

KANSAS FARMER

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KANSAS FARMER.

Established in 1868.

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F. B. COWGILL.....President
J. B. McAFEE.....Vice President
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H. A. HEATH.....Advertising Manager

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Display advertising, 15 cents per line, agate (fourteen lines to the inch). Continuous orders, run of the paper, \$1.54 per inch per week.
Special reading notices, 25 cents per line.
Business cards or miscellaneous advertisements will be received from reliable advertisers at the rate of \$5.00 per agate line for one year.
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BLOCKS OF TWO.

The regular subscription price for the KANSAS FARMER is one dollar a year. That it is worth the money is attested by the fact that thousands have for many years been paying the price and found it profitable. But the publishers have determined to make it possible to secure the paper at half price. While the subscription price will remain at one dollar a year, every old subscriber is authorized to send his own renewal for one year and one new subscription for one year with one dollar to pay for both. In like manner two new subscribers will be entered, both for one year, for one dollar. Address, Kansas Farmer Company, Topeka, Kansas.

Close up the old year by renewing your subscription for the KANSAS FARMER and sending in one or more new ones.

The KANSAS FARMER wants fifty thousand subscribers in 1903 in order to make the best weekly agricultural journal in America.

The National Live Stock Association is pushing in all of the States a bill which provides a uniform listing of all kinds of farm animals. There are many reasons why such uniformity is desirable and none against it.

Never before in the history of Kansas and the West was there such a lively demand for pure-bred swine as at the present time. Good and remunerative prices obtain. Many of our advertisers

report more orders on hand than they can fill.

The matter of a quarantine law against the importation of diseased hogs into Kansas is forcibly presented in this week's KANSAS FARMER by Mr. W. E. Nichols of Sedgwick. Suitable action by the Improved Stock-Breeders' Association will doubtless result in appropriate legislation. It will be well, however, for every owner of hogs to call the attention of his Senator and his Representative in the Kansas Legislature to the importance of proper protection along the lines suggested by Mr. Nichols.

Prof. John A. Craig, author of "Judging Live Stock," and who for several years was professor of animal husbandry at Wisconsin University, and later occupying the same chair at the Iowa Agricultural College, has been secured as instructor in judging beef-cattle at the Kansas State Agricultural College, during "Beef Week," February 23 to 28, 1903. Kansas is to be congratulated on securing the services of such an able judge and it is hoped that the breeders and feeders of beef-cattle over the State will avail themselves of the opportunity of hearing and meeting him at the Agricultural College next February.

A NEW YEAR'S RESOLUTION.

The KANSAS FARMER desires to acknowledge the good work done by its old readers during the past year in adding several thousand new subscribers to our lists. May we not hope that every reader of the paper will make a New Year's resolve to add one or more new subscribers before our next issue—January 1, 1903? It is possible to double our splendid subscription in one week.

WITH THE PAST—WITH THE FUTURE.

This week's KANSAS FARMER completes the fortieth volume. Forty years have seen many happenings in Kansas. When the KANSAS FARMER first saw the light there was very grave doubt whether this would ever be much of a farming State. A very large proportion of the men were at the front helping Uncle Sam establish the fact that the United States of America constituted a nation capable of sustaining itself against internal dissension as well as external foes and of purging itself of the foul disease of slavery.

During these forty years the KANSAS FARMER has contributed its help toward making the prosperous State of today. It has heralded the introduction of every improved method of farming whereby was secured a better adaptation to Kansas conditions. It has assisted in the introduction of every plant adapted to Kansas soil and climate, and has rejoiced to see the farmers of this State become the most prosperous in the world.

There was a time when under the influence of real-estate operators and land-grant railroads all Kansas seemed to consider it their chief mission to induce other people to come to Kansas. The KANSAS FARMER was the first to insist publicly that the main business of people in Kansas is to produce prosperity out of the soil rather than to speculate off the immigrant. With the turning of the tremendous energy of Kansas to the production of wealth from original sources, rather than bringing it in from somewhere else, has come a development of farming whereby one

man accomplishes more on the prairies of Kansas than several used to accomplish by the antiquated methods "back East." With the more universal introduction of alfalfa; with the assured improvement of all farm-plants by breeding; with the more extended use of pure-bred live stock; with more scientific methods of feeding, and with the application of the results of modern investigation to all branches of farming, the prospects for the advancement of Kansas agriculture in the years to come are more favorable than they have been at any time during the forty years of observation by the KANSAS FARMER.

With this, the concluding number of the fortieth volume, the paper presents an index of the principal subjects treated during the last year. In extending to its readers the compliments of the season, the management promises that the paper shall advance and improve with the development of the State. Let all Kansans pull together for a better year in 1903 than has ever yet come to the producers of values in Kansas.

BALANCED RATIONS FOR HOGS—A NEW AND EASY METHOD FOR THEIR COMPUTATION.

(Continued from last week.)

It will be remembered that in last week's KANSAS FARMER the writer deduced formulas and rules for the computation of balanced rations and exemplified the use of the rules by computing a balanced ration for pigs. That this ration is open to serious objections was pointed out, but the method was illustrated, and at the same time the impracticability of preparing for young pigs a suitable balanced ration from corn and alfalfa hay was shown. This is one of the class of results which may well be called "negative." But negative results from computations are far preferable to negative results from experiments, since the latter might injure the pigs while the former may be very useful in preventing such injury.

The rules given last week were general statements of the formulas, and conversely the formulas may be considered brief statements of the rules.

The formulas given last week were:

$$(1) x = (Cp_2 - c_2P) \div (c_1P_2 - c_2P_1)$$
$$(2) y = (Cp_1 - c_1P) \div (c_2P_1 - c_1P_2)$$

These with a slight algebraic modification of (2), may be placed in the following convenient form for use:

The first ingredient = $(C \times p_2 - c_2 \times P) \div (c_1 \times p_2 - c_2 \times p_1)$

The second ingredient = $(P \times c_1 - p_1 \times C) \div (c_1 \times p_2 - c_2 \times p_1)$

In these formulas, in which everything is expressed in pounds and decimals of pounds,

- C=carb. in required ration.
- P=protein in required ration.
- c₁=carb. in first ingredient.
- c₂=carb. in second ingredient.
- p₁=protein in first ingredient.
- p₂=protein in second ingredient.

Complications with minus signs may be avoided by taking as the "first ingredient" the feed containing a larger proportion of carb. than the required ration, i. e., the feed having a larger nutritive ratio than the required ration, and by observing that the second ingredient should have a nutritive ratio less than that of the required ration.

The formulas may be so written as to be suitable for use with this order reversed but it is not worth while to en-

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gage in that kind of mathematical gymnastics here.

The reader will find the formulas, as above written, exceedingly convenient in the estimation of balanced rations—far more convenient than any rules. It will be observed that the second parentheses are identical so that the result obtained for the second parenthesis in computing the first ingredient may be used in computing the second without further figuring.

In using the formulas it is, of course, necessary to have access to tables of digestible nutrients of feeding stuffs and of standard rations. Such tables will be given in extenso in the KANSAS FARMER in the near future. For convenience at this time we will repeat with slight additions the tables given last week covering our correspondent's inquiry.

TABLE III.
Transformed Feeding Standards for Swine per 1000 Pounds Live Weight.

Age in months.	Aver. Total		Protein, lbs.	Carb. c+2½ f. lbs.	Nutritive ratio, 1 to—
	age wt. dry	per mat-			
2-3	50	44	7.6	30.3	4.0
3-5	100	35	5.0	25.1	5.0
5-6	120	32	3.7	22.3	6.0
6-8	200	28	2.8	19.4	7.0

Fattening Swine.
First period.....36 4.5 26.6 5.8
Second period.....32 4.0 25.1 6.3
Third period.....25 2.7 19.0 7.0

TABLE IV.
Transformed Statement of Average Digestible Nutrients in One Pound of Feed.

	Total dry matter, lb.	Protein, lb.	Carb. c+2½ f. lbs.	Nutritive ratio, 1 to—	Price, cent.
Corn	0.894	0.078	0.764	9.79	0.0625
Bran	0.877	0.123	0.429	3.48	0.007
Middlings	0.879	0.128	0.606	4.73	0.008
Oats	0.890	0.092	0.567	6.16	0.009375
Alfalfa hay	0.916	0.110	0.423	3.85	0.003
Skim-milk	0.094	0.029	0.052	2.00	0.002
Cottonseed meal	0.918	0.372	0.444	1.20	0.0125

To illustrate the more general problem of the balanced ration let several
(Continued on page 1262.)

STOCK-BREEDERS' ANNUAL MEETING.

The Kansas Improved Stock-Breeders' Association will hold its thirteenth annual meeting at Topeka, January 12, 13, and 14. There is every assurance of this being the greatest meeting in the history of the association, by reason of the increased membership during the past year and the fact that the executive committee has prepared a program of unusual excellence.

The present year has been the association's high-water mark for membership. It now has 521 members representing seventy-seven counties in Kansas. It has the largest and wealthiest membership of any of the industrial State societies. The Kansas Improved Stock-Breeders' Association also enjoys the distinction of being the largest association of its kind in the United States.

The breeds of pure-bred cattle represented by the membership rank in numerical strength as follows: Shorthorns, Herefords, Aberdeen-Angus, Galloways, Red Polls, Jerseys, Polled Durhams, and Holstein-Friesians.

Breeders of pure-bred swine come next in the following order: Poland-Chinas, Duroc-Jerseys, Berkshires, and Chester Whites. Other pure-bred classes of stock are well represented, comprising Percheron, Clydesdale, Coach, Saddle-bred and Standard-bred horses, jacks, and all breeds of sheep, Angora goats, etc. Then there is a miscellaneous list representing the general farmer and feeder and other allied interests.

H. A. Heath, secretary, Topeka, gives out advance announcements regarding the program of the thirteenth annual meeting of the association. It includes some special attractions, among which may be mentioned, a trio of Chicago experts who have consented to attend and contribute to this program; F. B. White, national expert on agricultural advertising, will contribute a paper on "Class Advertising;" Ashleigh C. Halliwell, the editor of the Chicago Live Stock World, and the oldest live-stock market editor in America, will contribute a paper on the "Stockman's finish;" Mr. Roy B. Simpson, who has devoted great attention to compiling facts regarding feed products, will give a specially prepared paper on the "By-products of Corn."

The other outside eminent authorities engaged for this meeting consist of Hon. L. H. Kerrick, Bloomington, Ill., who has regularly produced the highest-priced beef in the Chicago market, and who will give an address upon "Economic Production of High-class Beef," and Hon. W. W. Marple, St. Joseph, Mo., president of the Missouri State Dairy Association, will present a paper on "The Cream of the Business."

