

KANSAS FARMER

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BRIGHT OUTLOOK FOR THE FARMER.

In the course of an institute address in Illinois Judge J. Otis Humphrey, of Springfield, made the following important statements:

"In a decade the population of the cities has increased over 60 per cent, while that of the rural sections has increased only 14 per cent. This

spring of 1906 Kansas had 1,217,373 acres of alfalfa or an increase of nearly 500 per cent in 10 years.

GOOD CROP PROSPECTS.

The generous rains of last week reinforced the optimists throughout most of Kansas. The precipitation was most bountiful at about the center of the great Kansas wheat belt. The

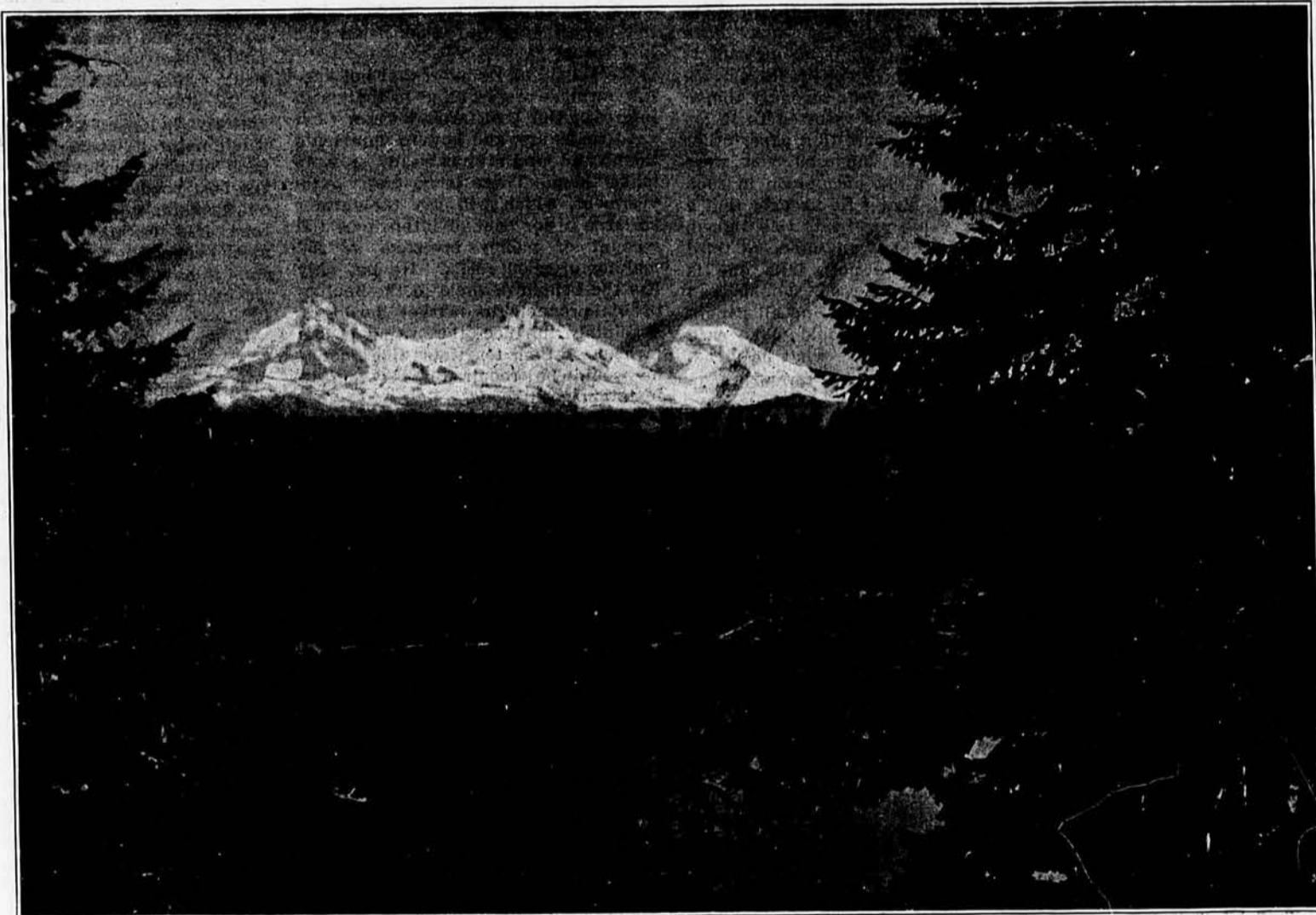
port been made a few days later it would probably have shown conditions averaging well with those that have produced Kansas' greatest wheat crops.

Alfalfa and other forage plants respond promptly to weather conditions like those of the present.

The wise farmers of Kansas will not fail to use the well-known cultural

LONG USE MAY ESTABLISH A ROAD.

A and B own adjoining farms. Many years ago A built a fence alongside of the line all on his own land. A built his house near a road that had been used by the public since 1874. This road runs in a southwesterly direction from near A's house across B's land. Some years after A had built



The Three Sisters, Cascade National Forest, Oreg.

means that every man and woman who leaves the farm and goes to the city becomes a consumer instead of a producer, and this increases the opportunities for the farmer. This means better prices for the same crops.

The farmer above all other men who work for a living fixes his own hours of labor and of leisure.

"Don't get frightened because land is high. We have found all the corn land there is in the whole round earth, and there is not enough of it to go around. It will never be worth any less money than it is to-day, but in my judgment it will increase in value far beyond the highest conception of most of us. The population is sure to increase; we are constantly finding new uses for corn, and the demand for it will be increased. You will never see any more cheap corn in my judgment."

In the spring of 1896 Kansas had 295,827 acres of alfalfa and was reckoned a great alfalfa State. In the

people who say that Kansas is to have another great year of prosperity for the farmer are changing the form of their expression to the statement that prosperity has come to stay in Kansas.

Secretary Coburn's report, which is found in another place in this number of THE KANSAS FARMER, was based on data gathered while the rains were hoped for but not seen. Had this re-

methods of retaining the soil moisture for the benefit of the corn. No crust should be allowed to form on any field that can be worked with the disk harrow or any other disturber of the surface.

Fruits have never promised better than at this time. Peaches, cherries, plums, pears, and apples and all small fruits are doing their best.

his fence B fenced his farm and asked to join's A's fence which was all on his own land. A agreed that B might join to his fence alongside of the west half of the line provided B would set his fence along the east half of the line as far over on B's land as A's fence stood on A's side of the line and provided B would consent to the continued use of the road running in a southwesterly direction across B's land. B agreed to these conditions and built his half of the partition fence as far over the line on his side as A's half is over the line on his side. A and B have been farming and grazing the land to the fences under this arrangement for more than twenty years, each farming a little of the other's land. A has been using the road all these years. B's son now proposes to close the road. Can he do it?

Osage County. A FARMER.

The facts as stated strongly suggest that the long-continued use of the road with B's consent, reinforced by the deal concerning the fence, establishes

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an easement to the highway which can not be recalled without due process any more than can the easement to any public road be discontinued without process of law. The fact that the road has ceased to be used by more than a few people does not abrogate the right of use by such as find it convenient to use it even if the users be reduced to one family. The statute of limitations in Kansas fixes fifteen years as the time in which recovery of possession of real estate is possible.

DIVISION LINE—MUDDY ROAD.

EDITOR KANSAS FARMER:—Will you please tell me, through the columns of your paper, what constitutes a line between farms? The farms in mind have no cornerstones to go by but a fence where the line is supposed to be, but the other party imagines I am farming his land.

There is a laid out road to my place, but an old hedge is in the road. It does not block the road but shades it and keeps it muddy. Who is supposed to cut the hedge, the property owner or township?

I am the only one who travels eighty rods of this road and it is very hard to get any work done on it. Can I compel the road overseer to work that eighty rods? I have asked overseers several times about the hedge and road but it does not seem to do any good.

I will be very glad if you can give me some advice and tell me what I can do. It is very annoying to hear every few days "You are farming my land," and in bad weather to be bothered with a muddy road when the other roads are in good shape.

Leavenworth County. X. Y. Z.

In case of doubt or dispute about the location of a boundary line between properties, which can not be settled by the parties themselves, the proper way is to call on the county surveyor to determine the line. Either party may engage the county surveyor. It then becomes the duty of the county surveyor to notify the others interested. The county surveyor apportions the cost of the work among the parties according to their several interests.

It is the duty of the road overseer to keep all roads in his district in as good condition as the means at his command make possible. The work

and money available is never sufficient to make the roads as good as they ought to be. Therefore the road overseer is obliged to distribute his work as seems to him most expedient for the benefit of the public. This sometimes leads to neglect of a piece of road that is little used. There is probably no way to compel the road overseer to change his views as to the relative importance of the several parts of the work that come under his care. It may be possible, however, for this correspondent to persuade the road overseer to apply correspondent's road work to the removal of the hedge. Every thoughtful road overseer finds it wise to apply every farmer's work to those parts of the road in which he is most interested.

See the road overseer about it.

SIGNED A PAPER.

EDITOR KANSAS FARMER:—I would like to have your opinion on the following: An agent comes around and says he wants to get some new pupils. He has you sign a paper. You think you will send your boy, and when the time comes he will not go, and in due time agents send for you to pay them \$150, saying you agreed to do so. Can they collect this \$150 when the boy did not go? MRS. I. B. RADER.

Riley County.

Without knowing just what you signed it is impossible for the editor to state what obligation you may have signed. The fact that an attempt is now being made to collect for service not rendered suggests strongly that a trick was probably resorted to in securing your signature to a paper other than what you supposed you were signing. It is not uncommon in such cases for the signer to discover that a note "for value received" was signed. Such a note sold to an "innocent third party" before the note falls due is binding. Every person should read carefully and fully any and all papers before signing and should make sure that he knows exactly what he signs.

It will be well for you to place your case in the hands of a good attorney. He may be able to protect you from imposition.

"KANSAS DRUGGISTS' INTOXICATING LIQUOR LAW."

A most valuable book bearing the above title is just published by the Kansas State Temperance Union. The author is John Marshall, attorney for the Union. The book contains a compilation and a discussion of the law in all of its phases. It is an honest presentation which will be found valuable for druggists, for probate judges, for county attorneys, and for all other attorneys who have any part in either defending the druggist or in prosecuting under the law, and for all persons who desire clearly stated and accurate information on this important subject.

In his introduction Mr. Marshall says: "For some time the writer has been trying to get out a work on Kansas intoxicating liquor law, but on account of the attention demanded by the labors in which he is at present engaged, he has been unable to properly complete such a book. This little book is composed of two chapters of the complete work, and is published in this form because of the necessity now existing for a better understanding of the law governing druggists who seek to obtain and who have a permit to sell intoxicating liquors. The author hopes to be able to submit to the members of the bar of this State a complete work on Kansas intoxicating liquor law at no distant date."

The book just out is sold by the Kansas State Temperance Union, Topeka, Kans., at 50 cents in paper cover or at \$1.25 in cloth, postage paid.

If your tailor should call on you just when you had decided that your clothes looked shabby, he would have an extra good chance of an order; if a book agent should offer you a pocket dictionary just at a moment when you

were wondering how to spell "embarrassment," he would probably land you.

Silberman Brothers, Chicago, publish the following quotations on Dakota, Kansas, and Nebraska wools: Fine, 15 to 17 cents; fine, medium or one-half blood, 18 to 20 cents; medium or one-quarter and three-eighths blood, 20 to 22 cents; coarse, 18 to 20 cents.

Miscellany

Good Roads.

JAMES L. DOW, BEFORE MANHATTAN GRANGE.

The next thing of the most importance to the farmer after good homes, is good roads. As we would work for good homes, so should we strive for good roads, for the best homes are never situated upon poor roads. Good roads are as essential to the prosperity of the farmer as good machinery. Yet we have a few farmers, I am sorry to say, who will pay out thousands of dollars for farm machinery, who will pay very grudgingly a few dollars for the improvement of the public highways. Whether farmers think that they should be exempt from doing road work, or whether they think it does not pay to work the roads, I am at a loss to say.

We should be thankful that but very few farmers are so blind to their own interest. Our best farmers know what good roads are, and how to appreciate them, and are always ready to help make them. There is no crop, or investment, which will pay the farmer so large a per cent of interest on the amount of money invested, as the making of good roads. He not only has the benefit of them in the hauling of his products to market, but they absolutely enhance the value of his farm more than ten times the amount he would be required to lay out to maintain good roads.

I believe that the farmer who lives upon a good road will live very much longer than one who lives on a bad one. For good nature always has a tendency to prolong one's life.

After considering the many good things which are the result of good roads, then comes the question as to how to make good roads and how to maintain them, with the least possible expense for repairs.

I believe our road laws should be amended. If you want a team to handle a load easily you must keep them as near the load as possible. A man who should attach one end of a forty-foot rope to his load and hitch his team at the other end would waste a great deal of energy, if he did not make an entire failure. The principle of getting the power as near the work as possible in order to conserve energy should be applied to all branches of business; and this principle should be kept in view in all our future road legislations.

Now comes the question, what change should be made in our road law? In the first place, I would have the township trustees divide each township into road districts, having not less than four or more than six in each township. Then I would have the legal voters of each road district elect their own road overseer, and vote the amount of road tax which they wished to have raised for the ensuing year. This electing of a road overseer and voting the amount of road tax should be done at a regular annual road meeting, notices of which having first been posted by the road overseer as is done by the officers of school districts in calling school meetings. In school districts the women should have the right to vote upon all matters pertaining to their respective districts. The women are as much interested in maintaining good roads as are the men, if not more. And many of our women would make better road overseers than some men who have held that position. I do not think that many of them would allow a dike to

remain along both sides of a public highway which prevents water from escaping from the road, which is now the case in many places. I believe that we should hold monthly road meetings in each road district for the purpose of discussing the various methods of improving the roads. At these meetings we could get an idea of the condition of the various roads in the district, as well as devise the best means to improve them. These meetings would act as a kind of a road school, where the common people would be likely to get some new ideas in road making. The road overseer would have a chance to inform the people of what he was doing; besides he would have the benefit of the knowledge and experience of the whole district, which might be of great help to him.

We hold political meetings for the purpose of discussing the various topics of interest pertaining to the welfare of the country; we hold school meetings to look after the interests of our public schools; why should we not hold road meetings to discuss the means and methods of improving our public highways? Experts in road making could be invited to attend these meetings, giving directly to the workers of the road the modern methods for the economical improvement of public roads. These meetings and the public discussion of road making we believe would arouse an interest in the public mind upon the subject of good roads which would be felt, and the fact of the different road districts working entirely independent of each other would naturally cause them to vie with each other to see which would have the best roads. I can not close without speaking a good word for the split road drag (as they are called) and means should be found as soon as possible to have all roads which are much traveled dragged after every rain.

Competition.

EDITOR KANSAS FARMER:—The safety-valve which regulates prices and protects the interests of the purchaser is competition. It has been said that it is the life of trade—it would also be just to say that it is the only curb on the avariciousness and selfishness of the business world. Stifle competition and that minute there opens up a field for the pirate in business, who takes advantage of the opportunity to make exorbitant profits. Competition is the stimulus which has produced better business methods, better products, and has enabled us to enjoy the many comforts now possible. The man, or firm, which seeks to stifle competition is an enemy of progress and society. It should be the recognized right of every man to buy where he can buy the cheapest and to sell where he can get the most for the articles he produces. It should be the right of the producer to sell his goods at any price he sees fit, so long as he gives every other man the same privilege.

