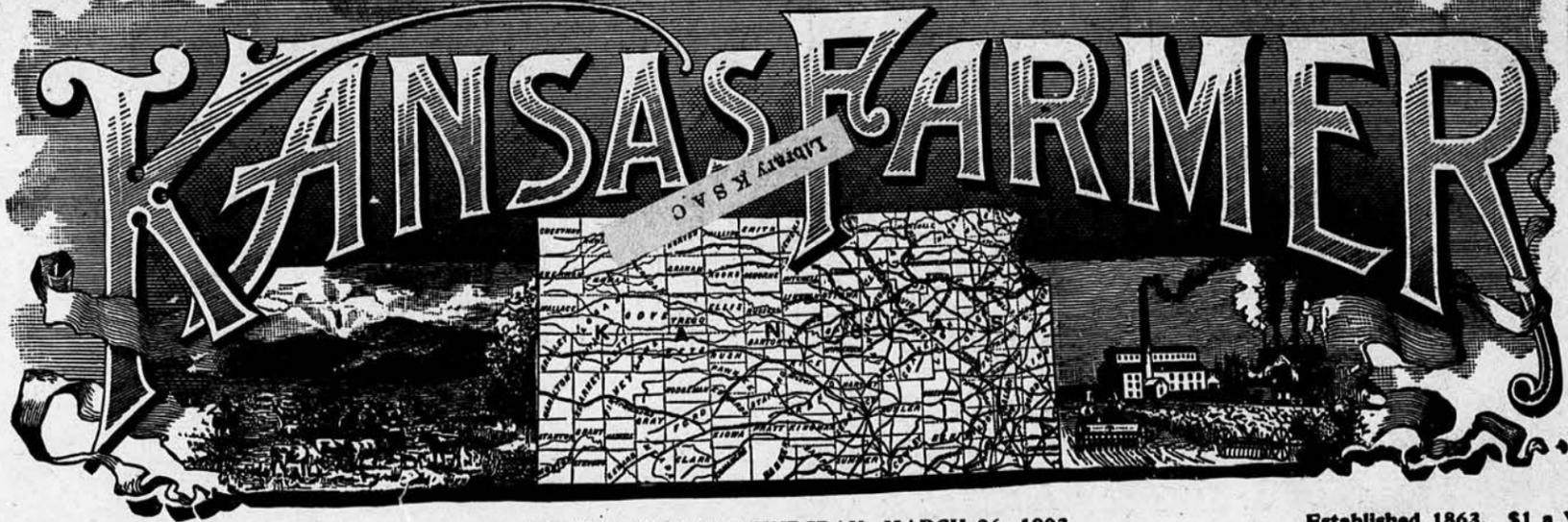


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State Dairy Association Special.



Volume XLII. Number 13.

TOPEKA, KANSAS, THURSDAY, MARCH 26, 1903.

Established 1863. \$1 a Year

KANSAS FARMER.

Established in 1863.

Published every Thursday by the KANSAS FARMER CO., - - TOPEKA, KANSAS

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D. C. NELLIS.....Secretary and Treasurer

SUBSCRIPTION PRICE: \$1.00 A YEAR

E. B. COWGILL.....Editor
I. D. GRAHAM.....Associate Editor
H. A. HEATH.....Advertising Manager

Entered at the Topeka, Kansas, postoffice as second-class matter.

ADVERTISING RATES.

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KANSAS FARMER CO., 116 West Sixth Ave., Topeka, Kans.

Table of Contents

Table listing various articles and their page numbers, including 'Agricultural college, new regents for', 'Alfalfa-seed for fall sowing', 'Butter scores', 'Dairy industry in Kansas', etc.

BLOCKS OF TWO.

The regular subscription price for the KANSAS FARMER is one dollar a year. That it is worth the money is attested by the fact that thousands have for many years been paying the

price and found it profitable. But the publishers have determined to make it possible to secure the paper at half price. While the subscription price will remain at one dollar a year every old subscriber is authorized to send his own renewal for one year and one new subscription for one year with one dollar to pay for both.

Hon. Martin Mohler, who preceeded Hon. F. D. Coburn in the office of Secretary of the Kansas State Board of Agriculture, died at his home in this city last Friday. He was 73 years old on the day of his death. His work as secretary was of a high order. As a man and as a citizen his life was blameless.

THE DAIRY INDUSTRY IN KANSAS.

Perhaps few of her citizens appreciate the tremendous strides which have been made in the dairy industry by Kansas in the last few years, and few who are not directly engaged in handling dairy products or dairy machinery have any idea of its present magnitude. The statistical reports show that the number of milk cows in the State have increased in number more than thirty-three per cent since 1896 and the value of their product in the year 1899 would have paid all the State, county and township taxes for that year.

interest and profit has come the use of new and improved machinery and the development of large creamery companies backed by immense capital, which are ready to receive the milk product of the farm, whether it be derived from one cow or a thousand.

The statement so often made, that Kansas offers a better opportunity for getting rich from a herd of well-bred cows than any other State, still remains unchallenged and is only emphasized by the statistics of the dairy industry. Ten years ago the total product of cheese (for the year 1893) was \$40,255. Last year it was \$302,465. In 1893 the total value of the butter product of the State \$4,375,618. Last year it was \$7,517,331.

Most of these magnificent results have been attained through the knowledge awakened in the farmer's mind of the fact that, with the improved hand separators now in use, he can have a good steady income from each of his cows and at the same time have the use of the skimmed milk on the farm for his pigs and calves.

We send this issue of the KANSAS FARMER as a message to the farmers of this and adjacent States from the men who have made this great industry what it is, and point with pride to the advertising pages which are a valuable part of any good publication.

THE KANSAS STATE POULTRY ASSOCIATION.

By act of the last Legislature the Kansas State Poultry Association was made a State institution, and an annual appropriation for the next two years was made to aid it in holding a poultry show which shall be bigger and better than any ever before held in the State. This is equivalent to saying, that the next State Poultry Show will be bigger and better than ever before held anywhere.

Kansas is now the third State in the Union to make a legislative appropriation to foster its State Poultry Association, Nebraska and Illinois being the other two. While the State poultry show of Kansas held last winter in Topeka was a very large and creditable one in every way it was greatly exceeded in size by that of Nebraska which the writer visited.

Adjacent States. As was also stated, the products of the poultry yard will find an unlimited market and our farmers are devoting more and more attention to poultry-raising as a valuable source of income. Hence the appropriation just made will be of direct benefit to the farmers and poultry-breeders of the State for years to come in the emulation which will be excited towards better breeding.

NEW REGENTS FOR THE AGRICULTURAL COLLEGE.

Following are the new regents of the Kansas State Agricultural College: Capt. J. S. McDowell, of Smith Center, succeeds himself; C. E. Friend, of Soldier, Jackson County, succeeds Senator S. J. Stewart, of Allen County; E. T. Fairchild, of Ellsworth, succeeds himself; J. W. Berry, of Jewell City, succeeds William Hunter, of Blue Rapids; J. O. Tulloss, of Sedan, Chautauqua County, succeeds J. M. Satterthwaite, of Butler County. R. J. Brock, of Manhattan, was appointed a few weeks ago, upon the resignation of F. D. Coburn.

THE PANAMA CANAL.

One of the important events of the present is the making and ratification of the Panama Canal treaty between the United States and the Central American republic, Colombia. This treaty was negotiated by Secretary Hay on the part of the United States. The Senate ratified it at the extra session which adjourned last week. It now goes to the Colombian legislative body which, it is understood, will soon be convened and, it is thought, will speedily ratify it.

For more than half a century the proposition to make a ship canal across the narrow neck of land which joins the two Americas has been enthusiastically urged by progressive people in this country. In the early days of the agitation a treaty was made with England touching the subject.

Later, the French, led by the famous engineer, De Lesseps, undertook the construction of the canal. They built a railroad and did an immense amount of work, actually digging fourteen miles of land. The undertaking proved greater than was expected; wrong

(Continued on page 361.)

Kansas State Dairy Association

Held at
Manhattan, Kans.,
March 3 to 6, 1903.

During the week ending March 6, there was held at the State Agricultural College, Manhattan, Kans., the sixteenth annual meeting of the Kansas State Dairy Association. Although handicapped by extremely disagreeable weather conditions and by the lack of sufficient hotel accommodations caused by the enormous number of students in attendance upon the college



G. H. LITTLEFIELD,
President Kansas State Dairy Association.

which placed vacant rooms in the city at a premium, this was one of the most satisfactory meetings that has been held in the history of this association. Organized sixteen years ago on the call of a few interested parties, this association had its beginning in the club room of the Copeland Hotel of Topeka. Seeing the possibilities of the dairy industry in Kansas, a call was issued by Hon. R. T. Stokes, Garnett, Kans., and I. D. Graham, now associate editor of the KANSAS FARMER. This call was responded to by perhaps two dozen people from various parts of the State who proceeded to organize the Kansas State Dairy Association. During all these years this association has been constantly growing in both size and usefulness until it now ranks among the first of its kind in the United States and has helped to make Kansas prominent among the dairy States of the Union. The meeting at Manhattan was characterized by good papers, some of which were presented by college professors and students. Each forenoon and evening was occupied with the regular program while the afternoons were given over to the judging of dairy stock, the exhibition of dairy appliances and the butter-makers'



G. W. PARKMAN, Emporia,
Vice-President Kansas State Dairy Association.

contest. We consider this meeting to be one of the most profitable that has been held in the history of this association in spite of the adverse conditions and we proclaim it as our belief that this success is due in a very large measure to the untiring energy and activity of Secretary T. A. Borman, than whom there is no better hustler in the dairy ranks to-day.

Our report is comprehensive, but owing to the fact that one of the students who was assigned to an interesting topic during the meeting had been taken

so ill that he was unable to prepare the paper we are obliged to omit it for the present. One of the most interesting sessions held by the association was that on Thursday evening when the subject of hand-separator methods, results, etc., was taken up for general discussion after the regular papers of the evening had been read. This discussion seemed to hinge in part upon a proposed plan to grade cream into classes so that the careful patron who furnishes clean, sweet cream promptly should be paid a higher price than other patrons who allow their cream to become sour or old before its delivery. We were especially glad to notice the strong stand taken by Mr. W. F. Jensen, of the Continental Creamery Company, who opposed this suggestion most strenuously. He announced in no uncertain terms that his company did not propose to grade cream as it did not want and could not use anything but that which is first-class.

The speakers in favor of the graded cream system seemed to think that if a man who takes the trouble and care to always keep his milk vessels clean and sweet and to deliver his cream daily can secure only about one cent advance in price over that received by a man who is less careful and who delivers his milk only each alternate day, in spite of the fact that it



T. A. BORMAN, Topeka,
Secretary Kansas State Dairy Association.

goes to the shipping point either sour or tainted, or both, he will be discriminated against. Mr. Jensen's stand that second-grade cream should not be received or used under any circumstances received a round of applause which showed the sympathy of the audience.

One strong feature of the meeting was the program rendered on Wednesday evening by the dairy students of the college, five of whom were assigned to papers and were given the entire evening.

We were particularly interested in the paper given by Prof. Ten Eyck, who has lately been elected to the chair of agriculture from the South Dakota Agricultural College. This paper was upon the "Rotation of Crops," and was illustrated by large charts showing the previous experience gained by the Professor in South Dakota. As the soil and moisture conditions of the Dakotas are practically identical with those of Kansas and as the only climatic difference between the two States is one of temperature, we regard this paper as a valuable one and had hoped to be able to reproduce Professor Ten Eyck's tables in this report. The volume of work which has come to hand in the handling of his department, together with the extra work caused by the judging weeks and the numerous short courses which are now in session has made it impossible to prepare these tables in time for this issue.

Thursday morning's session was devoted to a general discussion of "What I Think of Dairying and How I Succeed," which discussion took the nature of personal reminiscences, of value perhaps to those who listened but not recorded in shape for reproduction here.

Taken as a whole this was a great meeting, the interest of which was materially increased by the active part taken by the college students of both regular and short courses. Each member of the association was made to feel the honor of his membership by having pinned upon his coat lapel by the secretary a handsome button bearing the legion "Kansas Cow Meet." In connection with this dairy meeting and in addition to the judging of dairy stock which occupied each afternoon of the week, one of the most instructive things within reach of the visiting dairymen was afforded by their opportunity to inspect the dairy cattle, the dairy barns, apparatus, silo, and dairy methods and also to visit the calf-feeding experiments which are conducted in connection with the dairy department. This calf-feeding experiment has for its object: First, to test the feeding value of buttermilk to calves; second, to learn if a greater variety of grain fed to them will produce results of sufficient value to warrant the extra expense. These calves, of which there are thirty head, were divided into lots of ten each and the experiment began in January last. One lot was gradually changed to a buttermilk ration before the experiment actually began. A second lot was fed skim-milk, together with a grain ration composed of shelled corn, oats, and ground Kafir-corn, accompanied by a small amount of oil-meal and dry blood. The third lot was used as a check lot and received

ceded," which discussion took the nature of personal reminiscences, of value perhaps to those who listened but not recorded in shape for reproduction here.

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wa to make that the meeting place for next year will be accepted.

The election of officers resulted in the retaining of the old officials in the places which they have so well filled with the exception of the position of assistant secretary and treasurer which has been made vacant by the removal of the incumbent to another



CHAS. DILLE, Ottawa,
Treasurer Kansas State Dairy Association.

State. Mr. C. B. Dille, of Forest Park Creamery Company, Ottawa, Kans., was elected to this position and we take pleasure in publishing his portrait along with those of the other officers in this issue.

Kansas farmers are becoming alive to the importance of the dairy and creamery interests of this State as they never were before and we predict that the future history of this association will be one of greater importance and growth than has been its past. The papers read at this meeting and the resolutions adopted appear in the following pages.

President's Address.

Mr. Secretary, Members of the State Dairy Association, and Ladies and Gentlemen:

It is with great pleasure as President of the Kansas State Dairy Association, that I find myself called upon to talk to you for a few minutes on one of the greatest industries of the country.

When you elected me president of your organization one year ago, I felt very highly honored.

While the results of my administration are not as great as I had hoped, still I believe that we have accomplished a great deal towards the fostering of the dairy interests in Kansas, both as individuals and as an organization.

The year has wrought many changes and has been remarkable, partly on account of the oleo legislation which has enabled farmers to get fair prices for their produce, and also in the many changes and, as we believe, advanced methods of handling their product.

I speak of the hand separator which has enabled the farmer to put his product on the market in a more marketable form and while it has its disadvantages from the creamery man's standpoint, still I believe it is one step in the advancement of the industry.

Speaking as a creamery man, I believe that it will take considerable work to educate the farmer to furnish the best quality of cream.

The time of change from whole milk to hand separators is a critical time and results are not always satisfactory. It has shifted the responsibility of making good butter from the creamery



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man to the producer to a certain extent and points to the necessity of educating the farmer to give the care necessary.

I would recommend that every one, be he dairyman or creameryman, use his best efforts to improve and maintain the best quality of product and in that way sustain the reputation Kansas has enjoyed in the past.

The dairy interests of Kansas have grown remarkably in the past few years, and I believe that Kansas is destined to be one of the greatest dairy States in the Union.

Owing to cheap food for cattle, the large demand for the product, and the improved processes in manufacture, farmers are receiving generous returns from their herds.

It is only a few years since they considered the cow a makeshift to tide them over the hard years, but at present they find her one of the greatest sources of income from the farm. The value of dairy products has more than doubled in the past ten years. The product for 1902 brought over eight and one-half million dollars to the farmers of Kansas, and I hope to see that amount more than doubled in the next few years.

I wish to commend the Kansas State Agricultural College for the grand work it is doing in education along dairy lines. It has taught many a man to find the dividing line between profit and loss. Take, for example, the practical results obtained by keeping records of the individual cow, showing that one cow may be kept at a loss while the next cow is yielding a good profit, and when the poor cows are weeded out it leaves a greatly increased profit to the business. This the farmers of Kansas are finding out very fast, and that is one reason why we believe that Kansas is destined to be a great dairy State.

The bill before the Legislature to create a food and dairy commissioner is, I believe, if it becomes a law, destined to be of lasting benefit to the people of Kansas. The money spent to carry on the work will be one of the best investments the taxpayers of Kansas can possibly make.

One thing that handicaps the State Dairy Association is the lack of funds. We do not receive any money from the State to aid us in our work while other States are very liberal in that respect. Our sister State, Nebraska, gives one thousand dollars per year to the Dairy Association and has done so for many years. I would recommend to this association that they pass a resolution to take some decided stand and ask the State Legislature for some aid to which we are justly entitled.

To close this short address, I wish to mention a practical illustration of the benefits to be derived from these conventions. A number of years ago, a creamery was being operated by a farmers' company, none of the company having had practical experience in creamery management, the creamery was rapidly going behind. At one of our association meetings a paper was read on creamery management. This paper was published in the KANSAS FARMER, and through this medium was brought to the notice of one of the directors. A correspondence was entered into between this director and the writer of that paper. The writer of that paper was a practical creamery manager of several years' experience, and the results of this correspondence that the creamery was operated on new lines and to-day is the only one being operated of three creameries that were built in this county within twelve months.

Where the Profits Come From.
H. B. WEBSTER.

The dairy, like many other places on the farm, has its leaks, where many of the pennies drop into unseen places and are lost forever. Now it is to these pennies for which we must look and to save which will give us a difference between profit and loss or at least between a small per cent of gain and a large profit. If our large manufactories and packing-houses would run their operations upon the same plan that many of our farms are, they would soon be forced to go out of business. Yet many of our farmers will farm year in and year out and never see the small leaks that are continually eating away their profits, and still they are making money. Does not this show that farming, especially the dairy farming, with the present prices of its products, is one of the best-paying occupations we can follow? Why is it that the packing-houses can sell the dressed animal for less than was paid for its meat when on foot? It is because nothing is wasted and every-

thing is utilized in some way or other. Can we then not learn some important lesson from this, and put to use things which now go to waste through carelessness or neglect, or are sold from the farm for less than could be obtained had they been utilized there?

It is or should be the aim of every dairy farmer to get cows that will give a large quantity of milk with as good a quality as possible. But it is not of the cow that I wish to speak, nor even that much sought-after product, the butter-fat. But I do want to tell you something of that part of the milk which remains after the butter-fat is abstracted, and that is the skim-milk. There are some twenty or thirty commercial articles manufactured from the casein of the milk, among which might be mentioned glue, paint, the smooth coat on paper, even the celluloid collar, and the shirt-buttons you are wearing may have found their way into existence by the way of the milk-pail. But what profit is there here for the farmer to sell his skim-milk to the factory for from fifteen to twenty-five cents a hundred pounds? Then contrast this with the price he has to pay for his paint and glue and celluloid collars. Then, is there not some better use to which he can put his skim-milk than by selling it to the factory? I think so; in fact, I am sure of it.

There are some calves at home that would be glad to have some pure sweet milk. The advent of the hand-separator makes it possible to have sweet, warm milk to feed the calf night and morning, and does away with the hauling of milk back and forth to the creamery or skimming-station. Then with this separated milk, with the addition of some corn or Kafir-corn meal to take the place of the butter-fat, you can raise as good a calf as though it ran with the cow and obtained its feed in the natural way. When we skim or separate the milk, we simply take out the butter-fat which at present prices is worth 25 cents per pound, and in its place substitute a cheaper fat. But many of you may say that it is no use trying to raise skim-milk calves, they do not pay. Then let us reason together a while. Did you ever stop to consider the difference in the cost of raising a calf on skim-milk and raising one with the cow? The estimated cost of keeping a cow one year is \$12, and at the present prices of feed and pasture that is too low. If she is a good cow, she will raise a calf worth \$18 to \$20 at weaning time. A dairy cow, when in full flow, ought at least to give thirty-two pounds or four gallons of milk a day, and an average of sixteen pounds a day with the addition of something to replace the fat will put flesh on the back of the skim-milk calf nearly if not altogether as fast as though it ran with the cow, and when weaning time come the skim-milk calf does not have to be weaned. It is putting on from a pound and a half to two pounds a day and in the meantime is contentedly shewing its cud while the calf which runs with the cow is bawling and making night hideous, and instead of gaining is losing flesh. In an experiment here at this station in 1890 in which ten calves were fed—the calves being bought in the vicinity of Manhattan—it was found that they made a daily average gain of 1.51 pounds upon a skim-milk ration. Figuring the skim-milk at 15 cents per hundred pounds, grain at 50 cents per hundred pounds, and hay at \$3 per ton, and allowing \$2.75 per head for labor, we have our skim-milk calves costing \$7.98 per head at the end of the experiment of twenty-two weeks. In the meantime, there were in a pasture not far from the college twenty-two calves running with the cows. The college obtained permission to weigh these calves and they were weighed three times and it was found that they made a daily average gain of .17 pounds up to weaning time. Now as I have said, here is where the skim-milk calf has a big advantage. The first week after weaning the twenty-two suckling calves they lost 90 pounds or 4.5 pounds per head, while the ten skim-milk calves gained 220 pounds or 22 pounds per head, and in the first four weeks after weaning, the skim-milk calves gained an average of 22 pounds per head more than the calves which ran with the cows. Then note the difference in the profit of the two lots of calves. The \$6 or \$8 which the calves bring over the price of keeping the cow for one year is all the profit there is from the cows which raise their calves. But from the cow we milk we have the skim-milk calf which is worth nearly if not altogether as much as though it ran with the cow and costs us only about \$8. Then we have the difference between this and their selling price, since we have already deducted the price of the skim-

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milk, as a net profit. Thus with judicious feeding we would have a sum amounting to from \$8 to \$12 per calf, which I think you all can see is better than selling the skim-milk. Yet, unless you take good care of the calf with the use of good judgment, you can not expect good results. Any haphazard, careless methods are apt to end in disappointment.

However, if you think you can not raise a calf by hand, or have more milk than the calves can use, the question might arise, what then shall we do with it unless we sell it? Many farmers have solved that problem, although many have not. The solution is by feeding it to that mortgage-lifter, the hog. The calf requires sweet milk but the hog, why he does not care whether it is sweet or sour, and in fact, would rather have it sour, and many of our experiment stations have proven that he thrives best when it is in that condition. Another thing about the pig, and that is you do not have to teach him to drink. The pig lives and thrives upon a balanced ration as well as any other animal, and skim-milk is one of the very best means we have with which to balance it. Especially is this so in the winter when pastures are not available. A pure corn diet makes an unprofitable pig, as it does not build up the bone or muscle which is necessary to its growth.

Skim-milk furnishes one of the best and cheapest muscle-producing foods we have for the pig, and fed to a pig on grass he will need but little grain until it comes time to fatten him and then when he gets all the corn that he wants he will surprise you by the way he puts on fat. In experiments here at this station it was found that there were great differences in growth between hogs that receive skim-milk and those that did not. Those that were fed skim-milk in addition to the Kafir-corn made a gain of 58 per cent more than those fed Kafir alone; that is, 230 pounds of milk took the place of 100 pounds of Kafir-corn, and, valuing the Kafir-corn at 50 cents per hundred and hogs at 3 cents per pound, the skim-milk was worth 15.7 cents per

hundred as at least present prices it would mean over 30 cents per hundred for skim-milk.

In another experiment, Kafir-corn and alfalfa-hay were tried against Kafir-corn and skim-milk and the results showed that the hogs having the skim-milk in addition to the Kafir-corn made a gain of 169 per cent over those which received the Kafir-corn and alfalfa hay. That is, 526 pounds of skim-milk instead of 214 pounds of alfalfa hay reduced by 50 per cent the amount of grain required to make 100 pounds of gain. Valuing the Kafir-corn at 55 cents per hundred and with the present price of hogs, it would pay us over 60 cents per hundred for the skim-milk fed.

The Canada Experiment Station found that by feeding two pints of milk per day to pigs weighing from 20 to 100 pounds, 1.88 pounds of it was equal to 1 pound of corn. And by not feeding more than one quart a day, better results were obtained than if more had been fed. Examples like these might be multiplied, but I think these are enough to show the value of skim-milk, and that we may derive a much larger profit by feeding it than we possibly could by selling, and that the calf and pig go hand in hand with the successful dairy.

There is yet another source of profit of which I will speak, one which is probably more often neglected than any other on the farm. By it many farms have been made better but without it more have become poorer. It is by applying to the land the fertilizer left by the cows. That there is a great profit here has been proven time and again by our best farmers, and while they reap rich results from its use their neighbors who may be living on adjoining farms will make no use of it whatever.

The use of manure will not only make larger crops possible by adding humus and nitrogen to the soil, but it also better the physical condition of the soil by changing its texture. It makes the soil particles finer and thus the soil has greater power to hold the moisture and so gives a greater sur-

face upon which the roots may feed and liberates more plant-food. Thus we see several reasons why manure is beneficial to the ground and the results are plainly seen in the increased yields. I think we may well look upon this part of the dairy as being very important, for we needs must have feed for the cows and while we are increasing the yield we are also increasing the value of our land. Then let us look after the things which are seemingly of little importance for here it is that we reap our greatest rewards and when we raise larger crops we can feed more cows, get more milk to feed more calves and pigs, and then will owe no man anything, but we will be happy and free and will enjoy the sunshine and rain as do no other people upon the face of the earth.

Cow Inquiries.

PROF. D. H. OTIS.

The inquiries received from dairy farmers over the State are constantly on the increase. For the year ending July, 1902, the Department of Dairy Husbandry sent out four thousand letters. These letters, while covering a large range of subjects, relate directly or indirectly to dairy matters. Some lessons from these inquiries may not be without interest and value to the members of this association.

A number of the inquiries received indicate that the owners of the cows need to inquire into the nature of a dairy cow, to understand cow language and interpret her likes and dislikes, to recognize that the production of milk is based upon the maternal instinct of the cow, and if she is to yield more than is needed by the calf it will be by an artificial stimulation of the maternal function. Strange as it may seem, some cow owners have yet to learn that this is not accomplished by protecting the cow from Kansas blizzards by barbed wire fences; it is not accomplished by compelling her to drink ice water in winter; it is not accomplished by exciting her with a dog.

I recently received a clipping that reads as follows: "A scientific person asserts that bagpipe playing in the vicinity of a cowshed causes the cow to give more milk." The person forwarding the clipping suggests that "a special class of boys having great musical talents be instructed in the art of bagpipe playing, and the above assertion be thoroughly tested at the college and the result be published to the world. If successful the experiment will be of immeasurable value to the dairy farmer." There are many who have just as crude ideas about caring for the cow as the bagpipe player. The owner of a good dairy cow does not often get very much music out of his business but he does get a large amount of pleasure and genuine satisfaction. He is a man who is in love with his business, who makes it his hobby, and bends the energies of his mind and body toward making it a success. In other words, he is a specialist and is constantly on the alert for information from books, papers, and experiences of men, that will aid him in his chosen profession.

Another set of inquiries relate to the breed that is the best for Kansas conditions. The authors of these inquiries expect a definite answer that states in so many words the name of the breed that each ought to breed. Fortunately or unfortunately the profitable dairy cow does not belong to any one breed. We have good and poor cows in all the breeds. If a man will select the breed of dairy cow he likes to handle and then select carefully and breed the best to be had in that breed, he will find the dairy business profitable. Very little stress need be put on the particular breed, but it is impossible to over-emphasize the importance of selecting good individuals in the breed. Undoubtedly the greatest drawback to the Kansas dairy interests to-day is the poor class of cows we are milking. The records of the college scrub herd show that, counting labor, twenty-five per cent of them were unprofitable producers of dairy products. We must eliminate these unprofitable dairy cows from the dairy herd for they are not only running us in debt but they are reducing the average of the herd to such an extent that it makes it appear that the whole herd is unprofitable, or the profits so small that it does not pay to continue the dairy business. When properly handled every year should witness a decided rise in the average production of the herd.

Along with the inquiries in regard to the best breed are inquiries in regard to the best separator. These inquiries usually emanate from farmers who are honestly seeking information to guide

them in the purchase of a machine. But the inquiries are not altogether confined to the farmers. The following is from a man who is a prospective separator agent. "I am going to ask that you send me a statement as to which make of hand separator you consider best for the average farmer to buy. There have been several A. machines sold in this neighborhood and one B. machine. I have not tried to sell any but I consider the C. ahead of any other hand separator, and I am talking C. now, and I write you so that I may have your letter to show to the farmers, as they will believe what you say sooner than they will take my word for it."

The Dairy Department of the Kansas Agricultural College is carrying on a test with the various makes of hand separators, and, as the results will soon be published in bulletin form, we will refer our inquiring friends to the published results.

By far the largest number of inquiries regarding the cow relate to her feed. The feed inquiries cover a large range of subjects, as the various kinds of roughness, concentrates, succulent feeds, and pasture. Considerable information has been published in regard to balanced rations, but in the discussion of this subject more attention has been paid to averages than have been paid to individuals or to varying the rations according to the work performed.

Economical management of the milch cow requires that a man shall be able to size up his herd and not feed his poor cows high-priced feed costing more than the value of the products they turn out. Mature dry cows and those so near dry that their milk is not paying for their feed can be put on maintenance rations, i. e., enough to keep the animal in good health and enable it to maintain its present weight without making gains. The following may serve as a guide to the amount of different feeds required daily per thousand pounds live weight for maintenance:

1. Wheat straw, 18 to 20 pounds (feed all cattle will eat); corn-chop or bran, 4 to 5 pounds.

2. Corn fodder (stover), 18 to 20 pounds (feed all cattle will eat); corn-chop or bran, 3 to 4 pounds. Oat straw can take the place of corn fodder by increasing the allowance of grain by one-half pound.

3. Sorghum hay, 20 pounds; corn-chop or bran, 2½ pounds. Fodder corn and timothy hay can be used in place of sorghum hay and the allowance of grain increased a trifle.

4. Oat hay, millet hay and orchard grass hay will probably maintain an animal without grain. Prairie hay will require little grain, alfalfa and clover will not only maintain an animal but will enable it to grow or gain in live weight. When these form a part of a ration with other roughage, an animal can be maintained without grain. On the above rations, corn-chop and bran have been used for the grain because in most localities they are the cheapest. Where ground wheat and oats can be had at the same price, they make excellent substitutes. Kafir-corn and sorghum-seed can also be used by slightly increasing the allowance.

In any ordinary herd, cows will be found that vary considerably in their milk yield. It stands to reason, that a cow giving ten pounds of milk daily does not need the same quantity and quality of feed as a cow giving twenty or thirty pounds of milk daily. The following rations indicate the amount needed daily per head where different amounts of milk are produced. Where cottonseed-meal is used, cows should become accustomed to it gradually; allow one-half pound the first day and increase not over one-fourth or one-fifth pound per cow per day.

Cows Yielding Eleven Pounds of Milk Daily.—Alfalfa hay, 10 pounds; wheat straw, 10 pounds; ground wheat, 5 pounds.

Corn fodder (stover), 20 pounds; ground wheat 4½ pounds; cottonseed-meal, 2 pounds.

Corn fodder, 15 pounds; wheat straw, 5 pounds; cottonseed-meal, 2 pounds; ground wheat, 4 pounds.