The Kansas talent will present the following: "English Blue-grass Culture, and Its Special Value," Geo. Plumb, Emporia; "Railroad Transportation of Fine Stock, Its Evils," C. W. Taylor, Pearl, Dickinson County. "Fitting Cattle for the Show-Ring," James Tomson, Dover. "Honors Won During the 1902 Show Season by Kansas Breeders," I. D. Graham, associate editor of the KANSAS FARMER, Topeka. "Live Stock Ped-

How a Penny May Cure a Sick Friend.

Simply write a postal card telling me who needs help. Tell me which book to send.

Spend but that penny to aid your sick friend, then I will do this:

I will mail him an order—good at any drug store—for six bottles of Dr. Shoop's Restorative. He may take it a month at my risk. If it succeeds, the cost is \$5.50. If it fails, I will pay the druggist myself.

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You will know it when you read my book.

Simply state which book you want, and address Dr. Shoop, Box 529 Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

grees—Value and Abuses," Geo. W. Mafet, Lawrence. "Abortion in Cattle—the Problem Solved," O. O. Wolf, V. S., and H. O. Tudor, Holton.

The Kansas State Agricultural College management has promised short addresses and aid in the discussion of other papers and addresses, by President Nichols and Profs. Otis, Willard, Webster, and Mayo.

"The Sheep Industry for Kansas" is a special subject set down for a general discussion by the entire company. The Kansas Improved Stock-Breeders' Association standing committee reports on "Needed Legislation," "State Fair," "The New Live Stock Classification," the "World's Fair in 1904" are topics that will be up for the free-for-all discussion.

In view of other attractions at Topeka during the same week, notably the State Board of Agriculture meeting, opening of the Kansas Legislature, and the fact of the meeting of the National Live Stock Association at Kansas City the latter part of the week, and consequent low railroad rates, indications point to a tremendous attendance of farmers and stockmen.

LOSSES FROM LIGHTNING.

At a meeting of the Iowa mutuals the dollars and cents feature of the value of suitable protection against lightning received recognition in the adoption of the following resolution:

"That it is the sense of this meeting that lightning-rods properly put up, and grounded not less than fifteen feet, are a protection to buildings against lightning, and we recommend that the mutual fire insurance companies make such risks a preferred class with a less rate of assessment."

The mutual insurance companies of Iowa at their recent convention at Des Moines reported 2,960 losses from fire and lightning during the last year. Of these, 2,165 were due to lightning and 795 to fire. There were 849 losses of buildings and 1,995 of live stock. Of buildings that were properly protected by lightning-rods there were but fifteen losses in the entire State and but eight losses of live stock where the fence wires were properly grounded.

These figures are an argument not for patronizing the lightning-rod swindler, but for the protection of property by the means which science and experience has pointed out as effective.

The characteristics of a good lightning-rod are easily described. It must, first, have a good ground connection; that is, it must go down to permanent moisture or into the water in a well or deep cistern. It must, second, have good support to the building. Formerly it was thought necessary that the rod should be fastened to the building by insulated supports. Now it is preferred to have direct metallic connection with the building throughout the length of the rod. It should, third, have sharp points at the upper end. This upper end should be several feet higher than the highest point of the building. If the building is very long the rod should rise above it at intervals of, say, twenty-five feet. Every point should have continuous and sure metallic connection with the damp soil. The lightning-rod man used to insist on putting up platinum points because they neither rust nor melt easily. Platinum points are good but not necessary. Some of the best modern "rods" consist of a rope woven together from small copper wires. The undoing of a few inches of the upper end of such a rope presents very many copper points which will prove more efficient than such number of platinum points as can be had at any reasonable cost. Common round iron if it can be securely joined from end to end makes an excellent rod if large enough. Such a rod may well be of three-quarter-inch or at least five-eighth-inch iron. Common steel wire cable would make good rods but for its liability to rust off at the surface of the ground. Copper strips are all right if well jointed and protected from breakage. The essential most to be guarded against is the parting of the rod at any place from the moist soil at the bottom to the points above the building.

To ground wire fences, it is only necessary to have all of the wires connected together and with the moist soil by metallic connections. This may be accomplished by twisting a piece of wire several times around each wire of the fence and then placing the end of it far enough in the ground to bring it into moist soil. For additional safety it is well to place these grounding wires at frequent intervals along the fence.

There was a man in Kansas land,
A farmer tanned
To beat the band,
Who had his oraw well filled with sand,
And he was mighty wise.

He came here in the early day—
He came to stay—
To make it pay;
He cared not that they called him "jay";
He saw in sight a prize.

He humped himself from morn till night
With all his might
When times were tight.

TO CURE A COLD IN ONE DAY
Take Laxative Bromo-Quinine Tablets. This signature *B. J. Jones* on every box, 50c

A 2 million increase

In the past two years the sale of "Ball-Band" goods increased over two millions. Honesty, quality and fair prices made this increase possible.

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have won the favor of farmers, ranchmen, lumbermen, etc., in every part of the country, through sterling merit. Made in many styles. Insist on getting the genuine "Ball-Band" Brand. Look for the Red Ball in the trade-mark. Get them of your dealer.

MISHAWAKA WOOLEN MFG. CO., Mishawaka, Ind.

Annual Meeting of the State Board of Agriculture.

Following is the program of the thirty-second annual meeting of the Kansas State Board of Agriculture, to begin in Topeka, Wednesday, January 14, 1903, at 4 o'clock p. m., and continue in session three days, or until the business requiring attention shall be disposed of.

WEDNESDAY, JANUARY 14.

Afternoon Session.—Opening t 4 o'clock, in the Secretary's Office, State House.

Roll call.
Appointment of Committees.
Report of Committees on Credentials.
Reading Minutes of Preceding Meeting.
Reports of Officers.

Evening Session.—7.30 o'clock.

Address of Welcome—Gov. W. J. Bailey.
Address of Welcome on behalf of City—Mayor Albert Parker.

Response—The President, Edwin Taylor.
"The Work of the United States Department of Agriculture in Its Relation to the Development of the Middle West"—Dr. B. T. Galloway, Chief of Bureau of Plant Industry, Washington, D. C.
"The End of all Cattle—Meat"—A. C. Halliwell, Editor Live Stock World, Chicago.

THURSDAY, JANUARY 15.

Morning Session.—9.30 o'clock.

"The Grange—its Past and Possibilities"—E. W. Westgate, Master Kansas State Grange, Manhattan.

"The General-purpose Hog of the Twentieth Century"—Frank Hoover, Columbus.

Afternoon Session.—1.30 o'clock.

"The Railroads and the Farmer"—J. W. Glead, Topeka.

"The Farmer and the Railroads"—Dr. Henry Wallace, Editor Wallace's Farmer, Des Moines, Iowa.

Evening Session.—7.30 o'clock.

"Soil Cultivation"—A. M. Ten Eyck, Professor of Agriculture, Kansas State Agricultural College, Manhattan.

"The Ideal Woman"—Mrs. Hill P. Wilson, Lawrence.

FRIDAY, JANUARY 16.

Morning Session.—9.30 o'clock.

"The Live Stock and Agricultural Future of Northwest Kansas"—Otis L. Benson, Oberlin.

"Growing Beef on High-priced Land"—E. A. Burnett, Professor of Animal Husbandry, University of Nebraska, Lincoln.

Afternoon Session.—1.30 o'clock.

Election of Officers and Members.
"Live Stock Husbandry and Agricultural Prosperity"—L. H. Kerrick, Bloomington, Ill.

Query Box.

Evening Session.—7.30 o'clock.

"Improvement of Farm Crops"—Prof. James Atkinson, Editor Homestead, Des Moines, Iowa.

"Gardening on the Santa Fe Trail"—Mrs. Henry Block, Syracuse.

The Kansas Improved Stock-breeders' Association will hold its regular annual meeting in Topeka in the same week as the State Board of Agriculture (on Monday, Tuesday, and Wednesday). H. A. Heath, Topeka, secretary, will furnish programs and all desired information. It is believed that no man or woman interested in the agricultural and live-stock industries or in wholesome home-making can attend these meetings without being profited. Their sessions and discussions are open to all.

All Kansas railroads have granted for these meetings an open rate to everybody of a fare and one-third for round-trip tickets, and no receipts or certificates will be necessary. Tickets will be on sale January 10 to 17, inclusive, and be good for return passage until and including Monday, January 19. "Whosoever will may come." Be sure and ask for and purchase reduced-rate round-trip tickets.

Rates at Topeka hotels and boarding-houses will, as usual, be reasonable, and accommodations can readily be secured suited to the purses of all classes.

The following poem by Harmon D. Wilson, occupies the fourth page of the printed program:

There was a man in Kansas land,
A farmer tanned
To beat the band,
Who had his oraw well filled with sand,
And he was mighty wise.

He came here in the early day—
He came to stay—
To make it pay;
He cared not that they called him "jay";
He saw in sight a prize.

He humped himself from morn till night
With all his might
When times were tight.

He knew he would come out all right;
He saw he had a cinch.

And now this Kansas farmer man
With face of tan
Leads all the clan.
He got there by the humping plan;
He's passed the day of pinch.

For he's the man who has the stuff—
He's got enough—
And that's no bluff—
To make the town folks all feel tough
And wish they had his berth.

His rating now is listed high,
And that's no lie,
And by and by,
When he is called beyond the sky
He'll want to stay on earth.

Limit Your Subject in Writing.

To use a homely illustration, no person would attempt to discuss cake-baking, all kinds of cakes in all kinds of ways, and do it all in ten minutes. Yet that same person will attempt a subject in literature or art or economics which is quite as broad in its scope, and far more difficult to expound. Again, with a broad subject, a person has no idea where to begin, nor where to leave off. Ask a skilled engineer to talk for ten minutes on machinery, and he will be at a loss what to say. Ask him to explain the principle of the ball governor and he will give you a clear explanation. Limit your subject, then, when you aim to make clear what is not known.—From "Practical Studies in English," by B. A. Heydrick, in The Chautauquan for December.

Italians of the poorer class are noted for their general good health. This is to some extent attributed to the fact that the working people of Italy eat less meat than those of any other European nation.

Trouble is reported among the brewery employees in Milwaukee. The boss brewers are willing to allow each employee two quarts of beer at noon, and two more at the close of the day's work; but the men declare they can not comprehend how any healthy man can exist with but four quarts a day.

KANSAS FARMER'S NEW WALL ATLAS.

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

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

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

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

Advice to WELL DRILLERS

Sell your old style machine to some man who isn't posted—then buy one of our late improved machines. They are great money earners. Address

LOOMIS MACHINE CO., Tiffin, Ohio.

ICE Made in three sizes.

In the summer is as important as fuel is in the winter, and no Dairyman, Farmer, Hotel man can afford to be without a supply. To harvest ice quick, easy and with economy buy a **DORSCH ALL STEEL DOUBLE ROW ICE PLOW**. Marks and cuts two rows at a time, cuts any size cake and any depth. Pays for itself in two days. Get our catalogue and introductory price. John Dorsch & Sons, 248 Wells St. Milwaukee, Wis.