The above principles are not original with the writer, but he indorses them heartily, nevertheless, and wherever his influence can be thrown in favor of open competition, he will use it. He has no personal fight to make on the local merchant who handles groceries, dry goods, lumber, farm machinery, etc. Such merchant is a useful citizen, but while conceding him the right to enter into business, the writer does protest against his assuming that he is entitled to the support of the community in which he resides, unless he is a benefit to it. The only reason that can be advanced why he should be patronized is because he sells goods as cheap or cheaper than the same articles can be purchased from his neighbor or from any other point. The moment he attempts to prevent competition, he ceases to be of benefit and becomes an enemy to the best interests of those with whom he is associated.

The fight that is being made at the present time by the local dealer on the mail order house is made for one reason only; the local dealer is not willing to meet the competition the

mall order house gives. He does not like to sell goods as cheaply. Instead of meeting this competition fairly and abiding by the law of "live and let live," he is seeking by unfair means to prevent the people who are his possible customers from purchasing goods in the cheapest market and attempting to force them to buy of him at a price higher than they would have to pay elsewhere. Not satisfied with legal methods of getting customers, the local dealer, in some instances, is resorting to methods which border very closely, if not quite, on the point of law-breaking. In the case of Gordon Van Tine, of Davenport, Iowa, for instance, the methods pursued by the local dealers are so inexcusable and contemptible that justice demands a protest. When dealers will resort to the methods applied in this case, they are overstepping the bounds of decent business methods, and, we believe, the law. This organization of local lumber dealers has resorted to such methods as writing bogus letters, sending fictitious names for catalogues; making complaints about goods not arriving, which were never ordered shipped; and other methods equally as unfair and obnoxious.

It is an insult to the intelligence of the patrons of mall order houses to assume that they are buying a class of goods which are inferior for the price, to those they could obtain of the local dealer. In a large proportion of cases, these buyers are the keenest and shrewdest in the community. They pay cash for what they buy, and the fact that they are among the most enterprising and successful makes it absurd to claim that they are not getting as good or better goods for their money than could be obtained at home.

This effort on the part of local dealers to dictate to the people in their community will, doubtless, act as a boomerang and will cost them thousands of dollars for every one they save. The people of this country are too independent and recognize their rights too well to be forced into line by such methods.

It is idle to assume that the local dealers are an association of philanthropists, who are making this fight because of their great love of the people in their community and that they are attempting to induce them to buy goods at home, because they wish to protect the purchasers' interests. Resorting to the methods referred to only calls the attention of people to the

true state of affairs and adds new converts to the list of those who are already buying goods by mail.

As a suggestion, the writer proposes to the local dealers that they organize a buyers' association and purchase in such quantities as to obtain the lowest wholesale prices to be obtained, and then meet all comers in an open field.

S. W. F.
Cook County, Illinois.

The Science of Living.

EDITOR KANSAS FARMER:—Farming in Kansas and elsewhere in this country is fast becoming a scientific occupation. It will not be long before the farmer will require scientific education in order to make his farming the most profitable. Your paper is doing valuable service in preparing the way for such education. When farming, in all its departments, shall have become an exact science we shall need also a correct knowledge of the true science of living, in order to derive the greatest benefit and most enjoyment from its products.

Farms are largely devoted to the raising of food products for mankind. Although a large part of the products of the farm are fed to cattle, sheep, swine, and fowls, these animals are eventually, nearly all consumed as food by the human family. The science of living is therefore an important part of education.

The human body is the most scientifically organized and the most ingeniously constructed piece of mechanism that has ever yet been found on this planet. Every part, every organ and tissue of which it is composed was designed and constructed for a special use and purpose, and when thus used, harmony and happiness will invariably follow. The trouble about it is that each individual, human mechanism has to have special engineer of its own to manage it, and such engineers as a rule are not scientifically educated or properly instructed as to how it should be managed. As a result, the different organs of the body are often used for purposes which the great designer never intended. As a consequence, some parts of this complicated mechanism sooner or later get out of order. When one part gets out of order, the ignorant engineer, not knowing how to repair it or how to make it work properly, other portions very soon get out of order and thus things go from bad to worse until the

whole machine is so deranged that it can not run at all.

What is most needed, then, in the human family is adequate instructions in the science of living. Much valuable information can be obtained on this subject from the experiments and discoveries being made by the agricultural chemists now at work in the Department of Agriculture at Washington, D. C., and also at the agricultural colleges in the different States.

Prof. W. O. Atwater, in his work, "Food, Its Nutritive Value and Costs," to which reference was made in your issue of June 6, 1907, under the heading, "How Food Is Used in the Body," says:

"Blood and muscle, bone and tendons, brain and nerve, all of the organs and tissues of the body, are built from the nutrient ingredients of food. With every motion of the body, and with the exercise of feeling and thought as well, material is consumed, and must be resupplied by food. In a sense the body is a machine. Like other machines it requires material to build up its several parts, to repair them as they are worn out, and to serve as fuel. In some ways it uses this material like a machine, in others it does not. The steam engine gets its power from fuel; the body does the same. In the one case coal or wood, in the other food is the fuel. In both cases the energy which is latent in the fuel, the potential energy, as it is called in scientific language, is transformed into heat and power. When the coal is burned in the furnace part of its potential energy is transformed into mechanical power, which the engine uses for its work; the rest is changed to heat, which the engine does not utilize and which, therefore, is wasted. The potential energy of the food is transformed in the body into heat and mechanical power. The heat is used to keep the body warm. The mechanical power is employed for muscular work. The material of which the engine is built is very different from that which is used for fuel, but part of the material which serves the body for fuel also builds it up and keeps it in repair. Furthermore, the body uses its own substance for fuel. This the steam engine can not do at all. The steam engine and the body are alike in that they both convert fuel into heat and mechanical power. They differ in that the body uses the same material for fuel as for building and also consumes its own material



One woman speaks of her telephone as "the friend on the wall," an errand runner, a protector, a friend in need and a companion when alone. Needless to say, her telephone is

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for fuel. In its use of fuel the body is more economical than any engine. "The body is more than a machine. We have not simply organs to build and keep in repair and supply with energy; we have a nervous organization; we have sensibilities and the higher intellectual and spiritual faculties, and the right exercise of these depends upon the right nutrition of the body.

"The chief uses of food then, are: (1) To form the material of the body and repair its waste; (2) to yield heat to keep the body warm and muscular and other power for the work it has to do. In forming the tissues and fluids of the body the food serves for building and repairing. In yielding heat and power it serves as fuel."

Professor Atwater, on page 9 of his pamphlet on Foods, in referring to food in the body being used for fuel and muscular energy, says: "But it is certain that part of it is converted



Diagram showing the annual rainfall from date of opening of stations to December 31, 1907. The wavy lines show the actual rainfall by years. The heavy straight lines show the normals for the same stations. Compiled by T. B. Jennings, Section Director of the U. S. Weather Bureau at Topeka, Kans.

into heat and part into mechanical energy exerted by the muscles. Some of it may be transformed into electricity." The last paragraph of this statement is unquestionably the most important of all, and yet we have the least knowledge concerning it. The latest discoveries in regard to the production of mechanical energy or motive power by the use of the steam engine is, to convert the coal into heat, the heat into steam, use the steam for running dynamos to generate electricity and through storage batteries and electrical engines to convert electricity into mechanical power for running machinery. Now unquestionably a large portion of the nutritive material used in the body is to produce nerve force and power, which is the most potent form of electrical power yet discovered. The brain is one immense storage battery for this electric power or force. The liver and spleen are regarded by some as agents in both producing and storing this force.

One thing is certain, the rupture of a blood vessel on one side of the brain may produce complete paralysis of the entire opposite side of the body. An effusion of blood into certain portions of the brain or spinal chord may paralyze all of the voluntary muscles of the body. No matter how much potential energy may be derived from the digestion of nutriment, any serious disturbances of the circulation may render the muscles incapable of using that energy.

Force of energy is measured in the chemist's laboratory by a unit called calorie; one calorie represents the amount of heat which would raise one pound of water four degrees Fahrenheit. As the principal nutrient material of foods are classed as protein, fat, and carbohydrates, it has been ascertained that one pound of each of these nutrients digested and converted into force or energy is as follows:

	Calories.
In 1 pound of protein.....	1,860
In 1 pound of fat.....	4,220
In 1 pound of carbohydrates.....	1,860

According to these statements there is just about the same amount of heat or mechanical power generated from one pound of lean meat or albumen of eggs as there is in one pound of starch or sugar, of which the carbohydrates are chiefly found and over twice as much in a pound of fat of meat or butter, or body fat, as in a pound of protein or carbohydrates.

As a standard for the diet of people differently employed the chemists have given the following:

	Total pounds.	Protein pounds.	Fat pounds.	Carb. pounds.	Full Val. calories.
Man with light exercise.....	1.32	.22	.22	.88	2,980
Man with moderate exercise.....	1.55	.28	.28	.99	3,920
Man of active muscular work.....	1.76	.33	.33	1.10	4,060

These estimates are given by Prof. W. O. Atwater, Ph. D., the agricultural chemist for the Government. We call special attention to this fact: A man of light exercise should use four times as much in weight of carbohydrates as he does of either protein or fat, a man of moderate exercise about three and a half times as much, and a man with active exercise three and a third times as much. We shall have occasion to call attention to these facts when we come to discuss the best kind of food for people of different occupations. E. P. MILLER, D. D. Miller's Hotel, New York City.

"High Grade Trade" Fallacy.

The state of facts set fourth by Paul E. Faust in Judicious Advertising has received scant recognition in times past. That comparatively recently developments have wrought rapid changes in the position of the average farmer's family and have improved the ability to buy "high grade" articles is not to be forgotten. That these recent developments are still in progress and that the position of the farmer in the world of consumers as well as in the world of prosperity is undergoing a change that is inevitable and continuous will become better known with each recurring harvest.

Following is Mr. Faust's article: There are many manufacturers who

know that they have an article which appeals to the high-grade customer and who aim to conduct their selling campaigns with the purpose of reaching this trade, but who, nevertheless, have very little conception of what may be called the high-grade field. They misconceive entirely the location of the great body of high-grade consumers. It follows naturally that these manufacturers fail to select the best advertising mediums for reaching this trade.

What is this high-grade trade? It is the trade that absorbs the \$3.00 and \$4.00 shoes, that absorbs the \$3.00 hat or above, the \$15 suit of clothes or above, the \$20.00 overcoat or above, the high priced stove, the high-priced buggy, the 10c toilet soap or above, the 25c coffee or above, the 10c package of spice or above, the \$15.00 watch or above, the 5c package of crackers or above, the 25c socks or above, the \$15.00 woman's jacket or above, the \$3.00 woman's shoe or above, the quadruple plate silverware, the cut glass and so on.

Chicago is rated as a high-grade market; so are Minneapolis, Pittsburg, Philadelphia, Kansas City, Detroit,—in fact, nearly all the cities, for no other reason apparently than size—a large number of persons congested in a small or comparatively small area.

So firmly have some manufacturers the belief that the larger cities offer them—the only satisfactory high-grade market that they blindly confine their selling operations to the cities and their advertising to the media which they believe will cover the cities with the least lost motion.

Because of this restriction of both selling and advertising effort, these comments seem not only warranted, but necessary.

Ask the Cleveland or Detroit, or Toledo, or Pittsburg manufacturer where his big high-grade Western market is and ten times in ten he will say Chicago. Yes, Chicago is a grand consumer—its merchants aggressive—its two and a quarter millions prosperous—it is alive—its newspapers the best—its billboard service second to none—its street car advertising service powerful and effective.

But why stop with Chicago? Iowa, for illustration, has about the same population—two and a quarter millions. It has no unusually large cities—Des Moines, the capital, has something less than a hundred thousand population—or say four per cent of the total. Ninety-six per cent of the people of this great agricultural State live in small cities, towns, villages, and on farms.

Won't everyone admit that Iowa is

a greater consumer of high-grade goods than Chicago? Won't Iowa use more than Chicago of all the articles that in commercial discussion we call high-grade? Prove it by your books. Prove it, and anyone can who handles both Chicago and Iowa trade. Carry the comparison further. Minneapolis is approaching three hundred thousand population. How does Minneapolis compare as a consumer with a group of small towns totaling three hundred thousand? Really there is no comparison.

Any of the larger cities suffer by comparison with rural groups of towns the same way. Why is this? The average of incomes is not so high in the metropolitan centers. The distribution of merchandise is more even. The non-metropolitan merchants average bigger in stocks, and for exclusive agency selling—it is Chicago with one store versus Iowa with several thousands.

And how about advertising in Iowa? Obviously the magazines give you a handsome circulation of excellent class, certainly the Chicago papers have a grand field and deliver thousands of papers there daily. But to cover Iowa, you have got to use her own dailies or billboards, or street

YOUR JUDGMENT.

It is your judgment that decides the true worth of a fence—and that after a test in use on your own place.

Warner Fencing is built to satisfy you thoroughly if you like the sturdiest.

Its bottom barbed margin (not found in the average fence) prevents all rooting around its edge. Its extra number of line wires (the Warner has the greatest number of all Poultry Fencing made) make it close-holding and firm-resisting.

The heavy steel galvanized wire built into Warner Fencing gives it its rugged service and year-after-year endurance.

With every rod of Warner Fencing is wrapped up the assurance of longer service in the end, and rigid holding always.



It is sold by the best dealers everywhere—by one in your town; cut if not, write for our large, handsome catalog.

THE WARNER FENCE CO., Ottawa, Kans.

cars and her own farm papers. It is not a debatable question.

It is a very ideal condition of things where distribution is such that the manufacturer is enabled to use both metropolitan papers for their circulation in the larger cities, and for their power in the territory in which they circulate, plus the smaller city dailies, plus the agricultural weekly, semi-monthly or monthly.

But to thoroughly cover the State you must cover both the small cities and the farming districts. You must use the Iowa dailies or cars or boards for the small cities and the farm papers for the farming districts. Any manufacturer who figures any other way will do well to examine the field, the people's reading habits, the publications distributed there, and the merchandise consumption. What is true of Iowa is equally true of Kansas or Ohio, or Pennsylvania, or Illinois, or Maine or Wisconsin or Michigan, or Colorado or Minnesota, or Missouri, or Kentucky, or New York, or Indiana, or any other State.

Moles Eat Seed Corn.

Please give me some advice in regard to treating seed corn so that moles will not eat it. We have so many ground moles that I am afraid to plant corn. I planted some last year and the moles took nearly all of it, and I replanted and it was nearly all taken again.

It seems to me as though I have read something about soaking seed corn in kerosene, but I do not know what effect it would have on the seed, nor how to use it. Does the "Old Reliable" know of something better? I would like some remedy that would not injure the seed germ but would keep the mole from eating it.

Ottawa County. EZRA MINNEHAN. We are working on this very problem at present, but so far have nothing better to offer than a substitute for what you ask—a method of trap planting instead of coating the seed for the regular planting with tar or other deterrent substance.

It is only fair to the mole to say that he is not responsible for all, if indeed any, of the damage laid to his charge. He is primarily an insect eater, feeding on grubs, beetles, worms, and the like. Certain species of field mice follow in the mole's runways and blacken his reputation by stealing the seed grain they encounter. The mole does most of his damage by uprooting plants while pushing his way through the surface soil in search of grubs and earthworms.