Sorghum hay, 20 pounds; bran, 3½ pounds; cottonseed-meal, 2 pounds.

Prairie hay, 20 pounds; bran, 3 pounds; cottonseed-meal, 1½ pounds.

Cows Giving Sixteen Pounds of Milk.—Alfalfa hay or soy-beans, 10 pounds; millet hay, 8 pounds; ground wheat, 6 pounds.

Alfalfa hay, 8 pounds; millet hay, 13 pounds; bran, 5 pounds.

Alfalfa hay, 10 pounds; millet hay, 8 pounds; ground wheat, 6 pounds.

Sorghum hay, 20 pounds; ground wheat, 5 pounds; cottonseed-meal, 3 pounds.

Prairie hay, 10 pounds; corn fodder

(stover), 10 pounds; bran, 7 pounds; oil-meal, 2 pounds.

Cows Giving Twenty-two Pounds of Milk.—Alfalfa hay, 15 pounds; oat straw, 8 pounds; Kafir-corn meal, 8 pounds; ground wheat, 1½ pounds.

Alfalfa hay, 10 pounds; sorghum hay, 8 pounds; ground barley, 5 pounds; bran, 7 pounds.

Sorghum hay, 15 pounds; millet hay, 5 pounds; bran, 7 pounds; cottonseed-meal, 3 pounds.

Corn fodder (stover), 10 pounds; Cow-pea hay, 10 pounds; corn and cob meal, 7 pounds; bran, 4 pounds; soy-bean meal, 1 pound.

Prairie hay, 10 pounds; soy-bean hay, 10 pounds; ground wheat, 8 pounds; oil-meal, 1 pound.

Cows Giving Twenty-seven Pounds of Milk.—Alfalfa hay, 20 pounds; ground wheat, 10 pounds.

Alfalfa hay, 20 pounds; corn or Kafir-corn meal, 7½ pounds; soy-bean meal, 2 pounds.

Alfalfa, 15 pounds; oat hay, 8 pounds; ground wheat, 7 pounds; cottonseed-meal, 3 pounds.

Sorghum hay, 10 pounds; prairie hay, 10 pounds; ground wheat, 8 pounds; cottonseed-meal, 2 pounds.

Millet, 10 pounds; fodder corn, 10 pounds; corn or Kafir-corn meal, 4 pounds; bran, 5 pounds; oil-meal, 3 pounds.

To successfully feed any herd of cows it is necessary to study individuality. The experience of the Kansas Agricultural College shows that one cow will produce butter-fat at 10 to 11 cents per pound for feed consumed while another cow by her side will charge 24 cents per pound. In order to know what a cow is doing, it is necessary to keep a daily record of her milk yield. From this record a daryman can increase or decrease the feed in accordance with the amount of milk given by the cow. Without this record and the varying of the feed accordingly, much costly feed will be wasted on cows that will not make adequate returns for it.

Not only must the cow's ration possess the right quality but it must be appetizing. Dry bread and cold pancakes contain just as much nutriment as fresh bread and hot pancakes. The one will give man the complexion of skim-milk, the other will cause him to bloom as the rose of summer. In many respects a cow is like a man. She wants her feed in a palatable form. To obtain this quality it is necessary to furnish some succulent feed. For this purpose, ensilage is undoubtedly the best and cheapest where a man is fixed for handling it. In the absence of ensilage roots furnish a good substitute. We should also bear in mind that a mixture of feeds is always to be preferred to any one single feed. For instance, if a man has both corn and Kafir-corn he will find that he will get better returns for feed consumed if he will feed a mixture of the two rather than either one separately. Ensilage or roots with a mixture of feeds gives succulence and variety much relished by the dairy cow for which she will gladly show her appreciation at the milk pail.

This furnishing of succulence and variety, causing the cows to eat more, brings us very naturally to the next division of our subject, namely, the quantity of feed. We must ever bear in mind that the cow is a hard-working animal and must be fed accordingly. It requires about 60 per cent of all that a cow can eat to maintain her existence and it is from the amount eaten over that needed for maintenance that produces the profit.

Other inquiries have been made. Some of these cover so much territory and are so varied that it would require the issuing of a book to answer them. The following is what was received on a small postal card:

Dear Sir:—Can I make a living with stock of either sheep or cows on 160 acres in Thomas County, five miles north of Page? Should I raise poultry, would there be any market for it? Where, and what price? Land is slightly rolling. Do you know how deep it is necessary to go to get water there, and cost per foot? What is the cheapest as also the best for the money, drove, bored, or dug wells? Land is now all paid for and clear. I have about \$350 cash to put into sheep or cows as you advise, or would you advise me not to go on this at all? I just barely make a living where I am, saving a little. I have written to several there but can find out nothing; am well versed in farming, born and bred in the dairies of N. Y. (DeRuyter)? Will you also tell me where I can buy twenty good ewes with lamb, also breed that is best for that purpose, also where I can get the best blooded Hereford cows, say five head, and the price I would have to pay for sheep

and cows? Which is the best for both butter and calves, Herefords or some other? Will Kafir-corn grow in breaking and in that county? Where can I get the seed and cost? Do you think it possible I could get either sheep or stock to keep, either shares or by the season (what share)? If I put price low enough, say \$1.50 six months and 50 cents for sheep, winter 25 cents and 75 cents respectively?

"Please send me reading-matter on the subject mentioned and give me your best advice."

These inquiries, while consuming much valuable time, are always welcome. It is a part of our work to answer these, and to extend a helping hand to those who are in need, and in this way extend the educational influence of our Kansas Agricultural College. We hope our inquiring friends will be as free to give as they are to receive. We are students as well as teachers and are anxious to receive the experiences of others not only for our own benefit but for the benefit of our students and other inquirers as well.

What a Successful Skimming-Station Operator Should Know and Do.

C. C. TURNER, OAKLEY, KANS.

The importance of the skimming-station operator in the creamery business at the present time is such that we can not afford to overlook him. Let us consider his relation to the creamery. He is the receiving agent for his company in his vicinity. Upon his judgment and selection of cream depends to a great extent, if not entirely, the quality of butter produced by the creamery.

The quantity also depends upon his management, skill, and energy. This factor is very important in reducing the expense of operating, as a large quantity of milk can be handled at about the same total cost as a small quantity and will allow a higher net price for the patrons' butter-fat.

Since the relative price of butter depends upon the quality and the quality depends upon the original from which it was taken, how important it is that the operator delivers a perfect cream to his creamery. All loss on poor butter must come either upon the creamery owner or revert to the patron. If charged to the patrons it will cause dissatisfaction which many times may be prevented by more care on the part of station operators at the weigh-can.

One of the first and most important things that a skimming-station operator should know is summed up in this adage, "Know thyself." An impetuous, outspoken disposition, ungentlemanly conduct, dishonesty, loose business methods, and all such, have no place in the personal equipment of a station operator. He should be firm but not obdurate; ready to reason with dissatisfied patrons.

To be successful, the operator must know every detail of his business. Milk being the thing which he has to handle, he should know its nature and composition. He should know something of dairy bacteriology, and know how best to care for milk. He should have some knowledge of dairy breeds and dairy type in common breeds. He should especially study the feed and care of the dairy cow and how to make proper dairy rations from the feeds in his vicinity. He must be qualified to instruct the patron in the proper management of his herd to secure the most milk at the least cost; how to raise skim-milk calves and to grade his herd up to an ideal, or at least a profitable standard without incurring the heavy expense of buying pure-bred stock.

He should know how to use and make use of the scales and Babcock test, and lend every assistance to the patron in the improvement of his herd. Such interest manifested by the operator is sure to bring its reward in increased milk supply. It gives the patron greater confidence in the ability of the operator, consequently there will be less dissatisfaction.

Operators should impress upon the patron the fact that their interests are mutual; that the success of one is necessary to insure the success of the other.

Operators should not leave patrons with the impression that there are any mysterious operations in or connected with the management of the station. They should be invited to see the tests made and the operator should give simple explanations of the operation of the test. Patrons will be better satisfied if they know just how it is done. We believe one of the best ways to cure a kicker is to ask him to make his own test, the operator supervising. The closest relationship should exist between the patron and the operator at

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all times and the operator must endeavor to maintain it.

It is not necessary for a skimming-station operator to be a mechanical engineer, but he should have a thorough practical knowledge of the construction and use of boilers and engines. He must understand separators, both power and hand, and know how to operate them to get the best results.

The rapid change from the skimming-station to the hand-separator opens a new field for the operator. It demands close attention to conditions on each patron's farm and to the patron's methods of handling cream. Patrons are generally more lax in handling cream than they are in handling milk. Hand-separator salesmen are often responsible for this condition of affairs. In order to make a sale they leave the purchaser under the impression that it requires less care for cream than it does for milk; that to deliver cream once or twice a week is sufficient, and some even tell the purchaser that it is not necessary to wash the machine after each skimming. The operator should lose no time in correcting such false impressions. The longer they are left uncorrected the more difficult they will be to correct. Habit is a hard thing to deal with.

In the station the operator should keep all utensils and apparatus absolutely clean and all machinery in perfect adjustment. Belts, pipes, pumps, pulleys, and all machinery should be inspected daily after each run, to see that they are in condition for the next day's run. Patrons become impatient when stops or delays occur. Operators can avoid most of them by exercising a little more care.

An operator may be moderately successful without fulfilling all the conditions we have named, but he will be more so if he possess all these qualifications. Some one has said the operator should be a walking encyclopedia; and in our experience we have found it to be the case. Patrons expect him to know every phase of the dairy business.

It is important that the skimming-station operator keep posted on all questions relating to his business. He must keep alive if he wishes to be successful. He should take at least two good dairy papers; and if it is proper for us to recommend we can name none better than the New York Produce Review and American Creamery, and Hoard's Dairyman, and for a home paper, full of condensed information, the Dairy Age. Operators should encourage patrons to read more dairy papers.

We have spoken thus far of the general duties of an operator and it may be well for us to specify a little more closely. Of those who are about to enter the creamery business in the capacity of a station operator, we would say, do not attempt it unless you are determined to make a success. It is no place for an idler. Do not think that success is before you and that you can not miss it. Difficulties by the score lie in your way and it is only by energetic, earnest effort that you can overcome them. Keep your eyes and ears open. Mix with the patrons and citizens. Be thoroughly alive in your business. Talk with your patrons; find out their methods, and, if possible, show them better ones. Keep records of milk delivered by each patron, the number of cows, and the income from each. Such records will nearly always show an income far short of what it should be. Compare these actual records with conservative estimates of the possibilities and endeavor to get them interested in improving their herds.

To make the dairy business of Kansas what it should be, a radical improvement is necessary. We are today producing scarcely more than one-third the butter we should produce to make the business pay its expense to the farmer or dairyman engaged in it. The average Kansas cow is yielding less than 100 pounds of butter when she should yield near 300 pounds.

All that is necessary to place Kansas at the head of the dairy business is more and better applied dairy education, and it is your business, Mr. Operator, to apply the energy to the wheel of dairy progress in your vicinity and start it rolling. Organize farmers' institutes and secure the assistance of our college professors. Do not let the indifference of the farmer discourage you. Remember no great reform was ever accomplished without intense opposition in its beginning. Perseverance is bound to succeed.

Talk, work, and study, for "They must upward still and onward who would keep abreast of truth."

Relative Values of Feeds.

E. B. COWGILL, EDITOR KANSAS FARMER.

In 1891, the writer published a monograph in which an attempt was made to compute the relative values of the various feeding stuffs used by the stockman and the dairyman. You will pardon a few quotations from that publication:

"The food requirements of animals must be obtained from the substances provided by their owners. Profitable feeding is attained when these requirements are met at least cost and with least waste. The materials required to build the animal tissues have been ascertained by the chemist. Aside from water and some mineral substances—the latter required in comparatively small quantities—the animal body is formed from materials, which the chemist has classified as protein, carbohydrates, and fats. It has been fairly well determined what functions these severally perform in animal development. The carbohydrates and fats enter into the structure of fat in the animal, and their combustion in the processes of animal life keeps the animal warm. It has been found that in normal development there is little difference in the kind of effects produced by carbohydrates and fats. But 1 pound of fats has been estimated to be worth as much as 1 1/4, 2, or 2 1/4 pounds of carbohydrates. Protein produces muscle and cartilage. It is the lean-meat producer. It is also an essential constituent of milk. Carbohydrates and fats may be substituted for each other, within reasonable limits, without detriment to the animal. Protein may, to some extent, be substituted for either carbohydrates or fats. But neither carbohydrates nor fats may be substituted for protein with good results.

"That protein must always constitute an essential ingredient of the food of both animals and men is apparent when a few facts as to the materials which enter into the formation of animal substances are considered. Fat meat consists of three elements, viz, carbon, hydrogen, and oxygen. All vegetable fats and carbohydrates are made up from these three elements, and are therefore suitable for the production of animal fat. Lean meat, milk, etc., contain, in addition to these three, a fourth element, nitrogen. This fourth element is essential to the formation of lean meat, milk, etc. The Israelites in Egypt could not make bricks without straw; neither can animal substances containing nitrogen be developed without protein. Nitrogen is a constituent of vegetable as well as animal protein. The only known way to get nitrogen into animal tissues is to feed protein. If the animal is to make the best development it must have protein in proportion to its needs. Scientific investigations as well as general experience have shown that animals demand larger quantities of the carbonaceous foods than of the nitrogenous; but nature has provided the carbonaceous in great abundance, while she has been rather sparing of the nitrogenous.

"MONEY VALUES OF PROTEIN, CARBOHYDRATES, AND FATS.

"An interesting and important question in this connection is as to the money values of protein, carbohydrates, and fats. The inquiry has been often raised, but seldom has there been an attempt made to answer it. Protein is essential, but what does it cost on the market? Separate from its associates, carbohydrates and fats, protein is not offered. The only way to determine its value, then, is by computation from prices of substances which contain it. If the market values of protein, carbohydrates, and fats can thus be obtained, we shall be in position to determine by simple arithmetical methods the relative values of the several feeds available, and to determine which is cheapest at market prices or at given cost of production.

"We are considering here feeds for animals, not food for man.

"Market prices of products are the practical approximations reached by general experience in the production and use of commodities. If by reason of a fad or fancy the demand for a particular article is made very great, its price may advance. So also an excessive demand for an article of food on account of delicacy of flavor or other excellence may increase its market price out of proportion to its nutritive value. Wheat is in great demand for human food. Its price for this purpose is usually so high that it is not economical to feed it to animals. Oats are in great demand as feed for horses. The convenience of feeding, the preference of man's favorite animal, and the general excellence of oats as feed for horses, all conspire to keep the price fully up to or rather above their

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value as compared with prices and values of other feeds. In the light of these suggestions there need be no surprise at the absurd values which the computations give for protein and carbohydrates when wheat, oats, and other products whose prices are affected by some consideration other than the nutritive value are compared with feeds for which there is demand based on general feeding values only.

"It is one of the fortunate facts about mathematical solutions, that when applied to absurd statements, they indicate the existence of the absurdity by giving results which make the absurdity manifest."

For the purpose of determining the prices at which protein, carbohydrates, and fats were selling here in Kansas, corn, bran, shorts, and linseed-meal were selected. The prices assigned were the wholesale prices per 100 pounds in bulk paid and received at Topeka, at the date of computation.

These four feeds were selected because the market for them seemed to be better established than for most other feeds, and because their prices are not usually affected largely by other considerations than cost of production and beneficial results from feeding. So, too, there were no apparent elements in these prices other than their feeding values.

By simple algebraic computations based on the composition and market prices then prevailing, the approximate market values of protein and carbohydrates were obtained. By considering these feeds in pairs, the values of these constituents corresponding to prices of each pair were ascertained. These computed values varied somewhat, but mean values were obtained by averaging the several results of computation.

The following values per 100 pounds were obtained. From

	Protein.	Carbohy- drates.
Corn and bran.....	\$3.55	\$0.27
Corn and shorts.....	3.74	0.25
Corn and linseed-meal....	3.30	0.30
Bran and shorts.....	3.27	0.35
Bran and linseed-meal....	3.16	0.33
Shorts and linseed-meal..	3.18	0.37
Mean values.....	\$3.37	\$0.32

In these computations the relative values of carbohydrates and fats were assumed to be 1 to 1 1/4. This gave a value of 56 cents per hundred pounds for fats.

The writer was much surprised to find that the market then placed protein at more than ten times the value of carbohydrates. But, as all close observers have learned, animals must have protein at any cost. This is especially true of the dairy cow in view of the immense amount of protein she produces in her milk. Until we have learned to supply the demand for protein by producing abundantly of protein-yielding crops, we shall continue to pay high prices for feeds rich in this nutrient. When by the production of abundance of alfalfa, and other legumes or by breeding up the protein content of corn, Kafir-corn, etc., the imperative demand for protein shall be supplied, it is conceivable that this nutrient may sell at prices of carbohydrates.

Computations of values of feeds based on the foregoing values of the digestible nutrients gave the following

values for some of the more commonly used feeds:

	Amts. per 100 lbs.	Relative values, corn at 100.
Corn.....	\$0.500	100.0
Corn and cob-meal.....	0.356	71.2
Wheat.....	0.575	115.0
Bran.....	0.548	109.6
Shorts.....	0.592	118.4
Barley.....	0.512	102.4
Oats.....	0.485	97.0
Sorghum-seed.....	0.420	84.0
Kafir-corn.....	0.461	92.2
Linseed-meal.....	1.131	226.2
Peas.....	0.736	147.2
Soy-bean.....	1.150	230.0
Cow-peas.....	0.796	159.2
Timothy hay.....	0.241	48.2
Orchard-grass hay.....	0.308	61.6
Wheat straw.....	0.131	26.2
Red clover hay.....	0.354	70.8
Alfalfa hay.....	0.505	101.0
Potato.....	0.083	16.6
Sugar-beet.....	0.071	14.2
Artichoke.....	0.122	24.4
Skim-milk, centrifugal.....	0.117	23.4

A large number of other computations were made on the basis of prices at that time, but you will probably not care to hear them now.

PRICES HAVE ADVANCED.

The exigencies of the seasons have caused great variations in prices of feeds during the last two years. They have not yet settled to figures that are consistent with each other. But it will be interesting as well as instructive to trace some of the vagaries of the present market.

To do this successfully it will be necessary to indulge in a few mathematical operations which you may be willing to follow since they have not yet been published.

If we use the generally accepted ration of the values of digestible carbohydrates and digestible fats, viz., 1 to 2 1/4 and multiply the fats in the common feeds, corn, bran, and shorts, by 2 1/4 and add the products to the carbohydrates in these feeds respectively we shall simplify the problem by reducing the number of nutrients to two. Let the sum of c+2 1/4 f be called "carb." By considering 100 pounds of each and annexing the present Topeka prices for these feeds we shall have the following:

Table I. Showing Protein, Carb. (C+2 1/4 f), and Current Prices for 100 Pounds each of Corn, Bran, and Shorts.

	Protein, lbs.	Carb. (C+2 1/4 f) lbs.	Price, cents.
Corn.....	7.8	76.4	57
Bran.....	12.3	42.9	70
Shorts.....	12.2	58.5	80

From table I values for protein and carbohydrates may be found by simple algebraic operations. Thus if x = the value of 1 pound of protein and y = the value of 1 pound of carbohydrates we may by considering the composition and values of corn and bran have the following equations:

$$12.3x + 42.9y = 70$$

$$7.8x + 76.4y = 57$$

Solving these equations will give values for 1 pound of protein and 1 pound of carbohydrates. But a little preliminary work will simplify the arithmetical part of the operations and will at the same time make it easier to detect wrong valuations.

I assume that this audience assembled here in the greatest agricultural college in the world will not be averse to a little mathematical generalization but will gladly follow the deduction of formulas useful to feeders.

If in the foregoing equations instead

of corn and bran we had said "first feed" and "second feed" the result would have been unchanged. If instead of using the specific quantity of protein in the "first feed" we had used P_1 , and instead of the "carb" we had used C_1 , and instead of the price we had used v_1 , the result would have been a general equation applicable to any feed. So also we might have used P_2 , C_2 and v_2 , instead of the definite quantities in the second equation.

Making general equations in this way we shall have

$$P_1x + C_1y = v_1$$

$$P_2x + C_2y = v_2$$

whence

$$y = \frac{v_1 - P_1x}{C_1}$$

and

$$y = \frac{v_2 - P_2x}{C_2}$$

Placing the two values of y in an equation we have

$$\frac{v_1 - P_1x}{C_1} = \frac{v_2 - P_2x}{C_2}$$

whence

$$C_2v_1 - C_2P_1x = C_1v_2 - C_1P_2x$$

whence

$$C_1P_2x - C_2P_1x = C_1v_2 - C_2v_1$$

whence

FORMULA I.

$$x = (C_1v_2 - C_2v_1) \div (C_1P_2 - C_2P_1)$$

By similar operations we have

FORMULA II.

$$y = (P_2v_1 - P_1v_2) \div (C_1P_2 - C_2P_1)$$

Only one precaution is needed in using these formulas and that is to take for the first of the pair of feeds the one having the larger relative amount of protein, otherwise persons unaccustomed to algebraic operations may get confused on account of minus signs.

These formulas are very convenient in the computation of the values of the nutritive ingredients of feeds. It will be observed that the divisors are identical, so that they need be computed but once for any pair of feeds under consideration.

Let us now calculate the values of protein and carbohydrates from present prices of corn and bran. This will illustrate the use of the formulas besides leading to some interesting information.

CORN AND BRAN.

Taking from Table I the numbers representing the protein and carbohydrates and the market values of 100 pounds of corn and bran and placing these numbers in formula I we have

$$x = (76.4 \times 70 - 42.9 \times 57) \div (76.4 \times 12.3 - 42.9 \times 7.8)$$

whence $x = 4.79$ cents, the value of one pound of protein.

By similar substitutions in formula II we find the value of a pound of carbohydrates to be 0.256 of a cent.

It will be observed that this computation based on the present market shows a much higher valuation of protein and a slightly lower valuation of carbohydrates than did the computation of two years ago.

Similar computations based on present prices of corn and shorts give 5.83 cents per pound for protein and only 0.192 of a cent per pound for carbohydrates.

Similar computations based on present prices of bran and shorts give 3.38 cents per pound for protein and 0.66 of a cent per pound for carbohydrates.

Compiling the results of these 3 computations we have as based on present prices the values of 100 pounds of each of the digestible nutrients as follows:

	Protein computed from per 100 lbs.	Carbohydrates per 100 lbs.
corn and bran...	\$4.79	\$0.256
corn and shorts...	5.83	0.192
shorts and bran...	3.38	0.66

PRICES ARE INCONSISTENT.

The unavoidable inference from these widely diverging values is that market prices have not yet recovered their normal relations. We are accustomed to consider the price of corn as standard and to measure prices of other feeds by the price of corn. By this standard bran and shorts are priced high. Bran and shorts get much of their valuation from their liberal contents of protein. The dairy cow must have protein, with the result that the market has greatly inflated the prices of bran and shorts.

It is worth noting in the formulas that the prices of these feeds are related in the computed values of protein and carbohydrates.

FORMULA I.

$$x = (C_1v_2 - C_2v_1) \div (C_1P_2 - C_2P_1)$$

FORMULA II.

$$y = (P_2v_1 - P_1v_2) \div (C_1P_2 - C_2P_1)$$

Observe that in these formulas y represents the value of carbohydrates and x the value of protein per pound, v_1 represents the market price of the bran and v_2 the market price of the corn per 100 pounds. Observe that the market prices of the feeds do not appear in the divisors.

If therefore in Formula I v_1 , the price of the bran, is high, or v_2 , the price of the corn, is low, the value of the dividend will be small, giving a small value for x , the value of protein. Likewise in Formula II, if v_2 , the price of corn, is low, and v_1 , the price of bran, is high the dividend will be small, giving a large value for y , the value of carb. It is thus apparent that the relative market prices of the feeds used in the computation is directly reflected in the resulting values found for the nutritive ingredients.

The divergence of the values of digestible nutrients shown by the computations based on present prices is so great that it is evidently futile to attempt at this time a computation of comparative values of feeds to correspond with present conditions. The prices on which the computations of two years ago were based were fairly consistent with each other.

Corn is now about 20 per cent higher than two years ago. If we concede that the bran and shorts should have advanced 20 per cent this would justify at this time 66 cents for bran and 72 cents for shorts.

Perhaps the dairy industry is responsible for the great advance in prices of feeds rich in protein. We may be able to show further on, however, that even dairymen with the imperative demands upon them for feeds rich in protein need not be compelled always to pay inordinate prices for this essential of their business.

VALUES OF FEEDS IN FORMING BALANCED RATIONS.

The question of relative values of feeds may be considered from the balanced ration side.

The making of balanced rations has been ably considered by the director of the Kansas Experiment Station in a bulletin recently published. The calculation of the balanced ration by a method which lends itself readily to the determination of the cost of the ration has been the subject of discussions recently published by the writer. Your attention is now invited to a brief consideration of the method of arriving at relative values of feeds.

The importance of the balanced ration need not here be argued. Its computation, and deductions which may be made from it, are best exemplified by illustration.

Let it be assumed that the required ration is for a dairy cow giving 27½ pounds of milk per day and that the feeds available are corn, bran, shorts, corn stover, and alfalfa hay.

These feeds will contain, in each pound, nutrients as follows:

	Dry matter, lbs.	Protein, lbs.	Carb. (C+24F), lbs.	Nutritive ratio, 1 to—
Corn.....	0.894	0.078	0.764	9.79
Bran.....	0.877	0.123	0.429	3.48
Shorts.....	0.882	0.122	0.555	4.30
Corn stover..	0.595	0.017	0.340	20.00
Alfalfa hay..	0.916	0.110	0.423	3.35

The daily requirements of the average cow, giving 27½ pounds of milk per day, will be, per 1,000 pounds live weight, supplied by the following:

Ration.....	32.000	3.300	14.800	4.50
-------------	--------	-------	--------	------

The nutritive ratio of this required ration is lower than the ratios of corn, shorts, and corn stover. It will therefore be impossible to form any mixture of these or any two of them so as to produce the balanced ration required. The nutritive ratios of bran and of alfalfa hay are lower than that of the required ration so that these two can not be combined in any proportion that will give a balanced ration. But either the bran or the alfalfa hay may be fed with corn, or shorts, or corn stover in such proportion as to produce a balanced ration for the cow under consideration.

Disregarding for the moment the cow's physiological requirement of some roughage we may consider a ration composed of corn and bran. This corn must get from her feed 3.3 pounds of protein per day.

Let x = the number of pounds of corn required.

Let y = the number of pounds of bran required.

We shall then have

$$0.078x + 0.123y = 3.3$$

The cow must get 14.8 pounds of carb.

Then

$$0.764x + 0.429y = 14.8$$

Solving these equations will show the number of pounds of each of these



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ingredients required to form a balanced ration for the cow. The cost of the ration can then be easily computed.

But since the forming of balanced rations will require the solution of many such equations, it is worth while to see whether the work can not be made easier by developing general formulas.

If in making the foregoing equations instead of writing "corn" we had written "first ingredient" and instead of writing "bran" we had written "second ingredient," and if we had called the protein in the first ingredient P_1 and the protein in the second ingredient P_2 , and if we had likewise written C_1 , C_2 , and C for the carb, the equations would have been applicable to any case and would have been

$$P_1x + P_2y = P$$

$$C_1x + C_2y = C$$

whence

$$y = \frac{P - P_1x}{P_2}$$

and

$$y = \frac{C - C_1x}{C_2}$$

whence

$$\frac{P - P_1x}{P_2} = \frac{C - C_1x}{C_2}$$

whence

$$C_2P - C_2P_1x = C_2P_2 - C_1P_2x$$

whence

$$C_2P_1x - C_1P_2x = C_2P - C_1P$$

whence

FORMULA III.

$$x = (C_2P - C_1P) \div (C_2P_1 - C_1P_2)$$

Similarly

FORMULA IV.

$$y = (C_1P_2 - C_2P_1) \div (C_2P_1 - C_1P_2)$$

These two formulas will enable any one who can add, subtract, multiply, and divide to compute balanced rations and readily as can the most accomplished mathematician.

BALANCED RATION OF BRAN AND CORN.

Applying these formulas to the computation of a balanced ration for the cow, composed of bran and corn in which bran is the first and corn the second ingredient, we have

$$C_1 = 0.429$$

$$C_2 = 0.764$$

$$P_1 = 0.123$$

$$P_2 = 0.078$$

$$P = 3.300$$

$$C = 14.800$$

Placing these values in Formulas III and IV we have:

$$\text{Bran} = (0.764 \times 3.3 - 14.8 \times 0.078) \div (0.764 \times 0.123 - 0.429 \times 0.078) = 22.6$$

$$\text{Corn} = (14.8 \times 0.123 - 0.429 \times 3.3) \div (0.764 \times 0.123 - 0.429 \times 0.078) = 6.7$$

By similar computations balanced rations may be determined composed of several combinations of the feeds under consideration. Compiling these and estimating their cost at present Topeka prices for the several feeds we have:

	Present Topeka price per 100 lbs.,	Cost, cts.	Total cost of ration, cts.
Alfalfa.....	26.78	40	10.71
Corn.....	4.54	57	2.39
Alfalfa.....	9.8	40	3.92
Shorts.....	18.21	80	14.57
Alfalfa.....	28.84	40	11.54
Corn stover 7.68	20	1.54	13.08
Bran.....	22.6	70	15.82
Corn.....	6.7	57	3.82
Bran.....	6.37	70	4.46
Shorts.....	20.63	80	16.50
Bran.....	5.21	70	17.65
Corn stover 11.76	20	2.35	20.00

Thus, while the balanced ration does not furnish a direct means of estimating the money value of the several feeding stuffs, it does make it possible to determine which is the cheapest ration with which to supply the demand of any animal. The example chosen is that of the dairy cow giving a liberal quantity of milk. It shows that alfalfa hay at \$8 per ton combined with other feeds gives a cheaper ration than can be prepared without alfalfa.

It is not to be assumed that a ration composed of only two feeds is here recommended as the best. As has been remarked by Professor Willard, any two or more balanced mixtures may be used together in any desired proportions without disturbing the balance. Thus, if a farmer has alfalfa, corn, and corn stover he may make a balanced mixture of corn and alfalfa and another balanced mixture of corn-stover and alfalfa, and may unite these mixtures in any proportion, as one pound of the first to one pound of the second; one pound of the first to two pounds of the second, etc.

In every present-day enterprise the greatest importance is attached to the brain-work which reduces cost of production. One of the opportunities for reducing the cost of production of milk, meat, and other animal products is through estimating the cost of balanced rations for the several kinds of animals according to current cost of feeding stuffs.

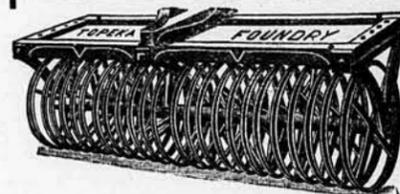
The writer might have greatly expanded (Continued on page 354.)

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The Stock Interest.

THOROUGHBRED STOCK SALES.