Agricultural Matters.

Silos and Silage.

H. B. COWLES, TOPEKA, BEFORE OAK GRANGE INSTITUTE.

A silo is a more or less air-tight structure used for storing feed in a green and succulent condition. Ensilage, or silage as it is usually called, is the stored crop. The history of the silo dates back to antiquity, the semi-barbaric people of the old world having been known to bury their fodder in underground pits to preserve it for future use and to hide it from their enemies. But the first silo in the United States was built by F. Morris, of Maryland, as recently as 1876. The number of silos now in the United States is estimated by F. W. Woll at over 300,000, located mainly in the dairy sections of the country.

THE ROUND SILO.

Silos are built of all sorts of material and in all sorts of shapes, ranging from a hole in the ground to expensive stone and cement structures. I have had experience only with the round wooden stave or tub silo, and will confine myself to that type. I think it at once the cheapest and the easiest to construct. It is at the same time the most durable of them all except, perhaps, the stone and cement silo; and this for the reason that it dries out immediately the silage is removed, and does not hold moisture like those with thicker walls.

In planning a silo be sure to not make it too large, as a little has to be fed off the top each day after the silo is opened to keep it from moulding. Sixteen feet in diameter is about right for thirty head in warm weather. To accommodate the required number of tons, build the silo tall, 30 feet or more above ground and 6 feet or more below, if you are not troubled with water.

I think the best lumber to use is 2 by 6 cypress, beveled and also tongued and grooved. Cypress is great lumber to warp, and the matching helps keep it in shape. You will save a good deal of money by ordering your lumber some months before you want to use it, so that it can be gotten out of the mill down South. The dealers here do not carry silo lumber in stock.

HOW TO BUILD A ROUND SILO.

If you plan to put it down in the ground a few feet, have the dirt excavated and a smooth, circular wall laid up; if cemented, so much the better for smoothness, but I do not yet see that the acid in silage rots the rock and mortar, as some claim. Have the sill gotten out of the planing-mill. It will come in sections about 4 feet long sawed out of 2 by 10 plank. "Float" it in mortar, and then lay a second sill over it, breaking joints, and spike the two together thoroughly. Have this ready when the lumber arrives so that it may be set right up before the staves get warped.

As cypress comes in short lengths, you will have to make the silo two stories high, so to speak. In my last silo I used 14- and 16-foot staves for each story, alternating first a long one and then a short one. Plumb your first stave carefully, and brace it thoroughly. Then set the others one by one, toe-nailing the bottom and nailing a 3/4-inch batten around the top as you go to hold the staves in position. After completing the circle, put on two or three hoops, and repeat the operation, placing a 14-foot stave on top of a 16-foot, and a 16-foot stave on top of a 14-foot, so making a 2-foot splice in the middle.

For hoops I used three to six strands of No. 9 galvanized wire well twisted into a rope with an eye-bolt twisted on each end. For tightening, pass the eye-bolts through a 12-foot 4 by 4 oak scantling, and screw up the nuts. I used eight wire hoops on the first story, and four on the second. Over the matched ends of the staves at the splices I used two flat iron hoops about 4 inches wide and perhaps 3-16 inch thick.

On my first silo I used some round iron and some flat iron hoops. Both were troublesome to put up and to keep up, besides costing about ten times as much as the wire hoops. Some people advocate using woven wire fencing for hoops, fastening oak scantlings at each end and drawing the scantlings together by means of bolts with a bur on each end. It is said that the coil in fence made of hard steel wire, like the "Page," is sufficient to take up the slack when the staves shrink, and keep them under tension, whether wet or dry.

THE EMPTY SILO.

A tub of this size, when empty and thoroughly dry, is a very shakily concern, difficult to keep either in shape or in place. After letting mine blow down

a few times, I have put around the top and the middle wooden hoops, made of 12-inch cypress, 1/2 inch thick, four-ply, breaking joints, and well bolted and spiked. To further prevent the changing of shape under stress of wind, I have put a triangle inside at the top made of 2 by 10 plank and well braced and bolted to the wooden hoop. With these precautions it looks as if with three or four long and strong wire ropes for guys, it may be practicable to keep the silo on its foundation and in an approximately cylindrical shape.

DOORS AND ROOF.

When the hoops are on and drawn tight, cut out the doors on the side from which you want to feed, 2 feet square is large enough. Cut on a bevel all round, cleat the pieces of staves together, and simply set the door in place from the inside to be held by the silage. I have one door above the splice and two below. It is not necessary to put a door near the top, as the silage will settle 6 feet or more, after it is filled.

As to the roof, I am in somewhat like the Arkansas man who could not mend his roof when it was storming and did not need to when it was not. A roof is a matter of comfort, and not of necessity in keeping the silage.

Such a silo as I have described, 30 feet above ground and 6 below, with a diameter of 16 feet inside, will hold about 155 tons of silage, and will cost for labor and material about \$200.

FILLING THE SILO.

The silo being ready, it may be filled with any green crop. Corn is the most important silage crop for this section of the country. It may be put in the silo whole, or shredded, or cut in short pieces, the cut fodder being the easiest to handle in filling and feeding. The cost of putting corn in the silo is in the neighborhood of 50 cents per ton.

The force needed for a quick job, besides the engineer and the man with the cutter, is about this:

- One band cutter.
- One man in the silo.
- Four men and teams, with low wagons.

Two men in the field to help load. A corn binder in the field, with the necessary men and horse-power.

This force should be able to put the corn in the silo as fast as binder will cut it. Binding is a great advantage in loading, and a still greater advantage in unloading. With loose fodder, one man can not throw off fast enough to keep the cutter running smoothly. Even feeding is highly important if a blower is used for elevating, because the high speed developed when the cutter becomes empty shakes both engine and cutter badly. With bound fodder much larger loads can be hauled, and the driver can always have a bundle ready for the feed table, one man being able to throw off a ton in five minutes.

ADVANTAGES OF SILOING CORN.

The advantages derived from siloing the corn crop are many, the principal one being the greatly increased amount of feed to be obtained from an acre. The corn should be cut at a stage in its growth when it is at its best, preferably about a week before it would do to shock. According to analysis, corn-fodder loses in digestibility very rapidly as the corn approaches maturity. So the corn is secured at its most digestible stage, and preserved in this shape with a loss of not more than .2 per cent. In fact it does not look as if there is any loss in feeding value; for stock certainly eats silage up cleaner and with a better relish after it has stood in the silo a month than when it is fed directly from the field, either whole or chopped. I think this is largely due to the fact that the corn is steamed and partially cooked in the silo. Then, too, the cattle like it warm, especially in cold weather. My cattle prefer corn-silage to the finest clover or alfalfa hay or any other roughage I ever tried.

In handling the corn crop in the usual way of shocking in the field, the loss begins before it is cut and continues till it is fed out, amounting under the most favorable circumstances, according to calculations of the Colorado Experiment Station, to from 31 to 55 per cent of the original nutrient matter. In siloing corn this loss is stopped before it begins, and in addition the corn is rendered more digestible in the process.

There are other minor advantages, such as getting the ground cleared early, greater convenience in feeding, and so forth.

I find that "Silos and Silage" is a pretty large subject, and have merely touched some of the high places. Those who are interested and wish more information on the subject, can secure Prof. F. W. Woll's reliable and up-to-date little book on silage in paper covers by sending the small sum of ten cents to the E. W. Ross Co., of Springfield, Ohio.

Experience in Breeding and Cultivating Corn.

EDITOR KANSAS FARMER:—I send you samples of corn which I began improving twenty years ago. I started by crossing field-corn with a small amount of Mammoth sugar-corn—one-fifth every five years. The result has proven exceptionally good for the Kansas climate by assisting the sweetening before the hot weather reaches the watery juice.

I will give you three years' trial with listing and with breaking with three-horse plow, harrowing, and planting three and one-half feet each way. The methods were tried on the same kind of land, in the same field, with a half-day to three days' difference in time of planting, all between April 15 and May 5. The first year I got a good crop where the soil was broken and planted. Listed corn yielded considerably less and the quality was not so good. I made a similar trial the next year with similar results excepting that on September 9 we had a very hard storm that blew down the planted corn far worse than the listed. But my best corn came from the land that I broke and planted. Another year came and people were advocating listing as being so much faster, cleaner, and easier, and because the corn stood the storms better. I gave it another trial, but with the same results, getting my corn each year from where the land was broken and the corn planted. Having become thoroughly convinced from the experience of different kinds of seasons, I do not list any more. My observation and experience shows that broken land yields much the most each year and of the best quality. On it, corn starts quickly and grows rapidly, giving the juice age so that it becomes sweetened earlier by two to four weeks than in listed corn. It is my main endeavor to have corn in this condition when the hot days come in order to succeed in growing a large yield of high quality.

I have made it a practice to avoid planting grains from either end of the ear, and have thus obtained a very uniform ear. There are other points too numerous to mention, but long persistence in breeding corn to a standard is as essential as in breeding stock. I have now corn that has a long record of breeding. It took prizes at the New Orleans Exposition eighteen years ago and has been much improved since. It was at that time the same kind of old-fashioned big white corn that has been in use over in Ohio and Kentucky. It still resembles this variety; but the ears are larger and more uniform; the germs are large and rich. I have had some millers object to it because the germ caused the burrs to gum.

J. STEVENS.
Eureka, Howard County.

Sample ears of this corn sent to the KANSAS FARMER office are excellent. They are very cylindrical and solid and have corn almost all over both ends. It is a 12-rowed corn. The ears sent average a little over fifty grains to the row. Three ears weighed just three pounds. The largest of the three weighed seventeen and one-fourth ounces, of which the shelled corn weighed fourteen and three-fourths ounces. The taste shows the crossing with the sweet corn, but this would not be suspected from the general appearance.

Germany as a Customer for Farm Products.

The total imports from, and exports to Germany during the years 1892-1902 have been as follows:

Fiscal year.	Imports into United States from Germany.	Exports from United States to Germany.
1892	\$ 96,210,203	\$ 83,578,988
1893	69,387,905	92,357,163
1894	81,014,065	92,053,753
1895	94,240,833	97,897,197
1896	111,210,614	125,246,088
1897	69,697,878	155,039,972
1898	84,225,777	155,772,179
1899	97,374,700	187,347,889
1900	109,445,902	191,780,427
1901	101,997,523	173,148,280

In breadstuffs the chief exports from the United States to Germany are, of course, corn, wheat, and wheat flour. The value of the corn exports to Germany during the last decade have ranged from \$2,794,000 in 1893 to \$17,305,229 in 1901, the 1902 exports, of course, being small because of the shortage in last year's corn production. Wheat exports ranged from \$2,569,000 in 1893 to \$7,871,000 in 1901, and \$14,944,000 in 1902. Of wheat flour the figures in 1893 were \$1,011,000, and in 1902 \$2,773,000. Of provisions, the most important items in our exports to Germany are lard, oleomargarine, bacon, and sausage casings. The value of lard exports from the United States to Germany was, in 1893, \$6,429,000, and in 1902, \$16,237,000; of oleomargarine, in 1893, \$2,371,000, and in 1902, \$2,578,000;



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of bacon in 1893, \$678,273, and in 1902, \$1,675,000; and of sausage casings, in 1893, \$537,527, and in 1901, \$1,143,000.