We suggest the method of trap planting because we have not yet discovered a substance which can be used on the corn to prevent mice and other rodents from eating it, without also affecting the germinating qualities of

the grain or rendering it so sticky that it will not run through the planter. By trap poisoning we mean the planting of poisoned grain in the infested field or portion of the field some days before the time of the regular seeding. This department—zoology and entomology—prepares a poisoned syrup for pocket gophers which has been found to be a valuable agent in destroying field mice also. Soaked corn might be prepared as directed for poisoning gophers and then planted by hand along the mole runways in the badly infested spots of the field. The sweetening given the bait by the syrup will make the former more palatable by partially disguising the bitter taste of the strychnine. If desired, a poisoned bait can also be prepared by dissolving one-eighth of an ounce of strychnine in two quarts of hot water and soaking the corn in this solution for forty-eight hours. Use only as much corn as the water will cover after allowing for the grain to swell. By thoroughly drying the bait prepared by either of these methods, it might be made to work in a hand planter and thus facilitate the work of making the trap planting.

I should certainly not treat seed corn with kerosene, as you suggest, for experiments have proven that its use is fatal to the germ of the grain.

THOS. H. SCHEFFER, Assistant Zoologist, Kansas State Agricultural College.

Profits in Poultry.

An interesting little booklet treating on poultry profit is being sent out by Moore Chemical Company, 827-829 S. W. Boulevard, Kansas City, Mo. This company manufactures a "Red Label Lice Killer" which is advertised in this issue of THE KANSAS FARMER and in their booklet they explain thoroughly how the poultry louse is the cause of the greatest loss to the poultry-raiser.

It is a well-known fact to every poultryman that a hen troubled with lice will not lay eggs while small chicks, if they are infested with these little pests stand very little chance of reaching maturity. A good, strong disinfectant that will kill lice and at the same time work no harmful effects to the chick or hen is almost an absolute necessity to the poultry raiser, and we believe it will pay all our readers who are interested to write to the Moore Chemical Company, 827-29 Southwest Boulevard, Kansas City, Mo., for their booklet.

Cheap things are the most expensive, whether it is people or pants.

"THE OLD RELIABLE"

DIETZ LANTERNS

THERE ARE NONE "JUST AS GOOD" WHEN YOU BUY A LANTERN INSIST ON A "DIETZ" MADE BY R. E. DIETZ COMPANY NEW YORK Largest Makers of Lanterns in the World ESTABLISHED 1840 PIONEERS AND LEADERS

Stock Interests

Sows On Alfalfa.

I am having hard luck with my pigs. I bred my sows about the first of January and they are all healthy and doing well and the male was also healthy. About three weeks ago I turned my sows on the alfalfa, and about a week ago they commenced having pigs. Two had eight each, one had eleven. The eleven all died within an hour after they were born. This was the second litter for this sow. The other two are young sows. One lost four and the other two. They died naturally. They were not hurt in any way. I would like to know if the alfalfa was the cause of it. These are all pedigreed Poland-China sows, heavy boned and good sized. These sows have been fed on corn, alfalfa hay, and shorts swill. Please give me your opinion as I have more coming in soon and I am very anxious to save the pigs if possible as I consider that I have lost at least \$600 worth of pigs already. Please give me some information if possible as to what to do. I have taken them off the alfalfa now. I thought the feed was too rich. What should I do with the balance of the sows in order to save the pigs?

Clay County. J. P. ESSLINGER.

In your inquiry you state that your sows were bred about January 1. If the sows were bred January 1 they were not ready to pig at the time mentioned. A sow bred the first day of January should pig about the 22d or 23d of April. Without seeing this herd or knowing more about the conditions of this particular case, it is my opinion that this is a case of abortion. It is possible that it has been hastened by the sows being turned on green alfalfa, especially if they were turned on a good, growthy pasture and allowed to remain there. I would suggest keeping the sows, that have lost their pigs, away from those that have not pigged and only allow the pregnant sows to graze on the alfalfa for about an hour a day. R. J. KINZER.

Ailing Hogs.

My hogs, a bunch of twenty-five, are June hogs of 1907. I have been feeding them ear corn, ground corn, corn fodder, Kafir-corn, coal black ashes, and salt, turpentine and kerosene. Instead of the hogs growing larger they get smaller. Some of them do not exceed 50 pounds. The brood sows were Berkshires and Poland-Chinas and the sire was a Duroc-Jersey. These hogs have had excellent care and all the grain they could eat and still they are wanting for something.

I have been watching THE KANSAS FARMER for a question on hogs but have not noticed any as yet. Kindly inform me through your paper what I can do as I am disgusted with this lot. Barton County. SUBSCRIBER.

It is impossible to discuss this question fully without knowing more of the history of this lot of hogs. Your inquiry does not state how these hogs were handled during last season. It is very evident that they have been badly stunted in some manner. Pigs coming at this time of year and not having pasture during the hot weather are very likely to not make good growth the first summer, and with the mixture of blood that is being used, it would be hard to even guess what class of hogs one might expect. My suggestions would be to put them out on pasture just as soon as possible, alfalfa pasture preferred, and let them run for two or three weeks with very little grain feed of any kind. This will give them a good cleaning out and should put them in condition to start to growing. Then I would feed corn and tankage, about 1 pound of tankage to 10 pounds of corn. If the pigs are mangy or lousy, they should have a thorough dipping before going to pasture. R. J. KINZER.

For a successful rotation clover should be one of the crops.

PITTSBURGH PERFECT POULTRY FENCE

73

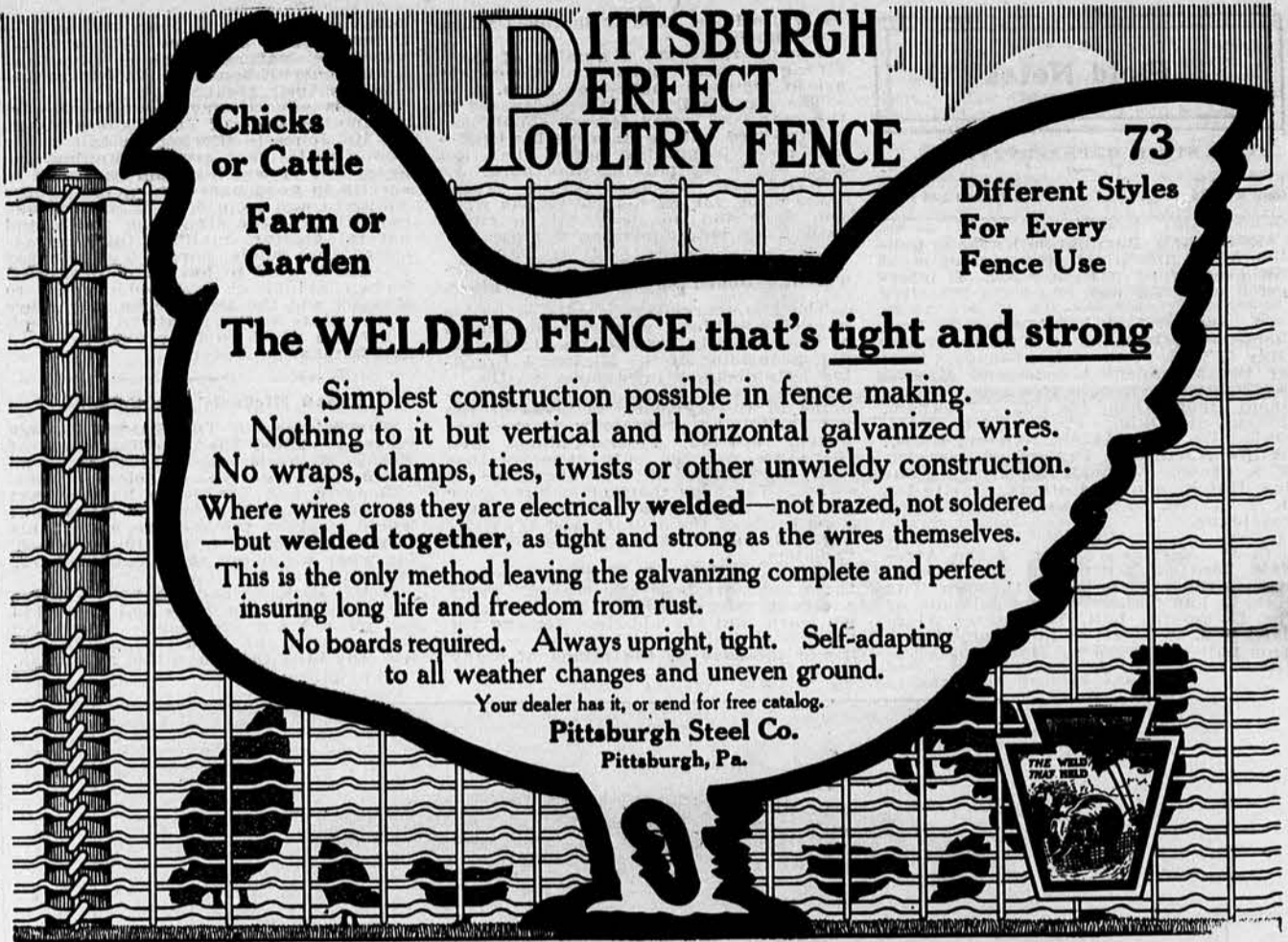
**Chicks or Cattle
Farm or Garden**

**Different Styles
For Every
Fence Use**

The WELDED FENCE that's tight and strong

Simplest construction possible in fence making.
Nothing to it but vertical and horizontal galvanized wires.
No wraps, clamps, ties, twists or other unwieldy construction.
Where wires cross they are electrically welded—not brazed, not soldered—but welded together, as tight and strong as the wires themselves.
This is the only method leaving the galvanizing complete and perfect insuring long life and freedom from rust.
No boards required. Always upright, tight. Self-adapting to all weather changes and uneven ground.

Your dealer has it, or send for free catalog.
Pittsburgh Steel Co.
Pittsburgh, Pa.



The Swine Breeders' Ten Commandments.

Following are ten commandments that should be obeyed by every intelligent swine breeder:

1. Breed from mature stock.
2. See that they have dry, clean sleeping quarters.
3. See that they are never overfed and no sudden changes made in their feed.
4. See that they have free access to pure water.
5. See that they have good shade during warm weather.
6. See that they are not obliged to eat their feed in filth or mud, or in the dust.
7. Never feed an exclusive corn diet.
8. Do not inbreed.
9. See that their surroundings are kept clean. In warm weather dust fresh lime around any places that are apt to give off a stench.
10. Keep the following mixture in a dry place where they can help themselves the year round: One load ashes, 100 pounds salt, 50 pounds sulphur, 20 pounds copperas, one barrel lime; mix thoroughly. In addition feed charcoal and soft coal.—Ex.

Farm Notes.

N. J. SHEPHERD, ELDON, MO.

It is the steady gait that does the big day's work.

Thoroughly rotted and fined manure should be incorporated with the surface soil.

With nearly all crops it is the early cultivations that are the most important and most beneficial.

If the hay crop is liable to prove short arrange to sow some millet or cow-peas.

A really good grass or clover crop will pay better average profits than those requiring much more labor.

Thorough preparation of the soil before planting will very materially lessen the labor of giving good cultivation afterward.

Those who do the greatest amount of work are often not the ones who make the most out of farming.

The keeping of the farm implements in good condition is an important factor in the cultivation of the crops.

Valuable as the clover crop is the roots reaching into the subsoil are worth nearly or quite as much for increasing fertility as the top.

For brittle hoofs on horses take one pint of glycerine and add to it two ounces of lamp black. This makes a good dressing for the hoofs.

Splendid Crops on the Former Ranching Plains of the Canadian West.

That portion of the country in Western Canada formerly recognized as ranching country has developed into one of the best winter wheat districts in the continent. Yields are quoted running from 30 to 60 bushels to the acre, and giving a return to the farmer of from \$25 to \$50 per acre. These lands are now selling at from \$12 to \$20 per acre, and pay well at that figure. H. Howes, of Magrath, Alberta, Western Canada, had 50 acres of land in wheat, which averaged 45 bushels to the acre; his yield of oats was 35 bushels. The value to him per acre of wheat was \$35. J. F. Haycock, of the same place, says: "I had 65 acres of wheat, 35 acres of oats, and 4 acres of barley. My average yield of oats to the acre was 80 bushels; wheat—winter—60 bushels, and Red Fyfe 33 bushels, and barley 50 bushels. The value to me per acre was: wheat \$28; oats \$32; and barley \$24." J. F. Bradshaw, of Magrath, had 1,030 acres of wheat in crop that averaged 39½ bushels to the acre, his oats 32 bushels, barley 53 bushels. He thrashed 31,000 bushels of wheat from 540 acres. He also had 250 tons of sugar beets from 25 acres worth \$5.62½ per ton. W. S. Sherod, of Lethbridge, says: "I came to Lethbridge from Souris, N. Dak., in April, 1907, having purchased 900 acres of land in this district last fall. I had 128 acres of Alberta Red Winter wheat which was put in on breaking in the fall of 1906, which yielded 41½ bushels to the acre, for which I received 87½ cents per bushel, which paid me \$36.30 per acre. I had 190 acres 'stubbled in'—that is, disked in on the stubble—which yielded 22 bushels to the acre at 87½ cents per bushel, which paid me \$19.25 to the acre. I also had 350 acres of strictly volunteer crop, which it was intended to prepare in the summer; but, when it was seen that it was a good looking crop, it was allowed to go. From this we thrashed 15 bushels to the acre, which paid us at the rate of 87½ cents per bushel or \$13.12 per acre. Our total crop yielded us 14,742 bushels of first-class wheat. Taking it as a whole, I consider that I had a first-class crop all through; and, taking into consideration the fact of part of the crop having been 'stubbled in,' and part strictly volunteer (which was never touched at all until the binder was put into it) I consider I had a heavy crop. I might say that I was in North Dakota five years, and I never grew as heavy a crop during that time. This is the 25th day of November, and my teams are still plowing, and, from the appearance of the weather, will be for some time yet." R. W. Bradshaw, of Magrath, says: "I had this year 400 acres in crop; viz., 200 acres of wheat and 200 acres in oats. My average yield of oats to the acre was 50 bushels and wheat 22½ bushels. The value to me per acre for wheat was \$19 and oats \$17. The highest price obtained by me this year or offered me for my grain was for wheat 82 cents per bushel, and \$1.05 per hundred for oats. I also had 100 tons of hay worth \$12 per ton, and will say my wheat was all volunteer this year. Lots of wheat is averaging from 50 to 60 bushels per acre on summer fallow, and on new breaking, when the breaking was done early in the spring." Writing from Spring Coulee, Alberta, W. L. Thompson says: "I had this year 3,000 acres in crop, viz., 2,000 acres of wheat and 1,000 acres of oats. My average yield of oats to the acre was 30 bushels and of wheat 35 bushels. The value to me per acre for wheat was \$27 and for oats \$15."

Information regarding the districts mentioned, best way to reach them, low rates, certificates, etc., can be secured from any agent of the Canadian Government.

FARM LOANS

WARREN MORTGAGE CO.