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

April 1-2, 1903—Shorthorn cattle. H. O. Tudor, Melton, Kans.
 April 21, 1903—F. P. Healy, Bedford, Iowa, Scotch Shorthorns, at Seneca, Kans.
 April 22, 1903—Shorthorn Breeders' Combination Sale, Bunce, Mo. C. P. Tut, Secretary.
 April 22, 1903—Breeders' combination sale at Kansas City. W. C. McGavock, Manager.
 May 5-6, 1903—Colin Cameron, at Kansas City, Herefords.

Horse Judging at Kansas State Agricultural College.

EDITOR KANSAS FARMER:—One of the most interesting weeks of the stock-judging school at Kansas Agricultural College was completed last Saturday. For six days, Mr. J. W. Robison, the Percheron horse-breeder of Towanda, Kans., explained the structure and function of the ideal horse to a class of 300 intelligent young Kansas farmers. The draft-horse was first considered and the three draft breeds, English Shire, Clydesdale, and Percheron, were used as types. Specimens of the breeds were obtained from Manhattan and neighboring towns, the most notable exhibition being made by the Clydesdale breeder, Mr. Sparehawk, of Wakefield, Kans., and the Percheron breeder, Mr. Henry W. Avery, also of Wakefield. Mr. Avery is a graduate of the Kansas State Agricultural College and showed his interest in her welfare by sending nine horses for the students to judge besides assisting us very liberally in cash to establish the stock-judging contest now held at the college. His exhibition of horses was the largest of all exhibitors, and that he has the best quality of horses was self-evident.

The carriage horse was next considered, and representatives of the French coach-horse were studied as the ideal type. The Manhattan Transfer Co. also exhibited a number of stylish carriage-horses selected from their teams which are in active service. The road-horse was the next type of horse judged, and representatives of the Hambletonian breed were used as examples, the Manhattan Transfer Co. being the largest exhibitors in this class.

The horsemen's program given in the college chapel Thursday evening was one of the most interesting programs rendered this year, Mr. Robison, Mr. Avery, Capt. W. C. Short, U. S. A., and Dr. Mayo, State veterinarian, and others, being on the list of speakers. The horse parade Friday was the largest and most attractive feature of the week, and was witnessed by a large crowd of visitors, besides the 1,500 students.

The closing event of the week was the horse-judging contest between students competing for about \$25 in prizes and a place on the team which shall represent the college next year at the Chicago International. Results will be announced in the KANSAS FARMER next week.

Taken all in all, the horse-judging week was a grand success, and Judge Robison and the many friends who helped to carry it on, will long be remembered by the young Kansans because of the many valuable lessons learned during the session, which knowledge will ultimately bring much improvement in our Kansas horses.

H. R. THACHER.

The Sunflower Herefords at Manhattan.

Kansas with her 26,000,000 acres in cultivation on which she raised 55,000,000 bushels of wheat, more than 201,000,000 bushels of corn, and nearly four and one-half million head of cattle in 1902, is in need of high-class cattle, and never in her history has she been more able and willing to buy them. The days of the old range cattle are numbered and the great ranches are being cut into small farms. Like most of the younger States it took time for our people to appreciate the need of better cattle than those they were formerly used to on the range, but with the increasing value of land and the substitution of intensive for extensive farming, the pure-breeds found a warm welcome here many years ago. It is now but a matter of a few years when Kansas will rank first of the pure-bred cattle States. The records of the Kansas City Stock Yards show that not only has Kansas supplied that market with more than half of all the cattle and hogs received but she has also purchased at that market nearly one-half of all the pure-bred animals sold at the great sales in that city. Values have never been inflated in Kansas pure-breeds, but they have been good, and all business has been on a cash basis. It is with pleasure, therefore, that we announce two such great sales of pure-bred stock as will be found advertised in this issue. The D. L. Taylor sale at Manhattan on April 15, will be composed of 19 females and 4 bulls from his Hereford herd. These cows and heifers are all bred to bulls that are equally good. But it is the bull offering we call special attention. First among these

is Greatness 4872 by Corrector 4876 out of Imp. Gayly 1120, a daughter of Old Heald. This bull was calved on May 1, 1899, and when the writer visited his home at Sawyer, Kans., some weeks ago, he weighed 2,200 pounds. As before mentioned, he is a full brother to Grandee, the herd-header of Marshall Field's great herd. He cost his present owner \$1,500 and it will surprise us considerably if he does not sell for much more.

Monarch Sunflower 131227 by Millant 71755 by Beau Brummel was calved on July 10, 1901. His dam, Martha 91589, is by Dalnty Davie 66575 by old Lamplighter, and we consider her the best cow in this herd of 300 good ones. This youngster ought to bring a long price. Kansas Boy 110918 by Preordination out of the 3589 Wild Tom cow, Amaryllis 2d, was calved April 17, 1900, and Marcus 141705 by Preordination out of an Anxiety 4th cow was calved March 10, 1902. These half brothers make a pair that will do to tie to. Marcus is a beautifully colored, fine-coated, thick-fleshed calf that is a type of the breeding to be found on this great pure-bred ranch. The dam of Kansas Boy, Amaryllis 2d 60920, by Wild Tom out of a Cherry Boy cow, is also included in the sale. These bulls are among the best things that have been offered in the State of Kansas during the sale season, and it took Mr. Taylor some time to make up his mind to offer Monarch Sunflower at all. He dislikes very much to part with the Corrector bull, Greatness, but as they practice line breeding only on the Sunflower Ranch he can not use him.

Aberdeen-Angus April 15-16 at Omaha.

All lovers of the "doddies" in the Sunflower State have their attention directed this week to the initial announcement of the April 15-16 combination sale to be held at South Omaha under the management of Chas. Escher, Jr., Irwin, Iowa. The sale announcement elsewhere shows 115 head of cattle to be listed for this sale, being consigned by a number of the best known breeders in Aberdeen-Angus ranks throughout Illinois, Iowa, Missouri, and Kansas. There are forty good young bulls to go into this sale-ring at Omaha, and it is confidently pointed out that this will be the bull-buyer's paradise for those who appreciate the true worth of the "market-topping" breed. While there are seventy-five well-conditioned and well-bred cows and heifers for this sale-ring, it is to be considered that they are legal-tender yesterday, to-day, and to-morrow alike, but the bull season will be somewhat advanced at the date of this sale, and so we are advisedly pushing the bull proposition squarely to the front where it belongs. These young bulls are pretty well distributed among the various offerings, so that it is possible to make selection as to individuality and family traits that shall satisfy the most fastidious of buyers. It is of more than passing interest to note that Mr. Geo. E. Stevenson Jr., Waterville, Kans., is furnishing six head of these in a Favorite for this event. One of these is a Favorite by McHenry King 18th; another is a Mina by Foltz Star; a second Mina is sold with heifer calf at foot by a son of the great bull Baltimore. Another daughter of Polar Star is a Dimple, in calf to Heather Gay Lad by Gay Lad. Likelihood is a Lazy, in calf to Young Proteros, is also a Lazy, and a fine young fellow he is. A second Kansas contributor is A. E. Cromwell, of Atchison. Mr. Cromwell is sending forward five head of good things, inclusive of the great breeding bull, Axel of Estill. So valuable an Angus sire as this should not lack of appreciation by the right man. Lot 8 in catalogue is the Queen Mother cow, Alice 26th, goes in this sale. Mr. Cromwell contributes a pair of fine young bulls that are past 1 year old and ready for excellent service. Mr. Omer Catterson, Maryville, Mo., contributes liberally from his well-known herd. The great bull, Tiberius, illustrated in catalogue, goes to this sale-ring at Omaha. Col. Silas Igo, Palmyra, Iowa, is likewise prominent with a contribution of nine good young cattle, including a fine pair of daughters of his great young bull, Black King of Woodlawn—the most intensely bred Blackbird bull in the land. E. Reynolds & Son, Prophetstown, Ill., are selling five young bulls, corksers; a Heather Bloom, Princess, Nell Gwynne, Queen Mother, and Pride. Mr. Chat Escher Jr., lets go seven head of young imported cattle, including a string of 2-year-old heifers that fill the eye to perfection. All are bred to the double Erica-bred bull, Envoy of Benton. See our further notes of next week. Consult advertisement and write Mr. Escher for catalogue. It is intended for all.

The Avery Percherons at Manhattan.

Mr. H. W. Avery, of Henry Avery & Son, importers and breeders of Percheron horses, Wakefield, Kans., is deserving of a great deal of credit for the interest he has taken in the horse-judging school at the Agricultural College. Mr. Avery is a graduate of this institution and has maintained the keenest interest in her welfare since receiving his diploma. This interest prompted him to take a string of his choice Percherons from the home farm to Manhattan in order to make of the judging school a success which otherwise would have been out of the question as the college owns but two pure-bred horses. The names and breeding of the animals on exhibition at the college, together with some comments by high authorities are here given:
 Illustre 20489, weight 2,100 pounds, and color black. Sire Introuvable 16876 (24146), dam Bertha 6340 (7008).
 Prosperity 26038, weight 1,750 pounds, color black, age coming 3.
 Imperial 32515, weight 900 pounds, age 3 months, color black. Sired by Dublin 44533 (24680), the stallion that was given first place in the judging school last year.
 La Rosa 24619, color bay, weight 1,800 pounds, age coming 3.
 Angela 32519, color black, weight 900 pounds, age 3 months.
 Amy 3259, color brown, age 19 years. Shown as an object lesson to students as a successful brood mare. Worked all her life since she was a 3-year-old and has done more work than the average farm mare or gelding and, in addition to this, has raised colts that have sold for \$4,000 net money to Messrs. Avery & Son.
 The following is an extract from a letter from Mr. James Fletcher, of Dunham,

Fletcher & Coleman, who write of the sire and dam of Illustre:

"Introuvable 16876 (24146) was an extra good individual of the largest size, easily weighing 2,200 to 2,250 pounds in show condition. He was the winner of first prize in the 4-year-old class, and also sweepstakes at the Columbian. I presume you are aware that Bertha 6340 (7008), the dam of your stallion Illustre 20489, is probably the best brood mare we ever owned on the farm. She is now 20 years old or over, has produced a colt nearly every year and every one has been a good one. I confidently believe that Illustre will make a good cross on your mares." Illustre has been at the head of the Lakewood Stud of 50 head of pure Percheron mares and Mr. McMillan has the following to say on him: "He possesses great bone and substance and notwithstanding his immense size, is a good actor and shows unusual style. In the stud he has been sure and his colts are extra good. I refused \$500 for one of his yearling fillies a short time ago. His breeding could not be better, and both as an individual and a sire he has but few equals. He has been used at Lakewood for three seasons, and if I did not have Calypso he would not be sold at any price."

The H. O. Tudor Shorthorn Sale.

On April 1 and 2, at Holton, Kans., will be held a sale of Shorthorn cattle that will be made up from drafts from the best herds in northeastern Kansas. The offerings will be from the following-named Kansas breeders: H. O. Tudor, Holton; D. L. Dawdy, Arrington; John McCoy, Sabatha; M. C. Vansell, Muscotah; Levi R. Strawn, Half Mound; M. K. Nichols, Horton; and E. D. Ludwig, Sabatha.

Mr. Tudor will offer about forty head from the Bill Brook Herd, of which he is the owner. This offering will consist of fifteen cows from 3 to 8 years old, ten young heifers from 10 to 14 months old, and five young bulls from 15 to 20 months old. The older females will have calves at foot by his great herd-bull, Iowa Scotchman 2d, and the balance will be bred to him. His cattle are all in good condition and the sale stuff will go into the ring in fine shape. Mr. Tudor has the reputation of breeding a class of useful cattle that have become very popular because of their milking properties and their ability to carry flesh. The Bill Brook Herd, which numbers about 150 animals, has no use for nurse cows and its owner is a good feeder the sale stuff will undoubtedly do credit to the owner and to the breed.

L. R. STRAWN'S CONSIGNMENT.

Mr. Strawn has a number of animals in the sale which were sired by Gentlemen 128073, who was bred by the Kansas State Agricultural College and who was sired by Colonel Harris' Golden Drop bull, Golden Knight 108088 out of Genteel 2d, who was sired by the Cruickshank bull, Imp. Craven Knight. He also has Janthes, sired by Tom Benton 137090, who was sired by 2d Duke of Soldier Valley and traces to Imp. Belina by Bampton (54). Others will be offered that are sired by Gold Brick 124421, a bull of his own breeding, which was sired by Goldfinder 103423 out of Listless 13th by Duke of Liverpool 11700. He will also offer some Rose of Sharon sired by Goldfinder just named. Another Belina contribution is sired by Gov. Leedy 137088, he by 2d Duke of Soldier Valley 119019, dam Rose of Holton by Alice's Cardinal 101533. Taken as a whole this sale will be a very good thing to go to. Bear the date in mind and write H. O. Tudor for catalogue.

Sprigge' Second Sale.

On March 31, at Westphalia, Anderson County, Kansas, Mr. S. A. Sprigge, the well-known breeder of Black Percherons and Black Mammoth Jacks will hold his second annual sale. The offering will consist of four registered black Percheron stallions imported and American-bred, from 2 to 10 years of age and will include Pollydore, whose full sister won first in class at the Missouri and Kansas State fairs last fall and sold on February 3 for \$725 in the Wichita combination sale. This offering also includes the line-bred Brilliant stallion, Lawson, who now weighs 2,300 pounds and is of such quality and finish that his owner says that he does not know a better one. The registered Percheron colt, Montague, is considered the heaviest boned and quartered colt that his owner has ever seen.

Included in this offering will be one imported English Shire, weighing right around 1,800 pounds; one registered Coach stallion, one Hackney, and two non-registered Percherons.

Most important to many farmers will doubtless be the offering of six head of big, black, mealy-nosed Mammoth Jacks that will measure from 15 to 15½ hands and are from 3 to 6 years old. These Jacks are mostly eligible to registry and will be worth good money. The 4-year-old Jack, Mammoth 5th by Mammoth 4th, he by Imp. Mammoth and out of a straight Mammoth-bred jennet is probably one of the strongest bred Jacks in the West in Mammoth blood.

Missouri's Model is a 5-year-old Jack well worthy of his name and has proved a great breeder. Then there is the big 2-year-old King Giant 2d, sired by the 1,200-pound King Giant 3d, who promises to rival his great sire.

Included in this sale, also, are six jennets with colts at foot or safe in colt. One of these won the first prize at Missouri

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NO HUMBUG Three in One.

Swine V. Stock Marker and Ointment. Stops swine from rooting. Makes 40 different ear marks. Extends Horns. Price \$1.50. Send \$1 for trial. If it suits, send balance. Pat'd May 5, 1902. Hog and Ointment only 75c.

FARMER BRIGTON, FAIRFIELD, IOWA.

Our 1903 CATALOG Contains **GREATER BARGAINS**

145 styles vehicles

than offered by any other manufacturer. Our wonderful offers will surprise you. We use the best material and guarantee every rig for 5 years. If the buggy you buy from us is not better in every way than you can get elsewhere then return it and A rubber tire top buggy, \$45.00. —15 other equal or better bargains.

PAY US NO MONEY. Cut out this ad, send it to us and we will mail you catalog free.

MARVIN SMITH CO., Chicago, Illinois.

YOUR EYES NEED ATTENTION.

If They Smart, Burn, Twitch or Ache, or if the Sight Becomes Clouded or the Eyes Weak and Watery, it is a Warning of Danger, and may Terminate in Total or Partial Blindness.

The eye is the most delicate organ of the human body; the slightest affection may terminate disastrously. All eye diseases, no matter how slight, are dangerous if neglected. You have any disease or defect of vision, falling eyelid, cataract, sore eyes, granulated lids, or any eye trouble, you should seek proper treatment at once. Dr. F. Geo. Curtis, the greatest living oculist and oculist, the discoverer of the world-famous Mild Medicine Method, has written and published a book, "Blindness and Deafness, Causes and Cures," which tells how you can cure your eyes at home quickly and at small expense. This book describes and illustrates the various eye diseases. It is certainly of great value to all who are in any way afflicted with eye troubles. Dr. Curtis generously offers to send a copy of this book absolutely FREE to all who write for it. Although the Doctor's time is almost entirely taken up by his enormous practice, yet if you write him a description of your case he will give you a personal letter of advice free. Address:

DR. F. GEO. CURTIS, 303 Shaker Bldg., Kansas City Mo.

State Fair in 1901 and they are all of good age and condition. Write a card to Mr. Spriggs for a catalogue and get ready to be present at this great sale on March 31.

The Last Brood Sow Sale of the Season.

On Monday, March 30, under the direction of Mr. G. B. Scott, there will be held at Carbondale, Kans., a combination brood-sow sale of Poland-Chinas. Mr. Scott will contribute 28 head of bred sows and gilts; Bassett Bros., of Burlingame, 8 head; and B. F. Berry, Carbondale, 4 head. Mr. Scott is the owner of one of the best breeding boars in Kansas and has rightly named him Kansas Chief 23175. He is an own brother to Unique and Crawford County Chief so well known in the Chief Tecumseh 2d and Ina Wilkes litter. Kansas Chief is characterized by his great length, good bone, fine back and ham, and extra head and ears, together with style and action, all of which qualities he imparts to his offspring. As nearly all of the sows in the sale are bred to him and the gilts in Mr. Scott's offering are sired by him, and as Mr. Geo. Berry, the famous swine judge is credited with saying that he is now the best Poland-China boar in Kansas, it will be seen that buyers will have extraordinary inducements to attend this sale. The gilts contributed by Mr. Scott are the daughters of Kansas Chief and have been bred to Scott's Perfection 30355, a grandson of Chief Perfection 2d and out of a Chief Editor 17995 dam. This is the last call for this sale and in the present condition of the pure-bred hog market it behooves every reader of the Kansas Farmer, who has not already done so, to write to Mr. Scott at once for catalogue, and then be sure to be present at Carbondale on Monday next.

The Updegraff Horse Sale.

While March 19 was a raw and disagreeable day it had no apparent effect on O. P. Updegraff's sale of fine horses and cattle, held at his farm northwest of Topeka. The stallions, "Honor" and "Senator Updegraff" were not offered for sale as it was evident there was not a demand for them from the crowd which was present. They will be disposed of at private sale.

All the other stock which had been advertised for sale, was put up and sold to the highest bidder. There were 22 horses which brought an average price of \$162.50; 15 head of Berkshire hogs at an average price of \$22 a head; and 7 young stock cattle which brought \$20 a head. Considering the kind of a day which March 19 was, Mr. Updegraff thinks the prices he received for his stock were more than fair and he was well pleased. It is his opinion that had the day been fair and warm it would have brought out a larger crowd and this would have resulted in better prices.

The highest price paid for a single horse was \$175, but the pairs brought, individually, better prices than this. Charlie Sampson bid in a pair of fancy drivers for \$480. Over this pair the bidding was spirited and among those who tried to secure them were Dr. McClintock and Dr. J. P. Lewis. An Indian pony brought \$40, and this was sold a few minutes later for \$5 more than the bidder had paid.

Gossip About Stock.

We note with pleasure the recent promotion of Mr. Geo. A. Gamble, a former student at the State Agricultural College, to be agent of the Lehigh Valley Railway and Lehigh Valley Transportation Company with offices at 206 Exchange Building, Kansas City, Mo. We offer our congratulations to Mr. Gamble.

Next week we shall make full announcement of an important public sale of Shorthorn cattle at Falls City, Neb. Mr. Job Goslee, Skidmore, Mo., will sell 40 nicely bred cattle there on Saturday, April 18. His great Scotch bull Glosier's 2d Duke by Imp. Salamis will be included in sale, together with about 30 head of his get. Do not miss writing for Mr. Goslee's catalogue at once, and mention Kansas Farmer.

A recent letter from the Sure Hatch Incubator people at Clay Center, Neb., announces the fact that they are shipping from 200 to 400 machines a day from the home factory and from 100 to 200 a day from their eastern offices at Columbus, Ohio. They have been averaging from the two offices about 500 incubators a day for the last three weeks. How would you like to be an incubator man?

The Norway Herd of Poland-China swine was drawn upon for a sale on March 10, at the home farm of the owner, James Nelson, near Jamestown, Kans. In spite of the bad roads, inclement weather, and the fact that many of the sows offered were quite young, a very successful sale was had. It was a brood-sow sale of 33 head which brought \$978, an average of \$29.63. The purchasers were as follows: Olaf Daht, Clyde; A. Goodman, Norway; P. Hanson, Concordia; W. Layton, Jamestown; Geo. E. Smith, Cuba; J. H. Peden, Asheville; F. Smith, Scandia; O. Nelson, Scandia; Dr. W. Scott, Norway; F. Ashley, Concordia; W. A. Johnson, Scandia; W. A. Prewett, Asheville; J. G. Isaacson, Scandia; I. E. Nutter, Concordia; Chas. Jensen, Belleville; G. C. Kady, Jamestown; W. M. Hart, Randall; Ed. Hanson, Scandia; P. Pherson, Concordia; O. G. Peterson, Scandia; D. Corning, Meredith; W. Anderson, Scandia; J. Houghton, Scandia.

The Galloway sale held by a number of breeders in combination at Omaha on March 18, was considered fairly successful although the crowd was rather small. While a number of the prize-winning cows that were offered from these various herds failed to bring the money that was expected for them, other animals in the sale brought more nearly their value and the sale was fairly good. The quality of cattle was excellent and the bidding at times rather spirited. The top price of the sale was brought by C. N. Moody's Imp. Paragon 15051, who sold for \$470 and went to A. Roland & Son, Rose Hill, Iowa. The summary is as follows: 27 cows brought.....\$3,915; average, \$145.00 30 bulls brought.....2,905; average, 96.83 57 head brought.....6,820; average, \$120.00

The contributors were as follows: C. N. Moody, Atlanta, Mo.; Brookside Farm

Company, Fort Wayne, Ind.; C. B. Rowland, Rose Hill, Iowa; J. P. Martin, Sutherland, Iowa; T. J. Davis & Son, Trempealeau, Ill.; and Phil. Grace, Rose Hill, Iowa.

One of the greatest manufacturing establishments to be found anywhere west of the Missouri River is that of the Dempster Mill Manufacturing Company, Beatrice, Neb., with branch houses at Kansas City, Omaha, Memphis, and Sioux Falls. While this great factory turns out almost every kind of high-class machines that can be made of steel it is especially interesting to our readers because of the windmills, towers, pumps, water-tanks, well machinery, gasoline engines, grain drills and cultivators of superior excellence which it manufactures. Every windmill manufactured is guaranteed in writing, which renders the purchaser absolutely safe against imperfect materials, faulty constructions or defects in operation. Their machinery is built to wear and to work, and the thousands of satisfied customers in Kansas and the West bear testimony to the value of the guarantee which goes with each.

On page 372 will be found the regular advertising card of Mr. N. Manrose, Ottawa, Kans., who is a breeder of Short-horns, lately from Illinois, whence he brought his herd with him. Mr. Manrose's herd consists of females of the choicest breeding headed by Giltspur Knight 171591 who was bred by Purdy Bros., Harris, Mo. This bull was sired by Golden Knight of Enterprise 145815 and out of Victoria Giltspur 2d by Prince Victoria 116918 and tracing to Imported Fashion by Young Don Juan (3610). In moving to Kansas Mr. Manrose disposed of his herd-bull with the purpose of getting a new one that would be bred along lines that are popular in this State, and with this end in view he purchased Giltspurs Knight from his neighbor breeder, C. F. Wolf & Son, whose herd has long been noted for furnishing the highest quality. We understand Mr. Manrose has a few choice things to offer from his herd and a card will bring information regarding them.

It always makes one feel good to realize that his patrons are pleased, and when we receive a letter from such men as John W. Roat, owner of the Crescent herd of O. I. C. White swine, Central City, Neb., announcing that during the past year when he carried a breeder's card in the Kansas Farmer his sales have been very good and entirely satisfactory to all parties, we know that both of us feel good. Messrs. Roat & Co., are just getting out a new catalogue of their famous O. I. C. swine and Barred Plymouth Rock chickens which will carry information to those who ask for it. The Crescent Herd of fall pigs are growing beautifully and are now ready to ship. Orders are being booked already for spring pigs which are now arriving in numbers of from twelve to fourteen in each litter. This herd of white swine has Hero 13588 at its head, which alone would be a good recommendation of quality. Write for one of those new catalogues.

The week ending March 21, is known as "horse week" in the judging school at the Agricultural College, Manhattan. The college is hampered in conducting these judging schools by reason of lack of typical pure-bred animals with which to illustrate them. During horse week, however, this lack was not felt by reason of the fact that a number of prominent breeders loaned their time and their horses as a contribution to its success. Too much can not be said in commendation of Col. J. W. Robison, of Eldorado, whom not to know is to prove oneself unknown. Colonel Robison devoted his entire time during the week to the instruction of the students and visitors in horse-judging, and entirely without compensation. Mr. H. W. Avery, of Wakefield, who owns the oldest herd of Percheron horses in Kansas if not in the West, is another breeder without whose substantial aid the judging week could not have been the success it was. Mr. Avery not only brought down from his breeding farm a handsome string of Percheron horses which added materially to the size and effectiveness of the display of horses, but he prepared and read a particularly valuable paper, which we reproduce elsewhere, to the assembled students and visitors at the college. With the cooperation of such men as these and others who were present, the judging schools and the departments of the college which preside over them become an assured success.

On page 373 will be found the advertising card of Mr. E. D. Ludwig, R. F. D. No. 2, Sabetha, Kans., who is the owner of Pony Creek Herd of Scotch Shorthorns. We are very glad to welcome Mr. Ludwig to the Breeders' Directory of the Kansas Farmer because of the fact that he is not only a good breeder of choice Shorthorns but is a man who knows how to care for his animals as well. In the many visits made by the writer to different Shorthorn herds in Kansas and other States, it is not remembered that any of them were found to be in better condition than the Pony Creek Herd. In fact, his careful selection of breeding bulls, together with the expert care which he always gives his animals, has served to make of this one of the good herds of the West. His present herd-bull is Bampton Knight 145795 by Scarlet Knight 110111, out of Bampton Joy by Red Victor 105113, he out of Bampton's Pride by Prince Bishop 67273, and tracing to imported Bampton's Primrose by Viking 67909. This young bull is a grand representative of the breed and a careful scoring of points would doubtless show him well to the top before any expert judge. He has the size, finish and quality that makes for good offspring and has already proved himself an impressive sire. As stated in our notes last week in regard to the H. O. Tudor sale, to which Mr. Ludwig is a contributor, the Pony Creek Herd is one that will pay breeders to keep their eyes on.

Rupture and Its Cure.

Those of our readers who are so unfortunate as to be ruptured are interested in learning where they can go to be cured; having heard of so many claimed cures they have become skeptical and many of them have made up their mind to try no

RUPTURE CURED

That rupture is dangerous to life, is well known to all, and the victim of this awful, treacherous disease wants to get rid of it as soon as possible, on account of the torturing truss, as well as on account of the great danger to his life. The farmer, whose work is so hard and varied in its nature, if the victim of rupture, has an extremely hard task to perform. More farmers meet with strangulation than any other class, on account of the hard work.



Dr. O. H. Riggs, the successful Rupture Specialist, has a long list of farmers that he has cured, some of them many years ago, to whom he refers with much pride, because the cure that was made so long ago still remains a cure. This treatment and cure has some advantages that are especially appreciated by the farmer. One is that it requires only ten days to be cured. Another is there is absolutely no danger in the treatment. Still another advantage is that when once cured always cured, for this treatment causes the formation of white fibrous tissue, and this same tissue closes the rupture. This same character of tissues infiltrates the parts all around the ruptured region, thus making the rupture region stronger than it was even before the rupture took place. This extra strength of rupture region has been thoroughly proven by each one of the thousands of permanent cures from this dread disease by this truly wonderful treatment.

You need not fear to call on Dr. Riggs; for if your case is not curable he will tell you so and not take your money. If your case is curable you remain only ten days under the doctor's care, then you return home sound and well. The doctor is equally skillful in the treatment of VARICOCELE and HYDROCELE. Those afflicted with any of these troubles should call on

DR. O. H. RIGGS,

205 Altman Bldg, 11th and Walnut Sts., Kansas City, Missouri.

Or enclose 2c stamp for booklet telling all about how these diseases are cured.

Agents, Farmers, Sprayers—Special Offer: We will furnish Agents sample of our New Century Self-Operating Sprayer, Galvanized Steel Tank, Hose, and Nozzle complete. This is a great saver to farmers. Write early and secure territory. Sprayer retails at \$5.00. New Century Spray Pump Co., Dept. S, Rochester, New York.

more. To those who have tried many different remedies without success we wish to call their attention to an announcement to be found elsewhere in this issue of that eminent specialist in the treatment and cure of rupture, O. H. Riggs, M. D., Second Floor Altman Building, Kansas City, Mo. Dr. Riggs for many years has devoted his entire time to this his chosen specialty and to say that he has been successful would be putting it rather mildly. His reputation and success in the cure of rupture extends from ocean to ocean and from the Lakes to the Gulf. Dr. Riggs' familiarity with rupture in all of its various stages enables him at a glance to state to a patient if a permanent cure can be effected, and when he once makes up his mind that a cure is within the bounds of his skill, he backs up his opinion by an absolute guarantee that he will effect a permanent cure or make absolutely no charges for his services. Readers of the Kansas Farmer who have rupture should lose no time, but write at once to Dr. Riggs for his free booklet on rupture, gentle and speedy cure. In writing for gent and a few days' treatment by Dr. Riggs will effect for you a permanent and speedy cure. In writing for booklet please mention this paper.

What Others Say.

Below we publish testimonials from those who have used the People's Supply Company's Cream Separator, of Kansas City, Mo. Read them, and if you are interested look up their advertisement, to be found elsewhere in this issue and write them for any further information you may wish:

- "Broughton, Kans. 'People's Supply Co., Kansas City, Mo. 'Gentlemen:—Separator received and we have given it a fair trial, and are more than delighted with it. The tin pans and earthen crocks are abolished. My wife says she would not part with the separator for \$50 if she were unable to get another. No lady can estimate the amount of labor saved and the benefit derived from the separator until she has given it a fair trial. S. P. BUMELL."
- "Barrol, Mo. 'People's Supply Co., Kansas City, Mo. 'Dear Sirs:—Received your separator, and will say that I have never had the same amount of money invested in anything else that was more satisfactory to me. It is exactly what I want and had been trying for years to find. Respectfully, MARY A. PEAN, P. M."
- "Murray, Iowa. 'People's Supply Co., Kansas City, Mo. 'Sirs:—We like our separator very much. It saves so much hard work. My husband says his pigs do much better on the skim-milk since we have been using the People's Cream Separator. 'MRS. L. G. LUCE."

"If you buy it from Mantor it's the Best." In raising poultry if it's done right. Don't depend on the hen; she's too uncertain. Put your faith in a mechanical certainty—the Kenwood incubator. Sure Results; Large Profits.