The following table shows the total value of the exports of breadstuffs and provisions from the United States to Germany in each year from 1893 to 1902, the figures for 1902 including estimates on some of the less important articles for which the U. S. Treasury Bureau of Statistics has not completed the details of its analysis:

Fiscal year.	Breadstuffs.	Provisions.
1893	\$ 6,806,806	\$11,770,118
1894	3,189,972	14,480,437
1895	4,107,259	13,385,290
1896	7,335,040	12,791,853
1897	19,029,059	14,449,613
1898	26,957,489	23,127,338
1899	23,146,407	23,648,486
1900	32,123,634	20,547,880
1901	29,897,839	21,786,608
1902	23,000,000	23,500,000

*Estimated.

The following table shows the principal exports from the United States to Germany in 1893 and 1902:

Articles.	1893.	1902.
Cotton	\$36,900,889	\$70,418,199
Provisions	11,770,118	23,500,000
Breadstuffs	6,806,806	23,000,000
Oil, mineral	5,296,725	8,616,005
Copper ingots	580,007	6,878,983
Tobacco, unmanufactured	4,690,012	4,280,440
Oil-cake and meal	2,328,169	4,258,348
Oil, cottonseed	537,527	1,276,900
Agricultural implements	377,735	1,868,672

Something More About Gophers.

EDITOR KANSAS FARMER:—I have seen several articles in the FARMER regarding the extermination of this pest of the alfalfa fields. In December, of 1901, I prepared about 100 pieces of sweet potatoes by cutting them in lengths of an inch, and selecting potatoes about three-fourths of an inch in diameter. With the small blade of a knife I drilled a small hole in the pieces, carefully saving the paste that was taken out. Then with a small pointed knife dropped a few small crystals of strychnine in the hole in the potatoes and replaced the paste or parings, thus sealing it up tight. Placing them in a light vessel I took one spud, an implement for making post-holes in the ground, and went carefully over the gopher-burrows and soon found their runs, and when I found one, I placed one or two pieces in the hole and left it. The result was, as far as I went there has not been a single mound of earth shown up since. I have recently gone over the balance of the field, and if there are any left to tell the tale I will be surprised. Fifteen cents worth of strychnine will be sufficient for 125 pieces of potatoes. WM. RAMSEY.

Solomon, Dickinson County.

Barley.

EDITOR KANSAS FARMER:—I would like to have the experience of some of our farmers in growing barley. What is the best variety to sow? How much does it usually produce per acre? Is it good feed for pigs to make them grow? Where can good seed be obtained and at what price? And how much should be sown to the acre? Please give any other information that would be necessary. WM. RAMSEY.

Solomon, Dickinson County.

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SHARPLES Tubular Separator,
because of its simpler construction, its perfect build and general efficiency, will pay you 6% more profit than any other separator—besides saving you over half the labor. This we guarantee and the separator must prove it or no sale.
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In the Dairy.

Conducted by Ed. H. Webster, Professor of Dairy Husbandry, Kansas Experiment Station, Manhattan, Kans., to whom all correspondence with this department should be addressed.

Babcock Not the Only Test.

The following excerpt from the Chicago Daily Produce is so much to the point that it is worthy of repetition. In view of the fact that the State Legislature will in all probability be asked this winter to create an office of Dairy Commissioners whose main function should be to devise means and carry them into effect, to improve the dairy-products of the State, all dairymen should be interested. This article goes to the root of the whole trouble.

"We may bring the rod down right and left on our factory managers, and we may improve our cold-storage and transportation facilities to our hearts' content, but we are not getting at the root of the evil until we open the eyes of the producer of poor milk, and lead him to see that he is doing more to keep down the quality of our dairy products than all other causes combined," says Y. Stonehouse, in Farmers' Advocate, Canada. A good many of these producers would be moved by moral suasion if we had some machinery by which they could be reached, and the matter laid plainly before them, but there are others who have to be touched through their pockets, for they will neither read nor listen to what is said on the subject.

The Babcock test alone should not determine the value of milk for either cheese or butter-making, unless it is all alike—good. It is just as unreasonable for a supplier who furnishes unclean and badly-cared-for milk, to receive as much per pound of fat, as the supplier who furnishes clean and wholesome milk, as it is for the supplier who furnishes 3 per cent to receive as much per gallon as the supplier who furnishes 4 per cent milk, and until we make a discrimination we are going to get more or less milk which is a menace to the quality of our dairy products.

If a farmer takes a load of dirty grain to market he is docked in both price and weight, and that grain is put into a bin reserved for such grain. Our milk should be treated in the same way. It would entail more work, but we are not going to improve the quality of our dairy products without work.

It would not be very long, however, until a very small vat would hold all the poor milk.

If we had a system of inspection including that of milk-supply at home as well as at the factory, it would throw the responsibility off the shoulders of the factory manager on to the inspector, whose business it would be to look into the cause of the off-condition of the milk, and help the suppliers to apply a remedy. Time has come when we must carry knowledge and information to the very doors of our milk-producers, and if they can not be reached by public meetings, they must be visited personally, if their milk is not up to the standard.

The Possibilities of a Private Dairy.

If a man goes into the private dairy business with the intention of making a success of it he should first see that his farm has the improvements necessary to carry on the business. If he has no suitable stables he should build the necessary shelter; the stables should be warm and dry in the winter and should be well ventilated. He should have wells of pure water and ample barns for storing hay, grain, etc. Many dairymen find that the silo will materially add to the profits of their business, for the succulent food during the winter greatly increases the flow of milk. In the private dairy the value of the hand-separator can hardly be overestimated. Under the old system of setting, about 20 per cent of the butter-fat was lost, but under the new system of separating only about one-tenth of 1 per cent of butter-fat is left in the skim-milk. Thus we see there is a great difference between the two ways of getting the cream, and it has been proved that calves thrive well on skim-milk. Instances are known where calves have been fed on skim-milk and no grain, and have made remarkable gains.

The success of a man in the dairy business depends largely upon the dairy herd. When we stop to consider that the average Kansas cow produces less than ninety pounds of butter per year, we do not wonder that so many farmers fail to see where the profits of dairying are. This condition of affairs is doubtless caused by the lack of dairy knowledge on the part of the farmer. To prove this I will use the Kansas State Agricultural College scrub-herd as an example. This herd is composed of average cows but under the care of experienced men, this herd averages over 270 pounds of butter in one year, thus we see what good care and management will do for the average cow.

In the average herd there are probably some cows that do not produce enough butter to pay for their food, and these cows reduce the average yield of the herd very much. For example, in the Agricultural College herd, if the 25 per cent of unprofitable cows were eliminated the average yield of butter would increase from 270 to 302 pounds per year.

The best way to detect unprofitable cows is by the use of the Babcock test and scales; by taking into consideration the amount of milk given and the test of butter-fat we are able to detect the unprofitable cows. These should be at once taken from the herd and fattened for the butcher.

The herd should then be graded up with some standard dairy breed, such as the Jersey or Guernsey. A man who breeds for beef a part of the time and for butter a part of the time will never make a success of either.

It is very necessary that the private dairyman should have knowledge concerning the food and care of his herd. He should know the nutritive value of feeds and in what proportion to feed them, and he should learn that driving his cows with dogs or abusing them in any way will decrease the flow of milk and thus lessen his profits. I think at least 75 per cent of the butter produced in Kansas is made on the farms, but the average price paid for it is much less than for creamery butter. It has been found from information gathered from different grocery firms that a very large per cent of the butter received from the farmers is of poor quality. The butter often has bad flavors or no flavor at all. This is generally caused by acidity of the cream when churned. The only way to get the right flavor is to use an acid test and churn the cream when the right acidity is reached. Sometimes, however, bad flavors are

caused by not keeping the dairy utensils clean, or by keeping the milk and cream in cellars where vegetables are stored. It was stated by a grocery firm that if the farmer would only read and study a little about dairying, at least 50 per cent of the butter now in grades three or four could be classed in grade one. I think that is the only solution of the problem; the farmers must learn how to make good butter before he make the private dairy a success. If a man knows how to care for the milk and make the butter, there is no reason why he can not make a better article than the creamery, for he has control of all the conditions from the feed to the finished product, while the creamery has to take what it can get. If a man goes into the dairy business at all he should go into it with the intention of making a first-class article. He should have a private brand and should sell only first-class butter under it. If he does this his brand will soon become a guarantee as to the quality of the product, and he can always receive a good price for it.

As proof that the private dairy can be made profitable I will give a few examples of men who have succeeded in this line. A. O. Siegrist, of Reno County, made an average of \$73 a cow per year, and E. F. Fairchilds, of Leavenworth County, averaged \$70.99 per cow. I could mention others who have averaged as high. These examples show that there is vast room for improvement in the average dairy herd. I find from information gathered from butter-dealers that during the past few years the country butter has improved much in quality, and I think it will continue to improve just as fast as the farmers absorb knowledge relative to dairy matters. Taking into consideration the instruction in dairying given at the Kansas State Agricultural College, and the large amount of dairy literature given into the hands of the farmers, I think the time will come when the farmers of Kansas will say "The private dairy is more profitable than the creamery." GEO. W. LOOMIS.

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National Dairy Machine Co., Newark, N. J.

Can We Increase the Supply of Milk at Our Stations?

The supply of milk at the skimming-station can best be increased by educating the patron along dairy lines. To thoroughly exhaust this subject would make an essay four miles long, but I will only attempt to mention some of the most important points. These points will not be named in order of their importance, as it is hard to determine which is of the most importance, as the argument that will reach one farmer will not do for another. I do not think it is the best plan for the patrons to increase their amount of milk by milking every old cow they may have or can get regardless of whether

30-CENT BUTTER

Has not been quoted in December on the New York market, or any other market, since 1893. The market will doubtless go higher within the next few weeks.

27 1-2-CENT BUTTER-FAT

Is our price to the farmer for the fat in hand separator cream delivered at the nearest shipping point, we pay all cost of transportation and furnish cans and tags. Every pound of fat we buy at skimming stations is paid for on the basis of New York.

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That is the way our business is run. That is why our patronage grows. Our patrons know always what they receive for butter-fat the day the cream is delivered. Our price is always 2 1-2 cents below New York's top quotation. We buy butter-fat in the same way your dealer buys wheat and hogs, namely, on a price at your nearest shipping point, paying cost of transportation and all the expense of shipment.

