOUND. We have FRESHERS, STACKERS, HORSE POWERS and SAW MILLS. But you had better write for our 1896 Catalogue—it will be mailed to you FREE.

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THE "HOOVER" DIGGER

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# The Poultry Yard

## Fighting Vermin in Summer.

EDITOR KANSAS FARMER:—Especially when the fowls are expected to roost in the poultry house all through the summer one of the worst enemies to success with poultry is vermin. They increase so rapidly under the favorable conditions of summer that it pays to keep a close watch and make a constant warfare upon them. Washing the roosts with crude petroleum every few days is one help, as the roosts and the nests are the two worst breeding places. The nests should be taken out regularly every few days and the material taken out and burned, and new, fresh material put in its place. When empty they should either be thoroughly whitewashed with a lime wash or washed with crude petroleum.

But even this will not keep them down. In the average poultry house there are many cracks and crevices into which the vermin can crawl and lay their eggs, which will hatch out an ever-present supply of vermin. The surest and best way of getting rid of these pests is to smoke them out. Take out the roosts and nests, make the house as tight as possible, then take a small quantity of lump brimstone, put in a pan with a little oil or grease that will help make it burn well, and put in an iron vessel; put this in the center of the room and arrange it so that there will be no danger of fire catching the house, then set on fire. Go out and shut the door and let stand closed three or four hours, then open the doors and windows and let in as much pure air as possible. It is best, when it can be done, to do this work in the morning, so as to give plenty of time to give thorough ventilation before the fowls will need it at night. While the breathing of a little sulphur is in many cases healthful, too much of it will kill. As with all work on the farm, if undertaken it will pay to do thorough work.

Eldon, Mo. N. J. SHEPHERD.

## The Duck Business.

Raising ducks for market near large cities has grown to be a great industry in many sections. In Massachusetts there are several duck farms where ducklings are raised annually by the tens of thousands. There are also farms on Long Island where they are made in the same wonderful quantities. The percentage of loss is reported to be much less than with chickens raised in large flocks. Mr. Rankin, of Massachusetts, who raises about 10,000 ducks every year, writes to the *Weekly Sun* that his loss is less than 2 per cent. a year. He sells his ducklings when they are from eight to ten weeks old, and they will then average about seven pounds each. He has had them at ten weeks old to weigh eight and one-half pounds. The ducklings are invariably sold by the pound. The manner of feeding causes them to grow very rapidly, and their flesh is much superior to those ducklings that are allowed the run of the barnyards and are fed in the usual miscellaneous manner. On the subject of the "Duck Business" the *Massachusetts Ploughman* says:

"The Pekin appears to be decidedly the favorite breed for market purposes in this country. Though resembling in some respects the Aylesbury, this breed is very distinct and there is no reason why one should ever be mistaken for the other. In the first place they differ greatly in shape. Pekins have a more upright carriage, the tail nearer the ground, while their shoulders are several inches higher, due to the legs being set further back in the body. Some Pekins have pure white plumage, but as a rule they have a slight canary tinge, which should never be met with in the other breed. The beak is yellow in color, short and thick in bill, and the legs are a dark orange. Pekins are large-looking birds, but this is more apparent than real, due to profuseness of feathering. They are wonderfully hardy, good foragers, can be easily reared, and, as has been already stated, are capital layers. "The old birds are kept in flocks of from thirty to forty, not more, unless

the range allowed them is unlimited. Young ducks will do well in larger lots up to 150. While ducklings which are intended to be killed do not need water in which to swim, it is requisite for breeding stock to have a fair amount of liberty and access to water, the absence of which often results in either unfertile eggs or weakly birds.

"It is not necessary, as a rule, to separate the different lots of breeding ducks, for drakes are not nearly so quarrelsome nor have such pugilistic tendencies as fowls. The usual plan adopted is to mate a drake to two ducks, or two drakes to five ducks, but with vigorous birds this proportion can be exceeded, and during favorable weather one drake may serve four or five ducks. Much depends upon the vigor of the stock, and to secure fertility of eggs birds over three years of age should not be employed. In selecting stock for breeding, size of frame, length of body and general activity should be sought for. Without size of body we cannot expect to obtain large ducklings, and the large, they are the better prices will they command.

"To make market ducks pay they must be fed largely on cheap, bulky food, like chopped green corn, cut grass and clover, chopped vegetables mixed with grain, and the like, also meal bran and meat scraps. Celery is often fed to improve the flavor of the meat. Young Pekins ten weeks old should weigh at least ten pounds to the pair, at a cost of from one-half to 8 cents per pound, usually not over 3 cents. Some growers find the sale of ducks' eggs also a source of profit."

## Official Statistics.

From an official map, prepared by the Department of Labor for the State of Missouri, showing the surplus commodities shipped from each county during 1894, the *Midland Poultry Journal* compiles the following (five counties without railroads not reported), which shows the relative importance of the poultry industry:

Pounds of poultry.....	44,160,662
Dozens of eggs.....	23,765,835
Pounds of feathers.....	230,383
Bushels of apples.....	1,406,048
Pounds butter.....	2,810,880
Cattle—number of head.....	864,823
Hogs—number of head.....	2,590,077
Sheep—number of head.....	294,109
Pounds of wool.....	2,503,090
Bushels corn and corn meal.....	10,973,101
Bushels of wheat.....	12,203,502
Barrel of flour.....	2,070,277

At 10 cents a dozen for eggs, 10 cents a pound for poultry, and 25 cents a pound for feathers, we obtain the following valuations for the poultry products:

44,160,662 pounds at 10 cents.....	\$4,416,066.20
23,765,835 dozen eggs at 10 cents.....	2,376,583.50
230,383 pounds feathers at 25 cents.....	57,595.75
Total.....	\$6,850,245.45

These figures tell their own story, although they seem almost beyond belief. Add to this the value of poultry and eggs consumed by the producer and that sold to the dealer for local consumption and we have a sum that would unsettle the ordinary bank cashier.