BIG MONEY

THE KENWOOD INCUBATOR
NO. 2
200 EGGS

\$11.00

Buys 100-Egg Kenwood—King of Incubators—a 20th Century production. Not the CHEAPEST incubator on the market but it is the BEST. Heated by hot air; no water-tanks to rust out. Has regulator that is really automatic—biggest improvement in years; keeps the temperature exactly right. No night work. No complicated parts. Will last a lifetime. No. 2 Kenwood Incubator, for 200 Eggs, \$17.50. FREE 1003 Catalogue, illustrating hundreds of articles for home and farm at wholesale prices. It will save you money. **MANTOR MERCANTILE CO.,** 604 Wyandotte St., Kansas City, Mo.

DAIRY QUEEN CREAM SEPARATOR.

The water is not mixed with the milk. The most perfect and latest improved Separator made. Pays for itself in a short time. Separates all the cream without labor. Men and Women can make good profits. Where we agents we will send a Separator at agents' price to introduce it. Write for catalogue and prices. **ECONOMY SUPPLY CO.,** 562 Main Street, Kansas City, Mo.

TO WOMEN WHO DREAD MOTHERHOOD!

Information How They May Give Birth to Happy, Healthy Children Absolutely Without Pain—Sent Free.

No woman need any longer dread the pains of childbirth; or remain childless. Dr. J. H. Dye has devoted his life to relieving the sorrows of women. He has proved that all pains at childbirth may be entirely banished, and he will gladly tell you how it may be absolutely free of charge. Send your name and address to Dr. J. H. Dye, Box 137, Buffalo, N. Y., and he will send you postpaid his wonderful book which tells you how to give birth to happy, healthy children, absolutely without pain; also how to cure sterility. Do not delay but write to-day.

PILES NO MONEY TILL CURED. 25 YEARS ESTABLISHED. We send FREE and postpaid a 200 page treatise on Piles, Fistula and Diseases of the Rectum; also 100 page illus. treatise on Diseases of Women. Of the thousands cured by our mild method, none paid a cent till cured—we furnish their names on application. **DRS. THORNTON & MINOR,** 1007 Oak St., Kansas City, Mo.

Relative Values of Feeds.

(Continued from page 351.)

tended the list of balanced rations here presented, but preferred to direct attention to methods of doing the work. With a mastery of methods at least the senior students—with whom the writer has the honor to appear tonight—will be able to estimate the cost of rations whatever the prices of the materials available, and any farmer who is not too constitutionally tired to figure may by the use of the foregoing formulas determine the most economical rations possible to form for each of his several classes of stock from the several feeds available.

Milk as a Condensed Farm Crop.

R. E. WILLIAMS.

We all, who are starting out in life, wish to achieve success, and we do not have to be in college long to see that it must be through our own efforts. If we have been raised on a nice farm with good improvements, have not been made to work too hard, and have been given a Saturday afternoon off once in a while, we will nearly every time look to the farm for support.

We see many people who have made a success of dairying, and, it is true, there are some who have not, but, in almost every case, we see that they are not careful enough to make a success of anything. The secret of success in any business is to look after the little things. Some people are more careful than others, so they succeed while others fail.

The price of land over the country is rising. Land that a few years ago would pay a profit will scarcely pay interest on investment now. If we wish to get that profit we must specialize; the day of general farming is over and we must give our attention to one thing.

It is natural for men to wish to get paid according to their merits. Skill gets better pay in the dairy than in any other line of farm work. The man who can get the most return for the least expense is the man who will make the largest profits.

It is a great advantage to have ready money as the dairyman has. He gets his pay every month, while the average farmer has money one-half the year and has to borrow the other half. This is not only unpleasant, but unbusinesslike.

There are some people who say that in a year or two the dairy business will be crowded and that there will be no demand for their produce. But some other fellow comes in and gets rich at it while they are still undecided. There will always be a demand for good butter and that can only be made from good cream.

Cream is the most condensed crop that it is possible to get from the farm. A ton of cream is worth at least \$400, and takes practically nothing from the soil if worked right, while wheat is hardly ever worth \$20 a ton and takes \$5 from the soil, so at a given value cream would be many times better to produce and easier to market.

This alone would be an advantage for the dairy, but it is not all. Dairying is the practical answer to the fertility question. There are many farmers who haul all their grain away and sell it, keeping only enough at home to feed the horses and one or two cows. They do not realize that they are also hauling away the fertility of their farms. In a few years they see that their crops are not as good as formerly, but they attribute their lack of prosperity more to politics and whether the President is Republican or Democratic than to their methods of farming.

If they would give this grain to cows and young stock and would properly utilize the manure which would be left, they would not only see the yield of their fields kept up, but increased, while they would make a profit on both their cream and young stock.

The plant and the animal are directly dependent upon each other. The plant takes the food from the soil and build it up so that the animal can use it. The animal tears it down and much is restored for plant use. This is nature's cycle, and the farmer who does not arrange his products so that he can make returns to his land will eventually fail.

Hay is a necessity when we are feeding dairy cows. There is no hay grown which is any better for this than our own alfalfa. It grows almost in perfection on Kansas lands, and instead of taking the elements out of the lands it adds the most essential, nitrogen.

Then a dairy farm with its barns and buildings is much better improved, has a much better appearance, and looks more homelike than some of those bare farms, and if you should

ever want to sell you could much more readily find a buyer.

The dairy farmer is, in a sense, a manufacturer; he feeds the raw products of his fields into the cows and gets in return the milk. The same laws apply to him as to other manufacturers. If he can increase the production without increasing the expense his success is assured. This is a time of progress and advancement. The dairy machinery has been greatly improved, and if the dairyman competes with others he must keep up with the times and use the modern methods.

The chief among the improvements for farm use is the hand-separator. With this the dairyman can separate the milk before it has cooled and can feed to skim-milk while it is warm. He thus gets the highest possible returns for his skim-milk and has only his cream to haul. It is probable that having a separator he feeds more skim-milk because he does not have to haul the skim-milk back.

Skim-milk is much more valuable as a food than it is generally supposed to be. It has been proven by experiments that it is worth from 15 cents to 30 cents per 100 pounds as a food alone. But when we include the increased returns to the land through feeding it, we see that the value is much greater. If calves are properly fed on it they will sell for the same as others which have run with the cows. No wonder some skim-milk calves are a sorry-looking sight when they are fed cold milk, and half of the time it is sour, and sometimes they are forgotten entirely. To be successful in feeding skim-milk, nature's method should be followed; it should be fed warm and sweet and it should be fed regularly.

If it pays to keep a cow for a year just for the calf she will raise—and there are many people who will tell you that it will—it seems that dairying should pay much more when we see that we can raise a calf of equal value on the skim-milk and have all the butter-fat extra, not considering the added returns to the ground.

A dairyman should keep a record of everything. He should know what his feed costs him, which cow is making most for him, and know what he receives and what he pays out.

He should have a standard of butter-fat and any cow that does not come up to the standard should be disposed of. The proper way to determine how much butter-fat a cow produces in a year is by the Babcock test and scales. Without these he can not tell whether one cow is making money for him or eating up the profits of the others.

He should weigh the night's and morning's milk of each cow and take samples and test about twice per month. In this way he will know just what each cow is producing, whether she is paying for herself or not, and can tell which cow to sell. It may seem a good deal of trouble but the added profits will more than make up for it.

A cow is a very sensitive animal. A disturbance of any kind will have its effect on the quantity and quality of milk produced. The cow will not produce well on irregular milking. When the milking time comes she will know it and worry if she is not milked then. She should be milked dry, if the stripings are left it will soon have its effect on the quantity and will dry her up before time. The stripings are also by far the richest part of the milk.

The cow should be properly fed. Feed will raise her up to her standard of production but can do no more. When fed well she should not put on fat but convert the feed into milk. She should have plenty of pure, fresh water to drink and should be kept in a dry, moderately warm barn.

The dairyman should keep everything clean; if the cans are not clean he can not expect to keep the milk and cream sweet. The barn should be kept clean, for any odor will taint the milk and make it unfit for use. So cleanliness is one of the essential points in dairy work.

We see that as time goes on common grain farming does not pay, because the fields will not continue to produce as well without some return being made to them. On a dairy farm, instead of the fertility decreasing it is, if anything, increasing from the returns made to it.

By keeping dairy cows the farmer gets a profit both on his cream and young stock, while the only profit the ordinary stock farmer gets is on his calves which are of no more value than the dairyman's.

Milk and cream are the dairyman's finished products. His whole attention is given to producing them in perfection. To do this he must use modern methods and be progressive; he

Collier
Missouri
Red Seal
Southern

CONSIDERING the cost of labor, of applying it, and its great covering capacity, Pure White Lead is not only the cheapest Paint in the first cost, but because of its extreme durability is by far the cheapest in the end.

Furthermore, no scraping or burning will be required when repainting becomes necessary.

If interested in paint or painting, address,

National Lead Co., Clark Ave. and Tenth Street, St. Louis.

has many records and accounts to make so he must be a good business man, and it follows from this that the more skilful he is the better success he will have.

Dairying is the most progressive line of farming. No other branch has such possibilities. It pays practically as well as theoretically, and who could wish anything better than a dairy farm with its fertile fields, green pastures, painted barns, and perfect cows?

Educational Influences in Dairying—Their Need.

M. H. MATTS.

The need of educational influences in any lawful pursuit in life is becoming more and more recognized as an all-important factor to the highest degree of success at that particular vocation.

This is nowhere more especially true than in connection with the lines of agricultural work, it being the foundation of a life that, if continually followed, must lead, first, to a life of freedom and enjoyment; second, comfort and happiness; and third, wisdom and wealth, if all advantageous opportunities have been carefully considered and all possible future and unforeseen results that could be imagined as taking place are carefully weighed.

In any course of thought which must precede a definite task, certain laws must be followed. And a law may be defined as a rule established by custom, a rule of order or progress or a statement of facts, each of which has a distinct meaning, though more or less applicable to all. All of us wish to be, must be, or at least are supposed to be governed by certain laws, either prohibitive or progressive, which are framed either by the minds of certain law-makers or by common practice, depending upon how forcibly the requirements present themselves.

A good law is one that will work to the upbuilding of Christianity and the increase of knowledge. In most cases, laws of common practice are established by persons of influential character and they usually show the predominating or characteristic traits of those individuals. When guided by a judicious, moral, and intellectual influence, an unlimited amount of benefit must be gained when such laws are followed. To illustrate the meaning of this, take, for example, the introduction of the hand-separator into the business of dairying on the farm; or it would probably be better stated to say that a system of business dairying was introduced on the farm at the time of the inauguration of the hand-separator, and, of course, to make the separator necessary there must be a supply of milk coming from some source and produced at minimum cost, which, to be profitable, means a fine adjustment of business management, and right here is where the dairymen fix their destiny.

The ability to judge dairy cattle and to know how to handle them in connection with farm work in order to produce a fair average quantity of milk of fair quality requires more than physical labor, it requires mental labor and a great deal of it. The knowledge does not come to a person naturally, especially to one who sits on the fence and watches the crowd pass by; instead, he must get down to work and study as he never studied before if he expects to make it pay. When he is striving to reach this point he will look around in a causal way to see how to handle his dairy products, his eyes have fallen on the hand-separator and,

he sees immediately where one would be advantageous to him; he makes the purchase and is on the road to success. His neighbors see where he is getting ahead by following new methods and, as competition is the life of business, they must awaken to the facts, probably gradually at first but with a certain increase of interest, and, as all of you know, the tide of public sentiment is great and usually carries its purpose to a result, and in this particular case, with the motto "A good thing has been found, push it alone." An opposite condition of affairs is found in an altogether too large number of places; a starter is needed, so to speak, one that will show the dairymen of Kansas why this State should be first on the list of great dairy States and how it can be placed there and placed there to stay. This is not a question of time alone, but of legislation largely, and the manipulation of the problem by those in whom the dairy interests of the State are entrusted as well as those directly interested.

If each and every dairyman would at once make a special effort to put Kansas at the head of the column by being sure that he is right and then responsible for his own condition, then Kansas would have a place second to none.

As to the best method of advancement and various ways of reaching the highest stages of perfection, much can be said and written but it all counts for naught unless deduced from a trained, practical, as well as theoretical mind. When possible to, make theory and practice work in harmony; this will give the best results, and to this end all instruction should be given.

Some theories will not work out when an effort is made to put them into practice and it is often quite expensive trying them. For example, just try to raise first-class beef cattle and first-class dairy cattle from a herd of Shorthorns. I say Shorthorns because they are as near dual-purpose animals as any you can get, and by trying any other breed the results would be even worse. Many tests have shown that this kind of work is not profitable and it is impossible to keep both classes of animals up to the standard. The beef and dairy industry must be kept separate, and the raising of either class of cattle on either a large or small scale must be kept entirely distinct.

Some men have cultivated the faculty of originating ideas and experiments, some of which prove to be successful, others do not; and it is this class of persons to whom we are indebted for much of our information relative to dairying and with whom closer relations must be held by the average dairymen. Acquaintances may be formed with them personally, or through the medium of literature. In any event, they have a source of information of inestimable value to those who are willing gratefully to accept and make the most out of it.

Dairying, as compared with other branches of agricultural occupations, requires more than average intelligence on the part of those interested to make it remunerative; failures being due, not only to lack of skill in managing the business in general, but also to a lack of thorough understanding of all the minor details, which I believe to be far more important than is generally considered, and it is to a general discussion of these minute particulars that more time should be given.

One educational influence that is making itself known is that of holding

farmers' institutes where farmers, their wives, and others may congregate, exchanging ideas and opinions, availing themselves of the valuable experience of others, bringing out and having settled any debatable points in question. The amount of influence that can be aroused in this way is not surprising, for why should it not be so? Are we not progressive and ready to compete for higher honors after finding out newer and more modern ways of how to carry out our work, getting this knowledge from others who have learned in the valuable school of experience, or from those using trained minds and hands. Such a meeting could hardly be expected to yield anything but profitable results. Information would be carried into homes that would otherwise have probably remained secluded, and there are many such who for some reason or other do not interest themselves in this, though who seem to be interested in their work. A few questions along any of the details of their chosen work would very likely reveal some surprising facts.

The influence of dairy literature probably does not leave as lasting an impression upon the mind as it should, coming regularly as it does, yet, doubtless has a decided effect upon improving the methods of thinking and reasoning as it constantly keeps new facts before the people that must, in time, change their ways. Many statements proved by experiment to be true must be supported with plenty of plain, logical argument in order to do the most good.

There is a prejudice existing among some dairymen that is doing more in retarding the growth of the dairy industry than would be generally supposed. They have formed opinions, some favorable others unfavorable, and are not usually slow in expressing them, whether they have been given due examination or not, thus not giving credit to whom credit is due. They have motives of no real value and an influence that is injurious and conclusions have been drawn from an uncertain standpoint. To such persons a study of the advanced methods of dairying from a theoretical point of view (and this may be done in various ways), must surely work a transformation, not only beneficial to themselves but many others with whom they come in contact.

Some Problems of Hand Separators.
C. H. ECKLES, PROFESSOR CREAM DAIRY HUSBANDRY, UNIVERSITY OF MISSOURI.

I presume you are now past the stage of discussing the advantages and disadvantages of the hand separator and have accepted it as a new step in the evolution of the dairy industry. I suppose the question you are now considering is how best to adjust your business to meet the new conditions.

In Missouri we are ready to concede that the day of the hand-separator is at hand. Although some still think it a necessary evil, the sentiment is more general that it offers by far the best means and probably the only way of developing the dairy industry of that State.

I do not care to bring forward the familiar arguments on either side of the question. I believe we confront a condition, not a theory, and that the wise thing to do now is to consider how we can best use the hand-separator cream at the factory, and how we can best handle it on the farm.

It is often said that a decline in the quality of butter follows the introduction of hand-separator cream into a creamery and, I fully believe this has been the usual result. This does not indicate that the product of this hand-separator cream will always be inferior, or that because it comes from a hand separator good butter can not be made from it. Some well-known creameries make a first-grade butter from such cream, and this goes to show that the system can be handled without necessarily lowering the grade of butter produced. Admitting that it is possible to make good butter from hand-separator cream, is there any reason why it is not practical to do so? I believe the creamery operators of the country will soon be ready to reply in the negative. The present trouble with quality is in my opinion largely due to a mistaken idea regarding the keeping quality of cream. This has resulted in cream being held two or three days or longer before being taken to the factory and is the direct cause of most of the bad effects of hand-separator cream. The hand-separator agent has been the most active means of spreading abroad this idea of sending cream to the factory only twice or three times per week. It will take some time and considerable effort to stop this practice.

The common idea that cream sours slower than milk is due to the fact that when judged by the senses of taste and smell, or even by the acid test, it seems sweeter than the milk from which it came and apparently remains sweet longer. By the same means we judge that a rich cream keeps longer than a thin one.

While this condition is true as far as the total acid production is concerned, for the purpose of buttermaking cream keeps no better than milk or skim-milk under the same conditions. The reason cream does not show acid as quickly as milk either to the taste or to the test is that a considerable portion of the whole is composed of butter-fat which is an entirely inert body as far as souring is concerned. The souring takes place and the flavor of the butter whether good or bad is mostly produced in the liquid part of the cream or the serum. The butter flavor is affected by the stage or degree of souring more than by the total acid produced. Souring takes place in the liquid part of the cream, the serum, just as fast and probably slightly faster than in whole milk or skim-milk under the same conditions. The souring does not show as quickly as in the milk, but as for real condition for buttermaking cream two or three days old is no better than milk the same age kept under the same conditions. It is apparent from this fact that cream kept some time before being taken to the factory will affect the butter as unfavorably as would milk if kept that long before separation. While thick, heavy cream appears to keep longer than thinner it simply covers up its defects better, and for buttermaking is no better than thin cream kept under same conditions which would probably appear worse.

It is an unfortunate but practical fact, as shown above, that it is a more difficult matter to judge the condition of cream by taste and smell than it is milk. It is well to keep in mind that with cream the examination at the factory should be more rigid, the line drawn closer than when examining the condition of milk, and that a bad condition apparently of the same degree in milk and cream is really much worse in the cream as it is farther developed.

A common claim made for various separators is that they purify milk by removing bacteria and thereby not only are disease germs removed if present, but that cream will keep sweet unusually long for the same reason. Experiments made by the writer go to show these claims are not well founded. While a considerable portion of the bacteria in milk are thrown into the separator slime the cream also contains a large number. In every case the cream contained more bacteria in a given quantity than did the skim-milk or whole milk. Milk or cream is very slightly if any benefited in keeping quality by being run through a separator. I believe there are two things which the creamery operator must insist upon the cream patrons doing. One is to deliver cream often and the other is to cool it properly. One of the advantages of the hand separator undoubtedly is that the volume to be cooled is far less than when milk is sent to the creamery. When cream is delivered to the creamery as often as milk the same kind of cooling will probably answer; but as it seldom is delivered as often the cooling must be more thorough. It is not sufficient to set the can of cream in cold water without stirring and expect it to cool properly. Under such conditions, it will cool very slowly and probably never get below 60 degrees. Cooling, to be effectual, must be done at once and should be brought to the temperature of well-water at least.

The average person will not take time to stir cream sufficiently to reduce the temperature if a can is set in cold water. This takes a long time unless the water be very cold. In my opinion, every farmer having a separator should have a small water cooler for the cream, possibly after the fashion of the coolers now on the market. Such a cooler will bring the temperature of the cream to within two or three degrees of the water temperature almost instantly. Somebody should put a small cooler of this kind on the market and the creamery operators see that the cream producers are supplied.

If poor butter is made in creameries from hand-separator cream, it is not all going to be due to the conditions outside the factory. The creamery operator needs to adjust his methods somewhat. I believe it necessary to grade such cream into two classes at least, with a corresponding variation in price, as is now being done by some of our most successful creameries. This will do more to improve the quality of the

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cream than any amount of talking. Possibly the most useful treatment that can be applied to hand-separator cream in the factory is pasteurization. No factory operator can consider he is doing his best to improve the quality of his butter who does not pasteurize all his cream. I believe it is time the creamerymen became much interested in pasteurizers as the farmers are becoming interested in hand separators. Another most important means of defense which the creamery man using hand-separator cream has at hand, or can have, is a good starter. I have no sympathy with a buttermaker who is making poor butter and does not use a starter. It is true, much hand-separator cream is so far along towards sourness that a starter will not control the ripening. The only remedy under the condition is to pasteurize all cream that will stand the process and reject all other, then use a good starter freely.

It has been suggested that stale cream be washed by adding water to reduce to 4 or 5 per cent of fat and then run through a separator. There is no doubt this improves bad cream greatly. It is possible to make butter scoring 5 to 6 points higher on flavor in this way, but it is not, in my opinion, a practical method based upon experiments carried on along this line. I recognize the fact that the problems of hand separators are not confined to effect or quality of butter.

Problems of milk or cream routes arise. The proper testing of this cream is one of the most serious problems calling for the most skill of any kind of testing we find in practical work. Great and numerous as are the problems connected with the use of the hand separator, I do not believe they are any more difficult than are, or were in the beginning, the problems connected with the whole-milk creamery. I believe when we become adjusted to the new conditions there will be few wanting to return to the old.

How I Secured a Large Patronage.
E. C. NEWHIRTER, BREWSTER, KANS.

My speech might be summed up in the one sentence, satisfy the patrons you already have. The best advertisement that any firm can have is a satisfied patronage; and realizing that fact, I started in with that aim in view. I would spare no pains to be obliging, to always be in a good humor—outwardly at least—regardless of how things were running. Above all things I tried to be careful and exact, giving the patron just what belonged to him and not an ounce more, for I believe that all men have more confidence in the man that is exact and careful than the man who will give you a little the best of it when you are looking. The patron figures that if you will gouge the other fellow when his back is turned you might try the same on him when he is not looking. Men will talk about the exact man as being small and stingy and close-fisted and all that, but when it comes to dealing with the man that does business for both seller and buyer, that is the kind of a man they are looking for. And, I would endeavor to keep up my machinery so I would not have to stop and repair in the midst of a run, for nothing gets a man out of humor more than to be about half-done filling his cans with skim-milk and then have to stop and wait a half hour, or an hour, when he might be sitting by the fire at the village store spinning yarns with his neighbors. Having become satisfied that myself and station were in shape to give me no trouble, I would go out in the byways and hedges after the individual man. I would watch the stores and find out those who were marketing butter; then I would go to their places and try to interest them in the creamery business. I would know what they were getting for their butter. I would find out how many cows they were milking. I would compare their income from their cows with the incomes of the patrons of the station, and would figure out to them how much they were losing. I would do this by taking the amount of milk they were getting and multiplying it by the average test and by the price paid for

the creamery products and in that way would win a great many. Then I would find a great many that were prejudiced against the creamery business on account of having been patrons back East of the old gathered cream concerns, the kind that would fall in business with a month's milk checks due the patrons.

The question of feeding to increase the milk flow and thereby increase the milk check is another very good subject to talk to the farmer. Of course sometimes you run across a case like the darkey speculating in hogs, and when you have that kind of trouble it is necessary to be careful and use your tester to show that man why he did not make money on his feed as well as his cows. To us in the western part of the State this question of feeding is a great question, as the farmers have become so accustomed to just feeding enough to keep their cows alive.

To others, I would offer to loan cans to try it a month. If not satisfied they could return the cans and they would cost them nothing, and if they were satisfied, they could pay for the cans. I never had to take any cans back.

Still another way of securing patrons is by getting a good man to run a milk route. All men are not good milk-haulers. It takes a man with considerable hustle in him to make a good milk-hauler, as it is a steady job every day, rain or shine. When I had secured a hauler, I would, to use a homely phrase, proceed to "stand in with him," and we would work together, he to get more milk to haul and I to get more patrons; so that between us, by talking creamery to them every time we saw them we would proceed to make life miserable for those that milked cows and did not send their milk to the creamery.

Another method used was to get the good will of the merchants and have them talk creamery whenever it came handy.

Now I want to say something about the treatment of kickers, for there will be kickers I care not who operates the station. I found that all, or nearly all kicking is on the test, and so I made it a point to study the Babcock test, and having satisfied myself that it was positively correct as showing the amount of butter-fat in the milk, I then proceeded to get as nearly a correct sample of milk as possible and treat all alike and then invite my patrons, and especially the kickers, to come and see the testing done. I would also ask them to bring samples of their individual cow's milk; also bring samples of night's milk from their herd; also a sample of their morning's milk, and then show them the variation in the test. I have never seen a kicker whom I could induce to come and watch me test whom I could not convince of the reliability of the Babcock test. It is only those who are so prejudiced and narrow-minded that they will not come and see the testing done, but still send up an everlasting kick.

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that you can do nothing with. The quicker they quit the creamery and go back to the methods of their grandfathers and let the moss continue to grow on their backs, the better it will be for the peace of mind of the operator and the live patrons.

The method of working by newspapers bearing on the dairy business I found to be a very good one. I would endeavor to get hold of good dairy papers and then find the best articles, and when I would find a man who was milking cows, I would have him read them and then give him the paper to read, which he nearly always would do if I got him to read the first article, and he would also distribute all the dairy literature I could secure.

Last but not least, I found that it paid to keep posted on all the issues of the day, as patrons of the creamery business include all or nearly all types of men. With some you will have to talk on one thing, with others it will be something else. With one it will be politics, with another it will be stock or something else, and you must be interested in it all, for if you do not they will think you are partial for talking with those that are congenial and talk only on subjects you are most interested in. In fact, you must know all about everything that is going from the last funny thing said or done by the Gridiron Club down to the best method of treating a sick calf. So I might go on down a great list of things said and done to secure a large patronage, but all, or nearly all, was striving to satisfy that patronage that I already had.

Does It Pay To Make Second-grade Butter?

W. F. JENSEN.

I will give you some personal experience that I have had on this question of quality of butter, but I will first say, most emphatically, under no consideration does it pay to make and market a second grade of butter, even if there is one to three cents per pound saved in the hauling of the cream and the making of the butter.

I started in the creamery business in Kansas nine years ago, and have seen the time when the word "Kansas" before the word "butter" made the butter absolutely unsaleable. When I started in the creamery business in Beloit, Kans., in the fall of 1893, I wrote a letter to a prominent commission firm in New York City, requesting them to handle my account in New York City on consignment. You know what it means to consign good; the consignee sells the goods at whatever he can get, deducts the freight, shrinkage, drayage, and his commission and then sends the consignor check for the balance. You would hardly believe it at this time and day, but in answer to my letter requesting this prominent firm to handle my account, they wrote that Kansas butter was not desirable, and that they did not care to handle it under any condition. That was the time when there was no reputation established on Kansas butter, when mostly second-grade goods had been manufactured in this State, when most of the butter throughout the East, South and West was sold under the name of Elgin creameries.

Farmers of Kansas, perhaps, can hardly realize the work that has been done by Kansas creameries in the past eight years to build up and market and gain a reputation for Kansas creamery butter, and to-day Kansas butter is taken under its own name and is equal to the best butter made in this country.

In late years the hand separator is coming into universal use, and by reason of this, many farmers do not haul their cream as often as they should. There is but one criterion of fine quality of cream; it must be sweet and fresh so that it can be pasteurized and cooled. It should be hauled every day in summer and every other day in winter to the skimming or receiving station. There is butter made in Kansas to-day from hand-separator cream and which is sold under the reputation built up by Kansas butter during the last eight years; but this can not be done forever, and it must be the policy of every Kansas creamery patron to take a broad view of this subject, a patriotic view, and see that he brings to the skimming or receiving station a first quality of sweet, fresh cream.

Butter-fat in hand-separator cream is worth to-day 25½ cents delivered to cream-receiving and skimming stations. When the consumer buys a pound of butter and pays for same 29 to 30 cents, what induces him to pay such a high price if it is not the pure flavor, the pure aroma, and pure taste found in a first-class creamery butter? If the consumer wanted to buy merely a pound of grease, he could buy a pound

of lard or a pound of oleomargarine or a pound of dairy butter, the wholesale price of which to-day is only 12 to 13 cents per pound. I maintain that when the consumer pays 29 to 30 cents for a pound of first-class creamery butter, he pays 10 or 15 cents for a pound of fat and the balance of 15 to 20 cents he pays for the pure taste, pure aroma, and the pure flavor in first-class creamery butter. It is the purity of this butter that increases the demand and consumption of it.

When any one argues that it pays the Kansas farmer to bring his cream once or twice weekly, to take a little less for his butter-fat by reason of the cream not being first-class; when any one argues that this is a good proposition for the farmer, I say it is a most dangerous proposition that has ever come up before the Kansas farmer engaged in dairying. There is an active demand for the very best kind of creamery butter only. This demand is steadily growing; the demand and consumption of same are increasing. This is what makes the market high; this is what gives the farmer more for his butter-fat to-day that he has received for many years. If the market were flooded with second-grade butter it would be lower; and when the question is argued that the farmers of Kansas can afford to bring their cream but once weekly, take one to two cents less for their butter-fat and save hauling expenses, I say it does not pay, taking into consideration the present, next year, and the year after.

To get a top price, to stimulate the demand and the consumption, we must make the best of everything and that is the only permanent basis to work on. The finest creamery butter to-day is worth 28 cents per pound; dairy butter to-day is worth 12 cents per pound. This, in itself, is the best object lesson we need. It pays to make the best, the very best only, even should it cost the farmer one or two cents per pound butter-fat more to have it hauled. He should have it hauled every day in the summer time, every other day in the winter time; this is the only sure, permanent basis on which creameries in Kansas and other places can operate and make money for themselves and for their patrons.

Butter Scores.

The butter exhibit was controlled by the dairy department of the Kansas Agricultural College, and this exhibit was the first of six monthly exhibits to be made by Kansas butter-makers.

There were twenty entries of butter, which scored as follows:

F. L. Senter, Ottawa.....	92½
C. E. Kelsey, Richmond.....	89
D. Morning, Parsons.....	91½
A. Jensen, Topeka.....	95¼
B. Jensen, Topeka.....	95¼
L. Larson, Topeka.....	95½
Jas. Fitzgerald, Yoder.....	90
W. C. Walcott, Tonganoxie.....	95
E. H. Scaggs, Tonganoxie.....	95
Jacob Meyer, Topeka.....	95
R. P. Chalender, Ottawa.....	93½
F. J. Bonny, Ottawa.....	93½
A. C. Tannehill, Topeka.....	94½
W. Flannery, Topeka.....	93½
C. F. Armstrong, Clyde.....	89
C. C. Carroll, Blue Mound.....	89
C. Mansfield, Topeka.....	93½
L. R. Manley, Topeka.....	89
O. E. McDowell, Hillsboro.....	93
H. F. Meyer, Great Bend.....	92

Professor C. H. Eckles, of Columbia, Mo., did the scoring.

Report of Committee on Resolutions.

Resolved, By the Kansas State Dairy Association at its annual convention, Manhattan, Kans., March 3 to 6, 1903, that we thank President Nichols, the faculty and the professors, and especially Professor Otis and Professor Webster of the Kansas State Agricultural College for the kind and courteous treatment extended to our Association during this and former years. We are always glad to meet here and we are proud of this great college and its work.

We learn with pride that Professor Webster, one of our wide-awake Kansas boys, will soon leave us to accept a responsible position in the Dairy Division of the United States Department of Agriculture. We are sorry to lose him.