For highest prices and greatest satisfaction in disposing of your dairy products, write for shipper's outfit.

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MORE GOOD NEWS.

November, the Best of All

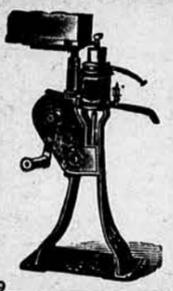
The list continues to grow. The largest number of checks is being sent out to our patrons of any previous month. Our price for butter-fat is higher than ever for this season of the year, being 28 cents. This is the time to begin or to increase your herd. Write for particulars.

"Economy in operating and a high price for butter-fat" is our motto.

If you are hunting the best market, take your can of cream to the Depot and mark the tag

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50 Consecutive Runs
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Write for Illustrated Catalogue
VERMONT FARM MACHINE CO.
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she is a profitable cow or not. The station operator should work for the results that will be of lasting value rather than try to flush the station with milk at once by having the patrons milk all the cows they can regardless of the kind, for the patron will find out sooner or later that he is not making a profit and he will quit the milk business and stay quit.

While on the other hand, if the station man helps the patron find out by the use of the scales and tests which are his profitable cows and which are not, that patron will be satisfied and become a fixture to the creamery and will increase his number of cows. One of the most important things that the patron can learn is, that as good calves can be raised on skim-milk as any other way. When the operator succeeds in getting all his patrons to raise skim-milk calves, he will have increased the flow of milk at his station more than he can in any other way.

The patrons should know the importance of using a good dairy bull in grading up the herd. He should raise his own protein by sowing alfalfa, red clover, and planting soy-beans rather than pay high prices for bran, oil-meal, and cottonseed-meal, and sow some soiling crop to tide over the dry spell that is almost sure to come every summer.

The farmer should know that when he makes butter and sells to the grocery that he has to take whatever groceries the merchant has, while, if he will patronize the creamery, he will get a check each month, and with the cash he can not only trade wherever he pleases but he can buy cheaper. The signs of the times are that the Kansas farmers will have to get into the milk business sooner or later and the sooner he gets into the race the better chance he will have to win out. Dairying is the best way to retain the fertility of the soil. It pays the farmers of Iowa and those older dairy States to milk cows and sell to a creamery with their land worth \$75 to \$100 per acre. Why will it not pay the Kansas farmer to do so on land worth only \$25 to \$40 per acre when our soil is just as fertile as theirs, and we can get almost as much for our produce, transportation making just a little difference. If the farmer that milks cows loves his wife as he should, he will send his milk to the creamery and thus relieve her of one of the greatest troubles of her life—taking care of milk and churning. L. E. JOBE.

Grange Department.

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

Conducted by E. W. Westgate, Master Kansas State Grange, Manhattan, Kans., to whom all correspondence for this department should be addressed. News from Kansas Granges is especially solicited.

NATIONAL GRANGE.

Master..... Aaron Jones, South Bend, Ind.
Lecturer..... N. J. Bachelder, Concord, N. H.
Secretary..... John Trimble, 514 F St., Washington, D. C.

KANSAS STATE GRANGE.

Master..... E. W. Westgate, Manhattan.
Lecturer..... A. P. Reardon, McLeouth.
Secretary..... Geo. Black, Olathe.

Report of the Patron's Fire and Tornado Association of Kansas, to the State Grange.

BY OLE HIBNER, VICE-CHAIRMAN.

It is with pride as well as pleasure that we, your committee on insurance, beg the privilege of placing before you the result of our work during the past eleven months from December 31, 1901, to November 30, 1902, to wit:

Total risk Dec. 31, 1901.....	\$1,857,010.00
Total risk Nov. 30, 1902.....	\$2,123,640.00
Net gain in eleven months.....	\$266,630.00
Number of policies written in eleven months.....	375
Number of policies in force, Nov. 30, 1902.....	1,573
Net gain in policies for the eleven months.....	148
Total membership Nov. 30, 1902.....	1,114
Net gain in membership during the eleven months.....	114
Balance in treasury Dec. 31, 1901.....	\$3,128.95
Collected from premiums in the eleven months.....	\$2,839.44
Paid on losses during eleven months.....	\$1,773.88
Paid other expenses during the eleven months.....	\$655.65
Total expenditures during eleven months.....	\$2,339.53
Balance in treasury Nov. 30, 1902.....	\$3,628.86
Premiums not collected.....	\$52.18
Safe and office fixtures.....	\$130.00
Total resources, Nov. 30, 1902.....	\$3,511.04
Average risk carried for eleven months.....	\$1,990,325.00
Cost on each \$1,000.00 for the eleven months.....	\$1.17 1/2
Cost at same rate for one year per \$1,000.00.....	\$1.281-5
Cost at same rate for five years, per \$1,000.00.....	\$6.41
Estimated average for each year per \$1,000.00.....	\$2.04
Estimated cost for the thirteen years, per \$1,000.00.....	\$26.52
Estimated average cost for each five years per \$1,000.00.....	\$10.20
Number of losses in the eleven months.....	22
Number of barns burned, none, cost.....	

Number of houses burned, cost.....	\$700.00
Number of tornado losses, one, cost.....	\$300.00
Number of buildings damaged by fire, one, cost.....	\$20.85
Number of buildings damaged by tornado, four, cost.....	\$242.00
Number of stock losses, twelve, cost.....	\$465.82
Number of other losses, two, cost.....	\$45.20
ITEMIZED EXPENSE ACCOUNT.	
Paid on losses.....	\$1,773.88
Paid secretary.....	216.00
Paid unearned premiums.....	69.95
Paid board fees.....	25.00
Paid auditors.....	8.00
Paid post-office expense, stamps, etc.....	37.65
Paid adjustors.....	31.00
Paid treasurer.....	22.00
Paid president.....	3.50
Paid for printing.....	39.80
Paid transportation.....	12.50
Paid for typewriter and supplies.....	97.75
Paid miscellaneous.....	2.50
	\$2,339.53

The foregoing hardly needs any comment, but quickly running over figures does not give us a clear outline of the work represented, and unless we stop to consider, we are liable to miss some of the most important features.

Our total risk at the close of 1901 was \$1,857,010, and in eleven months that amount has been increased to \$2,123,640, or net gain of \$266,630, which is \$39,620 more than our net gain during the entire year of 1901, showing that the farmers of Kansas are constantly placing more confidence in our company and more clearly realizing the advantages not only of insurance but of mutual insurance.

It is true we have only written 375 policies this year while in the same time last year we wrote 409 and in the entire year 420, but our increase in risk shows clearly the reason for this: The policy holders at first took out their insurance a little at a time, probably they had most of their property covered in other companies or possibly they were afraid to risk us, when we were yet young and untried, but our true condition and lasting stability finally worked its way into their realization and they are giving us their patronage, canceling their smaller risks, leaving other companies and having us write in one policy what was previously covered by three or four. While this would seem to an unfavorable feature in our statistical report, making our list of cancellations high and number of new policies written low, we see upon investigation that it really shows (when the increase of the total risk is taken into consideration) that we are establishing a reputation among our most prosperous people that is and will be one of the fundamental elements of our success.

The increase of the confidence of the people is again shown by the increase in our membership, the total number of members now being 1114, or a net gain in eleven months of 114, which is 16 more than the net gain for the entire twelve months of the past year.

Our expense account also this year would seem at first to be a little high considering that we have not written as many policies as last year, by thirty-four in the same length of time, but we have purchased a typewriter increasing our expense \$100, but this also increases our resources, making our present worth just as great as if we had not secured the machine or counted it in running expenses.

Our treasury at the present is in the best condition it has ever been, unless perhaps, at the time of collecting an assessment which has been so long, that we have almost forgotten the particulars at the time, there is cash reserve amounting to \$3,628.86 compared with \$3,128.95 at the beginning of the year, or a net gain in eleven months of \$499.91.

Our total risk has passed \$2,000,000, and we have carried an average risk of \$1,990,325 at a cost for the eleven months of only \$1.17 1/2 on the \$1,000, which at the same rate for one year would be \$1.28 1-5, and last year it cost us \$1.84. This cuts the average yearly cost since we have been running from \$2.10 to \$2.04, and the average cost for five years from \$10.52 to \$10.20, and five years is the life of a policy and therefore the time in which we are interested most.

Our itemized expense account speaks for itself, and I need make no comment on its showing.

It would hardly be appropriate to make an insurance report and leave out the fundamental principles on which the work represented was accomplished, especially since the more the report is studied the more wonder is naturally excited as to the basic principles making possible the accomplishment of such splendid results.

First, our company is organized within the membership of the Grange, and has a representative well informed in the plan of insurance located at each subordinate grange in the State, where

What a Business!!!

That is what every patron of THE J. P. BADEN PRODUCE CO. says when referring to that firm.

The amount of creamery business done during the last three months, was more than double their expectations. What did it? High prices, honest tests, and good treatment to all.

Remember, this firm handles in addition to butter-fat, country butter, eggs, poultry, and hides, manufacture their own ice, do their own cold-storing, and manufacture all kinds of feather goods. Correspondence solicited.

The J. P. Baden Produce Co. WINFIELD, KANSAS.

he can watch the work and bring up and discuss the plans and conditions of the company in the meetings, until those who are interested and who compose the company become as thoroughly familiar with its plans and conditions as those who take an active part in officially advancing its interests.

Second, every risk can be closely examined and carefully watched since the representatives of the company have a very limited jurisdiction.

Third, there is no incentive to over-insure because the solicitors are not compensated sufficiently to influence them in taking bad risks and are not paid a per cent and would therefore receive no more for the insuring property at the cash value than they would at three-fourths of the cash value.

Fourth, the company is officered by persons who are not attempting to get rich from the premiums, but want simply enough to compensate them reasonably for actual time employed.

Fifth, because the policy-holders are receiving their insurance at actual cost and at a cost that is constantly guarded as carefully as it could be in any old-line company and is decreased in per cent by the minimum compensation of officers and agents.

We might continue and give other reasons for our success in the past and our anticipations in the future, but the foregoing are a few of the foundation features that stand above reproach and answer clearly the question; why have we been so successful?

The greatest obstacle to the progress of any institution is the establishment of its advantages, stability, and integrity in the minds of those upon whom it must depend for sustenance and this is a battle the extent and severity of which is seldom realized; but this we have accomplished and now that we are receiving the support of almost every granger in Kansas, who carries insurance, there is but one thing to prevent our continual and unlimited success; but one thing to prevent us building a complete and magnificent structure on the foundation as stably laid; but one thing to hinder us from marching on until we shall be to the field of insurance in which it is our privilege to work, a monarch and a king; but one thing to prevent us from adding another star to the seal of Kansas, the glittering lustre of which will proclaim to every eye not blind to light, that the Patron's Fire and Tornado Association of Kansas has found undying truth in that great motto, "Ad Astra per Aspera," and has climbed the rugged heights and landed at last, a gleaming star of success in the vast expanse of time.