MONEY TO LOAN AT LOWEST RATES

EASY TERMS

PRIVILEGE TO MAKE PARTIAL PAYMENTS

LOANS CLOSED WITHOUT DELAY

EMPORIA, KANS.

Emporia Business College

Now in new building, with new furniture and latest office appliances. 27 years of successful work. Board and room cheaper than any other place in the United States. No solicitors. Loafers not wanted. Courses by mail in shorthand, penmanship, and bookkeeping. Address,

C. D. LONG, Principal, Drawer F.

For Over 60 Years

Mrs. Winslow's Soothing Syrup

has been used for over FIFTY YEARS by MILLIONS of Mothers for their CHILDREN while TEETHING, with perfect success. IT SOOTHES the CHILD, SOFTENS the GUMS, ALLAYS all pain, CURES WIND COLIC, and is the best remedy for DIARRHOEA. Sold by Druggists in every part of the world. Be sure and ask for Mrs. Winslow's Soothing Syrup and take no other kind. 25 Cents a Bottle.

An Old and Well-tried Remedy

\$29.95 PARLOR ORGAN.

Fine, big, full size, solid oak, hand carved Parlor Organ, \$23.95. Many other styles shown in our Big Catalogue at surprise prices. Look for the great Organ Department in our Big Catalogue. If you haven't the book, borrow your neighbor's; otherwise write us a postal and say "MAIL ME YOUR NEW FREE ORGAN BOOK," and the most valuable, interesting and money saving Organ Catalogue will go to you at once. Address, SEARS, ROEBUCK & CO., CHICAGO, ILL.

AGENTS WANTED \$50 Per Week

To sell the DR. HAUX famous "Perfect Vision" Spectacles—finest on earth. State present occupation. DR. HAUX SPECTACLE COMPANY, Dept. 276, St. Louis, Mo.

The Blossom House

Kansas City, Mo.

Opposite Union Depot. Everything first-class. Cafe in connection. Cars for the Stock Yards, the up town business and residence parts of the city and for Kansas City, Kansas, pass the door. Solid comfort at moderate prices. A trial will please you.

tions along Sandstone, Cabin, Cedar, and Pennel Creeks.

Second, the Yellowstone Valley and the country north and west of Miles City.

Third, that vast country lying east and north of Harlowton, on the Musselshell, all the way to the big bend and reaching to the foot-hills of the Little and Big Snowy Mountains.

By May, 1908, throughout this entire country, the Government surveys will be practically complete, and before the end of the year the claim-shanty will be everywhere in evidence.

GRAIN FIELDS OF THE FUTURE.

And from Roundup to Montline, wherever I talked with settlers, I always found this contented, optimistic feeling that comes of having one's own roof over head, one's own bit of earth under foot.

As a result of successful dry farming during the past eighteen months, on the Beach flats just north of the extension along the Montana-Dakota line, there is a bright town—a side track a year ago.

And this is to be repeated again and again along the extension of the Chicago, Milwaukee & St. Paul Railway across Montana.

"Things move fast now." One may not deliberate leisurely. Who decides quickly, who gets in line at the Miles City or Terry Land Office, or drives his stake in one of these new towns, stands to win the big prizes.

Land Bargains.

The great State of Texas now seems to be the center of attraction for land buyers and homeseekers, and probably is the most extensive and inviting field in the world for profitable and permanent investments.

Mr. Richards is a large operator in land bargains, and in addition to the large tracts in Texas has a splendid line of Kansas ranches and farms.

An Up-to-Date Business College.

For more than a quarter of a century the Emporia Business College has been training young men and women for first-class positions in the business world.

They enroll an exceptionally good class of students, the majority of whom come from the country.

On page 504 of this issue will be found an advertisement of something new in a hay loader—the Gearless—a machine that takes its name from its construction, being without gears, cogs, sprocket wheels, or sprocket chains.



IT IS TRYING to sit and wait for the storm to pass and wonder all the time whether the next stroke will strike the barn or the house.

The children do not run to their mother and hide their eyes during a thunderstorm where the Dodd & Struthers Lightning Rods are used.

If the cloud looks like wind you can go to the cave or cellar, but what do you do when it looks like Lightning? Can you afford the worry?

We do not know of a single man in all the thousands who have bought our Rods who would give up his Rods and take back his money.

Insurance companies are recommending our rods to their policy holders. State fire marshals are endorsing them and thousands of good people are buying the D. & S. Copper Rods.

Write for our booklet about Lightning and learn the philosophy of the Lightning Rod.

Our Registered Trade Mark, D. & S., is on every spool of our Rods.

Every agent has an Agent's Certificate and every job is fully guaranteed. Write for complete information and prices.

DODD & STRUTHERS, DES MOINES, IOWA

Makers of Lightning Rods That Keep Out the Lightning.

THE MARKETS.

Kansas City Grain and Produce Markets.

Kansas City, Mo., April 20, 1908. A fairly active and stronger speculative market was had to-day. The statistical situation was strong and there were no cables.

Table with columns: Open, High, Low, Closed to-day, Sat. Rows for May, July, Sept. for WHEAT and CORN.

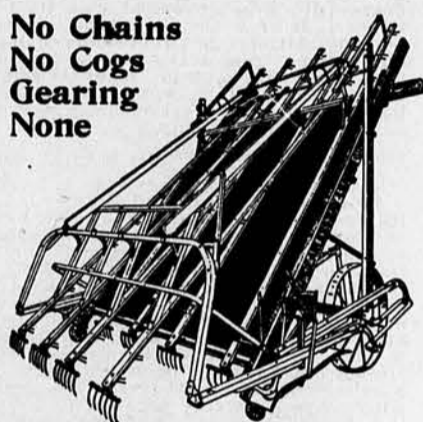
In store: Wheat, 1,147,400 bushels; corn, 337,400 bushels; oats, 34,000 bushels; rye, 5,100 bushels.

Wheat.—Receipts past 48 hours, 89 cars; shipments, 19 cars. Receipts same time last year, 68 cars; shipments, 63 cars.

Corn.—Receipts past 48 hours, 16 cars; shipments, 31 cars. Receipts same time last year, 24 cars; shipments, 44 cars.

Oats.—Receipts past 48 hours, 42 cars; shipments, 10 cars. Receipts same time last year, 9 cars; shipments, 13 cars.

No Chains No Cogs Gearing None



No Loader so Simple

GEARLESS HAY LOADER

Simplicity means economy In Draft. In Life of Loader.

Its long stroke and slow motion saves the alfalfa and clover leaves.

Write us for free booklet and particulars.

Emerson-Newton Co. Kansas City, Mo.

Chicago July closed 1/8c lower than on Saturday, but here there was nothing doing in a speculative way.

Rye.—Receipts past 48 hours, — cars; shipments, — cars. Receipts same time last year, — cars; shipments, — cars.

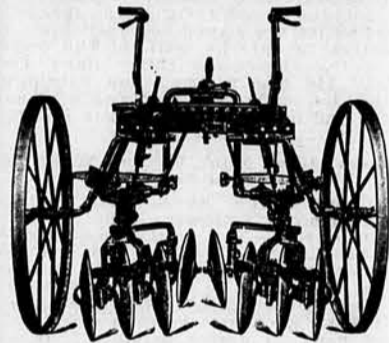
Cottonseed-Meal.—All points in Kansas and Missouri taking Kansas City rates, \$27.40 per ton in car lots.

Kansas City Live Stock Market.

Kansas City, Mo., April 20, 1908. The treatment given the cattle market to-day, in the shape of very light receipts at all points, has been most beneficial.

The hog market made a net loss of 21c per cwt. last week, although closing a little better than the low time.

THE DIGTATOR DISC CULTIVATOR



Needs No Jockey Arch

And as a consequence can be operated easier than other disc cultivators. Disc gangs attach rigidly to frame, and only move with it, except they may be tilted vertically.

ROCK ISLAND IMPLEMENT CO. Dept. M, Sta. A, Kansas City, Mo.

The Club Member

A Monthly Magazine published for women by women. It contains these departments: Editorial, Schools and Colleges; The Club Woman; The W. K. D. C.; The D. A. R.; The W. R. C.; The Woman Who Votes; Notes on Bible Study; Children's Hour; Us Men; Among the Books. Send for sample copy to Club Member Publishing Co., Topeka, Kan.

April. Packers complain loudly of poor sale for the product, and argue against probability of much higher prices. Sheep and lambs closed last week with a small net loss, and with a general feeling of weakness.

Agriculture

Preparing Seed-Bed for Wheat.

I have been quite interested in your [Professor TenEyck's] late Annual Report (20th Annual) and, while the main object prompting this letter is something else, it is a pleasure to me to thank you and the institution for the many appreciated favors received. I seem to feel more interested in your station work than our own.

In your own individual report, page 20, you speak of a new experiment in burning corn stalks, etc. This calls to my mind what I found to be a fine custom in preparing winter wheat ground. I don't know that any one else tried it but myself and write you about it so that it may be further tried and proven. The plan is to head the wheat, leaving all the straw standing you can, practically. The more weeds and insects that accumulate the better, let it stand and produce all the vegetation possible until you must break the ground for the next crop of wheat. Then Monday morning take mower and mow around just what you can plow Tuesday. If dry enough to burn well, you only need to mow a fire guard and rake it on to the part that is to be burned, but if in doubt about a good, clean, strong burn, mow the whole (of what you can plow Tuesday), then two persons begin at the part farthest from direction the wind is coming and back fire, one going each way until they met. No insect can get away and the heat even kills eggs in the ground and you have all the potash of stubble, weeds, etc., on the ground and it can not blow or wash away because you plow it right under (and this is very essential), and I believe that the land will, if so treated, produce twenty or thirty crops of wheat in succession, the last as good as the first. One of the surprising results is that the fresh burned ground breaks up mellow and moist, no matter how dry it is elsewhere.

As soon as the day's plowing is done I put three heavy horses to hinged (Scotch) harrow, a plank and myself on harrow, sending teeth as deep as plow went and that piece of ground lays and settles until ready to sow. A heavy, beating rain may run it together so that it needs another soil mulch. If so, stop the plow and mulch the ground so prepared, and you will have no clods. You must not lose any of the ashes and the land and crops will improve year by year.

The queer part to me is to learn where the soil gets the moisture. Whether from the heat or because of the straw mulch. It looks as though the heavy crop of weeds would require the moisture produced by shade and stubble or straw. I have had kind old neighbors come to tell me to burn my stubble while it was dry, as a heavy rain would put it in shape so that I could not make a crop, and afterwards come again and say that they never saw a better prepared field for wheat, and in one case the neighbor had his horses' ankles sore lumbering over the big clods in working his ground down.

I have taken pains to explain this plan to you as I shall probably never be able to demonstrate to fellow farmers the advantage of it as I am now past 71 years and shall not have a chance to put it in practise again. There must not be one detail left out. You must have the long straw standing as straight as possible and a little bit of pasturing will insure a failure, but you need have no fear of rain hindering. It may make your crop a little late but the greater amount of potash will bring crops around on time if due diligence is used.

On page 13 you have tried subsoiling and other ways of plowing. I am anxious to learn about the benefit of subsoiling and expect to have special plow arranged so I can lead water to good depth. G. S. NUTTER.

Chaves County, N. Mex.

The discussion of your method of preparing the seed-bed for wheat is interesting and suggestive. The con-

tinued practise of your method of burning stubble and weeds from year to year will doubtless finally greatly exhaust the humus of the soil, especially if you continue the practise of continuous wheat-growing. By rotation of crops, using annual legumes such as cow-peas and perennial grasses or alfalfa, it will be possible to maintain the humus content of the soil.

I take it that the heavy covering of straw accounts for the moist condition of the soil when you come to plow it after mowing and burning the stubble and weeds. The burning of the stubble would certainly add no moisture to the soil.

It would seem that the growth of weeds would tend to exhaust the soil moisture, but with the heavy covering of straw, doubtless the final effect is to absorb the rains and hold the moisture better than may result in bare or open plowed ground, unless a mulch of mellow soil is maintained on the open ground by cultivation. An occasional burning off of the stubble and weeds in the way in which you describe is doubtless beneficial in that it may destroy, as you have suggested, many noxious insects, and the method is often preferable to plowing under a heavy growth of stubble, especially when the plan is to follow directly with another crop of wheat.

Your plan of following the plow with the harrow is a good one and accounts, in part, for the success of the method which you have practised. You may be interested in reading an article which I have recently published on the subject of dry-land farming, which relates especially to the cultivation of the soil to conserve soil moisture. I have mailed you a copy of this pamphlet. A. M. TENEYCK.

Renewing Wornout Land.

I have read many articles on liming land which is old and worn out, but in no circulars nor articles which I have read on subjects of this kind do I find any instructions as to what kind of lime is used for this purpose. Is it the common lime we buy in barrels from the lumber yards, which comes in large lumps? If it is, should this lime first be air-slaked before it is used on the land, or must we have these large lumps ground and pulverized?


I would also like to know if the gypsum plaster—which is made from certain gypsum stone, that is mined near Blue Rapids—is used on the land before the factory boils it in their large kettles, or will this plaster, that we are buying in sacks from mills and lumber yards, do for this purpose?

I have twenty-five acres of land which I want to treat with lime or gypsum. I want to know whether the gypsum or the ground limestone, which is used to make the gypsum, is the material for me to secure?

This season I have permitted only twenty-five acres of corn to be planted on each quarter section and have ninety acres in oats, and sixty acres of growing wheat and will now commence to prepare the land for alfalfa, which I expect to sow this fall. I find it a difficult proposition with these renters to get the land changed. Their whole aim seems to be to get a lease on some land, and list all the corn they possibly can, and make the listed rows run down hill, to have the land wash as much as possible. CHAS. F. PUSCH.

Marshall County.

It is usual to use air-slaked lime for the purpose which you name. However, the quick lime will neutralize the acid in the soil better than air-slaked lime. The common quick-lime may be used as you have suggested. However, a cheaper grade than is ordinarily used for plastering may be used for fertilizing. I have mailed you copy of circular No. 3, giving information regarding this method of liming soil. You will observe that it is not necessary to grind or pulverize the lime. Simply by putting it in piles and covering it with damp earth, or perhaps putting a little water in each pile before covering it, the lime slakes and becomes finely pulverized, when it may be distributed over the field and quickly mixed with the soil by cultivation. The ground gypsum stone, which is



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Lawrence, Kansas, April 26, 1906

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WHEN WRITING OUR ADVERTISERS PLEASE MENTION THIS PAPER.

weeds means a decrease in the yield of corn.

It is during seasons of this kind that the storing of a few extra inches of moisture in the ground decides between a crop and a partial or total failure. Knowing the condition farmers should take every precaution to store up and conserve the much-needed supply of soil moisture.

L. E. Call, Assistant Agronomist.

NOTE.—A circular on "Dry Land Farming," written by Prof. A. M. Ten Eyck, may be obtained by request from the Farmers' Institute Department, Kansas State Agricultural College, Manhattan, Kans.

More Corn from Fewer Acres by Better Preparation of Ground.

JOHN TEAGARDEN, BEFORE CADMUS FARMERS' INSTITUTE.

In order to secure the ideal conditions for seed germination and plant growth, a seed-bed for planting corn should not be too deep and mellow; the soil should be mellow, but thoroughly pulverized, only about as deep as the seed is planted. Below the seed the soil should be firm (not too compact) making a good connection with the subsoil, supplying moisture to the seed, while the mellow soil above the grain allows circulation of air to supply oxygen, warming the soil by gathering sunshine during the day and acting as a blanket during the night. It also conserves the soil moisture, acting as a mulch to keep the water from reaching the surface.