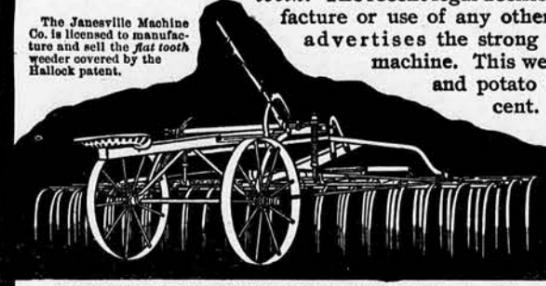
Since our last convention has passed from our ranks Mr. Edwin A. Kimball, the founder, and for sixteen years manager of the Creamery Package Mfg. Co., of Kansas City, Mo. We miss Mr. Kimball. He was a friend of us all and contributed perhaps more than any one man to build up the dairy interest of Kansas. We extend to Mrs. Kimball and their four children our heartfelt sympathy for their loss of a husband and father in his prime of life.

We heartily endorse Mr. Ed Sudendorf for the position of Dairy Commissioner at the World's Fair in St. Louis, 1904 or 1905. His acquaintance and ex-

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perience makes him peculiarly well fitted for this work.

The farmers of Kansas are buying hand separators. This we recognize as a great step, advancing the dairy interest of Kansas. We find, however, that there are a great many opinions as to how cream from hand separators should be handled. It is the sense of this association that cream should be cared for and delivered often so that it be sweet and fresh and pure when it arrives at the creamery. This practically means an every-day delivery in summer and an every-other-day delivery in winter. From such cream our butter-makers can make a first-class butter, a butter that will bring the top price and increase the demand. We recognize this as a true, permanent principle to work upon to so arrange our work from the farm to the consumer that the best butter is made.

W. F. JENSEN,
ELMER FORNEY,
CHAS. DILLE,
Committee.

Resolutions.

The following resolution was adopted by the State Dairy Association and sent to the following: Governor Bailey, Lieutenant-Gov. Hanna, Chairman of Ways and Means Committees:

Whereas, An effort is being made by the agricultural, live stock, manufacturing, dairying, and other industries of our State to hold a State fair during this year; and

Whereas, A bill looking to the organization and promulgation of this project has passed the State Senate and is now pending before the Houses of Representatives; therefore be it

Resolved, By the Kansas State Dairy Association, in annual convention assembled at Manhattan on this 3d day of March, 1903, that we declare ourselves heartily in favor of such State fair; that we believe it will be of incalculable benefit to the whole State; and further, that we hereby express our good will to the Senate of the State of Kansas, which has so wisely passed the said bill, and to the House of Representatives, and ask that the fullest consideration be given to the bill and that it be passed, to the end that such fair may be held; and we hereby pledge our hearty support to the project and will do our utmost to make it a success in every respect and a credit to our State.

Westward the Star of "Empire" Takes Its Way.

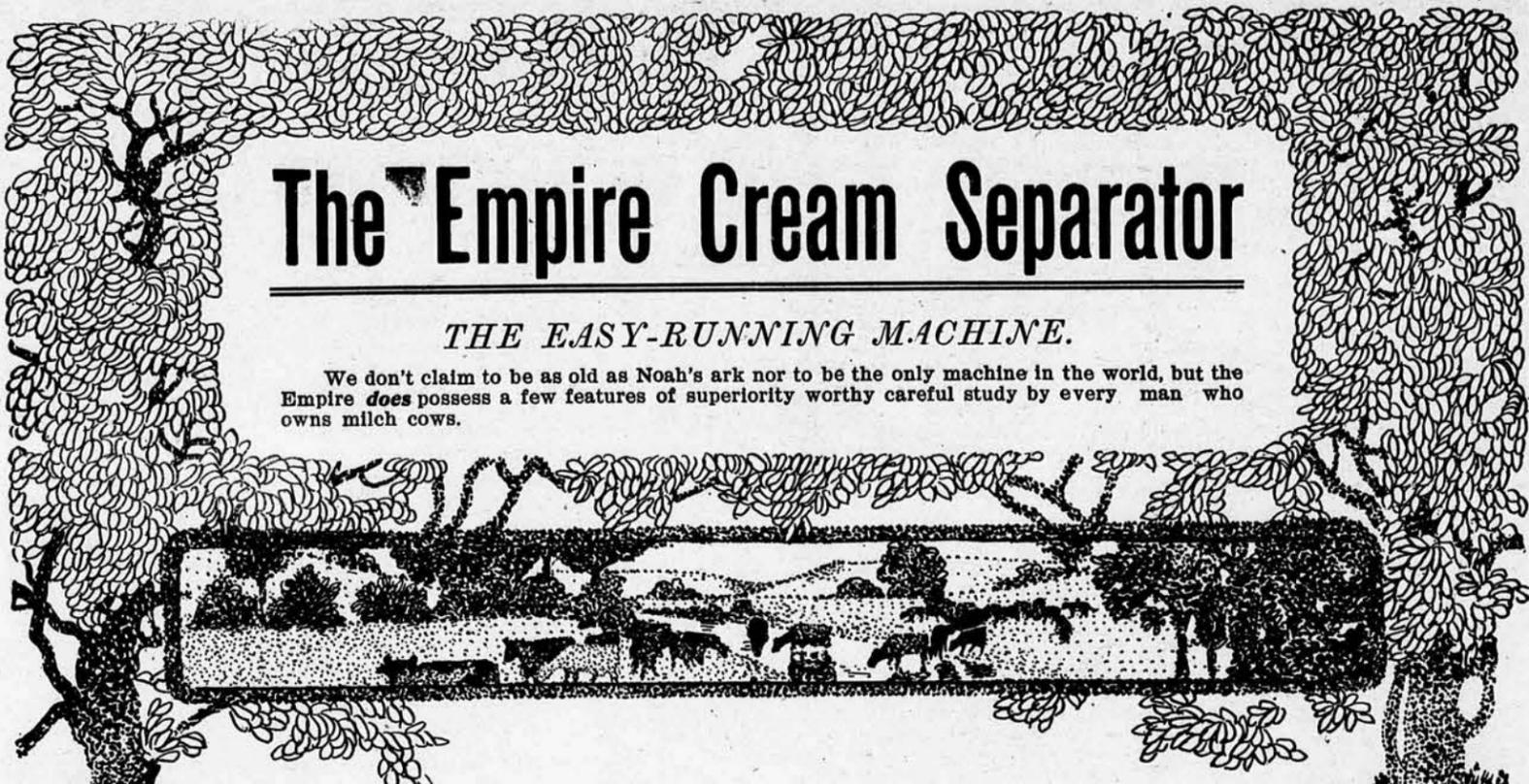
We have always been warm admirers of the push and enterprise which is so characteristic of the progressive American business man. When this characteristic develops in some new and original form it serves to increase interest. On March 2 and 3, at Salina, Kans., was held a convention which we believe to be unique in the history of the State. Under the auspices of the Empire Cream Separator Company a meeting of hand-separator dairymen and individual shippers was called which had for its object the instruction of the men engaged in the creamery, dairy, and hand-separator business, as well as for the instruction of the general public. In spite of the extremely disagreeable weather, there was a large attendance at Odd Fellows Hall which served to bring together men from different States as well as from widely differing points of our own State. Officials of the Company were present from Missouri, Illinois, and Nebraska, with a large general attendance from Kansas, Nebraska, and Oklahoma. The meeting was a most interesting one and of great value to those present and was

characterized by discussions of the problems which confront the officers of this company in advancing their interests and in meeting competition. Courtesy to rivals, gentlemanly deportment, and fair dealing were points that were emphasized as essential to success among the employees, and when the points of merit of the Empire Cream Separator were placed in comparison with those of machines made by rival companies, the discussions entered into were free from all appearance of hostility and from uncourteous statements. The object of the meeting has been stated, though its secondary purpose was of a missionary nature in making known the merits of the Empire Hand-Separator to the farmers and dairymen of central Kansas. With the development of her immense alfalfa-fields it has been demonstrated that central and western Kansas, which was once thought to be useful only for wheat-raising and pasturage, has become one of the best dairy districts in the State, and it was with the idea of getting in touch with this locality that the Empire Cream Separator Company assembled its officers and field men in an institute at Salina.

Although long accustomed to attend farmers' and other meetings held in the interests of progressive agriculture, the writer does not remember to have attended any which seemed to be so entirely composed of hustlers and of men who thoroughly understand their business. The Empire hand-separator is a comparatively new machine and is comparatively new to this territory, and it is offered to the farmers and dairymen as an improvement in mechanical construction over machines that have perhaps been longer known. This meeting was presided over by Mr. Ernest E. Bell, secretary of the Empire Cream Separator Company, of Bloomfield, N. J., and it did not take the audience long to find that this great machine started at the sound of the "Bell." On the table in front of the presiding officer was a dissected hand-separator which showed every part of the Empire machine as well as the process of manufacture. This proved not only instructive and valuable to the farmers and dairymen present but was of especial interest to the field men of the companies represented when fully explained, as it was, by the experts of the Empire Company. This exhibit was afterwards carried to Manhattan to the State Dairy Association, where it proved equally attractive to the students and visitors in attendance.

This meeting was well attended, though the inclement weather doubtless cut off some local visitors from its sessions. It was a very enthusiastic meeting and many good things were said in the various papers presented. Our intention was to publish a full stenographic report of the proceedings but we are now in receipt of a letter from the advertising representative of the company which announces that the stenographers have so far failed to complete a report and we shall have to defer the publication of these papers until some future time.

This meeting had been arranged so as not to conflict with that of the State Dairy Association, held at Manhattan the same week. Monday's session was devoted largely to questions concerning hand-separators from the creameryman's point of view. By the adoption of this system the creameryman is enabled to draw upon a larger district than would be possible were he handling whole milk. He is thus able to greatly reduce the cost of production, and, by making large and more uniform shipments of butter, to com-



The Empire Cream Separator

THE EASY-RUNNING MACHINE.

We don't claim to be as old as Noah's ark nor to be the only machine in the world, but the Empire *does* possess a few features of superiority worthy careful study by every man who owns milch cows.



Judge For Yourself.

Lots of folks are making cream separators—good enough in their way. All of them can't be "the best"—no matter what they claim. All right, then. You want the one that suits you the best. Investigate for yourself.

This is what we claim for the Empire:

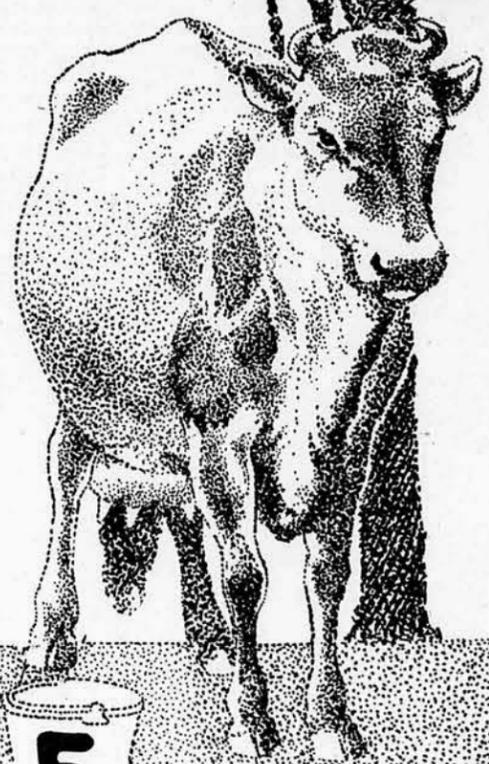
- It's the simplest separator built.
- It has the lightest bowl, and the most perfect skimming device. It does not need heavy machinery to turn the bowl; therefore it runs lightly—turns easily.
- A child can separate a whole milking without tiring.
- The bowl is easily cleaned—a most important feature. "Not half the work to care for it," say hundreds of Empire users.
- Nothing about the Empire to get out of order; therefore, you have no worry, and no Heavy Repair Bills.
- It's a very popular machine. We have just doubled the size of our factory and still are working overtime. During the past year 2,500 Empire separators have been sold in Kansas alone. And every one of them is giving satisfaction.

There are a hundred other reasons why you will like the Empire. Our book tells about them. Send for the book—or better yet, let us show you the machine itself. We want you to try it.

**...Empire...
Cream Separator Co.**

Bloomfield, New Jersey.

Western Office :
FISHER BUILDING, CHICAGO, ILLINOIS.



mand a better price in the market. One fact stood out prominently in this meeting, namely, that the whole-milk system is already a thing of the past because it has been superseded by the vastly better and more economical hand-separator system, as long since predicted by the KANSAS FARMER.

At this session also the relative merits of hand-separators now on the market were freely discussed. It is agreed by all that the ideal conditions surrounding the use of the hand-separator must include simplicity of construction, ease of operation, and facility for ready cleansing, the latter point being especially emphasized, as cleanliness is the first requisite of good dairy products and unless a machine can be easily cleaned it will in a very short time become so foul that tainted cream will be its product, and from this it is impossible to make good butter. As a German visitor expressed it, he had once come upon a hand-separator which one could smell "for six oder ten feet." The Empire cream hand-separator was shown to meet all the requirements mentioned above and testimony was given as to its wearing qualities.

Monday evening's session was devoted to a discussion of advertising. Marco Morrow, of the Frank B. White Company, Chicago, led in the discussion with a very interesting paper calling attention to the method which has been pursued by this company, together with its plans for the future in conducting the advertising of this great institution, all of which were heartily commended by Mr. Bell and others present. Mr. I. D. Stevens, of Chicago, followed with some interesting general remarks, culled from past experience which served to keep the note-books of the field men open. He was followed by Mr. I. D. Graham, associate editor of the KANSAS FARMER, who stated, in part, that advertising had two general purposes—first, publicity, which has for its object the statement of mere facts and the giving of information. This, of course, is best accomplished by the agricultural press and this point was elaborated upon somewhat. As the subject included the use of circular matter by the field men, the second point made was that conviction should be sought by this means. In other words, while the newspaper announces the business in hand and serves to arouse interest in it, it will be the duty of the more elaborate circular to state facts in such detail as to convince the mind already interested. The speaker advocated the use of attractive circulars gotten up in the highest style of the printers' art, each one of which should have a special purpose. These circulars should be sharp pointed, dealing with one subject each and should contain nothing but the truth. A difference was made between the naked truth and that which is partly clothed. In the use of such circulars, importance was placed upon the personality of "The Man Behind the Gun." No circular, however attractive, will produce its best results if distributed indiscriminately and by men who are without tact or whose manner carries offense.

Tuesday was patrons' day and was intended for a discussion of all hand-separator questions from the farmer's point of view. Some very valuable facts were brought out here. One farmer from Iowa said that he could not afford to go back to the old system of dairying for \$500 per year—not that he received that much more money for his cream directly, but he did receive extra cash in his monthly check, in addition to the enhanced value of his skim-milk. The added value of his calves and the fewer stunted pigs on his farm made him much more than \$500 ahead on his year's account, even though he gave no credit to the vast amount of labor saved. A Nebraska farmer testified that under the new system his wife and boys had conducted the dairy, and during 1902 their cream checks amounted to \$600 which they were able to leave untouched for current expenses.

All present were enthusiastic in their praises of the easy running qualities and simplicity of construction which they found in the Empire cream separator, and we only regret that a very much larger audience was not present to hear the good things offered at this meeting. The papers read and discussions offered at this meeting were of direct value to every farmer and dairyman regardless of the kind of hand-separator that he might use. This great force of enthusiastic men in attendance were of course interested in promoting the use of the Empire hand-separator, and they did it, but the facts brought out were in the interests of advanced dairy methods

and are applicable to the interests of every dairy farmer in the West.

The evening session was devoted to the discussion of a banquet given by the Empire Company at the National Hotel. Covers were laid for one hundred guests and a most delightful menu was served. Following the banquet came the toasts, with W. W. Marple, of the Blue Valley Creamery Company, St. Joseph, Mo., "on the stool" as toastmaster. The writer has attended many banquets in his brief existence and has listened to, or slept through, a great many toasts, but it is not now remembered that he ever attended a banquet where the toasts were so uniformly bright and good. Mr. Marple is inimitable as a toastmaster and never rose to his feet to announce a toast that he did not relate some anecdote which served to either renew the good humor of the occasion or to convulse the house with laughter.

After invocation by Rev. S. S. Estey, of Salina, the following toasts were responded to:

The City of Salina, Postmaster T. D. Fitzpatrick.

The Commercial Club, J. A. Kimball, Salina.

The Man Behind the Cow, Chas. Harding, Omaha.

The Empire of To-day and To-morrow, L. G. Humbarger, Abilene.

The Blue Valley Creamery Company, M. H. Potter, Turon, Kans.

The Hygeia Creamery Company, Chas. L. Wilson, Stuart, Iowa.

The J. P. Baden Produce Company, V. E. Rugh, Winfield, Kans.

Our Competitors, Irving D. Stevens, Chicago.

The Sunflower State, Geo. B. Crichton, Winfield.

Our Wives and Sweethearts, Marco Morrow, Chicago.

Push, But Don't Knock, Ernest E. Bell, Bloomfield, N. J.

The Empire Management, Toastmaster W. W. Marple, St. Joseph.

Informal Talks, "The Whole Push."

On Wednesday morning the meeting adjourned and the Empire Separator Company provided a special car which carried the convention in a body to Manhattan to attend the meetings of the Kansas State Dairy Association then in session at the Agricultural College. On the trip a large banner reaching the entire length of the special car and containing the name of the Empire Cream Separator Company was displayed on the outside of the car, and on landing at Manhattan it was carried in procession by about twenty enthusiasts who made the old town ring with the famous Empire "yell."

Thus ended a meeting which we believe to be the first of its kind ever held in the State, and the second of a series which is now being held in the dairy States of the West by the Empire Company, to which credit is due for whatever educational influence it is thus exerting.

Pasteurization Spreading.

EDITOR KANSAS FARMER:—If any one special progress in dairying is being watched more generally than anything else it is unquestionably pasteurization. Since I published my first practical experience in that line of work in 1891 in "Hoard's Dairyman and Creamery Journal," great changes have taken place. Then most people considered sterilizing and pasteurizing about the same thing, and the well founded objections to the first were transferred to the latter; and while there always was a great difference between these two processes, still, pasteurization was carried out in such unscientific, haphazard manner, that the results generally became very unsatisfactory and uncertain. It is only during the last few years, since greatly improved apparatus has been placed on the market, that this important system is being adopted, both for supply of milk and cream for direct consumption, and for butter-making in the creameries.

Let us agree upon one point: That two characteristics are absolutely essential for lasting success in any line of the dairy work.

QUALITY AND UNIFORMITY.

No matter whether we furnish milk and cream for the consumer in the city or we make butter, we must not only supply the best most of the time but all the time; that is what uniformity means. That is what so rapidly converts city housekeepers in spite of all old prejudices, and soon teaches them to prefer properly pasteurized milk and cream to any other, because it is not only free from any unpleasant or "cowy" flavors, but is always sure to be right and always alike. The consumer can see the cream line distinctly on the milk in the bottle, and also that no sediment is found at the bot-

The Forest Park Creamery Co.

OF OTTAWA, KANSAS,

Owens the finest Creamery Plant in the West; equipped with every modern appliance for the manufacture of both butter and ice cream, and the reputation our goods have gained attest to the ability and skill of our workmen.

We Make a Specialty of

Hand Separator Cream

paying therefor at our skimming-stations 3½ cents less than New York quotations for "Extra" Creamery Butter, or if delivered at your nearest shipping station in good condition 2½ cents less than New York.

We are Agents for the Famous

DE LAVAL CREAM SEPARATORS

and can furnish you any style or size of these machines at lowest cash prices or on easy terms where purchaser desires time.

We also establish Cream Receiving Stations at points where 15 or more farmers will buy hand machines. We already have a large number of individual cream shippers but having facilities for making and marketing unlimited quantities of butter, want more.

WHY NOT BEGIN NOW? NEW YORK PRICE OF "EXTRAS" ...IS 29 CENTS....

Net price to you 26½ cents at your station.

Fancy Ice Cream And Ices...

We make everything in ices—plain or fancy ice cream, and respectfully solicit your orders, guaranteeing prompt shipment and quality.

Write us for full information regarding any of these matters, and don't fail to call at our plant when in Ottawa. We can show you something out of the ordinary and you will be cordially welcomed.

Forest Park Creamery Co.

Ottawa, Kansas.

DO YOU WANT MORE MONEY?



Zorich, Kans., Jan. 17, 1903.
To the Blue Valley Creamery Co.
I can say that we are using one of your Empire Cream Separators, No. 2, and are well pleased with it. It works to perfection and is a great labor saver. We wouldn't do without one. I have seen some others at work but like the Empire better than any of them. We are well pleased with your system and your fair dealing with us. We expect to ship you all of our cream.
T. LOWRY.

Parnell City, Mo., Dec. 12, 1902.
Blue Valley Creamery, St. Joseph, Mo.
Dear Friends: Your check of the 6th on hand and am sorry to say that we will have to quit sending cream for a while. Would be glad to have some of that 28 cents too but our cows have all gone dry. We will have to have some of them come in in the fall after this. I will send next spring again. I am well pleased with your system. I have been well treated by you folks and made me lots of money. We made more money this year out of our cows than we ever did in two years before. Butter is worth 15 cents in Parnell now. That is a long way from 28 cents. I must do better next year in regard to having some fall cows fresh. You may use my name any way you want to advertise the Blue Valley Creamery Company. Hoping to hear from you in business, yours truly
A. E. KLAAR.

Kinsley, Kans., Aug. 10, 1902.
Blue Valley Creamery Co., St. Joseph, Mo.

Gentlemen: I bought an Empire Cream Separator of the Kinsley Implement Co. in May. Before that I had worked for years just for the fun of milking. Since getting it I realize some benefit out of my labor. I am satisfied that I have saved from \$200 to \$300 in the last two years by not having a separator. I have invested about \$50 in farm implements and there is not one that will bring as big returns as the Empire Cream Separator. I have tried the skim milk after skimming and have found it perfectly free from cream. I would not part with it for any price if I could get another. Yours very truly
J. A. OB RAPP.



Yours anxious to please

Give strict attention to the dairy department on your farm. Handle your milk in the most profitable way; separate it on the farm; feed the calves good, pure, fresh, warm sweet milk and ship your cream to the....

BLUE VALLEY CREAMERY CO., ST. JOSEPH, MO., who paid last year for butter-fat the....
WONDERFUL AVERAGE OF 23 CENTS.

Period	Average per month
Jan. 1, to Feb. 1	23c
Feb. 1, to Feb. 9	24c
Feb. 9, to Feb. 17	26c
Feb. 17, to Feb. 24	28c
Feb. 24, to Mar. 1	27c
Average for February	26c
Average for March 1, to April 1	25c
April 1, to Apr. 8	25c
Apr. 8, to Apr. 20	28c
Apr. 20, to Apr. 25	25c
Apr. 25, to May 1	22c
Average for April	25 7-10c
May 1, to May 15	22c
May 15, to June 1	21c
Average for May	21 1-2c
June 1, to June 15	21c
June 15, to July 1	20c
Average for June	20 1-2c
Average for July 1, to August 1	19c
Average for August 1, to September 1	19c
Sept. 1, to Sept. 15	19c
Sept. 15, to Oct. 4	21c
Average for September	20c
Oct. 1, to Oct. 15	21c
Oct. 15, to Oct. 22	23c
Oct. 22, to Nov. 1	24c
Average for October	22 1-3c
Nov. 1, to Nov. 20	24c
Nov. 20, to Dec. 1	26c
Average for November	24 2-3c
Average for December 1, to January 1	28c

Write to us for booklet explaining in detail our system. Send for tags and seals and ship your cream to us. Have your banker investigate us. Read the experience and opinions of others.

BLUE VALLEY CREAMERY CO., ST. JOSEPH, MO.

Guy, Kans., Jan. 17, 1903.
Mr. Ed Crum, Hoxie, Kans.
Dear Sir: I think it will interest you to get a statement of how I am getting along with the Blue Valley Creamery Company. Last month I hauled whole milk to the separator station and I got a check for \$23.46. My first month sending cream to the Blue Valley Creamery Company I got a statement that \$54.32 is due me, making a difference of \$30.86. I milked the same cows and gave them the same feed. This is a correct statement. A. S. MORGAN.

Lyons, Kans., Jan. 29, 1903.
This is to certify that I have an Empire Separator, No. 2, that I bought of your agent, D. V. Huebner, Bushon, Kans., April 10, 1902, and as I have used it every day since that date and have skimmed milk from seven to ten cows with the best results and the separator has not had any repairs, and I find the bearings all in perfect shape and it doesn't show the wear in the least. My little girl 9 years old washes it and takes care of same and as I have tried two other separators I must recommend the Empire as the simplest and easiest to run and the best results obtained. Yours respectfully,
F. E. SWISHER, R. F. D. No. 3.

Wheeling Mo., May 17, 1902.
Blue Valley Creamery Co., St. Joseph, Mo.
Gentlemen: We have been shipping cream to you for about two months. Can say we are highly pleased with results. It makes less work and more profit.
Yours truly,
FRED S. WOOD.

Varner, Kans., Dec. 15, 1902.
Blue Valley Creamery, St. Joseph, Mo.
Dear Sir: Please accept our appreciation of the Empire Cream Separator. All shipments are satisfactory. It is a boon to the dairy business and a labor-saver. We realize one-fourth more than at the skimming station. Yours truly,
Mrs. Palmer Brown

Russell, Kans., Sept. 11, 1902.
Blue Valley Creamery Co., St. Joseph, Mo.
Dear Sir: The check was received with great pleasure. We like your system much better than any other we ever tried. We have sold butter, we once sold cream, we sold the milk at no time to the creamery in Russell but to send the cream to St. Joe is the best. Yours truly,
H. Tiedeman.



tom; he can taste the sweet, pleasant flavor, and finds that it keeps sweet much longer than the raw product. These advantages are too obvious to the average housekeeper not soon to be appreciated. By handling only pasteurized milk and cream the dealer is in a position always to keep a sufficient supply on hand for any unforeseen extra demand, and the housewife prefers to deal with a milkman who at all times can supply her with all she wants and always the same superior article. Neither dairyman, dealer nor consumer suffers loss from premature souring, and much needless annoyance and worry is avoided for all concerned. That this is so you can easily ascertain from the many large milk-supply firms in the cities, which have adopted pasteurization for all milk, cream, ice-cream and buttermaking.

WHAT IS PROPER PASTEURIZATION?

Professor Russell, of Madison, Wis., in his excellent "Outlines of Dairy Bacteriology," mentions the following requirements for properly pasteurized milk:

1. Absolute freedom from disease bacteria.
2. Ordinary milk bacteria should be diminished.
3. Improved keeping quality.
4. Normal taste and appearance.

To these requirements should be added that no such change should take place in the milk, as will interfere with the perfect and rapid rising of the cream, and coagulation of the milk should take place like in raw milk when rennet is added. Whatever apparatus fulfills these claims most perfectly will be the one preferable for all purposes. Prof. Russell also states that the thermal deathpoint of disease germs depends on:

1. The temperature used.
2. The length of exposure to the heat.

To these conditions should be added the suddenness of application of heat as well as cold, which have been found most important factors in gaining the best results by the lowest possible heat for the shortest possible time. That this principle is correct is easily proven by the changes in all apparatuses used; all efforts go into the direction of lessening the body of milk to be

heated. Large vats were divided into narrowed spaces, ten-gallon cans were discarded for narrow shot-gun cans, and the various machines used all reduced the layer of milk between the heating surfaces to the smallest practical.

Various pasteurizers are now on the market and more are coming; each may have some points in its favor, which the various manufacturers will be only too happy to tell you about. If you have come to the only sensible conclusion, that whether you want to supply milk and cream to a city or whether you want to make the finest butter of greatest keeping quality, you want to pasteurize, and do it in the very best way, then write to all manufacturers of such machines; then try to find some well-known parties who have used different ones for different purposes and get all information you can; then send at once for the one you think the best for your purpose. Only always keep this rule in mind: Whatever machine heats and cools the milk most uniformly, by the shortest exposure to the least extreme heat; which leaves no scorched milk on the heating surface, and yet destroys bacteria thoroughly, still changing the natural character and flavor of the milk the least, must be the most reliable pasteurizing apparatus for every purpose.

BUTTER FROM PASTEURIZED CREAM.

While as yet comparatively few creameries have adopted pasteurization for buttermaking, still it is a most noteworthy circumstance that all who have pasteurized long enough to know how, are unanimous in praising the advantages. Too many rest on old laurels and think because they thus far have received top prices nobody can beat them on quality. So did the dairymen of Holstein think forty years ago; but to-day, no Holstein butter is quoted in the English market, and Danish has taken its place. System and pasteurization have done it; without them, that extraordinary uniformity of quality, for which Danish butter is renowned, would have been impossible. And as gradually one creamery after another will go into shipping milk or cream to some extent during the season when the nearby supply of the cities run short, it will be more im-

portant every year that the summer surplus should be made into the very best pasteurized cream butter, which, when kept in frozen storage, will come out the following winter equal in delicate flavor to the very best winter-made product. That this may be done has been proven, and the creamery which puts its surplus pasteurized butter in storage next summer will not have to worry about shortage in winter supply. But to do this successfully no every-other-day cream can be used. It will be necessary that cream should be delivered daily at the creamery or skimming station and at once pasteurized and cooled. Pasteurized cream, though, may be kept several days below 50 degrees before shipment or ripening for churning. Deliveries of milk, of course, also must be daily. The only way to check further deterioration of our hand-separator-cream butter will be to make proper pasteurization the test as to fitness: Daily cream deliveries will be found the only salvation unless a practical farm pasteurizer is put on the market. Wait till that comes, and we shall then see what may be accomplished. J. HOLDENHAWER. Stark County, Ohio.

Kansas Creameries, Skimming Stations and Cheese Factories.

Compiled by the Department of Dairy Husbandry, State Agricultural College. Corrected to March 1, 1903. Towns in bold-faced type are churning points.

- Acme Creamery Association.—Acme, Bonaccord.
- Admire Creamery Company.—Admire.
- Armstrong, C. F.—Clyde, Brantford, Clifton, Concordia, Day, Huscher, Talmo, Hollis, Coma.
- Baden, J. P., Produce Company.—Winfield.
- Basehor Creamery.—Basehor, Birmingham, North Cedar, Half Mound, Wallula.
- Belle Springs Creamery Company.—Abilene, Appleville, Beverly, Borner City, Brookville, Chapman, Culver, Dayton, Dillon, Donegal, Ellsworth, Frederick, Geneseo, Gypsum City, Holland, Ladysmith, Longford, Lorraine, Moonlight, Navarre, Niles, Rhinehart, Sallina, Talmage, Tescott, Trudell, Upland.