Upon what does the portal swing, that can shut us out from the realization of that future which has been so distinctly pictured and highly colored by our record in the past?

Simply upon the failure of the Grange in Kansas to develop as it should and open to us a field in which to work. Into the Grange were we born, in its cradle rocked through infancy, in its door yard passed our childhood, ever having looked to it for advice and protection, and now should it desert us, there could be but one end to our existence. We would pass away as a sound on the air and long before our echoes would have ceased to reverberate an hundred old-line companies would have tracts issued proclaiming the death of another dreaded "Mutual," and thousands of agents would be filling the ears of the people with misleading statements about mutual insurance and producing "in memorium" tracts to corroborate their assertions. They have told us

BUTTER MAKERS
make better butter and more butter by using the
KNEELAND OMEGA CREAM SEPARATOR
simple, cheap, efficient. Easily cleaned. Free from repairs. Guaranteed to suit or money back. Send for Free book, "Good Butter and How to Make It." The Kneeland Omega Creamery Co., 28 Concord St., Lansing, Mich.

The EMPIRE CREAM Separator.
The Easy Running Kind.
Will give better satisfaction, make you more money and last longer than any other. Our book shows why. Send for it.
Empire Cream Separator Co., BLOOMFIELD, N. J.

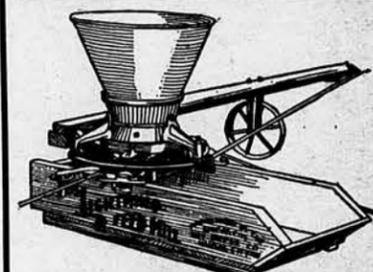
for thirteen years that it would be only a short time until some run of losses would sweep us out of existence; but today we exist as ever, proudly and successfully, "a rose among the thorns," heeding not their warning which we believe to be inspired by selfish motives only. Time alone could bring disaster that would weaken our faith in the enduring quality of our progressive organization.

\$100 Reward \$100

The readers of this paper will be pleased to learn that there is at least one dreadful disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials. Address, F. J. CHENEY & CO., Toledo, O. Sold by Druggists, 75 cents. Hall's Family Pills are the best.

SHIP YOUR FURS
HIDES, PELTS, WOOL, ETC.
To McMILLAN FUR & WOOL CO.
MINNEAPOLIS, MINN.
WRITE FOR CIRCULARS.

Lightning Feed Mill



Greatest Capacity, Lightest Draft, Quintuple Gear, Roller Movement.
KANSAS CITY HAY PRESS CO.,
129 Mill Street, Kansas City, Mo.

FREE We give one beautiful rolled gold solitaire Puritan rose diamond ring, solid-gold pattern, for selling 20 packages Garfield Peppermint Gum, at 5 cents a package. Finest quality; easy sale. Send name; we mail gum. When sold send money; we mailing, 7th year. Hundreds of thousands pleased customers. Catalogue free showing hundreds premiums.
GARFIELD GUM CO., Box 647, MEADVILLE, PA.

The Stock Interest.

THOROUGHBRED STOCK SALES.

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

January 13, 1903—I. B. & A. M. Thompson, Nashua, Mo., Galloways, at Kansas City.
January 14-16, 1903—C. W. Armour and Jas. A. Funkhouser, Hereford, at Kansas City, Mo.
January 16, 1903—H. C. Duncan, Osborn, Mo., Short-horns, at Kansas City, Mo.
January 22 and 23, 1903—Combination sale pure bred Hereford cattle at South Omaha. W. M. Rogers, McCook, Neb.
January 23, 1903—Breeders' State Combination Berkshire Sale, Topeka.
January 23 and 27, 1903—Combination sale of Herefords, at Kansas City, Mo. C. H. Thomas, Manager.
January 28-29, 1903—C. A. Jamison, Verona, Ill., Short-horns, at Chicago.
February 2, 1903—G. E. Fuller, Morrowville, Kans., bred Poland-China sow sale.
February 4, 4, and 5, 1903—Combination Sale, Wichita, Kans., Percheron, short-horns, and Poland-China. J. W. & J. C. H. Johnson, Snyder Bros., and others.
February 5, 1903—Thompson Bros., sale of Poland-China bred sows and gilts at Marysville, Ka.
February 10-11, 1903—G. M. Casy and I. J. Wornall, Short-horn, at Kansas City, Mo.
February 11 and 12, 1903—J. F. Stodder, George Bothwell and others, Short-horns; also C. A. Stannard and others, Herefords; Oklahoma City, Oklahoma.
February 17, 1903—Geo. F. Kellerman, Short-horns Kansas City, Mo.
February 20, 1903—S. S. Spangler, Milan, Mo., Percheron horses.
February 21, 1903—McCandless & Son, S. M. Croft & Sons, G. W. Lindsay, Galloways, at Denver, Colo.
March 3, 1903—L. M. Mousse & Son, Sumner, Mo., jacks, jennets, saddle horses and Poland-China swine.
March 3 and 4, 1903—C. H. Garner and M. A. Judy, Aberdeen, Angus cattle, Chicago.
April 13 and 14, 1903—Combination sale of Herefords, at Kansas City, Mo. C. R. Thomas, Manager.

Quarantine Law Should Include Hogs.

EDITOR KANSAS FARMER:—I wish to call your attention to the fact that we need a quarantine law to protect us against the shipping in of Texas and other Southern hogs, like that which the cattlemen have for the protection of their herds. I have looked this matter up, and find there is no law on our statute-books prohibiting the shipping in of these hogs from south of the thirty-seventh parallel of north latitude, unless the word "cattle" is intended to include all quadrupeds. If so, the quarantine law on cattle would apply to hogs. However, there is some doubt about this, as the Supreme Court of the State of Kansas has never decided the question. During the past seven or eight years, diseased hogs have been shipped in, bringing havoc to the breeder and farmer, spreading disease broadcast over the State to be fought for years to come, and giving large profit to the vendors of so-called cholera-cures.

From the hogs shipped into this county from the South in the last eight years, in every case disease has broken out, killing thousands of our native hogs. I wonder that we breeders have been asleep so long. I am just getting waked up in the matter, having suffered from a car-load shipped by one of my neighbors, and placed on an adjacent farm. While I was at the fair with a part of my stock, those hogs commenced dying. My hogs on the side of the farm next to the Texas hogs began to die in about eight or ten days after. The result is, I am 332 head short. All the neighbors have lost from two to ten head each. Before these hogs came, we had no diseased hogs in our part of the county.

If not too late, will you present this to the breeders of Kansas at our regular meeting, as I can not be there.

I have written to about thirty different breeders asking them to work the matter up through their Representatives. W. E. NICHOLS. Sedgwick, Harvey County.

Live Stock for the Branch Experiment Station.

J. G. HANEY, HAYS EXPERIMENT STATION.

When the State accepted as a gift the abandoned Fort Hays military reservation, one half-faced saddle pony and a team of work horses constituted the entire live-stock display of the Fort Hays branch of the experiment station. This branch consists of 3,800 acres of splendid land, with a value of nearly \$100,000. It was accepted as a gift from the Government by the last Legislature, and only \$3,000 per annum appropriated for development. When the superintendent arrived to take charge last spring, he had 3,800 acres of buffalo grass and \$3,000. Five hundred acres were broken and feed enough grown to winter three hundred head of cattle; ten miles of wire fence built, enclosing one pasture of five hundred acres, and the remainder as the boundary. Thirty-five acres of a fine stand of alfalfa was secured on sod. Two hundred acres of fall wheat, including 165 varieties, have been sown; also buildings and wells established for present needs.

The West, of which the station is typical, is primarily a stock country. Near-

ly every stock-raiser could outline experiments that would be of great benefit to him. The question of breeds is also prominent. No two breeds are similar in every respect, so it is probable that a certain breed is best adapted to Western conditions. Dairying is fast gaining prominence, and needs assistance. It will be a beneficial experiment to buy one hundred or more common stock cows, the kind that many farmers have, and breed a certain number of full-blooded bulls of several of the leading breeds. Not less than twenty should be included in a test to make it practical. The offspring could be handled in comparison from generation to generation. Those that are milkers could be milked, and the cream shipped to the college dairy at Manhattan, and the steers fed on feed grown at the station, or shipped to Manhattan also.

All who see the land of the branch station are favorably impressed with the possibilities, and express themselves as being favorable to liberality in the way of appropriations for forwarding the work.

Give Alfalfa the Credit.

EDITOR KANSAS FARMER:—On February 3 of this year A. Q. McCandless, of Natoma, Osborne County, bought twenty-two head of 2-year-old steers weighing an average of 941 pounds per head. He fed them alfalfa hay till March 4, twenty-nine days. From March 4 till May 1, fifty-seven days, he fed 243 bushels, or 13,600 pounds of corn-chop.

Average weight May 1, pounds...1200
Average gain for the whole time, eighty-six days, pounds...259
Average gain per day, eighty-six days, pounds...3
Corn-chop per steer per day, pounds...11
Alfalfa did the rest. JOHN GALER. Deliverance, Osborne County.

Tamworths.

EDITOR KANSAS FARMER:—I see that the farmers of the West do not understand what the Tamworth hogs are. They are red hogs of great size and strong constitution and will cross well with Poland-Chinas, Berkshires and Chester Whites. I have raised them for five years with perfect satisfaction, have lost no sows farrowing. They average from nine to thirteen pigs to a litter, and they are good mothers. I have topped the market with the full-bloods and half-bloods for five years. If this does not find the waste basket, it may benefit the farmers. C. W. FREELove, Clyde, Cloud County.

Dietrich & Spaulding's Combination Sale.

On Friday, December 19, at Ottawa, Kans., Dietrich & Spaulding, Richmond, Kans., and W. S. Hanna, Richter, Kans., held a combination sale of their famous Poland-China hogs. Dietrich & Spaulding's consignment numbered fifty-six head, which sold for \$1,838.50, average \$32.83. Hanna's consignment consisted of eight head of young gilts, which sold for \$119, average \$14.88. Of Dietrich & Spaulding's consignment fifty-two were females, mostly bred, which brought \$1,746.50, average \$33.58; and two boars, which sold for \$92, average \$46. The sale was held in a heated building and every effort was made to make the audience comfortable. There was a large crowd present which filled every seat and all the available standing room. Owing to the fact that the building was poorly lighted the audience was unable to examine the animals as carefully as they might have wished, and this operated somewhat against the bidding. The selling was done principally by Col. J. N. Harshberger, Lawrence, Kans., with his usual ability. The sale in detail is as follows:

DIETRICH & SPAULDING'S CONSIGNMENT.

BOARS.