THE PLOWING.

When the plowing precedes the planting, by a short time, it is well to follow the plow with some implement to pulverize and pack the soil at the bottom of the furrow and leave a loose surface. This pulverizing and packing is necessary when the soil is plowed dry or when stubble, trash, or manure are plowed under. If the soil is left loose and lumpy the connection of the soil and subsoil is broken off and soil water will not rise to the surface to germinate the seed and feed the young plants, the seed falls to germinate well and is more liable to burn out during the summer.

A SATISFACTORY WAY TO PREPARE THE LAND.

The opinion of many successful corn-growers that the most satisfactory way of preparing land for corn consists of plowing the soil deeply in the fall or winter, at a time when it is in condition to break up nicely as the furrow slices are turned and depending on the sun, water, wind, freezing, and thawing to give it a course of chemical and physical treatment during the winter. Except when land is rolling, or likely to wash, fall plowing is preferable to spring plowing. Sod or clover fields ought always be plowed in the fall when possible. When the ground is plowed late in the fall it acts as a mulch, saving moisture by surface evaporation and the roughened surface tends to hold the snows and permits winter and spring rains to penetrate more deeply into the soil.

DETERMINATIONS OF THE SOIL.

Determinations of the soil taken as late as May 14 has shown that late fall plowed fields contained six pounds per square foot more water in the upper four feet than similar ground not plowed. This difference represents a rainfall of over one inch. Fall plowing may usually be as deep as the soil will permit but it is not often necessary to plow deeper than five or six inches. When a soil is thin and subsoil close it is only safe to deepen it gradually by plowing a little deeper each year, turning under as far as possible coarse manure stubble and green crops to make the soil porous and form humus in it.

Fall plowing is one of the methods of combating grub worms, cut worms, corn-root louse, and other insects which are destructive to corn. Fall plowed fields should be disked and harrowed which usually puts them in ideal condition for corn.

SPRING PLOWING.

Ground that is plowed in the spring is more liable to not have a good connection with the subsoil. To better

this condition the ground should be disked before plowed. Disk as soon as possible in the spring on what probably would be better if disked in the fall. This loose soil will then be turned under and make a good connection with the subsoil, and usually a couple of harrowings will reduce the top soil to a good mulch. In trashy ground it takes quite a bit of work to pack the ground so that there will not be too much air space which causes the ground to dry out deeper. Great care should be taken not to plow ground when it is too wet as this destroys the texture of soil, causes it to bake in hard lumps, which are hard to pulverize. As the season becomes late and the ground becomes somewhat dry the ground should be harrowed down each day as plowed. Be sure and remember that all extra preparation you give the soil before planting you will be paid back in the cultivation of crop.

CULTIVATION OF CORN.

As to the cultivation of corn there are a wide range of differences, but if the seed-bed has been properly prepared it will be easier to tend the crop. That system of cultivation is most effective which removes weeds, conserves the moisture, and creates the soil. Corn plants during the months of July and August draw heavily upon the moisture of the soil so therefore to raise a large crop we must save this moisture. There is generally enough moisture present in the soil at planting time to produce a crop without any rainfall if it were possible to utilize it as needed by plants. Moisture escapes from the earth through capillary or tube like openings. The only way to reduce this loss of water is by keeping the top soil loose and fine. Frequent cultivation of corn especially after rains when crusts form not so much to kill weeds but to save moisture for the plants which use about 300 pounds of water in making one pound of dry water. Cultivation in many instances should begin before the seed germinates. A harrowing at this time will probably kill many weeds that are just starting. This will not always do though when long cornstalks or other coarse material has been turned under as the harrow is liable to catch on these and tear out the corn.

DEEP AND SHALLOW CULTIVATION.

Deep and shallow cultivation experiments indicate that, for practically all soils adapted to corn surface, cultivation is the best tillage. Surface cultivation which means that the implement used shall not disturb the soil to a greater depth than four inches below the surface. When the corn is small you may cultivate deep and close to it but as the corn grows get nearer the center of the rows and plow shallower. As the corn gets larger the cultivations do not need be so frequent. While deep cultivation, if practised with the same regularity as shallow will conserve as much moisture, but the shallow cultivation will outyield. This difference is caused by fact that deep cultivation injures the roots of the plants. After the corn has attained the height of eighteen inches to two feet the ground is a network of roots in the first six to eight inches of soil. Most of the feeding roots grow near the surface depending somewhat upon the character of the soil. Experiments have shown that the fourth inch of soil contains more corn roots than the three above or the four below. For this reason any cultivator that works in this region injures the roots and should be avoided.

LEAVE THE SURFACE SMOOTH.

In laying by corn it is best for the future use of the field to leave the surface smooth. It is important, on rolling ground, to avoid ridging at the final cultivation as where this system is used on hilly ground washing of soil is very bad. The old notion that the brace roots of corn plants, which make their appearance in finger like fashion at the bases of tasseled plants, should be covered with soil, dirt being thrown to the corn rows with this object in view is false. Ridging corn, especial-

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Ed Flaherty, R. 2, Seneca, Kans

ly in June and July, is a harmful practice and should be avoided unless the corn is very weedy or grassy. It increases the exposed area to the sun and thus causes the evaporation of moisture and in throwing enough dirt to form ridges it is necessary to run the shovels quite deep and much damage is done to the roots. After the corn is laid by if heavy rains follow immediately and pack the soil it will pay to go over the field with a five-tooth cultivator and break this crust. Smooth, shallow, and frequent cultivation should be given the corn from the sprouting to the shooting period.

Corn plants are living things that have the power of absorbing food from the soil and air and this power is weakened by any implement which prunes their roots. No factor is more important in the production of corn than the preparation and tillage of the ground.

Experience is a very good teacher, but the rates of tuition are rather high sometimes.

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The Young Folks

LIFE'S "SCARECROWS."

Once on a time a farmer made
A scarecrow fierce and high;
A sparrow, lighting near it, said,
"It looks so cozy, I
Believe it is the very best
of nooks wherein to build a nest."

And so he went to work, and soon
A pretty home had made,
And by-and-by his charming mate
Four cunning eggs had laid;
And from that happy nest one day
Six gleeful birds flew far away.

But ere they went, the old bird said,
"My children, all through life
Remember what you think of this
Or that brings peace or strife;
And even scarecrows joy may bring
If one knows how to view a thing."
—Nixon Waterman, in Woman's Home
Companion.

A Bird's Gratitude.

A kindness is appreciated even by the lower animals and "birds of the air." L. T. Hammond in Forest and Stream tells about the gratitude shown by a partridge for being relieved of ticks which had fastened themselves to its neck and was slowly draining its life blood:

"I was once strawberrying with my wife when we found a brood of partridges about the size of quail. They took to flight as we came near them. One that appeared to be smaller than the others flew only a few yards and settled in some low brush, where I soon found him apparently nearly exhausted. I had no trouble in taking him in my hand. As I was carrying him to show to my companion, I saw upon his neck three large ticks, and as I examined him closely I found a large number of small ones. After looking him over I began pulling out the ticks, when the little fellow with evident satisfaction closed his eyes and stretched his neck toward me, apparently well pleased with the attention. When I rid him of more than twenty of the pests, and my companion had petted him a while, she lowered him toward the ground, but he appeared to be unwilling to leave her, and as she gently placed him on the ground he came toward her, and when she extended her hand he rubbed his head against it with evident pleasure. We were both delighted with this new and very pleasing experience of sylvan life, and often by the quiet fireside is the story repeated."

Ill Manners of American Girls.

Despite the frequent illusions in the press to the ill manners of the American girl, it is hardly unsafe to assert that these references are not applicable to the mass of the young women of this country. There are daily instances to be seen in the home, on the street, in the hotel, and in various other places which go far toward proving that American girls are learning courtesy and gaining a graciousness that in womanhood will be to them a crown of beauty. The ready offer to an older woman of a seat in a street car, the standing aside at a post-office window to give place to one who seems in haste, the quick picking up of a dropped package and its return to the owner, the deference to an elderly opinion which is widely at variance with the general one, the smile and the turning aside for the little child who with cart or wagon innocently obstructs the sidewalk, the seeking out at the place of social entertainment of the stranger who in the crowd feels a loneliness, all are common examples of the goodness of heart of the American girl.

"Will you not bring the baby in for shelter?" asks one standing at her door, of the nurse caught with her charge in an unexpected shower; and another gladly holds her umbrella over somebody's grandmother passing in her direction. "I shall be glad to remove my hat if it causes you any annoyance," says one to the person behind at concert or lecture; and another offers to exchange for a time a good position in a crowded assemblage with somebody else occupying a less advantageous point of view. One girl regards the need of the fellow-traveler

who sits across the table at the railway eating house, and lowers her voice when entering a sleeping car late at night. Another considers the comfort of the invalid across the way at home and does not think too small the doing of an insignificant service to the neighbor in the next house. Loud speech, selfishness, and aggressiveness of manner are decreasing day by day among the girls of this country, it is good to believe, and the "little deeds of kindness, little words of love," which warm the heart, are becoming more and more frequent.—Selected.

"Keep Off the Stage!" Says Clara Morris.

If any woman should know both the trials and rewards of stage life it is Clara Morris. Her opinion must have weight. Would I again adopt the stage? she asks in The Delineator for April. Never! Never in the world, if in comfortable and happy circumstances. It was the necessity of providing food and clothing for my mother and myself that drove me to the stage door, and it was the mercy of Heaven that swung it open for me.

There is no disparagement of the stage intended. If I had a daughter I would prefer her not to be an actress. I should wish her an easier life, unless the fever of acting is in her very blood. Acting has nothing weird to offer in the line of danger. To be quite frank, all the possibilities of resisting or yielding to temptation lie with the girl herself. Every young woman who works for her living must eat with her bread the bitter salt of insult.

The stage has great rewards for the few—and great trials and tribulations for all; and as I have advised many times before, if there is one among my readers to whom the dim and dingy half-light of the theater is dearer than sunlight! if the burnt-out air with its indescribable odor is more welcome to your nostrils than could be the clover-scented breath of the greenest pasture; if that great black gulf yawning beyond the extinguished footlights makes your heart leap up at your throat; if without noting the quality or length of your part, just the plain, bald fact of "acting something" thrills you with nameless joy; if the rattle-bang of the ill-treated old overture dances through your blood, and the rolling up of the curtain on the audience at night is to you the magic blossoming of a mighty flower—if these are the things you feel, your fate is sealed. Nature is imperious, and through brain, heart, nerve, she cries to you. "Act!—act!—act!" Otherwise, keep off.

But, oh, my dears, my dears! believe me, a loving mother's declaration, "I don't know what I should do without my daughter!" is sweeter and more precious to the memory than the careless applause of strangers!

The Little Ones

TEA FOR THREE.

Once Bobby Bear and Bubby Bear and Baby Bear played tea,
They had a little tea-set that held just enough for three;
And Bobby tied on Baby's bib, while Bubby filled the pot
With just a spoon of tea a-peace—and water boiling hot.

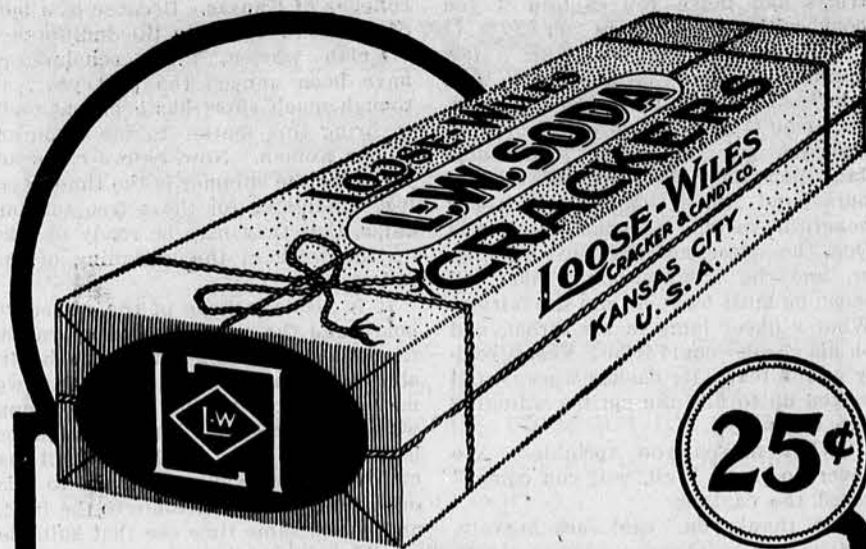
Now Bobby Bear and Bubby Bear were quite polite and fine;
They never hurried rudely when 'twas time to sup and dine.
So Bubby pouring the tea took care that Bobby got the most—
But while they talked wee Baby Bear ate every bit of toast.

—St. Nicholas.

The Smoke Sprites.

It was growing dark, and Jack stood at his favorite window, flattening his nose against the frosty pane.

He never failed to be there in time to watch the "Lighter-man" come up the street, leaving behind a row of starry lights, which seemed to meet in the distance, like a string of golden beads. When he had disappeared around the corner, Jack turned away with a sleepy sigh, just as the cuckoo



The Big Package and the Little Price

A 25-cent package of Loose-Wiles Sodas is so big the price is lost sight of—the crackers are so good all others are forgotten.

They are the perfect soda crackers—the kind Uncle Sam's experts say are the most wholesome and nourishing form of wheat food known.

There is as much difference between Loose-Wiles Soda Crackers and some Soda Crackers sold in bulk as there is between a porterhouse and a rump steak. Loose-Wiles Sodas are clean—crisp—flaky—wholesome and appetizing from first to last—made from selected soft winter wheat flour by our exclusive modern method of baking.

Put up in the distinctive Triple Protection package to assure you of your money's worth.

That's why your grocer likes to sell them. Ask him.

LOOSE-WILES KANSAS CITY
CRACKER & CANDY CO. U.S.A.
"The Modern Bakers"

clock on the nursery mantel chimed five.

Oh! how tired he was, and hungry, too! Where had nurse gone? The candles were not lighted, but there was a blazing wood fire that made queer dancing shadows everywhere.

Just then he spied his porridge bowl warming on the hearth, and threw himself down before it.

Jack dearly loved this particular bowl, which had held his supper porridge ever since he could remember anything. It was fat and squat, and gay with wonderful pictures. As Jack turned the bowl slowly around and looked longingly at the smoking porridge, the strangest thing happened!

Out of the curling smoke flew the oddest little gray man, then another, and another, until the room was filled with them. They fluttered about like a swarm of butterflies and settled on Jack like bees in a clover patch. Some perched on his shoulders, others sat in his lap, climbed up his arms and legs, clung to his curly hair, and one saucy fellow even sat on his ear, and shouted in it as if it were a rain-barrel.

Jack felt very shy at first, but the little fellows were so jolly and friendly that they soon coaxed him to join their games, which he found great fun. Once as they flew past a mirror, he saw, to his surprise, that he was no longer a roly-poly little boy, but small and shadowy like the others. And oh joy! how much faster he could run than on his own chubby legs!

But, you know, even fairies' feet grow tired, so at last they all fluttered down to rest. Then the captain, who wore a scarlet feather in his hat, said, "Jack, you're a pretty jolly little chap—how would you like to be a smoke sprite, too? We've been watching you a long time, and we want you to come with us. Will you?"