- Blue Mound Creamery Company.—Blue Mound, Bush City, Kossuth, Mapleton.
- Brady-Meriden Creamery Company.—Kansas City, Mo., Boyle, Cadmus, Dunavant, Easton, Eudora, Kincaid, Lamisburg, McLouth, Meriden, Neodesha, New Lancaster, Rock Creek, Valley Falls, Winchester.
- Brandt, D. S.—Dwight.
- Bull, John (Cheese).—Cimarron.
- Burlington Creamery Company.—Burlington.
- Cawker City Creamery Company.—Cawker City, Dispatch, Car Creek.
- Continental Creamery Company.—Topeka, Agra, Allison, Almena, Alton, Angelus, Arkansas City, Auburn, Asherville, Aroma, Ada, Augusta, Aurora, Americus, Belmont, Berryton, Barclay, Bala, Brewster, Brownell, Belleville, Benton, Bethel, Beloit, Belvoir, Blue Hill, Basil Bendena, Big Springs, Beeler, Beaver Valley, Burr Oak, Bogue, Carbondale, Clay Center, Coal Creek, Conway Springs, Comiskey, Council Grove, Conway, Clayton, Canton, Cheney, Colby, Collyer, Colbert, Cunningham, Cottonwood Falls, Centralia, Caldwell, Danby, Denmark, Dunlap, Densmore, Dresden, Dinas, Delevan, Downs, Dorrance, Douglass, Dubuque, Enterprise, Elyra, Elmdale, Ellen, Emporia, Everiss, Erpelding, Eureka, Everest, Frankfort, Ford, Formosa, Fowler, Fairview, Gorham, Galva, Green Mound, Goddard, Goodland, Garfield, Glasco, Galatia, Gaylord, Gaeland, Greenleaf, Grainfield, Gem, Glen Elder, Hartford, Halford, Hill City, Harris, Horton, Howard, Hoyt, Holton, Hoxie, Irving, Idana, Inman, Industry, Jamestown, Jewell City, Jennings, Johnstown, Kirwin, Kanapolis, Keats, Kanarado, Kingman, Lecompton, Lenora, Leon, Lehigh, Little River, Little Valley, Lincoln, Linn, La Crosse, Langdon, Leonardville, Logan, Louisville, Lost Springs, Luther, Lyndon, Lindsay, Lamar, Lucas, Levant, Latimer, Menlo, McPherson, Maxon, Menno, Meriden, Michigan Valley, Mingo, Marvin, Moline, Milton, Mankato, Meredith, McCracken, Mound City, Mound Ridge, Mont Hope, Mound Springs, Moreland, Mulvane, Manchester, Miltonvale, Naroka, Natoma, Norwich, Norway, Ness City, New Murdock, Oak Hill, Oakley, Osage City, Ogallah, Oskaloosa, Orion, Olsburg, Osborne, Olivet, Onaga, Otis, Pawnee Valley, Phillipsburg, Pe-

FIVE YEAR GUARANTEE ON CREAM

THE J. P. BADEN PRODUCE CO., Winfield, Kansas.

How Does This Proposition Impress You?

We will bind ourselves to buy your Separator Cream from any Centrifugal Separator on present basis of five years, and give you the privilege of stopping at any time.

We will pay for butter-fat in cream received by us in good condition, as shown by the Babcock test, on a basis of quotations of Extra Separator Creamery Butter in New York as follows:

New York Quotations Generally One Cent Higher than Elgin.

Within 150 miles of Winfield.....	2 1/2 cents less
From 150 to 200 miles of Winfield.....	3 cents less
From 200 to 250 miles of Winfield.....	3 1/2 cents less
From 250 to 300 miles of Winfield.....	4 cents less

Mark your cans. deliver to your Express Agent—
WE DO THE REST.

We will pay all Express Charges and return cans
FREE OF CHARGE.

The above prices are for delivery at your nearest railroad station on any road reaching Winfield.

The J. P. Baden Produce Co.

We will put this in contract form if you wish.

What we are striving to do is to enable the farmer of "Sunny Kansas" to make as much, if not more, out of the Produce Business, than his Eastern brother, or we might say his competitor. We have only operated the Creamery Department on the Hand Separator Plan since October 1st, 1902, and have already 800 active cream shippers, or in other words we are getting the cream from 800 cream separators, most of which are the celebrated Empire Machine, which is to-day the most popular separator in existence, and has done more to revolutionize the dairy business than any other Separator.

We are the pioneers in the Produce Business in the West. Mr. J. P. Baden, now deceased, commenced the same in June, 1879, and after years of hard work established the best known, and best patronized house any where west of the Mississippi River, in fact there is no other house handling the variety of produce on as large a scale in the United States. This business has had a steady growth since 1879 and last year, 1902, the largest growth in its history.

The volume of business amounted to over two million dollars. In pounds, dozens, etc., as follows:—
1,500,000 pounds country butter.
2,500,000 pounds dressed poultry.
250,000 pounds hides. (Six months business.)
36,000,000 eggs.

In addition to the above, we manufactured two cars of ice daily. We manufacture pillows, cushions, mattresses, down comforts, and in fact all feather articles.

During the year of 1902 we spent over Thirty Thousand Dollars (\$30,000.00) in improvements and new additions.

After reading the above you will see that by doing business with us, you are in connection with a concern capable of handling all kinds of produce to the best advantage, having a cold storage capacity of 20,000 cases of eggs, 250,000 pounds of poultry, 200,000 pounds of butter, thus enabling us to take the best of care of our perishable produce during the warm weather.

Come and see us and we will take you through our various departments and let you see for yourself.

Send for our Book of Information for the Dairyman.

THE J. P. BADEN PRODUCE CO., WINFIELD, KANS.

kin, Peck, Penalosa, Plainville, Portis, Pontiac, Preston, Parallel, Pretty Prairie, Palco, Pratt, Paxico, Quinter, Quincy, Ramona, Rexford, Roxbury, Reamsville, Riverdale, Rossville, Rhinehart, Ransom, Rosemont, Riley, Rhine, Riverside, Rosalia, Rose Hill, Rock Creek, Stuttgart, Selden, Scandia, Seguin, Stuttgart, Sharon, Sylvan Grove, Stockdale, Sharon Springs, Saltville, Soldier, Scottville, Sunflower, Speed, Sterling, Stockton, Smith Center, Shady Brook, Solomon City, Sudyville, Tampa, Thompsonville, Turkey Creek, Tully, Turon, Utica, Varney, Viola, Victor, Vine Creek, Vassar, Vesper, Wichita, Wakeeney, Waldo, West Branch, Wallace, Wakefield, Winona, Walsburg, White House, White City, Woodbine, Yorktown, Zenda, Zurick, Zenith.

Continental Cheese Factories.—Rhinehart, Bridgeport, Herington, Carlton, Melvern, Reno, Burlingame, Reading, Humboldt, Neosho Rapids, Kipp, Buckeye, Sutphen, Allen, Nortonville, Detroit, Strickler, Whiting, Dover, Potter, Beloit, Williamsburg.

Crawford County Creamery Company.—Pittsburg, Arma, Brazilton, Opolis, Hickory, Girard, Walnut. W. W. Egbert (cheese).—Cimarron. Eskridge Creamery Company.—Eskridge.

Farlington Creamery Company.—Farlington.

Floral Creamery Company.—Floral, Atlanta, Latham, Wilnot, Glengrouse, Burden, Cambridge, Tisdale.

Forest Park Creamery Company.—Ottawa, Baldwin, Briles, Centropolis, Clearfield, Colony, Edgerton, Gardner, Garnett, Halls Summit, Pomona, Williamsburg, Lebo, Hoods, Lane, LeLoup, Mt. Ida, Norwood, Pioneer, Pleasant Hill, Pressonville, McCandless, Prairie Center, Rantoul, Homewood, Quenemo, Vassar, Waverly, Wellsville, Willow Springs, Princeton, Welda, Sugar Vale. Funk, H. C.—Durham, Alvine, Schrader.

Fulton Creamery Company.—Fulton. Fort Scott Butter Company.—Fort Scott, Branson, Deerfield, Fulton, Harding, Hepler, Hiattville, Mapleton, Pawnee, Redfield, Uniontown, Moran, Dovan. Girard Creamery Company.—Girard. Greeley Creamery Company.—Greeley.

Greenbush Creamery Company.—Walnut, Greenbush, Shultz Farm, Forterville.

Heizer Creamery Company.—Heizer,

Albert, Alexandria, Bazine, Bison, Hodgeson, Francis, Pawnee Rock, Timken.

Hess & Erb.—Harper, Argonia, Duquoin, Spivey.

Hesston Creamery Company.—Newton, Peabody, Sedgwick, Bentley, Burdett, Buhler, Ebenfeld, Elbing, Eldorado, Furlay, Goessel, Halstead, Hesston, Kechi, Potwin, Rock Springs, Sandy Creek, Severy, Sunnydale, Trousdale, Towanda, Whitewater.

Hope Creamery Company.—Hope. Hillsboro Creamery Company.—Hillsboro, Aulne, Canada, Menno.

Iola Creamery Company.—Iola, Moran.

Junction City Creamery Company.—Junction City, Alida.

Kerr, W. J.—Palmer.

E. I. King & Co.—Logan. Leavenworth Dairy and Creamery Company.—Leavenworth, Denison, Jarbola, Kansas City (Kan.), Kickapoo, Standish, Winchester.

Lone Star Cheese Company.—Lawrence, R. F. D. 8.

McCune Creamery Company.—McCune, Laneville.

Merritt, W. G.—Great Bend, Claffin, Coal Creek, Hanston, Jetmore, Nekoma, Olmitz, Shaffer, Rush Center, Otis, Hargrave, Galatia, Verbeck.

Neosho Valley Creamery Company.—Chanute, Villas, Leanna, Urbana, Earleton, Piqua, Quincy.

Nessley, J. E. & Co.—Topeka.

Norton County Creamery Company.—Norton, Clayton.

Nortonville Cheese Manufacturing Company.—Nortonville.

Overbrook Creamery Company.—Overbrook, Appanoose, Globe.

Parkman, G. W. & Son.—Emporia. Parker Creamery Company.—Hutchinson.

Pleasanton Creamery.—Pleasanton. Pleasant Hill Cheese Company.—Chapman.

Queen City Creamery Company.—Parsons, Altamont, Dennis, Morehead, Galesburg, South Mound, Erie, Edna, Oswego, Bartlett.

Reading Cheese Factory.—Reading. Richmond Creamery Company.—Richmond, Pomona.

Rutledge, T. A. (cheese).—Maple Hill.

Rock Creamery Company.—Rock, Akron.

Sabetha Creamery Company.—Sabetha.

Scotch Plains Creamery Company.—Scotch Plains, Belleville.

Schrock Bros.—Yoder, Bland, Colwich, Darlow, Groveland, Medora, Partridge, Windom.

Spencer, A. B. (cheese).—Spearville. Spencer, Henry (cheese).—Ravana.

Spring Hill Creamery Company.—Spring Hill, Bucyrus.

Tiemeier, H. W.—Lincolntonville, Antelope, Highland.

Tonganoxie Creamery Company.—Tonganoxie, Hodge, Neely, Reno.

Troy Creamery Company.—Troy.

Walton Creamery Company.—Walton, Creswell, Good.

CANCER ON THE ARM CURED BY THE COMBINATION OILS.

Emporia, Kans., October 18, 1901. Dr. D. M. Bye Company, Indianapolis, Ind.

Dear Doctors:—Believing you would be glad to know of the recovery of your patients, I am pleased to tell you the cancer on my arm is well. It is wonderful, this rapid recovery. I do not believe things happen, but that the Lord rules in all things, and that He led me to try your wonderful cure. May the dear Father bless you in your work of healing is the earnest prayer of your grateful patient,

Mrs. A. J. Wooster.

The Combination Oil Cure was originated and perfected by Dr. D. M. Bye. He has cured many very bad cases without pain or disfigurement. Those who would like to know more about it, or who desire free books and papers, should write to the HOME OFFICE of the Originator, Dr. D. M. Bye Company, Drawer 505, Indianapolis, Ind.

We call special attention to the number of new poultry cards among our regular poultry display cards and in our "Special Want Column." Some especially good values are offered by these advertisers, so that our readers who are on the lookout for something good in pure bred poultry should not fail to consult these announcements. Adam A. Welt, of Clay Center, Neb., has 275 first-class hens of Barred Plymouth Rocks, uses one male to each 14 hens and guarantees to satisfy any reasonable customer.

The eye is an important organ and should have special care. If you have any trouble or affection whatever it is better to consult a specialist, such as advertised in the Kansas Farmer. This week we have the first advertisement of Dr. F. Geo. Curtis, 303 Shukert Building, Kansas City, Mo. He has gotten out a very interesting book which he will send

free to all who write for it and mention this paper.

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

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

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

In chronic cases where the sufferer usually knows some hours before that a headache is coming on the attack may be prevented entirely by the use of one or two Anti-Pain Pills.

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

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

Anti-Pain Pills are a perfect pocket remedy, as they may be swallowed whole or chewed and swallowed with equally good results. They do not contain opiates nor create a craving, they do not affect the stomach or bowels in the slightest degree and are never sold in bulk. All druggists sell and guarantee them to benefit or money refunded. Twenty-five doses for 25 cents, or five packages for \$1. They will be mailed upon receipt of price.

Dr. Miles' Medical Co., Elkhart, Ind.



DISEASES OF MEN ONLY.

The greatest and most successful Institute for Diseases of Men. Consultation free at office or by letter. BOOK printed in English, German and Swedish, explaining Health and Happiness sent sealed in plain envelope for four cents in stamp. All letters answered in plain envelope. Vaginal diseases cured in five days. Call or address

Chicago Medical Institute,
518 Francis Street,
ST. JOSEPH, MO.

THE PANAMA CANAL.

(Continued from page 345.)

practices were resorted to in raising money, and the honored name of De Lesseps was besmirched as with the foul mud of Panama.

Meantime, the Government of the United States investigated a route farther north. Treaties were negotiated and the work was soon to commence. This route possesses many advantages, but is subject to the disadvantage of a much greater length.

The French company had reached the limit of its resources. Its work would be a total loss unless it could sell out to the United States. It offered for \$40,000,000 to transfer all the rights, concessions, unfinished work, plants, and property it possessed at Panama. By act of Congress the President was authorized to accept the offer providing only that a satisfactory treaty with Colombia could be concluded.

The treaty gives the United States the use of a zone of territory three miles wide on each side of the canal for 100 years, renewable at the option of this Government. The canal is declared neutral in perpetuity, and Colombia agrees to provide armed forces for the protection of the canal if necessary, and in the event of her inability to do so the United States is authorized to employ forces for that purpose. Work is to begin within two years, and the canal is to be open for passage within fourteen years. For the exclusive rights and privileges secured to the United States by the treaty, Colombia is to receive \$10,000,000 in gold and \$250,000 annually after the first nine years.

Upon the ratification of the treaty by the Colombian Congress and the payment of \$40,000,000 to the Panama Company the United States thus secures the route that has received the unqualified indorsement of nearly all the leading engineers of the world as the most feasible and the most economical for an isthmian waterway. The Panama Canal follows the line originally adopted by the old company, from Colon to Panama, being about 47 miles long from deep water to deep water.

The completion of this great work will probably change the direction of much of the commerce of the world. While remote from tidewater, the great central food-producing sections of the United States are likely to be affected greatly to their advantage. The course of commerce between these sections and the seaboard has been with difficulty maintained along east and west lines. The importance of the outlet via the Gulf of Mexico can not but be greatly augmented. The advantage of the shorter and more natural routes to tidewater will assert themselves with increased energy. A mighty turning of traffic to Gulf ports seems inevitable.

THE OBERLIN INSTITUTE.

Mr. A. Arwedson, of Oberlin, Kans., sends us a copy of the program for a "merchants' and farmers' meeting" which was held in that city on Saturday, March 14. The meeting was opened by an address of welcome by Hon. W. D. Street, ex-regent of the State Agricultural College. This was followed by a discussion of the question, "Why Should Business Men be Interested in Dairying," by W. S. Fleming. A novel feature appeared in this meeting by the introduction of prize essays by school children. The subject given them was, "Why a Girl or Boy Should be Interested in Dairying," and the prize of \$2 was won by Miss Hazel Connell, who had a very excellent essay. Other subjects discussed were, "Dairying in Decatur County," by S. O'Toole, Oberlin; "Milking for Money," Prof. W. H. Phipps, Junction City; "Educational Advantages in Dairy Work," Prof. L. G. Humbarger, Abilene, and "Caring for Cream," by A. Arwedson, Oberlin. The last paper was especially to the point and was full of valuable information to both old and new dairymen. The meeting as a whole was a decided success and will be of lasting benefit to the citizens of Decatur County whether they were in attendance or not.

KANSAS FARMER'S NEW WALL ATLAS.

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

"UNFIT FOR WORK"

The Doctor's Verdict and How Mr. Graham Disregarded It

"The doctor said I was not fit for work and that if I wanted to live I would have to give up business," said F. J. Graham, of No. 125 Jefferson Street, Peoria, Ill.

"And I was incapacitated," he continued. "It was a kind of incipient paralysis and it is due to Dr. Williams' Pink Pills for Pale People that I am now in perfect health again. First I would be hot, then cold and clammy and at times my body felt as if pierced by needles. There were terrible pains all over me and then I would have no feeling at all. A numbness sometimes came over me and I could not move. With it all were agonizing headaches and a pain in the region of my spine. I look back on it now and wonder how I retained my reason through that long and trying ordeal. There were months and months when I got no natural sleep and my nervous system was a wreck from pain and the opiates which I had been obliged to take.

"One day I read the statement of a man who had been cured of a case like mine by Dr. Williams' Pink Pills for Pale People and I began taking them. The first box did so well that I continued until six boxes were taken and I was entirely well. I have been in perfect health ever since."

No other medicine in the world has accomplished so many cures in cases that were apparently hopeless, as Dr. Williams' Pink Pills for Pale People. The cure of Mr. Graham is only one instance out of thousands, and the reason this remedy is so wonderful in its efficacy is because, unlike any other medicine, it acts directly on both the blood and the nerves. Dr. Williams' Pink Pills contain, in a condensed form, all the elements necessary to give new life and richness to the blood and restore shattered nerves. They are an unfailing specific for such diseases as locomotor ataxia, partial paralysis, St. Vitus' dance, sciatica, neuralgia, rheumatism, nervous headache, the after-effects of the grip, palpitation of the heart, pale and sallow complexions and all forms of weakness either in male or female. Dr. Williams' Pink Pills for Pale People are sold by all dealers, or will be sent postpaid on receipt of price, 50 cents a box, or six boxes for \$2.50 (they are never sold in bulk or by the hundred) by addressing Dr. Williams Medicine Company, Schenectady, N. Y.

on the outer cover with a handsome design composed of the flags of all nations.

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

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

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

The daily press brings the information that E. A. King, of St. Joseph, Mo., has been elected a member of the Board of Directors of the First National Bank of Buchanan County, St. Joseph, Mo. This is considered as a distinct recognition of marked business ability, and when to this is added the statement that a numerous signed petition asking him to become a candidate for mayor of the city of St. Joseph has just been presented to him, it will be seen that he has a recognized place among the business interests of his community. Mr. King is president of the St. Joseph Pump Manufacturing Company and manager of the Missouri Anchor Fence Company, of St. Joseph. The pump manufactured by Mr. King's company has proved itself one of the most satisfactory and hence popular pumps on the market because of the fact that it is made of galvanized steel throughout. Even the tubing which goes to the well or cistern, for the pump is equally good in either, is made of seamless galvanized steel tubing.

Good People to Do Business With.

The Manter Mercantile Company, of Kansas City, Mo., is a new mail-order house that is rapidly coming to the front. Their 1903 catalogue, which they will mail free to any interested person, is full of bargains from cover to cover. It illustrates hundreds of articles for the home and farm which are sold at wholesale prices direct to the consumer. It will be well worth the while of any of our readers to write for their catalogue. We call

attention to their special grocery offer elsewhere in this issue; also their incubator offer.

The New Home of the O. F. Chandler Creamery Co.

We herewith publish an illustration of the new home of the O. F. Chandler Creamery Company, located at 410-12 West 6th St., Kansas City, Mo. Messrs. O. F. Chandler & Co. established this business in a small way several years ago, and by close attention to their business and a high regard for every obligation the establishment has grown from



a small side-street store to one of the largest creameries in the West, and their new plant became a necessity in order to be able to handle their growing trade to an advantage. This enables them to pay a larger cash price for eggs, butter, and cream, which is purchased direct from the farmer at the highest possible cash price. Every farmer tributary to Kansas City is fortunate if he has his name on the payroll of the O. F. Chandler Creamery Company for everything he has for sale in this line.

After the business of this company had grown to such proportions, they decided to establish cream routes, and during the past year many of these routes have been established in western Missouri and eastern Kansas. Under this system, experienced men employed by this company call at the farmer's house at stated times, buy everything the farmer has for sale, paying cash for same; and in this way the farmer sees his cream weighed and knows that he is getting all that is due him, besides having his skim-milk at home and in a condition to be fed to his pigs or calves to advantage, which is not the case where he is compelled to haul it to town, and then home again. The creamery routes organized by this company have become very popular, and as their benefits and advantages become more generally known they will be found in every section.

This company deserves the patronage of an appreciative public for the economies that have been introduced into this growing industry. They have brought the producer and consumer very close together, for which they deserve much credit. The growing business of this establishment shows how their efforts along the lines of improvement are appreciated, and the treatment accorded all who have business relations with them is such as to hold such for all time, their patrons and friends. We take pleasure in recommending them to our readers.

True to their Name.

The Champion Harvesting Machines are certainly true to their title, especially as they are represented in new machines for 1903. These machines retain all the new and distinctive improvements as well as the old points of advantage which have made this machine so popular in the past.

We do not hesitate to advise our readers to send direct to the Champion Division of the International Harvester Company for their handsome catalogue, which tells in an interesting and convincing way the points of interest in this high grade harvesters. The book will be mailed cheerfully upon application.

There isn't a lamp chimney made that isn't ashamed of its maker except **MACBETH'S.**

My name on every one.

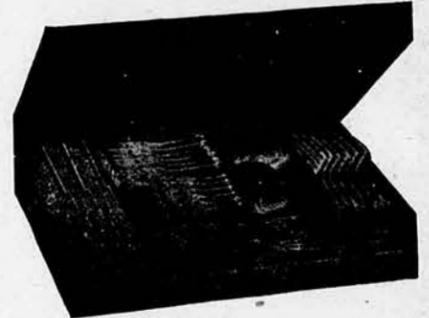
If you'll send your address, I'll send you an Index to Lamps and their Chimneys, to tell you what number to get for your lamp.

MACBETH, Pittsburgh.

WHY BUY PLATED WARE

when you can get a casket of

Solid Australian Silverware?



28 Pieces of Elegant Tableware, consisting of 6 Table Knives, 6 Table Forks, 6 Dessert Spoons, 6 Teaspoons, 1 Sugar Shell and 1 Butter Knife, put up in a neat case and will be sent, express prepaid, for only \$8.00.

Send C. O. D.—Privilege to Examine if Desired.

Warranted to look and wear better than Sterling Silver for 30 years with ordinary use, and if not perfectly satisfactory money refunded. There is no plating to wear off. It is solid Australian Silver and wears better than the best plated goods. We engrave an artistic Initial Letter on each article in the case Free of Charge.

If goods are engraved and sent C. O. D., we require a deposit of \$1 with order, to insure your good faith in ordering. With each case we send a 2-oz. box of our Celebrated Australian Silver Polish.

A SET FREE—To the first person in each locality who orders one of these Caskets, we will send a set of six Australian Silver Orange Spoons, or six Australian Silver After Dinner Coffee Spoons. Send for FREE Sample of Australian Silver and Metal Polish.

Sample Sugar Shell, postpaid, 25c.

REFERENCES:—Any Express Company in Detroit.

PEOPLE'S MANUFACTURING CO.
DEPT. K, DETROIT, MICH.

Skin and Blood Disease Positively Cured.

NO CURE, NO PAY. CASES GUARANTEED

Pay your money when you are benefited. I care not how many others have treated you, nor how long you have suffered. I have cured hundreds of cases and have hundreds of testimonials from people that I have treated and cured. I shall be glad to send testimonials upon application. If you are ailing, DON'T GIVE UP HOPE, but call at my office and see me, or write me, enclosing a two-cent stamp for reply.

A. A. Brower, M. D.,

Suite 1, 711 Kansas Ave., Topeka, Kans.
Both 'Phones 924.

CREAM SEPARATOR

FREE

This is a genuine offer made to introduce the **PEOPLES CREAM SEPARATOR** in every neighborhood. It is the best and simplest in the world. We ask that you show it to your neighbors who have cows. Send your name and the name of the nearest freight office.

MANISTIQUE, MICH., Feb. 2, 1901.
Peoples Supply Co., Kansas City, Mo.

DEAR SIR: I have received your cream separator in good order. It is one of the grandest things on earth. It doesn't require any hard work; a child can regulate it. We always had a good deal of trouble with our milk, but this separator beats anything. No dishes to wash; the milk remains sweet, and that is just the thing for pigs and calves.
Yours truly,
AUGUST WILKE.

PEOPLES SUPPLY CO.

KANSAS CITY, MO.

Department 587.

Agricultural Matters.

Selection of Seed Corn.

PROF. P. G. HOLDEN, IOWA AGRICULTURAL COLLEGE.

Corn is our greatest cereal crop. The Statistician of the Department of Agriculture reports the corn crop of the United States for 1902 as being 2,000,000,000 bushels, worth over \$1,000,000,000. This is the product of 94,000,000 acres, giving an average yield of 26 1/2 bushels per acre.

LEADING CORN STATES.

The States showing the greatest acreage and yield for 1902 are as follows:

State.	Acreage.	Total yield.	Average yield per acre.
Illinois.....	9,623,680	372,436,416	38.7
Iowa.....	9,302,688	297,686,016	32.0
Nebraska.....	7,817,962	252,520,173	32.3
Kansas.....	7,451,693	222,805,621	29.9
Missouri.....	6,775,195	264,232,605	39.0
Indiana.....	4,520,637	171,332,142	37.9
Ohio.....	3,200,224	121,608,512	38.0

These are the States of the Union giving a yield of 100,000,000 bushels or more and are therefore the great corn States of the corn belt. At the Experiment Stations of each of these States special work is now being done to determine how to increase the yield per acre, so as to supply the growing demand for this useful cereal.

ACREAGE OF CORN LIMITED.

The number of acres are circumscribed but the yield can, and should be, greatly increased. The average for the nation can be doubled by improving our methods of selection, planting, and culture.

THINGS TO CONSIDER IN SELECTING SEED. One of the first things to consider is the seed we plant. Before we decide upon the variety of corn to plant we



PROF. P. G. HOLDEN, AMES, IOWA.

should note the character and length of the corn growing season. This last fall in the State of Iowa the early September frosts so damaged the corn crop that only 4 per cent graded No. 2, and the majority of the crop was unmarketable.

Then, too, the farmer must note the quality of the seed he plants and the locality where grown.

DO NOT IMPORT SEED CORN.

No farmer can afford to depend on imported seed for the main part of his crop. Seed-corn imported from a distance and especially from a different latitude seldom gives satisfactory results the first two or three years, even though the seed may be of the best, which oftentimes is not the case.

It is well known that most of the seed-corn put on the market by seedsmen is bought of farmers in crib lots, shelled, screened and sacked ready for sale, little or no attention being paid to the selection; in fact, it is generally handled with a scoop shovel, and is known as the "scoop shovel method of selection."

The chances are that the farmer has in his own crib better corn than that which he purchases from seedsmen at four or five times the market price. And then he runs the additional risk that it will not mature in his locality.

If it were simply a matter of losing the price of the bushel of imported seed-corn, it would not be serious, but when we consider that a bushel of seed-corn ought to produce 400 bushels of corn worth from \$130 to \$160, the serious nature of the question is very apparent.

If, for any reason, my own corn was not satisfactory for seed, I certainly would not send away for seed-corn, but would purchase from some one in the vicinity whose corn has given good re-

sults during the past three or four years.

It will be an excellent plan, however, for two or more persons in a neighborhood to secure a small amount of good seed of some of the standard varieties of this and of other States, and give them a good trial. In this way it is probable that varieties will be found which, after they have become acclimated, will prove of considerable value to the community.

PURCHASE SEED-CORN IN THE EAR.

I would recommend the purchasing of seed-corn only in the ear. This enables the purchaser to see exactly what he is getting and if it is not satisfactory, he can return it. It also enables him to throw out any undesirable ears. The seedsmen can not improve the corn by shelling it, so there is no good excuse for him to refuse to ship it to you in the ear.

In order to secure a good stand it is necessary to exercise great care in selecting and sorting the seed. All ears with very large or very small kernels should be thrown out, no matter how perfect they are in other respects. The same is true of all ears with very thick or very thin kernels, or with very short or very long, narrow grains, and the irregular butt and tip kernels should be shelled off. In other words, no planter will give an even stand unless the kernels are of uniform size and shape.

PLANTER TEST.

I know of no thing that would do more to increase the yield on every farm in the corn belt than the careful selecting and sorting of the seed-corn, both in the ear and after it is shelled; and then stay with it, until the planter will drop the desired number of kernels per hill at least 93 to 96 times out of 100 tests. It may be necessary to have the plates of the planter drilled or get new ones, or take more care in sorting out the large, small, and irregular kernels. The main thing is to stay with it until the work is satisfactory. The preparation of the seed-corn and the testing of the planter should be done during the latter part of February and the forepart of March. If this important work is put off until April or May, it is very likely to be neglected, as is often the case. This is simply a matter of good business management and no one can afford to neglect it, for there is so much of our success depending on every bushel of the seed-corn we plant.

The following planter tests we have just made and the results emphasize the importance of using only uniform sized kernels to get a good average stand.

When all the kernels of the ear were used the following record was made in 100 drops:

1 kernel.....	1 time.
2 kernels.....	6 times.
3 kernels.....	66 times.
4 kernels.....	25 times.
5 kernels.....	1 time.
6 kernels.....	1 time.

When only the middle kernels of the ear were used, the following record was made in 100 drops:

2 kernels.....	8 times.
3 kernels.....	92 times.

When the tip and butt kernels of the ear were used the record in 100 drops was:

No kernels.....	3 times.
1 kernel.....	14 times.
2 kernels.....	30 times.
3 kernels.....	48 times.
4 kernels.....	5 times.

When deep and shallow kernels of good quality, differing only in depth and width of kernel, were used the resulting record was:

2 kernels.....	5 times.
3 kernels.....	75 times.
4 kernels.....	18 times.
5 kernels.....	2 times.

The following is the record made by separating the kernels so as to have uniform sized kernels in each lot:

Group 1. Shallow kernels.		Group 2. Deep kernels.	
1 kernel.....	2 times.	2 kernels....	4 times.
2 kernels....	2 times.	3 kernels....	92 times.
3 kernels....	95 times.	4 kernels....	4 times.
4 kernels....	1 time.		

Care should be exercised to select ears with kernels that show regularity while on the ear, as the following test shows.

Very irregular kernels in one ear—butt and tip kernels shelled off:

1 kernel.....	6 times.
2 kernels.....	19 times.
3 kernels.....	74 times.
4 kernels.....	1 time.