1. Perfect Perfection's Dude, O. R. Aney, Wilmont, S. D. \$56.00
Boar pig, John Bollin, Kickapoo, Kans. 26.00

FEMALES.

2. J. L. Stratton, Ottawa 35.00
3. J. R. Young, Richards, Mo. 33.00
4. J. L. Stratton 30.00
5. E. P. Sherman, Wilder 30.00
6. J. C. Beatty, Ottawa 32.00
7. Chas. Huffman, Perry 40.00
8. Day & Son, Lawrence 32.50
9. D. S. Church, Ottawa 16.00
10. C. P. Shelton, Paola 37.00
11. J. C. Beatty 44.00
12. J. P. McKnight, Ottawa 31.00
13. H. Davidson & Son, Waverly 34.00
14. J. L. Stratton 44.00
15. E. E. Axline, Oak Grove, Mo. 36.00
16. J. W. Funk, Jr., Heyworth, Ill. 33.00
17. W. Ferguson, Norwood 21.00
18. Wm. Taylor, Ottawa 35.00
19. E. P. Sherman 20.00
20. G. M. Gillford, Olesburg 18.00
21. E. P. Sherman 18.00
22. H. O. Minnis, Edinburg, Ill. 19.00
23. G. M. Hanna, Ottawa 23.00
24. James Mains, Oskaloosa 45.00
25. John Rollin 45.00
26. Sam Ward, Quenemo 28.00
27. E. P. Sherman 21.00
28. E. P. Sherman 21.00
29. W. B. Van Horn, Lone Star 36.00
30. J. C. Beatty 39.00
31. Geo. Tomason, Quenemo 43.00
32. Geo. Tomason 45.00
33. V. C. McDowell, Lousburg 23.00
34. W. B. Van Horn 36.00
35. Falk Bros., Richmond, Mo. 31.00
36. Wenzel, Wittman, Princeton 24.00

37. John Bollin 25.00
38. Carl Stophus, Ottawa 23.00
39. J. R. Killough & Son, Ottawa 50.00
40. W. B. Van Horn 30.00
41. E. P. Sherman 30.00
42. Chas. Huffman 27.00
43. V. C. McDowell 21.00
44. J. E. Ross, Osawkie 22.00
45. E. P. Sherman 31.00
46. Harry Gillett, Ottawa 28.00
47. H. Davidson 40.00
48. F. H. Coffey, Junction City 30.00
49. T. C. Whiting, Abilene 21.00
50. Pettiman & Garvey, Pekin, Ill. 22.00
51. W. Jewell, Humboldt 24.00
52. J. W. Funk, Jr. 75.00
53. Pettiman & Garvey 66.00

W. S. HANNA'S CONSIGNMENT.

FEMALES.
54. D. S. Church 17.00
55. D. P. Sherman 21.00
56. D. S. Church 15.00
57. E. S. Church 12.00
58. D. S. Church 15.00
59. G. M. Gillford 19.00
62. Marshall Harker, Ottawa 10.00
63. D. S. Church 10.00

Gifford's Shorthorn Sale.

On Tuesday, December 16, at Manhattan, Kans., was held the sale of a draft from the famous Elmwood herd of Shorthorns, belonging to the Gifford Bros., Milford, Kans. This herd has been in existence for about thirty years, and is deserving of all the reputation it has won. The herd is headed by the pure Cruickshank bull, Red Gauntlet 3d 149507, by Red Gauntlet 116998, bred by W. A. Harris from Imported Chief Baron 90991, bred by A. Cruickshank. This herd has always used good bulls, and the offering for this sale was the smoothest, evenest lot of young stuff that the writer has ever seen in any one consignment. A total of forty-four animals were sold for \$5,525, average \$125.56. Of these twenty-nine were cows and heifers, which brought \$3,545, average \$122.24, and fifteen bulls, which sold for \$1,980, an average of \$132. The sale was conducted by Col. S. M. Woods, J. W. Sparks, and L. R. Brady. The sale in detail follows:

FEMALES.

May, C. W. Strickland, Junction City, Kans. 125
Marjorie, A. F. Huse, Manhattan, Kans. 150
Miss Mary Knight, A. F. Huse 150
Mary R. C. M. Garver, Abilene 150
Marvel, F. P. Cooke, Beloit 100
Janice, J. F. O'Daniel, Manhattan 175
Joyce, D. Ballantine, Herington 150
Mussie, A. F. Huse 140
Millie, W. H. Whelock, Marion 150
Lady Mary 8th, J. W. Andrews, Beloit 120
Mischief, J. E. Foreman, Keats, Beloit 120
Mary Aldrie 5th, D. L. Yeagley, Marion 110
Vixen, C. W. Strickland 160
Virginia K., A. F. Huse 150
Ruby of Elmwood, D. Ballantine 135
Nobuxbe Mary Belle 6th, John Rowe, Manhattan 160
Belle Red Knight, E. N. Reigener, Broderick 110
Highland Beauty, D. L. Yeagley 130
Gertrude of Elmwood, E. C. Creitz, Beloit 80
Samantha March, Clarke Bros., Junction City 75
Mary Aldrie, Clarke Bros. 165
Lady Mary 4th, D. L. Yeagley 100
Nellie Fisher 3d, John Samuels, Manhattan 100
Highland Bess, John A. Hanson, Morganville 85
Alanhie, Clarke Bros. 85
Merry Mary, C. W. Strickland 75
Regenta, Henry Bruns, Riley 85
Tidy Bess 2d, J. W. Andrews 115
Rose of Autumn, E. C. Trembley, Comiskey 85

BULLS.

Rose Duke 155031, L. P. Cooke, Beloit 325
Justifier, G. W. Cowie, Scandia 110
Manager, Henry Ferguson, Broderick 135
Virgil 9th, Hans Hagen, Lipton 165
Barrington 9th, C. W. Strickland 115
Tidy Knight, C. P. Houghton, Beloit 150
Advance, C. O. Munson, Junction City 100
Masher, John Rowe 125
Red Aldrie, Edward Heintz, Junction City 110
Waterloo Knight, S. Amcoats, Clay Center 95
Young Knight, G. G. Springer, Garrison 80
Regent Knight, H. A. Doyle, Leonardville 85
Woodland Victor, James Hess, Riley County 95
Fisherman, Jacob Springer, Manhattan 70
Woodland Prince, A. W. Peterson, Randolph 100

Snyder Bros.' Sale.

Snyder Bros., of Winfield, Kans., held a sale of a draft from their herd of Poland-China swine at Wellington, Kans., on Wednesday, December 17. In spite of the inclement weather, a fairly good crowd was present, and while the prices realized were not exceptionally good, they were considered fair, in view of the immaturity of the offering. With the exception of two head, the entire offering was six months or under, hence the totals did not add up very large. Forty-three head of young boars and gilts were disposed of for \$728, a general average of \$16.93. It was distinctively a farmers' sale, and even the breeding shown in the catalogue did not tempt to very liberal bidding. The few breeders who were present realized that they were getting snaps in the Broadguage Chief stuff, and others of like breeding. The sale in detail is as follows:

13. J. R. Roberts, Deer Creek, O. T. 228
13 1/2. G. W. Vandever, Perth 19
18. Geo. Morton Oxford 15
19. D. L. Dawdy, Arlington 24
20. C. O. Parsons, Wellington 20
23. W. A. Burford, Belle Plaine 13
22. D. L. Dawdy 23 1/2
23 1/2. G. W. Vandever 17
25. G. W. Vandever 14
27. Geo. Dunkel, Belle Plaine 23
28. Grant Cross, Belle Plaine 15
29. W. A. Edwards, Cicero 17
29 1/2. D. A. Yeagley, Marion 20
30. Chas. Shafer, Milan 19
30 1/2. R. B. Sanford, Winfield 16
31. J. R. Roberts 16
33. A. E. Alexander, Mayfield 16
34. J. J. Zimmerman, Wellington 15
35. Tom Henry, Wellington 14
36. A. K. Cole, Hunnewell 13
37. A. C. Burgett Augusta 13
37 1/2. A. E. Alexander 11

Fleming's 3 are free if they fail.
Fistula & Poll Evil
CURED IN 2 WEEKS.
Fifteen to 30 days is all the time required to cure with Fleming's Fistula and Poll Evil Cure. Other remedies require months and often fail. This has never yet failed.
Doom of Lump Jaw
Spavin Cured in 45 minutes.
FLEMING BROS., Chemists, 212 Union Stock Yards, Chicago, Ill.

J. R. Roberts 33
C. Shaffer 23
Tom Henry 25
Grant Cross 26
Geo. Morton 12
G. M. Hillich, Goddard 14
G. D. Barnard, Hennessey, O. T. 34
A. C. Burgett 20
Preston Wyckoff, Corbin 17
T. W. Pritchett, Wellington 17
Wm. Jasper, Rome 16
Geo. Morton 15
T. A. Hubbard, Rome 28
B. Story, Mulvane 20
W. H. Hunt, Belle Plaine 10
Amos Lawless, Cicero 11
Grant Cross 11
W. A. Edwards 11
A. E. Alexander 19

Palo Duro Percherons.

On December 19, was held at Kansas City, a dispersion sale of registered Percherons and high class jacks belonging to Hanna & Co., of Palo Duro Stock Farm, Howard, Kans. The offering consisted of thirty-one head of stallions and mares and five jacks. There was a good crowd in attendance, and in some cases the bidding was spirited. Twenty-one mares brought \$6,410, average \$305.28. Nine stallions brought \$5,130, average \$570. Three jacks sold for \$925, average \$308.33. The sale in detail was as follows:

Direct 18839, O. P. Harriman, Cowgill, Mo. \$610
Iena 23155, H. M. Hill, Lafontaine, Kan. 950
LaValle 19922, J. H. Dally, Douglass 775
Intense 22272, Jacob Shoultz, McLeod, O. T. 450
Palo 23654, L. K. Clarke, Grenola 495
Lignite 26451, L. K. Clarke 800
Del Mont 26450, Woods & Campbell, Smityville, Mo. 385
Carbon 26449, L. K. Clarke 430
Quality J. W. & J. C. Robison, Tawanda 235
Brown Bess 9893, Thomas Fargo, Phillipsburg 165
Sprite 15334 and mare colt, J. H. Moseby, Moseby, Mo. 355
Juliette 16471, Jacob Shoultz 225
Alice 18111, Frank T. Fowler, Chicago 365
Mattie 18116, J. W. & J. C. Robison 410
Kate 18114, G. A. Moseby, Liberty, Mo. 400
Rosalee 18843, Frank T. Fowler 330
Countess 18927, Frank T. Fowler 500
Jennie 18572, H. M. Hill 355
Leona 20964, Frank T. Fowler 250
Sparkle 22276, J. H. Moseby 300
Twinkle 44447, Frank T. Fowler 380
Brilliant 33374, H. M. Hill 305
Bay Bessie 23655, Thomas Fargo 400
Lustre 26453, H. J. Ulrich, Scranton 220
Sprightly 23962, G. A. Moseby 200
Ivy 26452, E. E. Laughlin, Rich Hill, Mo. 325
Intensity 29361, H. M. Hill 200
Reflection 29363, H. J. Ulrich 300
Serene 29364, H. M. Hill 225

JACKS.