Jack opened his brown eyes very wide. The captain, with a wink at his men, who all nodded and chuckled, continued, "We have a jolly good time

and harm nobody, unless they interfere with us, as sometimes they do. Yesterday we were in your kitchen, having a fine song in the big teakettle, when suddenly the cook pulled off the lid and let in a great draught of cool air. That always makes us awfully cross, for we hate the cold, so we flew up and bit her wrist—not very badly, you know, but my! how she jumped! She said the steam burned her, but, of course, that wasn't it at all. It was dreadfully careless of her, for we're not very strong, and we might have caught sprirititis, you see!"

"That was too bad," said Jack, politely, "but I suppose cook didn't know you were there, for she is very nice and makes beautiful tarts. Is sprirititis anything like the crop? For I've had that and its dreadful! The only nice part is the next day, 'cause then everybody calls you 'poor little Jack,' and tells you all the fairy stories you want. It must be fine to be a truly fairy! What do you do all the time?"

"Oh, we just play, and that keeps us pretty busy, and then we often take little trips like this, to see what other people are doing. It's the jolliest kind of a life!"

"Don't you have any lessons?" asked Jack.

"Bless me, no! we hate all kinds of work—it must be such a bore, isn't it?"

"Yes, it is, pretty horrid," said Jack. "It must be nice to have plenty of time to play, for nurse always comes to say it's bed-time or school-time, just as I'm having the most fun!"

"Oh, we don't have nurses in Smoke-land, so we go to bed when we please, and sometimes we don't go at all for ever so long."

"Don't your mothers and fathers make you go?"

"Ho! Ho!" chuckled the captain. "What a joke! We don't have mothers and fathers up there. They must be such a nuisance! Nobody has to mind anybody but me. I'm the captain, you see. We'll show you all our

tricks and make you captain if you come with us. What do you say?"

Jack thought very hard for a few minutes. It would be fine fun to be a fairy—still— His merry face grew sober as he thought of his pretty mother, and big, gay father; of jolly Uncle Jack and Baby Dorothy; of faithful nurse and Anne, the cook, with her beautiful tarts. Oh! and there was Don, the setter, and his pony, Sir Roger, and the "Lighter-man," too. All these he must leave to join the fairies! What a queer lump in his throat, and on his cheek—could it be? Yes, it really was, a tear. He dashed it away and looked up to find the sprites watching him curiously.

"What makes you sprinkle? We never do that. Well, will you come?" asked the captain.

"No, thank you," said Jack bravely. "I'd like to be a sprite ever so much, but I don't think I could leave everybody; and I'm afraid they would miss me a good deal, too, for I'm the only boy, you see," and he drew himself up as tall as possible.

Then there arose the most terrible commotion among the sprites. They all scolded and chattered at once, shook their fists at him, and were so angry that Jack was quite frightened. And, somehow, the next thing he knew, he was back in the nursery, all cuddled down in nurse's lap, with his mother binding a cool cloth about his wrist. He rubbed his eyes, and looked about, but no fairies were to be seen.

"Where are they gone, mother? What makes my wrist hurt so?" he cried.

"There is nobody here, dear. You have been dreaming, and in your sleep knocked over the bowl of hot porridge on your wrist. Mother is very sorry, but it will soon feel better."

"Oh, mother! I don't want to leave you and be a fairy! Don't let them take me, will you?" sobbed the little boy, with his arms clasped tightly about her neck.

"My Jackle, nobody shall take you away. Come and tell mother about this ugly dream and when you are quite awake, you will be my own wise little son, for you know dream-people can not hurt us."

"But, mother, they can hurt us, for they bit my wrist, same as they did cook's, just 'cause they were mad at me," said Jack, as he climbed into his mother's lap, and nestled down in her arms.

There they had a long talk about fairies and dreams, and he soon felt so much better that he forgot all about the pain in his wrist, and was ready for hot porridge and the little white bed as usual.

This happened a long time ago, but Jack still talks about the sprites, and feels sure they will come again, when they get over being angry.

"For you see, mother dear," he always says, "the reason you don't believe in sprites is 'cause you have never seen them!"

Perhaps he is right, and there may be such things as smoke sprites after all? What do you think about it?—Leila Lyon Topping, in Pets and Animals.

Club Department

- Officers of the State Federation of Women's Clubs.
- President.....Mrs. Eustace H. Brown, Olathe
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Selection of Candidates for Scholarships.

To Kansas Club Women: We are fast approaching the close of the club year, and among the important things that should be given attention before clubs adjourn for the summer is the matter of the selection of candidates for the three scholarships now in the hands of the executive board of the State Federation, through the courtesy of the various colleges and business

colleges of Kansas. Because of a lack of candidates, due to the indifference of club women, these scholarships have been unused the past year, although much effort has been put forth to bring this matter to the attention of our women. Now, before clubs adjourn for the summer is the time to select candidates for these free scholarships, that they may be ready to take up the work at the beginning of the fall terms.

It is also the hope of the executive board and the committee on education that we may have a sufficient scholarship loan fund by the autumn that we may at least send one or two young women to college. Some candidates have already been listed. Will not the club women of Kansas respond to this opportunity and contribute to the fund, and at the same time see that suitable candidates are presented as recipients of this benefit? There is now \$40 paid into the scholarship loan fund and more than \$100 pledged, which will no doubt be forthcoming when called for. Our sister State of Colorado has a large fund and is doing a beautiful work in this line, and the education committee of Kansas is anxious to have a handsome sum reported at our annual meeting at Manhattan in May.
FANNIE COOPER ATKINSON,
Chairman Educational Committee.

The Mutual Helpers' Club of Madison

Send out a beautiful little year-book so unique in its contents that one is tempted in the language of the printer, "To put on the sideboards and run it entire," but then he doesn't ever say "all at the same price," with the falling inflection. The difference is, and it's such a blessed difference, too, they have cut out the encyclopedia. Not that they deary that honored volume, but then it has its uses. And why should a club woman be doomed to live in the musty past if she doesn't want to. They are living now and for the now and according to their program they have not tried to take the place of Atlas; they have not shouldered the world, and I would like to be one of them. Their club must be one of the ideal clubs that lift you up and cheer you, that strengthens you and really helps you. Of course, serious work, civic work and drudgery must be done by the women in places where it is not done by the men, but the men of Madison must be doing their shares, for their women folks seem to have time to be just happy. Why, they have one whole program given over to song! We need more of such. It is a mistake to make the woman's club a beast of burden, that is to turn every club into a common drudge association. Their fun-and-laughter program comes under this text:

"Don't be afraid o' wrinkles;
Tear loose with your mirth.
An old face laughter-wrinkled,
Is the sweetest thing on earth."

They talk about gardens, flowers, and here's where the poultry comes in:
"Of all the things in nature
That afflicts the soul of men
There's nothing that I know of
Beats the depreddating hen."

And that is the very saddest thing on that whole program. We need, more of such clubs. The serious work is all right. It must be done, but have a care not to overdo, because that will react on the club. Finally we will be too tired to go because the going only makes us more tired. It ought to be a rest to go to the club. We do not hold with Mr. Bok that the only legitimate work for a club is cleaning the streets or doing something that some man is already paid to do. If paid street commissioners would always do their work there would not be so much of this sort of thing put upon the club woman. The officers are Mrs. Hettie Hemphill, honored helper; Mrs. Mary S. Whitsitt, assistant helper; Miss Lucy Wilson, recording helper; Mrs. Judie Doty, art instructor. And we certainly believe that this is a club eminently worthy of emulation.—Club Member.

Alfalfa was first brought to the Atlantic coast of America in the sixteenth century, yet it is now considered a new plant there.

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Start on a New Line

Regular trains are now operated on the new Pacific Coast line as far as Moberidge, Lemmon, Hettinger, Bowman and Marmarth, in the Dakotas; to Terry, Miles City, Musselshell and Harlowton, in Montana.

Homeseekers' Excursions

Tuesday, April 7, and April 21.

Tickets good for 21 days and stop-overs allowed. Investigate now the openings in farming, stock-raising and mercantile work along the Pacific Coast Extension of the

Chicago Milwaukee & St. Paul Railway

On above dates the round-trip fare from Chicago will be \$26.90 to Moberidge; \$30 to Lemmon, Hettinger, Bowman and Marmarth; \$39 to Harlowton; \$40 to Moore and Lewiston, in the Judith Basin, Montana. Fares to other points quoted on request.

Maps and descriptive books regarding the opportunities in this new country free for the asking.

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Horticulture

Bird Life.

The following paragraphs are excerpted from pamphlet No. 9, of the Agricultural Educational Series published by the Institute Department of the College. The pamphlet was prepared by Isaac H. Scheffer, instructor in zoology, and like the other pamphlets of the series, is being distributed free to all teachers of rural schools and all teachers of grammar grades of town and city schools on request of the superintendent of schools. Communications pertaining to the series should be addressed to J. H. Miller, Superintendent College Extension, Manhattan, Kans.]

There are few groups of objects in nature, whether they belong to the plant or animal kingdom, that will rank with the feathered tribe in the degree of human interest they attract. To properly direct the activities of the young people who are trying to find expression for this interest is the purpose of this brief outline in bird study.

Birds must have food—plenty of it, and often. Any one who will spend an entire day in watching them will almost conclude that they do little else from daylight till dark but flit and hop about in search of something to eat. In reality some of them will devour, not hundreds, but thousands of weed seeds and insects in a single day, as has been proved by scientists in the Department of Agriculture who have examined the contents of their stomachs. This explains why even a few birds on the farm may be of immense benefit to the man who grows the crops. If properly encouraged and protected the larger number of birds thus attracted would be one of the most valuable assets on the credit side of the farmer's account-book. This has been shown to be true time after time by the temporary disappearance or sudden reduction in numbers of certain birds in a given locality, followed always by the alarming increase in the hordes of destructive insects or an unusual crop of weeds. We must not forget that every insect or seed eaten in winter and spring might have multiplied to thousands the next summer. In other paragraphs we will discuss the food habits of some of the prominent groups of birds.

With the failure of their food supply in the autumn and the approach of cooler weather many of our birds become restless and instinctively begin to move southward. These movements can not fail to arouse the interest of the youthful student of things out of doors. In the spring the arrival from somewhere of each old friend is hailed with delight, and one can almost remember the exact date when the first robin or the first oriole put in his appearance; but with the falling of the leaves they steal off so silently to the southland that before we realize it they are gone. Some go singly, some in pairs, and some in flocks. Most of their movements in migration take place at night, so that we very seldom see the southward drift of the successive bird waves. The flights are not long, an average rate of progress being about twenty-five miles a day or less. Some halt for a short time, others from the rear overtake and pass them, and thus, leap frog fashion, they finally reach their winter homes in the Gulf States, Mexico, Central America, or the Bermudas and West Indies. A few species of birds from farther north, as certain shrikes, juncos, waxwings and native sparrows, find our middle latitudes suitable for a winter resort, and so remain here until spring calls them north again. These we call winter sojourners. Those species whose southward journeys we have just described are classed as summer residents. Still others—the residents—remain with us the year round. Many species of the water fowl are rarely found in middle latitudes except when passing through the country in their spring or autumnal flights. These birds are called migrants. Unlike the song birds, their migrations occur mainly in the day time, but sometimes we may hear their bewildered calls at night as they scud before an approaching storm. In seasons when there is an unusual abundance of wild fruit and winter

berries, stragglers and deserters from the migrating hosts of song birds that pass south in the fall may be found in our groves and thickets in the coldest weather.

WINTER BIRDS.

The birds that stay with us during the winter are of more value to the farmer than any equal number that come here for the summer only. It is in the winter that the most good can be accomplished in the destruction of insects, or at that time the few adult insects that hibernate, as well as pupa and larvae, are diligently sought for by the hungry birds. The death of one injurious insect in winter may mean hundreds, or even thousands, fewer of that species in that locality the next summer. We may easily form the acquaintance of most of the birds that winter in Kansas and the Middle West in general, for there are not more than about fifty such species. We give here a few of the more common ones:

1. Bluebird.
2. Robin. (A few stragglers.)
3. Meadow-lark.
4. Redbird.
5. Chewink.
6. Carolina Wren.
7. American Goldfinch.
8. Cedar Waxwing.
9. Northern Shrike.
10. Blue Jay. (a few stragglers.)
11. Quail.
12. Woodpecker. (Four species.)
13. Crow.
14. Rusty Blackbird.
15. Horned Lark.
16. Longspur. (Four species.)
17. Sparrows. (Five species.)
18. Juncos.
19. Titmouse.
20. Chickadee.
21. Nuthatch.
22. Brown Creeper.
23. Owls. (Six species.)
24. Hawks. (Eight species.)

SOME OF OUR USEFUL BIRDS.

Protectors of the Orchard.—The Chickadee, Nuthatch, Titmouse, and Creeper form a group of cheerful little birds that creep about on the bark of trees or cling to the slender branches, searching in tiny holes and crevices for small insects or insect eggs. Associated with the smaller woodpeckers, they do valiant service in the orchard, and their presence should be encouraged in every way. Numbers of them may be attracted to the shade and fruit trees about the house by occasionally tying to the limbs bits of suet, scraps of meat or marrow bones sawn in two lengthwise.

Seed-eaters.—Few groups of birds are of more real benefit to the agriculturist than the native sparrows. We have four or five common species with us in the winter and about double that number in the summer. In the former season they are assisted in their work of cleaning up the weed seeds in the farmer's field by several species of longspurs which come down here from farther north. The longspurs are frequently called snowbirds. The appetites of the seed-eaters are particularly good in cold weather, and the number of seeds eaten in a single day is often enormous—sometimes over a thousand, as reported by the Department of Agriculture.

The Hawks and Owls.—There seems to be a general prejudice against these birds of prey, but in most cases there are no grounds for it. The large majority of hawks and owls are decidedly beneficial to the farmer. It is unfair to condemn a whole race for the sins of one or more individuals, and yet this is just what we sometimes do. Two, or at the most three, species of hawk in this country are destructive to poultry interests while a dozen other species feed upon field-mice, gophers, young rabbits and the like. The majority of the large hawks seldom molest even wild birds. Our three species of so-called "Chicken hawks" are rather small or medium in size, and, fortunately, note very abundant. The time to shoot any particular hawk is when it has shown a disposition to eat poultry. The farmer who makes war on the whole race because one individual has injured him is adopting the tactics of the old-time Indian. But one species of owl, the large "hooter," is likely to make any trouble for the farmer, that is, the kind of farmer who does not shut his poultry up at night. Owls include in their bill of fare a great many of the destructive pocket-gophers that come out in the twilight to dump the earth



APPLES that have the color, firmness, size and flavor, are the ones that got the Potash. To bring apple trees into bearing, broadcast 100 pounds of Muriate of Potash and 200 pounds of Acid Phosphate per acre. Do it this Spring.

Send for a valuable Free Book on this subject. It ought to be in the library of every farmer and fruit-grower. Send to-day. Address office nearest you.

GERMAN KALI WORKS, Monadnock Building, Chicago
New York—93 Nassau Street Atlanta, Ga.—1224 Candler Building

which they have excavated in the burrows.