By comparing this with regular kernels from another ear, butts and tips shelled off, the value of the test is clearly shown. Regular kernels:

2 kernels.....	8 times.
3 kernels.....	92 times.

These tests show that the only way to get an even stand of a uniform number of kernels is by energetic, earnest testing of the corn planter before it is

GRAPE VINES

STARK GRAPE NURSERIES
Portland, N. Y. are in the heart of the famous Fredonia-Chautauqua Grape Belt, which produces

the best vines of any locality in the U. S. An Immense Stock.

	1-Yr. No. 1	2-Yr. No. 1
BRIGHTON, large red, rich, sweet, best	\$4.00	\$6.50
CAMPBELL EARLY, early black	\$30.00	\$55.00
CATAWBA, large red; late, very good	8.50	11.00
CONCORD, well known "Old Stand-by"	75.00	100.00
DELAWARE, a most excellent red	4.00	6.00
DIAMOND, finest white; very early	3.50	4.50
IVES, black; fair quality, hardy, healthy	4.50	5.50
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taken to the field. Test the plates until you can get one that drops 93 to 96 times out of a hundred the number of kernels that you want. If no plate is satisfactory, drill one down or secure new plates that will give satisfactory results.

TEST VITALITY OF SEED.

It is a good plan to make a preliminary test of the vitality of the seed before the sorting is done, to determine whether it is fit for seed purposes or not. This can best be done by selecting from the pile, say fifty or one hundred ears, and removing two to three kernels from each ear and testing them. If the germination test shows 94 per cent or above, the seed will certainly be in good condition. It is important that each ear of corn be shelled by itself so that it can be examined more closely before it goes in with the rest of the corn. If the kernels are shrunken at the tips, too pointed, discolored, or the germ is small, indicating low feeding value, the whole ear should be discarded. If, on the other hand, the ears of corn are all shelled together, it will be impossible to select out all the weak kernels.

After the corn has been sorted, shelled and thoroughly tested in the planter, it should be put back in sacks, about a bushel in each sack and hung up in a dry place in the loft or where there is thorough circulation of air, and where it will be free from mice, but do not hang it over a stable.

MAKE A GERMINATION TEST.

About the twentieth of April [earlier in Kansas], a thorough germination test should be made. There are many methods of doing this and any of them will be satisfactory. The important thing is not to fail to make the test. About one hundred kernels should be taken from each sack by running the hand down into the corn so as to get a fair sample.

One of the simplest methods of testing seed-corn, and one which requires little attention, is to fold up twenty-five or fifty kernels of the corn in a piece of wet paper and put it in a box. There is nothing better than a cigar box for this purpose. The paper should be thoroughly wet and several thicknesses used so that it will not dry out. It is well to place some moistened pieces of paper in the bottom of the box and again on top of the samples to hold the moisture.

It is very important that the tips of the kernels—the portion next to the cob—should be full and plump so that there is no space between the kernels down near the cob. In selecting our seed-corn it is important that we should do more than look at the ears; we must study the kernels.

In order to make a thorough test it will be well to prepare at least five or six samples like the one described above. They should all be put into the same box and a string tied around it so as to hold the cover on tight, to prevent the corn from drying out. At the end of three days it will be well to examine the corn and if the papers are getting dry they can be moistened. At the end of five days the final examination should be made.

SORTING SEED-CORN.

I know of no better way to sort and prepare the seed-corn than to place forty or fifty ears on some boards or tables and with all the tips pointing one way. Select an ear that most nearly represents the type you prefer. With this ear in your left hand, go over all the ears on the board and, with the right hand push out those ears which show too great variation from the type in size, length, shape, roughness, color, size and shape of kernel, etc. Now gather the few remaining ears together, and, with a knife, remove three or four kernels from each ear and place in front of each ear, with the germ or chit side up. Now go over these kernels carefully, for here is where we have failed most in the past. We have studied the ears, but have paid little attention to the kernels. First discard those ears which have kernels unusually broad, long or thick, also those which are very narrow, thin or short. This is absolutely necessary before we can expect any planter to drop a uniform number of kernels in each hill. Discard all ears with kernels which are shriveled, or are too pointed, indicating low vitality and poor feeding value. The butts and tips should now be shelled off and the ears shelled as above described. But this is not all. This corn is not ready for the planter until it has been picked over by hand, removing the broken, rotten, discolored, irregular, weak and chaffy grains. This seems like a great deal of expense, but no farmer can afford to do less than this.

When we remember that it is possible

for a bushel of seed-corn to return us 700 bushels next harvest, we can readily see the folly of neglecting this work. What is a day, or even two days, spent on this bushel of seed-corn, and especially at this season of the year?

SUMMARY.

1. That it is very important that we should depend upon home grown seed for the main part of the crop, and not upon imported seed.
2. That we should select ears of corn for seed which have kernels of as nearly uniform size and shape as possible, otherwise it will be impossible to secure an even stand with any planter.
3. Do not fail to test the planter thoroughly with the seed you intend to use, and stay with it until it drops regularly the number of kernels required in each hill.
4. Test the vitality or germinating power of all corn intended for seed. This is especially important this year.
5. In case any seed-corn is purchased from seedsmen, insist on having it shipped to you in the ear, either in crates or in barrels.
6. All of this work, that is, the testing of the vitality, the sorting, the shelling and the testing of the planter, should be done now, and the sooner the better. If put off until the hurry of spring work is upon us, there is danger that it will not be done at all.

Regulate Land Rents.

EDITOR KANSAS FARMER:—A law to regulate rents on farm lands is badly needed, but never talked of. Rents are going so high that moneyed men want more land, and the renter—well, he will try and pay the rent—and his wife can manage to pay for the food. Pass a law that farm land shall not rent for more than \$2 per acre or a third the crop, and it will knock the polish off the moneyed man's business and he will look for other investments. What we want is fewer landlords, and more men who own the land they farm. It is not the high price of land or high rents that make a country prosperous, but the productions of the land, small farms going into the hands of the renter. We have laws regulating railroad traffic and rates of interest. So let us have a law regulating rents on land. M. F. KILGORE. Reno County.

New Crop Alfalfa Seed for Fall Sowing.

EDITOR KANSAS FARMER:—I have a field of alfalfa seeded in the fall of 1901, that produced three good cuttings of hay last season. How can I secure seed from this field in time for fall seeding? What is the most practical way to handle for a seed crop? Woodson County. W. M. KINYON.

Cut the first crop for hay as soon as it commences to bloom. Let the second crop make seed. If the season prove favorable this seed may be gathered in time for sowing at the best time of the season, namely, the last half of August. Some recommend that the seed crop be cut with the binder and dropped in bunches without binding. Stack as soon as dry, taking care to handle as little as may be. A great deal of alfalfa seed is thrashed with a common grain thrasher.

Cow-Peas and Kafir-Corn.

EDITOR KANSAS FARMER:—In continuation of my article on cow-peas, Kafir-corn, etc., published in FARMER of March 5, will add, that the Kafir-corn and cow-peas were seeded with a shoe drill with press wheels, about three-fourths bushel Kafir-corn and a peck of Whippoorwill cow-peas to the acre. This made lots of feed that was fairly well eaten. It would have been eaten up clean could we have cut it at the proper time. Owing to weather conditions, it would not be cut at the right stage but stood until the seed was thoroughly ripe and stock rather woody. We first began cutting with wheat-binder; this put it in handy shape to handle, but because of so much rain the bundles moulded in the center. The remainder I mowed, raked in wind-rows, and hauled from the rows to stack. This makes lots of heavy pitching. My conclusions from past season's experience are, to not plant very early, to drill in rows about thirty to thirty-six inches and plant thickly, add about one-third cow-peas, if you can, and cut as soon as the sap sweetens, or soon after the bloom falls. When Kafir-corn or cane stands until any quantity of seed forms, cattle will nip off the heads and tramp-under foot more fodder than the seed is worth.

If you want to grow Kafir-corn for seed crop, the most seed and least expense can be had by sowing with wheat-drill about one-half bushel of

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Every sick and ailing woman,
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"DEAR MRS. PINKHAM:—I have been under doctors' treatment for female troubles for some time, but without any relief. They now tell me I have a fibroid tumor. I cannot sit down without great pain, and the soreness extends up my spine. I have bearing down pains both back and front. My abdomen is swollen, I cannot wear my clothes with any comfort. Womb is dreadfully swollen, and I have had flowing spells for three years. My appetite is not good. I cannot walk or be on my feet for any length of time.

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seed per acre, cutting as soon as seed is hard enough to mature in the bundle, cut, shock in open shocks and thrash as you would a grain crop. In this way the fodder or straw will make better feed and be eaten up cleaner than when the stocks are large and stand in the field until the tops are cut cut off, which is a job nearly every one will shirk as long as he can, until the fodder is practically worthless as feed. This season I will try Indian corn and cow-peas together, one-half each, and drill, a bushel to about three acres. In this case I will try and get a variety of cow-peas that will not mature under ninety to one hundred days

so as to give the corn time to grow good "nubbins" and sweeten the sap before cow-peas ripen.

Montgomery County. J. T. SMITH.

\$2.50 Value for Only \$1.00.

The Western Swine Breeders' Journal, of Lincoln, Neb., is a very valuable publication for Western swine raisers. The price is 50 cents a year. The Kansas Farmer is \$1.00 a year. For a limited time we make this great offer: To any of our subscribers who will send us two new subscribers for one year and enclose a dollar bill, we will make them a present of the Western Swine Breeder's Journal one year free, thus giving \$2.50 in value for only \$1.00. Address Kansas Farmer, Topeka, Kans.

The Young Folks.

PEOPLE WHO LIFT AND THOSE WHO LEAN.

There are two kinds of people on earth today,
Just two kinds of people—no more I say;
Not the sinner and saint, for it's well understood
That the good are half bad and bad are half good.

Not the rich and the poor, for to count a man's wealth
You must first know the state of his conscience and health;
Not the humble and proud, for in life's little span,
Who puts on airs is not counted a man.

Not the happy and sad, for the swift flying years
Brings each man his laughter and each man his tears;
No! the two kind of people on earth that I mean,
Are the people who lift and the people who lean.

Wherever you go you will find the earth's masses
Are always divided in just these two classes;
And, oddly enough you will find too, I wean,
There is only one lifter to twenty who lean.

In which class are you? are you easing the load
Of over-taxed lifters who toll up the road?
Or are you a leaner, who lets others bear
Your portion of labor and worry and care?
—Chillico Farmer and Stock-Grower.

The Mayor's Retribution.

CLARA MOLER.

CHAPTER III.

For over a year, the saloons had been running in L— and the town had its improvements; sidewalks had been laid on every street, big brick buildings were going up in the business portion of the town, an opera house had been erected, and a fine new hall was in course of construction.

Of course, this was not all due to the money received from granting licenses, but the town seemed to be in the midst of a boom, and the citizens were hopeful.

To be sure, bleary-eyed drunken men were to be seen tottering about the streets at all hours, fights and drunken quarrels were common, the little cemetery was rapidly filling with the graves of ruined men and broken-hearted women, but then, the town was improving and there was money in the treasury.

The mayor and the councilmen felt that they had really done the town a great service, and conscience did not prick quite so lively as at first.

To be sure, men drank, but then that could not be helped; the country was free, and men would do as they liked; so mused Carrollton and his associates. During the last year, Ned Carrollton had been rapidly developing from a mild-mannered boy into a wild, reckless young man. Many were the bitter tears his mother shed; and his father was beginning to feel uneasy about him.

Ned had spent the previous winter away at college, and had indulged in numerous wild larks, some of them almost disgraceful, and his college debts had piled up unusually high.

The mayor was intensely angry. "I won't have it," he cried. "Ned's a disgrace to the name he bears; the old Harry seems to have literally taken possession of the boy."

These words were addressed to his wife, when he was just getting ready to start for the office one bright spring afternoon.

He had just had a stormy scene with his son regarding his fast ways, and the young man's insolent answers had almost driven him frantic with anger.

Mrs. Carrollton did not reply; she could only cry her wounded heart out in grief for her boy, whom she loved with all the strong, tender devotion of a true-hearted mother.

Mr. Carrollton's business was such, that his return home was delayed until late that night; and when he finally did emerge from the gray walls of his office, the stars had been out for some time, and the electric lights were very brilliant.

Mr. Carrollton was in anything but an easy frame of mind, as he walked swiftly in the direction of his home. Things had gone wrong at the office that day, and his patience had been severely tried. The soft night wind fanned his flushed cheeks, as he passed along the walk, under the electric light.

Two men were coming out of a large, handsome saloon, near at hand, bearing a third man between them.

Carrollton paid no particular attention to them—such sights were common—and he felt only deep disgust

for any man who would be so misled. But suddenly they paused, as if to steady the man upon his feet, and the light fell full upon his face.

"Oh, my God! it's Ned," cried Mayor Carrollton, in an agony of remorse and pain.

The men looked up and recognized the mayor, and their glance, pitying though it was, seemed to say, "Mayor Carrollton, you alone are to blame, you could have prevented these iniquitous dens from coming here, but you would not. Behold your own son sacrificed to their greed."

"Oh, Ned! Ned!" wailed the father, "has it come to this? Oh, my boy! It is my fault, all my fault. I could have done, and would not. May God have mercy upon me," and hot tears fell upon the unconscious face of his son. "You must not take him home," he said, recovering himself at last, "it would kill his mother to see him thus; she must never know. Oh, Mary, Mary! truly we reap what we sow."

Mayor Carrollton did not return home that night but telephoned to his wife that the sudden illness of a friend would detain him, and for her not to worry.

All night long he sat by his boy; he had Ned taken to his office, where he lay on the couch, with his head pillowed on his father's light coat. The night was warm and pleasant, and the little stars twinkled merrily in the dark blue firmament above, as if to mock the mayor with their brilliance.

Mr. Carrollton had ample time to study the handsome, clear-cut features, and fine, manly profile of his only son, and with intense anguish he noted the marks of dissipation already becoming so vividly portrayed in every line of that handsome face.

At length, Ned opened his eyes, at first in a dazed, wondering way; then, as things grew clearer, and the events of the past night came crowding in a flood upon his memory, he sat upright, rubbing his eyes with his hands.

"Father!" he exclaimed in surprise, then a look of sadness, shame, and remorse swept over his face.

"My son!" what a world of anguish, love, and self reproach vibrated in that father's voice, as he uttered those two words.

"I am a brute, father," said Ned, bitterly, "and worse than a fool to allow myself to be led off in this way. I am unworthy the very name I bear. Can you have you no word of reproach for one who so richly deserves it?"

"My son, I am all to blame; I could have suppressed the saloons, and would not. This has been a severe and cruel blow, yet I feel it has been sent as a punishment from heaven for my having disregarded the wishes of the temperance people here, and even the prayers and entreaties of my own wife."

"Does mother know?" breathless, and trembling with nervous fear, Ned awaited the answer.

"No Ned, your mother does not, and she must never know. Oh, boy! boy! promise me never to touch the blighting curse again."

"Never will I touch it while I live, father," said Ned, a fine clear ring of determination in his voice.

Mr. Carrollton looked his son over keenly, then said, "Now, Ned, I want you to tell me all about your college life, your debts, and how they were contracted."

A blush of shame swept over the young man's face. "The life at college was all right as far as the professors and the studies went, but my associates were certainly all wrong," he replied. "We were a wild lot, and were always getting into scrapes. I guess I was the wildest of all, for the boys soon followed my lead. We had wine suppers up in my room, and then we would go out and raise the old Harry until driven in by the police. The professors were driven frantic by our pranks, and threatened to send us home. But truly, father, I never touched a drop of liquor, until I learned to take it in light drams from the very saloon you took me from last night. I drank before I left for college, and formed a taste for the wretched stuff right here. Father, can't you do something? I am not the only one who suffers by them; Charlie Grayson and all the rest of my old chums drink, and their mothers are broken hearted, as mine would be if she knew of this."

"O Lord, God! Thy rod has fallen, and it is heavy to bear," cried the stricken mayor. "My boy, my hands are tied. I can do nothing. The very saloon that ruined you is running under a license granted by me, and all the rest are like it. Oh, curse the evil day that caused me to forget my duty to God and my boy!" He bowed his head upon his hands and wept "I will

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liquidate all debts, Ned, but positively there must be no more disgraceful larks, or drinking bouts; I will not be so lenient next time."

"Have no fear, father, I have seen enough of fast life, and prefer a slower gait. Oh, how my head does ache! Poor little mother! I wonder if she worried because I stayed away last night."

CHAPTER IV.

Ned Carrollton did try to reform, and for one year strictly adhered to his promise, and the old reckless manner disappeared, and again he was the loving, trusting son. He had won back his father's confidence, and the old worried look had left his mother's face.

"I think our Ned is trying to do better, and is making a man of himself," said Mrs. Carrollton, one bright spring morning, as she stood watering her plants in the bay window. "His reports from college are exceptionally fine, and I feel so proud, so hopeful."

"Yes, Ned gives promise of a very fine, noble manhood, and we can not but be justly proud of him. Mary, I think he will make an excellent business man, and he may possibly be sent to Congress, when he is older."

Ah! Mayor Carrollton, boast not. The full measure of your punishment is yet to be meted out to you, and your proud head will yet be bowed with shame.

It was a hot, sultry July evening, some months later, and the mayor was walking with bared head in his yard. Not a breath of wind stirred the tall trees; but at short intervals, distant thunder could be heard, while great, black clouds were rolling up in the northwest.

"I think a storm is brewing," mused the mayor, as he paced back and forth; "I wonder what keeps Ned so late? It is half past 10 by my watch and the boy hasn't been in the habit of staying out of late."

Hark! a pistol shot rang out loud and clear on the still evening air, then all was quiet again. It was only for a moment, however, then a hoarse cry was raised, which the very streets seemed to catch up and echo, and soon the clatter of horses' hoofs sounded upon the dusty road.

The shout grew in angry volume, as the crowd approached the house of Mayor Carrollton.

"Catch him! the red-handed murderer! It was Ned Carrollton! I saw him shoot," cried a red-faced man, snurring forward. "Jynch the drunk-en wretch! Lynch him!" shouted another of the rapidly swelling mob.

A scream of mortal anguish came from the house, and the mayor rushed into the parlor, just in time to catch the swaying form of his fainting wife, and bear her to her room, when the mob gained an entrance.

In a few moments, searching parties were scattered all over the house, but none had, as yet, dared to invade the privacy of Mrs. Carrollton's sleeping-room.

"Come on, fellows!" shouted a loud voice; "we haven't looked in my lady's chamber yet; we'll probably find him there."

"You must not enter here," said Mr. Carrollton, firmly; "my wife is in no condition to bear intrusion."

"Oh, come off, mayor!" said the man, grimly; "we know you are a law-abiding citizen, but we are hunting for a fugitive, and we must have him."

"I tell you my son is not here," said the mayor; "O my God! what shall I do? My boy! my boy!" and the proud head bowed in shame and bitter grief.

"Mayor, we respect your feelings, but we must do our duty; step aside, please."

The stricken father saw that further resistance was worse than useless, and gave way with a groan.

During this colloquy, Mrs. Carrollton had regained consciousness, but lay in shuddering silence upon her bed, apparently unable to speak or move.

Lightly and swiftly the searchers moved about the room, now here, now there; furniture was moved from its place—the tall wardrobes were opened and thoroughly searched—even the space beneath the bed was examined, but no trace of the missing man.

"I guess we'll have to give it up, boys," said the spokesman, "he's not here."

"Be hanged if I do!" said one muscular young fellow, tugging away at a long, cushioned lid, which covered a box, corresponding to it in length, and seeming, for some reason, unwilling to yield to the young man's efforts to force it from its position.

"Here he is! help me, boys!" and the three other men sprang to the assistance of their comrade.

Ghastly pale, shivering, and with bloodshot, glaring eyes, Ned Carrollton was dragged from the box.

Still almost crazed with drink, he fought like a demon, knocking down those nearest to him, and making desperate efforts to escape from the room.

Forgetting mother, father, and all else in his mad struggles, Edward Carrollton was no longer a man, but a devil in human shape. At last he had to yield to overwhelming numbers, and was dragged from the room.

Just as the mob emerged from the gate into the street with their prisoner, they found themselves confronted by a small army of rifles, and a loud, firm voice cried, "Stand, and deliver your prisoner to the proper authorities!"

(To be continued.)

For the Little Ones

DAFFY-DOWN-DILLY.

Up through the mold
So clinging and chilly,
In a mantle of green
Comes Daffy-Down-Dilly;
In a mantle of green
Which she hates to unfold
Till she stands like a queen
In a garment of gold.

She does not wait
For the mild settled weather,
She knows that the robins
And bluebirds together
And the song-sparrow, sweet,
Are beginning to sing,
"And besides," says dear Daffy,
"I'm part of the spring."

"And if I should linger
Too long and be late
The hyacinth too
Might think she could wait.
I must be in my place,
Although it is chilly,
For the children expect me,"
Says Daffy-Down-Dilly.
—Anna M. Pratt.

A Summer Song.

It was a bright, sunny morning. Each little blade, fresh and green, was pushing its way upward through the soft earth, or nestling close to some yellow dandelion whose round face looked up to greet the sun.

The birds were singing, and something else was singing too. Such a soft, happy little song it sang, as it flew from flower to flower—"Buzz, buzz, buzz, buzz!"

The dandelions swayed gently as the breeze passed by, each one calling, "Come to me, oh Honey Bee; come to me."

So the busy little fellow, in his velvet coat, stopped with one and then another, filling his basket with the yel-

low pollen dust for the bee bread; and as he went he hummed his song.

Would you know of what he sang? First he sang of a little egg and a little life within it; of a queer little grub or worm that crept out of the egg one day, to be fed and cared for by nurse bees, and put to rest and grow in a little room or cell.

Then a merry, buzzing measure told of six strong legs and brave wings, that should some day carry the bee out into the world of sunshine; of how they grew and grew, until the little cell could not contain so much of life; of how out burst the full-grown bee, ready for the dainty meal of honey waiting in the hive home.

And the song went softly on, telling how the eager little bee crept out into the strange, great world of flowers, birds, and sunshine; how glad bees helped their new brother to smooth his coat, to spread and dry his wings, and watched him fly away on his first happy search for flower sweets.

But the most joyous part of the song was its close, as the honey bee, humming back its thanks to the yellow flowers among the grass blades, flew away to the hive, singing as it went to those who would listen and who understood it:

"A bee! a bee! the life of a bee! 'Mongst the grasses and blossoms— 'midst the pollen and honey drops: So busy and happy. Buzz, buzz!"

MAY ELIZABETH BENNETT.

Puzzle Corner

- 1. A man went to the top of his barn to catch a stork which had a nest there; while he was on the roof the ladder fell to the ground. What is his easiest way to get down?
2. What is better than an idea?
3. Why was Joseph the straightest man in the Bible?

CHARADES.

- 4. My first and second is done each week, My third is a measure for coal and wood, My whole is a man both honest and meek, Whom we praise every year for a statesman good.
5. My first is a letter in the alphabet; my second a verb that means to be full of.
6. My first is an old-fashioned hotel; my second the thing that every one can do; my third the name of a girl.

Answers to Last Week's Puzzles.

- 1. Because the sons of Ham were bred and mustered there.
2. Because they tried to raise Cain before they got Abel.
3. H-ay.
4. Short.
5. B.
6. I had invited a distinguished company to dine, and was getting the meal ready. The guests had arrived from their Holmes, and a Whittier (wittier) company it would be hard to find. They were the great men of the Nation. The Bacon was sizzling on the stove. I was just taking the bread from the oven, where it had been Browning, for it is spoiled when it Burns, when, on looking toward the door, I saw a Roe of hungry-looking strangers. "Grant us the right to eat with you," said the spokesman, a Longfellow with Grey hair. They had just come in from the field, and looked very Moody.

"Howe can I?" I replied. "I know not where I could beStowe you. I should have to Cary in an extra table." So they turned away, and I proceeded to set the dinner upon the table. And though the coffee was Riley, we had a jolly time.

State of Ohio, City of Toledo, Lucas County, ss.

Frank J. Cheney makes oath that he is the senior partner of the firm of F. J. Cheney & Co., doing business in the city of Toledo, county and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of catarrh that can not be cured by the use of Hall's Catarrh Cure.

FRANK J. CHENEY, Sworn to before me and subscribed in my presence, this 6th day of December, A. D. 1898.

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The Home Circle.

WHEN MY BABY PRAYS.

When the twilight deep has fallen, then my baby comes to me
Robed in white, all dressed for Dream-land, and she bends low at my knee
And her little hands are folded, in a reverential way,
And two little eyes look upward, as two little sweet lips say:
"Now I 'ay me down to s'leep,
I 'pay the Lord my soul to teep."
And I know the Father listens,
And it pleases Him, up there,
When my baby, dressed for Dream-land,
Kneels to say her evening prayer.

There's a silence in the shadows where the firelight softly plays,
And a dreamy calm comes o'er me when my baby kneels and prays;
All my doubting fancies leave me, and the trials of earth flee,
As I bow my head and listen to my baby's plaintive plea:

"If I s'ood die before I wate,
I 'pay the Lord my soul to tate."
And a holy hush steals o'er me,
And pervades the evening air,
When my baby, dressed for Dream-land,
Kneels to say her evening prayer.

And I often sit and ponder as I hear the sweet lips pray.
What would life on earth be to me, should I miss that voice some day?
If, perchance, I felt no nestling, dimpled hand within my own,
As my baby knelt beside me, lisping in an undertone:

"Now I 'ay me down to s'leep,
I 'pay the Lord my soul to teep."
And I bless the God who gave her,
And her love with Him I share,
When my baby, dressed for Dream-land,
Kneels to say her evening prayer.
—E. A. Brininstool.

To-Day and Its Lessons.

"Each day I have the lessons I need for that day's unfoldment," says H. H. Brown, in "Now," and I read it in a flood of light and love. I am a pupil in the great school of life with lessons to learn and duties to do. The experiences, the duties each day brings are my lessons for that day. It depends upon myself alone how I shall learn them and what they shall be to me. If I am an undutiful or idle pupil, if I fritter away the precious hours, I not only rob myself of present good, but I also unfit myself for doing good work in the coming day. I carry my unfinished tasks into the new day, and am weighted and hampered, defrauding myself of what was meant to be a help to me.

Who but myself can make this different? Be the teacher ever so good, ever so willing, he can not learn the lesson for me. Though he may aid me in some degree, it is for me to apply the teachings of the hour to the purposes of life. I alone can fill the time with resolute, helpful doing, and feel the joy of achievement. I alone can live the life allotted me, so using its opportunities that they shall be stepping-stones to something better and brighter, and rise each morn with newer, stronger purposes and desires.

One life amid the multitude of human lives may seem small and insignificant, yet it can never be so, for all is in one, and one is in all; and it is only as each one is true and strong that the great questions of humanity are met and answered aright; only as each one is faithful and loving that the kingdom shall come "on earth as it is in Heaven." Will not remembering all this help us to feel the importance of individual life? Help us to learn aright each day's lessons, and to go from glory to glory, from love to love, from the human to the Divine? Will we not be more patient amid the daily trials if we regard them as a needed part in our development, a lesson set us by the great Teacher whose love for us enlightens His wisdom so that He can make no mistakes? He knows our need, knows just what is necessary to bring out and perfect the soul life in each of us, and He "remembereth our frame" and will not let the lessons be too hard or too long for our full mastery. Let us trust Him and go forward, conquering and to conquer, living too deep, too close to the great Source of all life and love to be hurt by the pettiness, the jealousies, or envyings of others, feeling each the worth of his own soul, the largeness of his opportunity, the divineness of his being—and so add the strength of God to our strength and achieve success here and ever.

The God-life is the only true life, and each day's lessons, if rightly learned, are fitting us for it—each lifting us a little higher in the scale of being—a little nearer the glorious springtime when all the good within us shall bud and blossom in perfect beauty.

Have you not read how Ruskin kept always on his writing desk "a slab of chalcedony, and on it, cut in careful script, the words 'To-day'"—to help

him live one day at a time and, feeling its importance, live it well? We may well follow his example.

Of us each, as of that ancient king, it is true that "His allowance was a continual allowance—a daily rate"—and we should remember the beautiful admonition of the poet who says:

Charge not thyself with the weight of a year,
Child of the Master, faithful and dear,
Choose not the cross for the coming week,
For that is more than He bids thee seek.
Bind not thine arms for to-morrow's load,
Thou mayst leave that to thy gracious God.
Dally only He says to thee,
"Take up thy cross and follow Me."

FLORENCE SHAW KELLOGG,
Russell County.

[The fact to which reference is made above, of Ruskin's "To-day" is beautifully told by Harriet Prescott Spofford.]

Upon John Ruskin's writing-desk
A slab of chalcedony lay,
And on it, cut in careful script,
The word "To-day."

Honored of all, a wondrous man,
And held a prophet in his way,
He let "To-morrow" hide its time,
And used "To-day."

Upon the tablet of the will
How good to write, the selfsame way,
Putting to-morrow's uses by,
The word "To-day!"

Some Ways of Dressing Canned Salmon.

Salmon Souffle.—Open a can of salmon; drain the oil off into a cup; mash the salmon fine, take out bones and skins. Add two well-beaten eggs, two tablespoonfuls cream, salt and pepper. Mix well and put into a granite pan. Set in a vessel of cold water, and bake for about twenty minutes in a moderate oven. Make a sauce of one tablespoonful butter, melted and mixed with one tablespoonful flour. Add milk or cream enough to the oil which was drained off, to make a pint. Mix with the butter and flour, cook till it thickens, season with salt and pepper and pour over the salmon when it is done.

Cream Salmon.—Make a sauce as in last recipe. Boil three eggs hard, slice and put over the salmon, which was previously put into a hot dish. Pour the sauce over it all.

Salmon Patties.—Make cream salmon, only omitting the eggs, and mixing the sauce with the salmon, instead of pouring it over. Make little patties by lining muffin pans with rich pie dough and baking. When done, pour the salmon out into the patties, and serve.

Salmon on Toast.—Put the salmon in the skillet, without draining off its oil. Sprinkle over it a heaping tablespoonful of flour. Pour over it enough milk to make it of about the consistency of gravy. Add a little butter, salt, and pepper, and cook till it thickens. Pour over buttered toast which has been previously prepared.

Salmon Salad.—Boil three eggs. Mix the yolks with juice drained from a can of salmon and vinegar enough to make a cupful. This makes the dressing. Mix the salmon with about half as much mashed potatoes. Chop the white of the eggs fine and mix with it. Pour the dressing over it, and garnish with slices of lemon.

Club Department.

Travelling Libraries.