## ONE HONEST MAN.

DEAR EDITOR:—Please inform your readers that if written to confidentially, I will mail in a sealed letter the plan pursued by which I was permanently restored to health and manly vigor, after years of suffering from Nervous Weakness, Loss of Manhood, Lack of Confidence, etc. I have no scheme to extort money from any one whomsoever. I was robbed and swindled by quacks until I nearly lost faith in mankind, but thank heaven, I am now well, vigorous and strong, and anxious to make this certain means of cure known to all. Having nothing to sell or send C. O. D., I want no money. Address JAS. A. HARRIS, Box 807, Delray, Mich.

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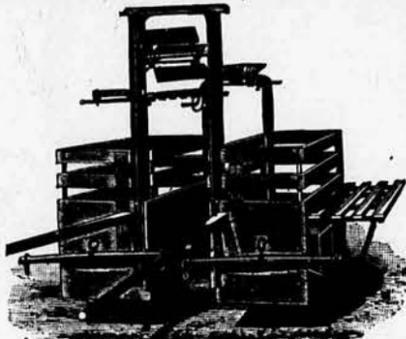
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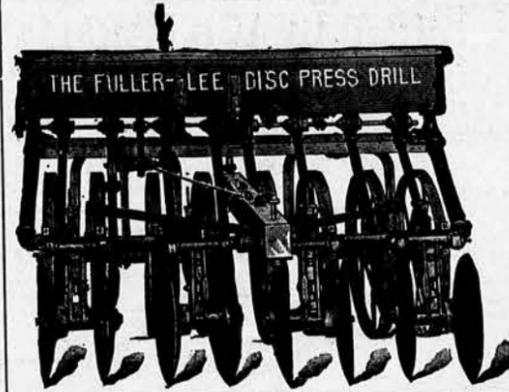
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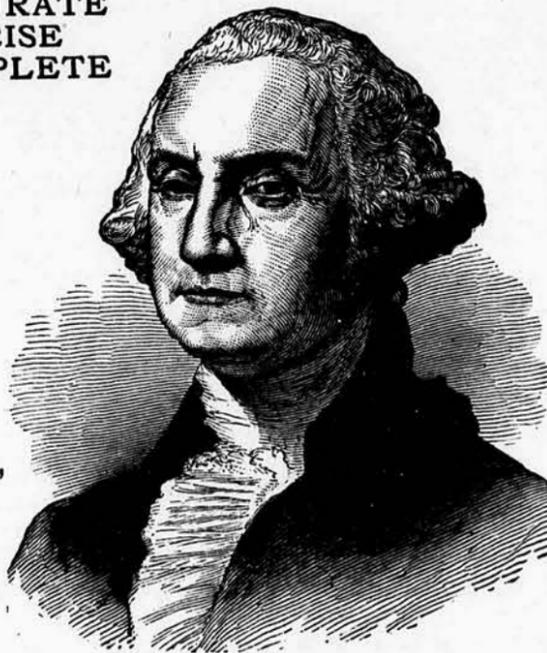
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Falling Sexual Strength in old or young men can be quickly and permanently cured by me to a healthy vigorous state. Sufferers from.....

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are the most complete and commodious in the West, and second largest in the world! The entire railroad system of the West and South-west centering at Kansas City has direct rail connection with these yards, with ample facilities for receiving and reshipping stock.

	Cattle and calves.	Hogs.	Sheep.	Horses and mules.	Cars.
Official Receipts for 1895.....	1,689,652	2,457,697	864,713	52,607	103,368
Slaughtered in Kansas City.....	922,167	2,170,827	567,015		
Sold to feeders.....	392,262	1,376	111,445		
Sold to shippers.....	218,205	273,999	69,784		
Total Sold in Kansas City, 1895.....	1,533,234	2,446,202	748,244	41,588	

CHARGES: YARDAGE, Cattle, 25 cents per head; Hogs, 8 cents per head; Sheep, 5 cents per head. HAY, \$1 per 100 lbs.; BRAN, \$1 per 100 lbs.; CORN, \$1 per bushel.

NO YARDAGE CHARGED UNLESS THE STOCK IS SOLD OR WEIGHED. C. F. MORSE, E. E. RICHARDSON, H. F. CHILD, EUGENE RUST, V. Pres. and Gen. Manager, Secretary and Treasurer, Assistant Gen. Manager, Gen. Superintendent, W. S. TOUGH & SON, Managers HORSE AND MULE DEPARTMENT.

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**Hereford Cattle Headquarters**

**WILD TOM 51592.**  
 Sweepstakes bull Wild Tom 51592. Weight when thirty-four months old 2,205 pounds in show condition. He is the best living son of Beau Real 11055. Dam Wild Mary 21238. Winnings:—Iowa State Fair, 1895, first in class, first in special, first in sweepstakes, and Silver Medal; Kansas State Fair, first in class, first and special at head of herd, first bull and four of his get.

FARM—Two and a half miles northwest of city. We furnish transportation to and from the farm if notified.

**C. S. CROSS,**  
 H. L. LEIBFRIED, Manager.  
 EMPORIA, KANSAS.