The Quail.—The farmer should regard the quail as one of his most valuable assets. "He is the gleaner who never reaps, who guards the growing crops, who glories over a bounteous yield, yet is content to watch and wait for those lost grains which fall to him by right." These birds are good stubble feeders, gathering in weed seed, waste grain, and insects. They also eat a few wild berries, rose hips, and the like. Included in their diet of animal food are large numbers of ill-tasting insects that are usually rejected by other birds. Among these insects are the potato beetle, the cucumber beetle and the chinch-bug. In the stomach of a single quail has been found 10,000 pigweed seeds; in another 1,000 ragweed seeds; in another 5,000 pigeon-grass seeds; in another 100 potato beetles, and so on. Because of their food habits, and also because of their cheerful disposition and their beauty, quails should be protected and encouraged everywhere. They should be fed in rough wintry weather, especially if there is snow on the ground. Neglect of this may result in all the quails in a locality perishing in a particularly bad storm. Patches or strips of cane, Kafir-corn, popcorn, and the like should be left standing in the fields for them. Some farmers sow strips of sorghum at edge of "draws" or just outside the stockyards for food and protection of quails.

The Meadow-lark.—Like the quail the meadow-lark is also a ground feeder. About three-fourths of its food for the year consists of insects. The other one-fourth is about equally divided between weed seeds and waste grain gathered from the stubble fields in the winter months. Larks never feed on fruit. In the early spring their contributions in song are the first bird notes that warm the heart of the pioneer dweller on the prairies. Of considerable interest to the bird lover is the perfect harmony between the color patterns of the sides and back of this bird and the gray-brown of the dry prairies in winter. When larks are crouching in the grass it is a difficult matter indeed for any of their enemies to see them. Instances of protective coloring are common among other birds and, in fact, among all animals that depend for their safety on concealment.

The Robin.—The robin may be given as an illustration of a type of bird that sometimes gets into trouble by feeding on cultivated fruits. Associated with him in this respect are the catbird, the brown thrasher, the mockingbird, and the oriole. In resenting the collection of the small toll which these birds take from the orchard and berry patch the farmer overlooks the fact that if birds have rights at all they are entitled to a small quantity of fruit for protecting the trees from insects the entire year. We pay out money for life insurance, for hail insurance on standing grain, for fire insurance on our buildings. Why mo-

Continued on page 514.

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Dairy Interests

Designs for Dairy Buildings.

The great demand for information relating to the construction of dairy buildings led the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, to start a line of investigation for the purpose of developing the basic principles of such construction.

The designs, as Mr. Webster explains, are not intended to represent the only constructions advisable for the purpose indicated, but are intended to be suggestive of certain principles of construction which any architect or builder may use in designing a barn or other dairy building for a special location.

The designs published are for a stable for 24 cows, a southern stable for 20 cows, two-story stables for 24, 50, and 100 cows, a stable with milk house for 36 cows, a combination barn for 26 cows, silos of various types, dairy houses, an ice house with milk room, a creamery for whole milk, and a creamery for city milk combination service.

Some Things a Dairy Farmer Ought to Know.

D. M. WILSON, KANSAS STATE DAIRY COMMISSIONER.

Not only all farmers engaged in dairying as a business, but even those that sell or trade a few pounds of butter to the grocer, should be familiar with market requirements.

The butter that will bring the highest price anywhere in the United States is the butter of strictly sweet, mild, clean flavor, as nearly like that of clean flavored new milk as possible.

A word to those making butter on the farm: Churn the cream when you can tell by the taste that it is beginning to sour.

one-half hours before churning. Find the temperature that will cause the cream to churn in 25 to 30 minutes. Stop churning while the butter is in granules of the size of grains of wheat or peas.

If the above suggestions are followed by those that make butter on the farm, there will be less car-loads of butter sold for renovating by the grocers of this State at from ten to twelve cents a pound.

Cow Questions.

I have a cow that will be fresh about the first of May. I want to get her dry so she will get fat. Would it be advisable to get her dry as soon as she is fresh, or milk her for a while?

ZIBA RANDALL.

Pottawatomie County.

In reply to your inquiry, will say that if you can make use of the milk I would not advise drying up the cow too rapidly, as she can be fed a liberal grain ration, chiefly finely ground corn, with pasture grass, or a limited amount of alfalfa or clover, and a cow so fed will put on beef very fast.

If, however, it be desirable to dry her up as quickly as possible, I would advise keeping her on dry feed, principally prairie hay, corn stover, and cornmeal.

Milk is a secretion that is controlled to a great extent by the kind and quantity of feed fed, as well as the care of the cow and the method of milking.

Clean Milk for City Consumption.

The following suggestions, in Hoard's Dairyman, may well be considered by those who produce milk for the creamery.

There is probably no question in the dairy field that has received more consideration the past few years than, How to obtain a better grade of milk for city use!

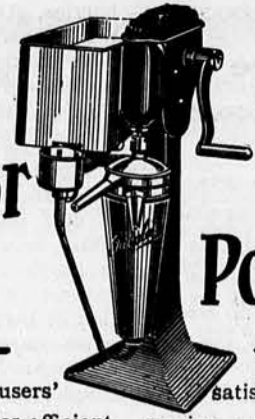
THE FLAVOR OF MILK.

If every person who produces milk for city use would see that the milk is clean so that when the consumer orders a glass of it to drink with his meal he would feel satisfied with his purchase, more milk would be drunk.

CLEAN MILK.

The question may be asked, What is clean milk? The word clean is only a comparative term, for a thing may appear to be clean to one person and by another be considered dirty.

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Popularity means users' satisfaction. Satisfaction includes efficient service, easy operation, increased profits—that the Tubular does better for users than other separators.

Not what words may say makes these conditions true. What the Tubular does in the dairy is the basis and proof of our claims.

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Least weight to Turn
Most Economical to Run
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Many differences you can see with your eyes. Other differences we are ready to prove. Catalog free, telling scientific and mechanical reasons for Tubular difference from and superiority over other separators.

But seeing the Tubular is still better. Write and ask us to tell you about it, where you can see it, and how you can prove for yourself what Tubular Service will mean for you and for your dairy, right at home.

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Better Cream = and more of it

It isn't the fault of your cows if you don't get lots of butter from the churning. The fault lies in your way of skimming milk.

Peerless Cream Separator

is the only machine with a combination hollow and disc bowl—that means doubled capacity—and the hollow bowl doesn't break up the large fat globules.



foreign substances whether in solution or solid form; free from injurious bacteria and drawn from udders of healthy cows.

This definition does not convey very much information for the words "practically free from foreign material" give opportunity for wide differences of opinion.

One of the first steps in the production of clean milk is to make arrangements for keeping the cows clean. It is almost a hopeless task to produce pure milk when a cow is permitted to lie in her own filth.

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In writing The Kansas Farmer please give your full name and post-office address.

small brush, or better still a damp cloth, they will never milk without it, for it takes no longer to use it than the hand and it does the work cleaner and better.

The next step is to have clean utensils. All milk vessels should be thoroughly washed and scalded and hung in a clean, dry place and in the sunlight. It is not difficult to build racks for holding milk cans, pails, and strainers so that they will be exposed to the sunlight and air and protected from rain.

With clean cows and clean milk vessels, the next step should be a clean milker and to be a clean milker does not necessarily mean a man should be clothed in a white suit, but it does mean he should have at least clean hands and clean clothes. Perhaps clean clothes are not in themselves so vitally necessary, but a man who is neat in his person is very apt to be neat in the things that he does.

Besides keeping the cows clean, having the milker neat in his methods of milking and keeping all utensils in sanitary condition, the stable should be so constructed that it has plenty of sunlight and fresh air. Nothing is of more importance to healthy cows than plenty of pure, fresh air, and every dairyman should give it to his cows in abundance.

Tuberculosis Germs in Butter.

The danger from tuberculosis germs in butter is pointed out in a publication just issued as Circular 127 of the Bureau of Animal Industry, U. S. Department of Agriculture. This circular reports experiments made by Dr. E. C. Schroeder and Mr. W. E. Cotten at the Bureau Experiment Station. Butter was made from the milk of a tuberculous cow, and after being kept for different lengths of time it was inoculated into more than 50 guinea pigs in order to determine how long the germs live and retain their virulence in butter. With the exception of five that died prematurely from other causes and one that was killed, all the guinea pigs died of generalized tuberculosis, and the one that was killed was also found affected.

The results of these experiments prove conclusively that tubercle bacilli may live and retain their virulence in ordinary salted butter practically four and a half months or even longer, and they give new evidence of the danger from the use of tuberculous cows for dairy purposes.

Cream or Milk—Which is the Most Profitable?

W. W. MARPLE, IN THE BLUE VALLEY BUT-LERIN.

Nearly every mail brings us an inquiry from some one selling milk, asking if it will pay them better to sell cream. We recognize the importance of this question and appreciate the responsibility in replying to it.

For fifteen years we have given the question of market for the product of the dairy and how to get this product on the market in a way to realize the greatest profit to the producer, the most serious thought and extended investigation. We have conscientiously tried to prevent any bias of opinion because of a personal commercial interest and have been guided in our advice by impressions made through experiments and from information obtained from sources, the authenticity of which could not be doubted.

MILK A VALUABLE COMMODITY.

Milk is a valuable commodity because of its intrinsic value as food, as well as the many other uses to which it is put. The real value of a cow depends on the quantity and quality of this commodity she produces and the economy of this production, which will be regulated by the proportion of her food that is converted into milk, but the keynote of success finally as it pertains to profit resolves itself into the disposition that is made of the milk and the manner in which it is handled. A cow that gives 6,000 pounds of 4 per cent milk will not be profitable, if that milk is appropriated for raising a calf or feeding pigs. A calf offers a poor

market for whole milk and the result from a herd of dairy cows will be unsatisfactory if the milk is delivered to that market exclusively even though the strictest economy is observed in its production. Milk may be worth a dollar a gallon in Klondyke and dairymen might produce it for four cents and yet it would be a poor market for milk produced in the Middle West, so while \$8 a can would look big to the man who was only getting \$1, it would be unwise for him to attempt to take advantage of the \$8 market for in doing so he would even lose the \$1 that he had been getting on a market that on its face seemed less desirable. In deciding whether it is better to sell milk or cream, there is only one proposition that enters in and that is the question of net profit and to arrive at a correct conclusion it is necessary to throw aside every other consideration.

THE ELEMENTS IN MILK.

There are a number of ingredients or elements in milk, out of which different products can be manufactured and different uses made. The whole milk can be fed and this everybody will agree is not practical because it is too valuable in proportion to results attained. The butter-fat in milk can be made into butter and there will remain the skim-milk which is the most valuable part for feeding purposes. The casein in connection with the butter-fat can be made into cheese and there will be left what is called whey, which has only a nominal value for feeding. The proposition is practically reduced to a choice between selling whole milk or cream. In order to arrive at the right conclusion there are many things to consider. The revenue from the sale of milk is easily determined because you get it in money direct at the rate of so much per can or per hundred pounds. The first impression is that this is the most remunerative because a can of milk will sell for more money than the butter-fat in it, but there are many things to consider incidental to the selling of milk. If calves are raised (and certainly all heifer calves from dairy cows should be), they will consume probably one can out of every four so that you will only get paid for three cans of whole milk where you would be paid for the butter-fat from four cans. Milk, when put on the market, must be sweet or it will be rejected so it is fair to estimate at least a limited number of cans of sour milk during the year that have been rendered practically worthless in this way. In order to reduce sour milk to a minimum it is necessary to make extraordinary provision for its care and in addition it must be delivered promptly every day to the railroad station, and this is often very early, which requires the milking to be done exceedingly early, and this makes the time short between night and morning milking and long between morning and night, which irregularity is detrimental to the cows and for this there is no doubt but a discount in quantity can be made. In selling butter-fat it does not require the same precaution to prevent souring. The milking can be done at a more convenient season, the cream can be delivered to the railroad station every two or three days, according to the weather, and it can be taken at a time when there is the most leisure. The loss of cans incident to shipping milk is a very important item besides the wear and tear and the necessary expense of keeping a stock. Ten cans of milk can be reduced to one can of cream, consequently it only requires one can in selling cream for the butter-fat content where it requires ten in selling milk and the loss is nominal and the expense of maintaining an equipment is the minimum. There is only one to take to the station instead of ten, only one to pay transportation on instead of ten, only one to care for instead of ten, and the business does not have to be done in a rush, which is always expensive. Besides these differences, there are other unanswerable arguments in favor of selling cream instead of milk. One



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Let us be content, in work, to do the thing we can and not to presume to fret because it's little.—E. B. Brown-ing.

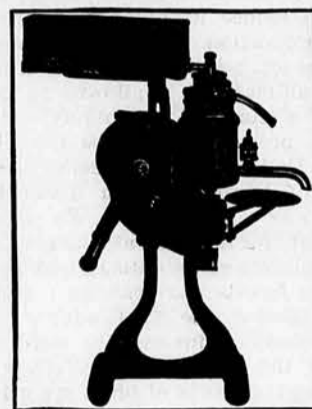
TO THE MAN BEHIND THE COW.

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The fabulous wealth of the Orient was attributed to precious stones, gold and pearls. This was wrong. It was due to alfalfa, which enabled the despots to show their wealth in diamonds, gold and pearls.

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Bird Life.

(Continued from page 511.)

lest a bird for collecting his premium on crop insurance? It is certainly the cheapest insurance the farmer can get. An old maxim has it that we are more prone to see the faults than the good qualities in our associates. This is none the less true in our dealings with birds. We catch them eating a few cherries or strawberries and condemn them without thought of the thousand and one good turns they have been doing us. This is not fair. Cultivated fruits do not form more than seven or eight per cent of the food of any one of these birds for the year. The bulk of their food is insects and wild berries. The oriole in particular is one of the few birds that will eat caterpillars in large numbers. In this respect it is a close rival of the cuckoo. Even if the quartet of birds we have been discussing were not beneficial from the standpoint of their food habits, who could be hard-hearted enough to kill one of the sweet songsters because it stopped in its caroling to eat a little of the fruit with which we tempted its appetite?

Birds that Feed in the Air.—In the swallows, the martins, the flycatchers, the night-hawks, and a few others we have a group of birds against which no complaint can be justly made. They do not sing for us, but we love to watch the graceful skimming movements of the swallows particularly and listen to their enticing chatter. These birds feed almost exclusively on winged insects which they capture in the air. The night-hawk while engaged in this business amuses himself by an occasional downward swoop from a considerable height, producing a booming sound by catching the air under his wings as he turns. The king-bird, in addition to the service he renders us by eating insects, valiantly attacks and drives away the hawk or crow that comes too near the poultry-yard.

The Smaller Summer Birds.—These will include the warblers and vireos, birds of small size, pretty colors usually, and sweet wildwood notes. They live among the trees and feed on the insects that infest the foliage.

The Blackbirds.—We have two or three common species of these sable-feathered summer residents. The yellow-headed fellow is less often seen than his red-winged relative, but in numbers and resulting influence on crops the bronze grackle outranks them all. These are the birds that follow the plow in the spring, barely hopping out of the way of the farmer's team in their eagerness to pick up the grubs and other insect larvae and pupæ in the warm, mellow, up-turned earth. All summer long they may be seen feeding in fields or gardens, particularly where the soil is being stirred by cultivation. They also frequent meadows and pastures, probing around in the sod for worms and insect larvae. To their discredit it must be said, however, that they also pull up some sprouting corn. Later in the fall, when they are preparing to migrate, they flock together in immense numbers and sometimes do serious damage by swooping down in clouds on grain in the field or shock. We feel, though, that they have more than offset this damage with their good works in spring and summer.