The question may occur, as to how the women, sometimes so far removed from libraries and often from any source of information, can talk and write on subjects necessarily requiring some study. This question, so important and so seemingly unanswerable, has already been answered. Any association of people in the country can have for six months, a library of fifty books, which will be carefully selected, if the general topic desired is mentioned. If United States history is desired, the best authorities upon that subject will be sent. If current literature, you can have that, for the asking. Or if you wish a miscellaneous library, you have only to say so. The only cost is \$2 (which would be the cost of one good book), which is supposed to cover the expense of shipping the books and maintaining the libraries. It is a boon to country people of which they are not slow to avail themselves when they know of it. The originator of the movement in Kansas was Mrs. Lucy B. Johnston, present president of the State Federation of Women's Clubs, whose name should ever be held in honor by country clubs all over Kansas for this great benefaction. The State federation has taken up the cause, and it has prospered. The number of books in the Traveling

Library Commission has almost doubled in two years, and the books are sent to many different communities.

Says the commission in its last report:

"The traveling library in Kansas is no longer an experiment, but an established, growing institution of the State, looked upon as a necessity, and generally recognized as an important factor in advancing the educational interests of the people. There is probably no department of the State run on so economical a plan as that of the Traveling Libraries Commission, or one rendering so ennobling a service to the thousands of people who so eagerly avail themselves of its opportunities and advantages.

"The libraries sent out in this State are made up to suit the individual, club, school, or society ordering. The only fixed libraries sent out by the commission are those planned and prepared on certain subjects for club and class work. This, while calling for vastly more labor in preparing the libraries for use, is looked upon as having great advantage over the custom of some of the States in using the fixed libraries entirely, the needs and tastes of the people being more effectively reached.

"There is ever a ready response to any public notice these libraries are given. They have never been systematically advertised to the people, nor, as in some States, has the Kansas commission ever sent out an organizer. It has only been through the interest taken by the press and through individual effort of Kansas club women, and the effect of the libraries on their visits, that the traveling-library movement has grown in this State. It is safe to say that if a systematic plan of placing the libraries were resorted to, it would be impossible to furnish the libraries that would be ordered unless the appropriation should be greatly increased. These libraries reach every class of readers in the bounds of Kansas. Every man, woman, and child who has the taste and desire for wholesome, entertaining, or instructive reading may have his wishes granted by securing books from this source. The ranchman, miles from books of any description, sends for a library, and his neighbors read the books with him. Orders are received from groups of men and women living in localities remote from railroads, and having no other facilities for reading. The teachers of city schools, along with those of country districts, church societies, literary societies, reading clubs, and study clubs are patrons of the traveling library.

"The reports required to be sent to headquarters with the returned libraries tell the story of their popularity; how they have helped in school work, in club work, in recreative reading, and how they have promoted a desire for more and improved reading. According to the average report from the library stations, each case of fifty books has had thirty regular readers, and a circulation of 150, the 346 libraries making a total circulation of 51,900 for the past two years. These libraries have reached 94 counties and 274 cities, as many as eight libraries having been sent to the same locality. The records also show that, where the libraries are sent, their readers usually become permanent patrons, ordering regularly at the close of each six months' period."

Excellent Programs of Study.

The Osborne Woman's Literary Club, whose history we have this week, has chosen its topic of study with great wisdom. For a new club, there is no topic better than American literature,



Don't neglect little ills. They soon grow to big troubles. Keep on hand a supply of

WATKINS' STANDARD REMEDIES

and be prepared for emergencies. Our bonded agent will call upon you with 52 standard household preparations, direct from our \$500,000 medical laboratory, the largest of the kind in the world. He guarantees everything and lets you try before you pay. Send to-day for one free copy of Watkins' Home Doctor and Cook Book, giving home treatment for all diseases of man and beast.

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a subject in which all people are interested, and upon which every one has at least some information.

In organizing a club among people who have never belonged to one, and whose interest is at first sure to be uncertain, and whose tastes are necessarily rather miscellaneous, it is a matter of the utmost importance that the program of study be carefully made out, lest the newly awakened interest be killed, or the members frightened away. The programs for this first year's study in this club seem to us admirably selected. Here is an example, the program for the December meeting:

WHITTIER AND LONGFELLOW.

Roll-call—quotations from Whittier and Longfellow.

1. The Religious Vein in Whittier.
 2. Impersonations from Longfellow.
 3. Debate: Resolved, That Whittier is a greater poet than Longfellow.
 4. Selected Poems.
 5. Recitations from Longfellow.
- Round Table Talk—Whittier.
Suggested Readings—Longfellow: Evangeline, Courtship of Miles Standish, and shorter poems. Whittier: Snowbound, Tent on the Beach, and shorter poems.

Another most interesting program is the following, for the May meeting:

AMERICAN HUMORISTS.

Roll-call—Humorous Anecdotes.

1. Should "Huckleberry Finn" be Condemned?
 2. Selection from Mark Twain.
 3. The minor humorists.
 4. Funny stories from Robert Burdette.
- Round Table Talk—Mark Twain.
Selected Readings—Mark Twain's Innocents Abroad.

Another excellent general topic is United States history. Programs properly gotten up on this subject are most intensely interesting. If the truth were told, few of us know the history of our country as we should. How can we teach our children to love their country if we can tell them nothing of her noble history? There is opportunity here, also, for animated discussion and debate, for every one has an opinion about the great events, and almost every one has a different opinion from any other.

If it seems too perilous to select one general topic for the year, among people who know each other's tastes and resources only slightly, a miscellaneous program is good. And here is opportunity for unlimited variety. Sometimes I think a miscellaneous program is more interesting than any other. I thought so when I saw some from one of our thriving country clubs. Here are a few selected at random from the year's work:

"To be the little children's truest friend,
To know them in their ever-changing mood;
Forgetting self to labor to the end,
To be a gracious influence for good."
Roll-call—quotations from children's authors. How should we teach our children politeness? Discussion.
Children's baths. Discussion.

KANSAS EVENTS.

Symposium.

Kansas Freaks: 1. The people. 2. The weather. 3. The products and flora. Twenty questions in Kansas history—by Club.
Roll-call—responses from Proverbs. Mothers of the Bible. Discussion.
Domestic Economy—How and when can we best economize strength and time? Discussion.
Character is the diamond that scratches every other stone.
Roll-call—gems from Shakespeare. Queen Mary. Queen Elizabeth. Origin of English race. Home conveniences and their cost. Discussion.



The Keystone
of Good Health
is pure food.

Lion Coffee

is all coffee—no glazing of eggs or glue to conceal defects and cheapen its quality.
Fresh and uniform, rich in flavor, because always in sealed packages—never in bulk.

'Tis education forms the common mind,
Just as the twig is bent the tree's inclined.
Roll-call—quotations from Eugene Field.
Education: From parents' standpoint.
From teachers' standpoint. From child's
standpoint.

Osborne Woman's Literary Club.

The Osborne Woman's Literary Club is a new organization and has done nothing yet outside of its regular line of study, but hopes to accomplish something another year.

It was organized in October, 1902, with twenty members and a limit of twenty-five. It is known as the O. W. L. Club (owl); meets once a month from October to May, the afternoon of the second Tuesday.

The course of study for this year has been, American writers and their works, beginning with Franklin. Being the first club of that kind organized in this community, we were a little fearful as to the results. Some were afraid they could not spare time for study, others were afraid of the papers, extracts, reviews, etc., that they would be required to prepare. But the results have exceeded our expectations and we have not had one failure in our program.

We have adopted Shattuck's "Woman's Manual" as our parliamentary guide and have had good success in our study in that line.

Our annual dues are fifty cents and a fine of ten cents for absence. I believe that the women's clubs, though much ridiculed, are doing a great deal of good.

LILLIE YOYALL, Secretary.

After the Big Trees.

Now word comes that the lumbermen who have bought the grove of big trees in Calaveras County, California, have contracted for the building of a railroad into the heart of the grove, and will fell the giants as soon as possible. There are about 7,000 of these trees. No other like grove exists. For years, citizens who desire the preservation of this unique grove have besought Congress to make it a National park. Once the Senate passed a bill for that purpose which never passed the House. An unsophisticated person would think that for such a cause as this, rules would be suspended and both branches of Congress would make haste to prevent the irreparable loss to the nation. But a person who knows how business is done in Congress, knows that it is a matter of the utmost difficulty to obtain consideration for a worthy object like this. It is far easier to procure the passage of a bill to put some bounty jumper or some deserter to the enemy or some dishonorably discharged soldier on the pension roll by a special act. These and such as these are the bills that are railroad through while more meritorious bills perish by scores.—Boston Herald.

The following table gives the names and measurements of some of the big trees in the Calaveras grove. These figures are believed to be conservative, and express nearly the actual sizes of the trees named. Some of the trees are more than 4,000 years old:

NAME OF TREE.		
Keystone State.....	14.3	325
General Jackson.....	12.7	319
Mother of the Forest (with- out bark).....	19.4	315
Daniel Webster.....	15.0	307
T. Starr King.....	16.6	283
Richard Cobden.....	13.1	284
Pride of the Forest.....	15.3	282
Henry Clay.....	15.0	280
Bay State.....	14.6	275
James King of William.....	16.2	274
Sentinel.....	15.6	272
Dr. Kane.....	15.9	271
Abraham Lincoln.....	14.0	269
Old Vermont.....	12.7	265
Uncle Sam.....	13.7	265
Mother and Son (mother).....	16.2	261
Three Graces (highest).....	9.6	262
Wm. Cullen Bryant.....	10.8	261
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Within twenty-five years the big trees of California will only be known in history, as the greedy lumberman will destroy them just as soon as he sees a money value in them. The lumberman always seems anxious to cut down a tree, but it is seldom he ever stops to plant one. Some of these trees should be protected for the generations yet unborn. It takes nature 4,000 years to produce some of these wonders, and it only takes man four days to cut it down.

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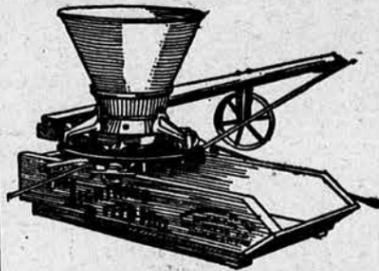
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READING TIME

is here again, with its long evenings. **The Twentieth Century Farmer** is chock full of the ideas of the brainiest men in the country—well known men, selected as writers, because they know how to make farming pay. One idea may be worth a hundred dollars to you. 24 to 48 pages, weekly. \$1.00 per year. Write for Free Sample Copy and Booklet. TWENTIETH CENTURY FARMER, 178 Farnam St., Omaha, Neb. Agents wanted at every P.O.

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BEEES If interested in bees subscribe for the Progressive Bee-Keeper 50c per year. Sample copy free, also copy of catalogue of Bee Keepers' Supplies. LEAHY CO., HIGGINSVILLE, MO.

DIETZ LANTERNS are everywhere noted for shedding strong, clear, white light. Hand lanterns, street and driving lamps, etc., many sizes and styles for all purposes. Send for free illustrated catalogue. R. E. DIETZ COMPANY, 95 Light St., NEW YORK. Established 1844.

THE MARKETS.

The Kansas City Live-Stock and Grain Market.

Kansas City, Mo., March 23, 1903. The cattle market opened slow to 10c lower here to-day in the face of liberal runs at the chief markets. Hog receipts proved lighter than expected and values ruled a good 10c higher, tops selling up to \$7.60, the highest price paid here in two weeks. Sheep sold 10c higher, top Colorado lambs bringing \$7.15, the best price since the spring of 1902. A. Forder, of Forder, Col., marketed the bunch.

There were no sensational features to the cattle market last week. Tops brought \$5.25, against \$5 the preceding week, and several droves of steers sold for more than \$5. Among the best cattle here which were brought in mainly by Kansas feeders, were steers at \$5.10 consigned by Clarence Stotler of Emporia; at \$5.10 by E. Tucker, of Eureka; at \$5.05 by James Mortimer, Gypsum City; at \$5 by Jas. Fitzgerald & Son, Marshall County; at \$5 by John Ard, Ellimore; at \$5 by M. S. Thornberg, Osborne County; at \$5 by H. F. Hutchinson, Pottawatomie; at \$5 by Pete Johnson, Leon, Kans. Average prices for the week were a little higher than in our last report and the strength was maintained at the close. The local demand was firmer and more aggressive than for some time. Cow and heifer stuff lost 15c to 20c during the week and shelly, old-canner cows were pounded badly, prices declining considerably so that common skin cows were selling at \$1.50@1.85 by the close. Good feeders sold well throughout the entire seven days but common stockers were easy to lower. Receipts for the week amounted to 30,700 head, against 21,000 the same time last year. The five big markets got 126,000 head.

Packers slashed the hog market fearfully the first half of last week, but after Wednesday a reaction set in and the losses were almost regained, the market closing not over 5c lower. Heavier supplies came in at all the chief centers on Monday and Tuesday, owing largely to the drying of roads in the country districts, enabling delayed shipments to be made. Buyers took advantage of the better supply and went after prices with long knives. By the middle of the week the decline had reached 25c to 35c, but from that point the market braced and quit much better. Traders look for no repetition of the decline this week and those who hold to the bull side of the swine proposition claim last week's decline was only spasmodic and the scarcity of swine will again be felt during the coming few weeks. Best hogs quit at \$7.30@7.40, with light ranging from \$6.75@7.00. Tops were around \$7.50. Receipts for the week amounted to 85,400 head, compared with 27,400 the previous seven days and 37,000 a year ago.

Sheep receipts for the week were the second largest of the year, the run aggregating 22,900 head, compared with only 12,500 head the same time last year. The long desired 7 mark for lambs was reached on Tuesday when R. Penderleth, of La Junta, Colo., secured that price for a bunch of 87-pound stock. Miller Bros., of Osage City, Kans., and Cooper & Wilson, of Long Island, Kans., received \$5.55 for full loads of ewes, another high-water mark of the winter. The auction market ruled strong all week, dealers wanting more supplies than were at their disposal. Lambs opened grocery, however, under liberal supplies and light to medium stock sold lower at the start. After trade got into full swing, however, a reaction was had and the loss was not only regained but a substantial advance of 15c to 25c was had. Lambs are now worth 25c per hundredweight higher than they were a year ago. Best lambs are worth \$6.00@6.25; ewes \$5.25@5.55; wethers \$5.50@5.75; and yearlings \$6.00@6.25.

Horses and mules better last week than at any time during the season. Offerings were fair at 1,600 head and Eastern city buyers were here in force. Drafts sold at high as \$215 in the auction, while the bulk of the heavy stock brought \$150@175. Chunks ranged from \$100@140 for the best. There is a splendid demand for farm mares 1,200 to 1,400 pounds and more stock of that kind could be handled. Prices range from \$100@135.

An uninterrupted inflow of reports telling of magnificent wheat prospects had the effect of causing a break of prices of that cereal during the week that closes to-day. It is said India is this year prepared to ship wheat to England and this news had a deleterious effect upon the market. Cash wheat at Kansas City is worth: No. 2, 63 1/2@71 1/4; No. 4, 62 1/2@70; No. 2 corn, 88@89; No. 4, 36 1/2@37; No. 2 oats, 34@36; No. 4, 32@34; rye, \$1.03; v. e., 44@45; tame hay, \$8@12.50; prairie, \$4@9; alfalfa, \$8@12. Eggs eased off somewhat last week and are now selling at 10 1/2@11 1/4. Eastern markets are reported dull and the outlook is for lower prices. Local receipts continue light, however. Poultry is holding steady with no excessive supply coming in. No game is arriving with the exception of ducks which are rather dull. A few early spring vegetables and fruits are coming up from the South but the supply is as yet small and prices too high to permit of much consumption. Early native vegetables are in request. Hens are quoted at 9 1/4c; roosters 20@25c; turkeys, 11@12c; ducks, 11 1/4c; wild ducks, \$1.25@3.50 per dozen. Strawberries, \$4@8 per crate of 24 quarts.

H. A. POWELL.

South St. Joseph Live-Stock Market.

South St. Joseph, Mo., March 24. Receipts of cattle last week, 9,300; previous week, 7,538; year ago, 5,157. The demand was good right along, the market had good life on most days, although prices declined 10c on the heavier grades but all other kinds sold fully steady. The demand for cows and heifers was ahead of the supply, but the common and medium offerings sold 10c lower while all other grades held fully steady. Under liberal receipts and the bad weather keeping country buyers at home, prices broke 25c to 35c.

The bad condition of the country roads checked receipts of hogs the greater part of the week and the trend of prices was upward, but towards the close supplies were more liberal and there was slight decline on Friday, followed by a higher market Saturday. Prices to-day ranged from \$7.42 1/2@7.62 1/2 with the bulk of sales at \$7.47 1/2@7.55. Receipts for the week, 27,500; preceding week, 32,663; year ago, 30,546.

Supplies of sheep last week, 16,200; former week, 4,521; year ago, 10,301. The demand was vigorous from all of the buyers and ahead of the good, fat grades of both sheep and lambs, which kinds sold at an advance of 25c, as a rule with medium grades up 10@15c, while the real common offerings sold to no better advantage. Kansas-fed New Mexico lambs sold up to \$7.35 to-day, with the bulk of the Colorado at \$7.25; Kansas-fed wethers brought \$6.05 and bulk of the Colorado ewes went at \$5.45@5.55, with a drove of Kansas-fed New Mexico ewes and wethers mixed, mostly ewes, at \$5.55.

Lawrence Seed Market.

Lawrence, Kans., March 23, 1903.

Table with 2 columns: Seed Name and Price per 100 lbs. Includes Alfalfa, Timothy, Kafir-corn, Red clover, English blue-grass, Cane seed, and Millet.

F. BARTELDUS & CO.

Special Want Column

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

CATTLE.

FOR SALE—Four registered Hereford bulls 8 months to 2 years old. Hooper Monroe, Frederick, Rice Co., Kans.

FOR SALE—Ten red Shorthorn bulls, from Scotch-topped thoroughbred non-registered cows, and sired by a Scotch-topped registered cow, a grandson of Imp. Thistle Top. Price from \$50 to \$75. They are dandies; come and see them, and I know you will buy. A. F. Huse, Manhattan, Kans.

WANTED TO SELL—Four registered Hereford bulls, cheap, of Anxiety strain. Yates Bros., R. F. D. 1, Agency, Mo.

FOR SALE—Registered Angus bulls—one 2-year-old. Address R. L. Milton, Stafford, Kan.

FOR SALE—Registered Red Polled bull, 3 years old, good size, good breeder. Bought from Buskirk herd. Address B. F. Low, Ellimore, Kans.

FOR SALE OR EXCHANGE for cattle and sheep—1 stable horse, a trotter; his sire is King James Standard, No. 1274; 1 span draft colts, mares; one buggy and harness. For further particulars enquire of T. J. Kennedy, Ozawie, Kans.

BOTTOM OUT OF PRICES—Shorthorn bull and heifer calves, red with white marks, at \$50 net. the get of British Lion. D. P. Norton, Dunlap, Kans.

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

FOR SALE—A choice herd of registered Holsteins. Six heifers coming 3 years old, and one yearling heifer from first prize cow. A 2-year-old first prize bull from M. E. Moore's unbeaten 1901 show herd. E. W. Melville, Eudora, Kans.

FOR SALE—My herd bull, Baron Knight 134946, 4 years old, dark red, weight 2,300 pounds, got by Gallant Knight 124463; also three Scotch-topped bulls, 14 months old, and a few cows with calves by side. J. P. Engel, Alden, Kans.

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

FOR SALE—A few young Hereford bulls from the Evergreen Farm herd, headed by Lee 121232. Address Pearl I. Gill, Great Bend, Kan.

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

FIVE HEREFORD BULLS FOR SALE—Never used in a herd, they are in fine fix, at a bargain for cowmen. O. L. Thistler, Chapman, Kans.

HORSES AND MULES.

FOR SALE OR TRADE—A black Kentucky jack, 14-3, sure foal getter; would trade for heavy draft stallion. L. K. Hentzler, 921 Kansas Ave., Topeka, Kans.

FOR SALE OR TRADE—For stock or good jack, imported Belgian stallion, bay, weight 1,775 pounds, sound, foaled March 25, 1888, guaranteed breeder. H. T. Hineman, Dighton, Kan.

FOR SALE OR TRADE—Imported Percheron stallion, black, weight 1,700 pounds, sound and all right; would prefer trading for a jack; will sell very cheap. Address James Haley, Hope, Kans.

FOR SALE OR TRADE—A very fine, large, black jack, 8 years old, a good and sure breeder; will sell him cheap for cash, or will trade for young Percheron stallion of serviceable age, but the trade must be made soon. Address W. Q. Hyatt, the Auctioneer, lock box, 35, Carbondale, Kans.

FOR SALE—I have on hand several young, pure-bred Percheron stallions, fillies and mares for sale; will sell cheap. A. D. Ellis, Riley, Kans.

FOR SALE—Cheap if taken soon, before putting on stand. Black imported Percheron stallion, sound and guaranteed breeder. J. C. Robison, Towanda, Kans.

FOR SALE OR TRADE—For young cattle, one Percheron stallion, sure foal getter. J. W. Holsinger, Cottonwood Falls, Kans.

LEAVENWORTH CO. JACK FARM—34 head of jacks and Jennets on hand. O. T. Corson, Potter, Kans.

FOR SALE—Seven jacks, three stallions. For further information call on or address F. W. Poot, Potter, Atchison County, Kansas. Barn three blocks north of depot.

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

SWINE.

FOR SALE—Tecumseh Wilkes, Poland-China boar, 17 months old. Also S. L. Wyandotte eggs. V. B. Howey, Topeka, Kans., R. R. 5.

A FEW EXTRA NICE Poland-China pigs for sale, farrowed September, 1902, and sired by Dewey, the show hog that won sweepstakes at Coffeyville fair two years ago; can furnish either sex. Address R. J. Conaway, Elk City, Kans.

FOR SALE—Eleven good Poland-China boars. H. W. McAfee, Topeka, Kans.

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EXTRA QUALITY ALFALFA SEED—Re-cleaned, sacked, f. o. b., \$8 per bushel. E. C. Stratton, R. F. D. 1, Wamego, Kans.

PLANTS—Strawberry, blackberry, raspberry, gooseberry, grape, currant, rhubarb, etc. J. C. Banta, Topeka, Kans.

FOR SALE—Pencilaria seed, 50 cents per pound. Address orders to Fred Miller, Quincy, Kans.

SEED POTATOES—New Queen, one week later than the Early Ohio, but a much better keeper, round-oblong, smooth tubers, of fine quality and great productiveness. It will pay you to get the best. Price 35 cents a peck; \$1 a bushel; sacks free. Wm. C. Coleman, R. F. D. No. 4, Sabetha, Kans.

200,000 Johnson's Early and August Luther strawberry plants for sale. Write me what you want and see what I can do for you. E. M. Wheeler, Jefferson, Kans.

SEED CORN FREE—Sample and circular telling how to raise more and better corn. John D. Ziller, Hiawatha, Kans.

ENGLISH BLUE-GRASS SEED—For English blue-grass seed write to John G. Hinsh, Eureka, Kans.

ENGLISH BLUE-GRASS SEED—\$1.25 per statutory bushel of 22 pounds; sound seed, crop 1902. Seamless American "A" sacks 16 cents; three bushels to sack. Write Jno. S. Gilmore, Fredonia, Kans.

FOR SALE—250 bushels German millet seed, 150 bushels Siberian millet seed, first class seed. H. W. McAfee, Topeka, Kans.

ANY ONE wishing cedar-trees, please write Murray Weaver, Centerville, Linn Co., Kans. FOR SALE—Golden Yellow popcorn, very productive, excellent for popping, very tender. Packet, 8 cents; 7 pounds, 50 cents. J. P. Overlander, Highland, Kans.

WANTED—Sweet corn wanted. Will pay a good price. Correspond with us. F. Barteldes & Co., Lawrence, Kans.

FOR SALE—300 bushels of sorghum seed. Brookover Bros., Eureka, Kans.

HONEY LOCUST—300,000 plants sorted in two sizes—\$3.50 and \$2.75 per 1,000. 12 to 24 inches. The only tree for middle and western Kansas. J. E. Mellecker, Spearville, Kans.

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

MISCELLANEOUS.

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

PITTMAN has invented a Pump that gets water cheap enough to irrigate with, and must sell his ranches on the Arkansas cheap; can't pump and ranch both; 550 acres deeded, 2 mile river front, 3 1/2 mile back; 200 acres alfalfa bottom, 100 acres natural hay land, fine grove, improved; 450 acres, 80 good bottom, improved; 150 acres, all bottom, improved. W. S. Pittman, Pierceville, Kans.

WANTED—Three ranch managers and five assistants, Oklahoma and Texas. Address Triumph, Dallas, Tex.

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

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FOR SALE—Six Buff Cochin cockerels \$1 each. Eggs \$1 per 15. Express paid on two settings. H. A. Thomas, Scranton, Kans.

BARRED PLYMOUTH ROCK EGGS—From farm-raised fowls for \$1.50; 50 for \$2. A. F. Huse, Manhattan, Kans.

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

FARM RAISED—Express prepaid, Barred Plymouth Rock eggs, 15 for \$1; 100, \$2.50; 200, \$4.50. Pekin Duck eggs, \$1 per 11. Mrs. Walter Roswurm, R. F. D. No. 2, Council Grove, Kans.

FOR SALE—Eggs of prize-winning Barred Rocks. The best I ever owned. The best in Kansas. My yard contains first prize cock of State show 1903, also first at State College show at Manhattan. Also first prize cockerel at State show 1903. My matings are very choice, selected to obtain best results. We breed our show birds and show our breeding birds. One fancy cockerel for sale after April 1st. Eggs \$3 per 15; \$5 per 30. At State show we won 1st cock, 1, 2, 3 cockerel, and grand special for best display. No females shown at college show; won 1 cock, 2 cockerel, 3 pen. A. C. Rait, Junction City, Kans.

SNOWFLAKE POULTRY FARM—R. C. W. Lehnors, W. Wyandottes, W. Guineas. Eggs \$1.50 per 16. Mrs. Winnie Chambers, Onaga, Kans.

SILVER LACED WYANDOTTE eggs 5 cents each, farm raised birds exclusively seven years. Mrs. M. A. Hall, R. R. 7, Winfield, Kans.

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SHORTHORN RANCH AND STOCK FOR SALE—In the great wheat belt of Kansas; 1,500 acres, 650 in cultivation; excellent soil for wheat, rye, oats, corn, sorghum, Kafir, and alfalfa; 3 houses, 4 never-failing wells, 3 windmills, with barn and sheds for horses and cattle, 60 head of high-grade Shorthorn cows and heifers, served by registered bulls (Jubilee of Soldier Creek is one of the finest 3-year-old bulls in this State); ten good farm and road horses, with farm tools—all for sale at a great bargain. Only two miles from depot. Call on or address E. P. Miller, 37 to 41 West 26th St., New York City.

90-ACRE IMPROVED FARM—Also imported stallion for sale or trade for larger farm horse; must make season 1903 on farm. Fred Alexander, Olivet, Kans.

FOR SALE—Wheat and alfalfa ranches in Central Kans. and cattle ranches in Western Kansas. Alfalfa seed for sale; mail sample 10 cents. Write us. Dawson & Zutavern, Great Bend, Barton County, Kansas.

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

320-ACRE FARM—with fair improvements, good orchard and water. Price \$4,500; in payments, \$800 cash, balance six per cent interest; possession any time. John G. Howard, Emporia, Kans.

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

Farms, Ranches, Wild, Mineral, Timber Lands. Sell, Trade, We control Millions of acres, Any State. Cheapest, Best Descri' e wants. W. W. Gavitt & Co., Bankers & Brokers, Topeka, Kansas.

The Stray List.

Week Ending March 12. Shawnee County—A. Newman, Clerk. HORSE—Taken up by Mrs. Kate Purl, in Williamsport tp. (P. O. Wakarusa), one light gray horse, 10 years old, under bit out right ear. Lyon County—W. F. Eggers, Clerk. MARE—Taken up by B. F. Hughes, in Emporia tp., December 1, 1902, one brown or bay mare. Sumner County—W. A. Lichtenberger, Clerk. STEER—Taken up by Will Johnson, in Falls tp. (P. O. Caldwell) February 14, 1903, one red steer, coming 2 years old in spring, tip off right ear.

Week Ending March 19. Woodson County—J. P. Kelley, Clerk. STEER—Taken up by J. S. Puckett, in Belmont tp., February 2, 1903, one red steer, white face, under bit in each ear; valued at \$15. Douglass County—Geo. A. Flory, Clerk. MARE—Taken up by C. H. Wilson, in Palmyra tp., February 20, 1903, one small black mare, about 3 years old; valued at \$15.

Week Ending March 26. Elk County—G. J. Sharp, Clerk. HEIFER—Taken up by J. C. Blair, in Longton, Elk County, Kans., February 27, 1903, one 3-year-old red heifer, muley; no mark or brand; valued at \$15.

GREAT CROPS OF STRAWBERRIES AND HOW TO GROW THEM.

The best book on strawberry growing ever written. It tells how to grow the biggest crops of big berries ever produced. The book is a treatise on Plant Physiology and explains how to make plants bear big berries and lots of them. The only thoroughly bred scientifically grown Strawberry Plants to be had for spring planting. One of them is worth a dozen common scrub plants. They grow BIG RED BERRIES. The book is sent free to all readers of the Kansas Farmer. Send your address to R. M. KELLOGG, Three Rivers, Mich.

FOR SALE: 9000 acres choice grazing and farm land in BARRON and WASHBURN counties, Wisconsin. Don't delay if you want a good farm. Call, or address James Atkinson, Rice Lake, Wisconsin.

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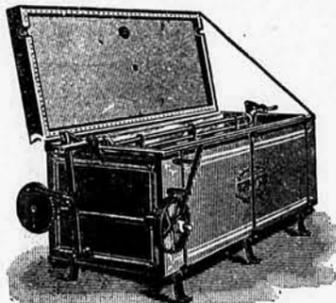
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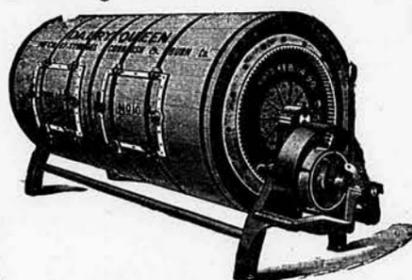
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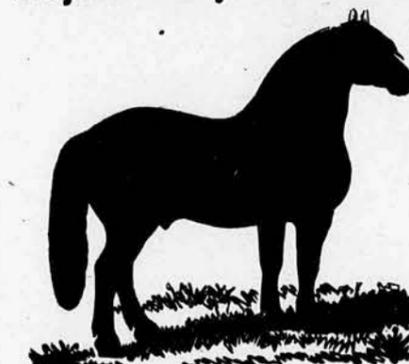
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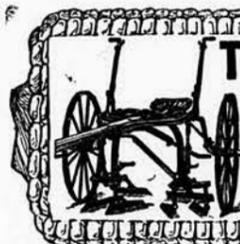
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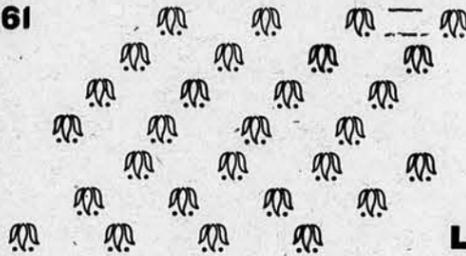
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