BIRDS OF DOUBTFUL VALUE.


The English Sparrow.—There are a few renegades in the bird camp, concerning which the less said the better. Luckily, however, there are but two or three species that deserve to be placed in this class. Chief among these is the English sparrow, a quarrelsome, thieving, dirty little rascal, introduced from Europe about fifty years ago. The species has since spread over the entire country, and has in many localities driven away from our villages and farm dwellings the native song-birds that once sang and nested there. We can not quite forget this, for we prefer the companionship of wrens, robins, bluebirds, and martins to these obtrusive, noisy little foreigners. But this is not all. Not only do they drive away better birds from our premises, but they tear

down their nests and smash their eggs, litter the upper structures of buildings with combustible material, choke up the rain-water spouts, and swoop down in devastating flocks on gardens and grain fields. The best that can be said of them is that they bring a little cheer to the larger cities by hopping and fitting about the streets summer and winter. By a vigorous persecution and use of the gun if necessary we may prevent them from nesting or remaining about our country and village homes. We really owe it to our shy native songsters to drive the intruders away.

The Crow and the Blue Jay.—These two birds may be considered together, for they are nearly related and their habits are somewhat similar. The jays feed principally upon vegetable matter, acorns, corn, and wild berries constituting about three-fourths of their food for the year. In the summer months they include in their bill of fare forty to sixty per cent of insects. They are often charged with eating the eggs or young of other birds, and in some cases there is no doubt of their guilt. On the whole, though, we believe they do no more harm than good. The crow is an omnivorous bird; that is, he eats almost everything that could be called food. In the farming regions of the East he becomes a nuisance by pulling up the sprouted corn in the newly planted fields. Here and elsewhere he has the habit of eating the eggs and young of other birds and occasionally carries off young chickens. On the other hand, the crow benefits the farmer by destroying insects as well as field-mice, young rabbits, and other harmful rodents. On his bill of fare are also reptiles, frogs, toads, fish, crayfish, snails, spiders, and carrion. In total, his food is made up of sixty per cent vegetable matter, thirty per cent animal and ten per cent mineral. The last named is in the form of sand and gravel which he swallows after each meal to assist in digestion. A short time after dining this sand is disgorged, along with the bones and feathers of small mammals or birds, and the seeds and skins of fruit. This is done in order not to tax the digestive system with these indigestible substances. The crow is an interesting fellow after all, and we ought to spare him if he does not make us too much trouble.

In a state of nature—that is, without man's interference directly or indirectly—the numbers of all wild things tend to remain about the same from year to year. Of course at times some favoring conditions permit a particular species to multiply and thrive until it becomes much more abundant than usual, but sooner or later failure of food supply, unfavorable weather, competition with other animals, or the natural enemies of its race, will reduce its numbers to their former proportion. Thus no one species of insect, bird, beast, fish or other form of animal life is allowed to get much of a start of the others. We call this preserving the balance of power. Under man's influence this balance of power is often disturbed in one way or another. We grow crops that furnish an abundance of food supply for some animals; by cutting down forests and draining marshes we decrease the food supply of others. Hosts of insects are lured to death by the glare of our electric lights, and thousands of birds are crippled or killed by flying into wire fences or telephone and telegraph lines. Then, too, man protects some animals and makes war on others. With all these changes resulting from the settling up of a country, how careful we ought to be not to interfere in bird affairs unless we know for a certainty what effect our act will have on our own interests and on nature's balance of power. The killing of a single one of the larger hawks may mean a dozen more rabbits to gnaw the bark of our young fruit-trees. The shooting of one oriole in an orchard may result in a thousand more caterpillars to strip the foliage from the same trees. On the other hand, permitting English sparrows to nest


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about our homes means fewer of the old familiar birds that are of much more value to us.

It is a law of nature that the stronger preys upon the weaker, so we find that birds even number among their enemies others of their own class. The smaller hawks strike down many a songbird in the busy hours of the day, while certain owls search them out in their roosting places at night. As stated before, crows and jays sometimes hunt up the nests of other birds and eat the eggs or young fledglings they find there. The shrike, a winter sojourner from the North, is an excellent mousser; but when mice are not easily procured he does not hesitate to swoop down upon a luckless sparrow or other small winter bird. Much as we enjoy the companionship of squirrels, with their pert sauciness and overpowering curiosity, we must admit that many of them follow the example of the crow and jay in breaking up the nests they find in trees. Snakes are particularly fond of eggs and young birds. Luckily but few of them can reach the nests unless they are built close to or upon the ground. The appearance of a snake often strikes such terror to a bird that it seems to be powerless to escape. Last, but not least, of the enemies of our birds is the common house cat. A cat that attends strictly to the business of catching mice and other harmful rodents is a valuable possession but when one gets the bird-killing habit and takes to roaming the fields and woods it should be disposed of at once.

MAN AS AN ENEMY OF BIRDS.

Hunting.—Considering the array of natural enemies that birds have to contend with, civilized people the world over ought to join their forces to protect their feathered friends; but unfortunately they have not yet done

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so, except in a local way. Many wild birds are used as food—the game birds—and hence are eagerly sought for by hunters or sportsmen. Though we do not stand in need of such food now, we have not yet quite suppressed certain instincts of our remote ancestors who of necessity killed wild animals to supply their tables. There are three classes of hunters; the man who hunts as a means of recreation, the pot-hunter, and the market hunter. The last named ought to be suppressed as a public nuisance. The other two owe it to their communities to make good, by organization, by protective measures and by artificial propagation and distribution of game-birds, the losses their acts have entailed. The milliner's hunter or agent should share the fate of the market hunter.

Collecting.—Some people have a fad for collecting postage stamps; others prefer old coins or souvenir postal cards. When we were boys and girls we accumulated hoards of marbles, scrap pictures, and the like. Those things are all right in their way, but a collection of birds' eggs or stuffed birds is a different matter. In order to make such a collection we must destroy the lives of happy, innocent creatures that entertain us with song and protect our orchards and gardens that we may later eat the fruit. A few collections of birds are necessary in order that we understand and appreciate the facts of bird life and then intelligently protect our feathered friends, but none except scientists should assume the right to gather together such treasures. We should accept their verdict as final in all matters of structure, and spare further slaughter in the interests of science. It is no mark of a budding naturalist to collect birds and their eggs. Rather it is an evidence of cruelty and greed of possession. One thing we may do, however, and get much profit and pleasure from it—collect used birds' nests. Early in autumn after the leaves have fallen, we may find any number of deserted nests, many of them showing a variety of curious materials or peculiar details of construction that make them objects of interest in the schoolroom or in our homes.

Protective Laws.—Most of the States of the Union have enacted some sort of laws giving protection to the birds. Some of these laws enumerate a list of the protected species, and in the case of those that are classed as game give an open season in which they may be shot. It is a much better plan to have two separate laws covering the cases of the game and the non-game birds, respectively. When dealing with the latter the provisions of the law should not merely extend to a small list named in the act but should include all birds except the very few species designated, as the English sparrow, two or three hawks, and perhaps the crow and the jay in some parts of the county. In Kansas we have about three hundred and forty species of birds, a little more than half of which number may be said to be common. Our law as it stands now protects but seventeen of these—ten game birds and seven song-birds. Eggs and nests of all species may be plundered without violation of any Kansas statute. The eggs, nests, and young of useful birds should by all means have protection.

A model law recommended by the United States Department of Agriculture and by the National Association of Audubon Societies has now been adopted in thirty-five of our States. This excellent progress in protective legislation is largely the result of active work on the part of the various State and local Audubon societies, cooperating with the National association. The efforts of these organizations to arouse a greater interest in bird life and to secure protection for the decreasing numbers of our feathered friends are worthy of our highest commendation. It rests with us to encourage the movement by local organization and personal work. While legal enactment may go far toward preserving our birds, we hope to raise

up such a host of friends to them among the boys and girls now reaching toward manhood and womanhood that protective laws will scarcely be necessary. We believe, too, that we may depend upon the farmer and horticulturist of to-day to protect his own assets, be they birds or crops. This he can not do, however, without an intelligent study of their relations to each other. Even if an occasional species be found wanting when weighed in the sordid balance of profit and loss, isn't a flash of color, a burst of song, an awakened inspiration, worth the price of a few cherries or a handful of grain?

Termites or White Ants Injuring Fruit Trees.

How can I get rid of the white wood ants? They are working on my cherry trees. They seem to get under the bark and girdle the trees. My trees are five years old. C. C. WALKER.

The termite, or white ant, damaging your fruit trees is probably the common species, *Termes flavipes*. Nests and colonies of these insects are usually found in deeply buried, decaying roots, in the hearts of stumps and logs, in old brush piles, wood piles, and old lumber piles. Many times they will extend their operations to very great distances, making underground tunnels, and it is, therefore, practically impossible to trace them to a source and thus break up the colony. Growing wood is not the natural food of these insects, and is usually attacked by them only under exceptional circumstances. If there is any dead wood upon the roots or trunk of the trees, it is quite apt to attract the termites, and they will afterwards injure the living or growing trees by eating away the bark of the roots and collar, and tunneling or eating in under the bark of the trunk. It is also claimed that this insect will leave the roots to work in the trunks to avoid the heated soil. Recently transplanted trees, whose roots have been mutilated, or those which have been planted too deep, or which have too much earth heaped about the crown, or those which have mulches of decaying wood, leaves or straw heaped around the base of the tree, or those which have been skinned and damaged by cultivation and injured by insect borers, are subject to the attack of termites. Well established trees are not usually attacked, except through disease or other injuries, by which dead and unhealthy wood is produced.

This is a difficult insect to combat after it has attacked the trees. Preventive methods are to be recommended by all means. Mulches of decaying wood should never be heaped about the base of a tree. All the decaying wood should be removed from an orchard. Do not pile old poles, posts, and lumber in or near the orchard. Avoid injuring the roots and the trunk of the trees, which makes places susceptible to the attack. Do not transplant too deep, but leave the crown of the tree exposed to the air. The only remedy to be recommended after the insect has made the attack and the injury is discovered early enough, is to remove the earth about the crown and principal roots, cutting away all dead bark and wood and pouring a liberal amount of water around them. Pyrethrum or insect powder and tobacco dust may be dusted around the roots and crown. Kerosene emulsion in extremely diluted solution can be applied with success, but this should be used with great caution. Of course an effort should be made to locate the nest, and if found, it should be destroyed. G. A. DEAN.

Assistant Entomologist, Kansas State Agricultural Experiment Station.

Alfalfa is the richest as well as the oldest hay plant known to man. Eleven pounds of it are worth as much for feeding purposes as ten pounds of bran.

No one can do good work without good tools, and tools are never good unless they are in first-class condition for use.

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The Kansas Farmer has just bought a number of the Busy Man's Friend for its subscribers. This is a book of 250 pages of things that every one should know. It is a compendium of Legal and Business Forms. A Fund of Practical Information for Every-day Life. It contains the Busy Man's Code; The Hows of Business; Points of Law and Legal Forms; Digest of Laws; Practical Information for Busy Men; The Busy Man's Digest of Facts; Computations at Sight. The book is illustrated and bound in cloth. Any old subscriber who will send us \$2 for two new subscriptions will receive this book, postpaid, as a present. This offer is good as long as the books last. Order early and get "The Busy Man's Friend" absolutely free.

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**The Kansas Farmer Co.,
TOPEKA, KANS.**

Weather Bulletin

Following is the weekly weather bulletin for the Kansas Weather Service for the week ending April 21, 1907, prepared by T. B. Jennings, Station Director.

DATA FOR THE WEEK.

Table with columns: Maximum, Minimum, Mean, Departure from normal, Total, Departure from normal, Percent of sunshine. Rows are categorized by Western, Middle, and Eastern Divisions.

Table with columns: Maximum, Minimum, Mean, Departure from normal, Total, Departure from normal, Percent of sunshine. Rows are categorized by Eastern Division.

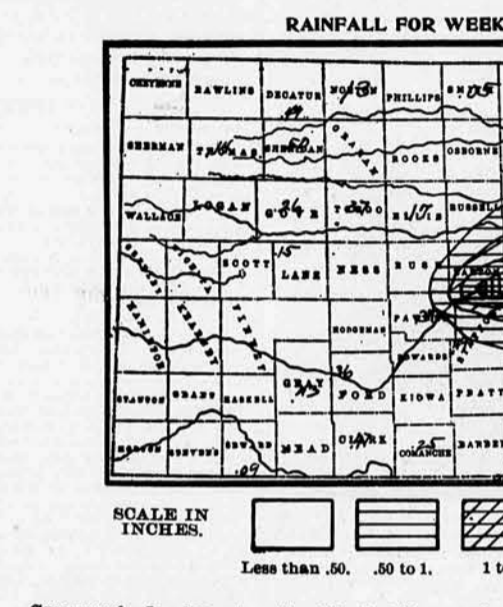
Table with columns: Date, Maximum, Minimum, Mean, Departure from normal, Total, Departure from normal, Percent of sunshine. Rows for April 13 and April 20.

GENERAL SUMMARY.

The week was quite favorable, with the temperature about 6° above the normal, the departure being somewhat greater in the western than in the eastern portion of the State.

Western Division. Allen.—The weather was generally cloudy. Rains, amounting to 1.35 inches, fell on the 14th, 17th, and 18th.

Bourbon.—The week began clear, with a temperature of 32° on the 12th, but this was followed by cloudy and warmer weather till the week closed. Shows on three days amounted to 0.79 of an inch.



Greenwood.—Ice formed on the 12th, but the remaining days averaged above the normal. The rainfall was abundant. Jefferson.—The lowest temperature was 34° on the 12th, the highest 78° on the 13th.

Middle Division. Barton.—The drouth was relieved by a thunderstorm on the night of the 16-17th, when 3.12 inches of rain fell.

Eastern Division. Atchison.—The week was uniformly mild, with 0.53 of an inch of precipitation on the 17th and the same amount the next day.

Ellis.—Temperatures were uniform thruout, the extremes being 83° and 37°. Much threatening weather occurred, but only 0.17 of an inch of rain fell.

Republic.—A good rain of 0.40 of an inch fell on the 16th. Temperature extremes were 80° and 38°. Russell.—Rains on the last two days amounted to 0.40 of an inch.

Western Division. Clark.—Rains on the last four days amounted to 0.47 of an inch and were of much benefit.

Atchison.—The week was uniformly mild, with 0.53 of an inch of precipitation on the 17th and the same amount the next day. Light thunderstorms accompanied the showers.

Corn for Shows and Contests. What variety of corn would you consider best for corn shows or contests? I have a lot of two or two and one-half acres that has been a feed lot for several years.

of the other varieties of corn generally grown, thus these varieties may produce more perfect ears, which make good show ears. However, other varieties may out-yield them in your section of the State, namely, Hildreth, McAuley, and Kansas Sunflower.

planted thinly it grows too rank and large to make good fodder. Better sow the cane and cow-peas in separate fields and mix the fodder in the manger. Cow-peas and corn grow better together than cow-peas and cane.

find a list of the bulletins which have been published on the last page of this bulletin. Any bulletin still in print may be had by writing to the Director of the Experiment Station, Dr. C. W. Burkett.