Bolivar, R. P. Lyttle, Galesburg 4195
Johnson, J. H. Dally, Douglass, Kans. 460
Sampson, R. P. Lyttle 270
In addition to these sales, a jack owned by H. M. Hill, Lafontaine, was sold to D. M. Morton, Ottawa, Kans., for \$110.

Carpenter's Hereford Dispersion.

The dispersion sale of Hereford cattle belonging to the estate of the late G. W. Carpenter, Carbondale, Kans., was attended with many difficulties. The recent inclement weather had made the roads well-nigh impassable, and the crowd in attendance was quite small. There were several good buyers present, though no fancy prices were realized. Mr. James A. Carpenter, administrator of the estate, bought the herd bull, Beau Gondouls 133277, for \$355, also a few other head. A total of fifty-seven head were sold, which brought \$5,345, an average of \$93.77. Of these fifty-three were females of all ages and sizes, which brought \$4,770, average \$90. Four bulls were sold, one of which was not registered, and they brought \$575, average of \$143.75. While these figures do not look large, it must be remembered that this was a dispersion sale, which included animals of all sizes and ages. The purchasers were as follows:

A. E. Metsker, Lone Star, Kans.; George Washington, Manhattan, Kans.; James A. Carpenter, Carbondale, Kans.; Wm. Ernst, Graf, Neb.; Chas. Vincent, Overbrook, Kans.; M. J. Jordan, Baldwin, Kans.; W. A. C. Moore, Auburn, Kans.; Roger Jonee, Reading, Kans.; H. A. Naber, Wallula, Kans.; Miss Betty Carpenter,

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Carbondale, Kans.; Geo. Kaufman, Overbrook, Kans.; W. I. Meade, Burlingame, Kans.; Andrew Findlay, Carbondale, Kans.

The Duncan-Bothwell Shorthorn Sale.

Western breeders are particularly fortunate this year in the opportunities which will be offered them for the purchase of the best of pure-bred cattle at the Kansas City Live Stock Pavilion. In addition to the remarkable offering of Hereford cattle, which will be made by the Armour-Funkhouser combination on January 14 and 15, there will follow on January 16 the sale of an offering of Shorthorns from two of the best herds to be found in the West. H. C. Duncan, Osborn, Mo., and Geo. Bothwell, Nettleton, Mo., will combine in selling fifty cows and heifers, and ten bulls from these famous prize-winning herds. It is enough to only mention the names of these two breeders to assure the breeding fraternity of the quality of Shorthorns that will be offered in this sale. You will notice the advertisement on page 1268. Please bear this date in mind and in our next issue we will furnish some facts in regard to the breeding of the animals to be offered in this most remarkable Shorthorn sale of the year.

Sotham's Southern Sale.

Sotham's second Hereford sale at St. Louis proved to be quite successful. All of the animals catalogued were disposed of and in addition about 180 head of grade Hereford calves and heifers were sold. The pure-bred sale consisted of eighty-five head which sold for \$11,305, average \$133. The forty-five bulls brought \$4,515, average \$100.33. Forty females brought \$6,790, average \$169.75. Although these averages do not run especially high, it is to be remembered that the most serviceable animals owned by the contributors were not placed in the sale, the preference being to build up the sales in this new territory gradually in answer to demand for better quality. Take it all around it was a good sale.

Berkshire Sale Abandoned.

The proposed State Berkshire sale, which was to have been held at Topeka, Jan. 3, 1903, has been abandoned. Geo. W. Berry, of Topeka, had the matter in charge of making up the breeders' combination sale, but owing to the lively demand for stock of breeding age at private sale it was impossible to secure a sufficient number for a day's auction. Some breeders who had contributed a few head concluded not to join in the sale, therefore the Topeka sale has been abandoned. However, Chas. F. Mills, secretary of the American Berkshire Association, announces a breeders' combination sale to be held at Kansas City, February 6, 1903, and those breeders who had made commitments for this sale can put them in the Kansas City sale if not sold meantime.

Gossip About Stock.

D. T. Mays, Knoxville, Mo., can at all times supply purchasers with high-bred Berkshire hogs, either in boars or sows, bred or unbred. Captain Mays is one of the oldest breeders of Berkshires in the West and swears by this breed of hogs. Write him for what you want.

H. T. Groom's sale of Shorthorn cattle, announced to take place at Wichita, has been postponed until January 1, New Year's day. H. G. Groom, Carey Hotel, Wichita, is in charge of the business, and will furnish catalogue or other information to any who may desire to get some of these excellent Panhandle Shorthorns.

David Fox, breeder of high-class Hereford cattle, who formerly lived at Norwich, Kingman County, but during the year sold his farm, has now located at Burden, Cowley County, and reports that his Herefords are doing nicely in their new quarters. Mr. Fox is one of the old-time breeders of Kansas and has had a very successful career with improved stock of various classes.

Manwaring Bros., Lawrence, Kans., breeders of Berkshire swine, write: "We are selling hogs faster than we ever sold them before. Sold ten head the past week and are shipping them to different points in Kansas, Missouri, and Oklahoma, and inquiries are still coming in lively. The mailing clerk at Lawrence post-office thought we must be doing a wholesale business by the amount of mail we handled."

Secretary Thomas McFarlane, of the American Aberdeen-Angus Breeders' Association, announces the removal of his office from Harvey, Ill., to the new Record building at the Chicago Stock Yards. The removal will take place at once, and the proper address of the secretary on and after Monday, December 22, 1902, will be 17 Exchange Avenue, Union Stock Yards, Chicago.

In a recent letter, Dr. O. O. Wolf, of Glendale Stock Farm, Ottawa, Kans., notifies us that he arrived home from the International just in time to see Prince Lovely die from acute nephritis. This is a serious loss to the Glendale Farm, and the doctor's remark that he would much rather have lost \$2,000 is but a faint expression of his real feelings. Prince Lovely was a very promising bull, and we do not know how he can be replaced.

We call especial attention to the black stallions advertised for sale by H. M. Davis, of Thayer, Kans. These horses are young, sound, and very superior individuals. Keota Gordon will make a very large horse, 2,200 pounds or over, as he has never been crowded and is first class and not over fat. Harlan is a splendid black, very thick set and great finish and has great action. The Standard-bred is a grandson of Geo. Wilkes and has an own brother and sister with race record of 2:09 1/4. They will be priced and will be worth the money.

E. Gabrielson, of Hutchinson, Kans., is just starting in the business of breeding pure-bred Galloway cattle. He dropped into the Kansas Farmer office the other day on his return from a visit to the farm of C. M. Moody, Atlanta, Mo., who is the newly elected president of the American Galloway Association. While at the Moody farm, Mr. Gabrielson purchased a fine bull calf, and five cows bred to imported McDougal 4th Tarbrooch 6841. This will give

him an ideal start in a good breed from one of the best herds in the country. Incidentally, we consider Mr. Moody's election a well-deserved compliment to his skill as a breeder as well as to his activity in advancing the interests of the Galloway breed of cattle.

That veteran breeder of Galloway cattle, Geo. M. Kellam, Topeka, in addition to selling a bunch of very fine Galloways to start the herd at Hutchinson, Kans., mentioned in another place, also reports the sale of ten pure-bred Galloways to Harry Culver, Longmont, Colo., who is starting a herd of pure-breds. His purchase consisted of three choice cows and seven young bulls. The fact that Mr. Kellam has sold the foundation stock for two new herds of Galloways in one week deserves special mention and consideration at the hands of the Galloway Association.

On Saturday, December 27, a final meeting to perfect the organization of the Franklin County Breeders' Association will be held at Ottawa. We are very glad to see this interest in pure-bred stock springing up over the State, and the eminently successful example set by the Marshall County Hereford Breeders' Association will prove an excellent one to follow by other counties who desire to attain their success. Information in regard to the Franklin County Association will be furnished by Dr. O. O. Wolf, or Carey M. Porter, secretary of the County Fair Association, Ottawa, Kans.

On New Year's Day, January 1, 1903, there will be held a public sale of seventy choice registered Shorthorn cows and heifers at Wichita, Kans., by B. B. & H. T. Groom, Groom, Tex. This firm has been holding annual sales from the Staked Plains Herd, and the cattle which have been put in farmers' hands have given splendid satisfaction. These cattle are range bred, hardy, perfectly acclimated, ready to go any where on the farm and continue to do well as they have not been pampered and stalled for show-ring or sale. They are from the very best strains of Shorthorn blood, bred in the purple, and are money-makers anywhere. For further information address H. T. Groom, Wichita, Kans.

Last week the poultry fanciers of Sumner and adjoining counties held a poultry show at Wellington, which was extremely creditable. It consisted of about 500 entries, including all of the popular breeds of chickens, and a smaller exhibit of ducks and turkeys. The birds were in fine shape as a rule, and scored high on the average. Some pens showed varieties that are not so commonly met with. Among them may be named Buff Leghorns, Partridge Wyandottes and Indian runner ducks. While it would be a pleasure to give details in regard to the show, Judge J. J. Atherton, of Emporia, had not yet completed his work at the time of our visit, and we are unable to give details. Our subscriber, F. G. Logan, of Caldwell, had a very handsome exhibit of a class of birds which has given him a trade all over the Southwest.

The International Stock Food Company, Minneapolis, Minn., which has been one of our leading advertisers during 1902, in a recent letter mentions the following significant facts which give some idea of the growth of their vast business: "We are closing the year 1902 with a tremendous rush of business, and a big increase over our business of 1901. Of course, this is very pleasing to us, and it is proof that International Stock Food and our other preparations give satisfaction to the practical farmers and stockmen. A short time ago we mailed you a photograph of our office, showing thirty-eight typewriters at work. This month we have been compelled to put in eight more, and are now using forty-six with every indication that we will have to keep on adding to this number."

Doubtless many people will be surprised to learn that there is now a well-established breed of Polled Hereford cattle. They are now being bred in eight different States and their admirers consider them so favorably that they have effected a National organization. Under the name of the National Polled Hereford Association articles of incorporation have been taken out under the laws of Kansas by Hon. W. W. Guthrie, of Atchison. During the International Exposition at Chicago, representatives of this breed from Kansas, Missouri, Illinois, Iowa, Wisconsin, and West Virginia, gathered together and effected an organization with W. W. Guthrie, Atchison, the originator of the breed, as president; S. W. Anderson, Blaker Mills, W. Va., vice-president; A. B. White, Chicago, secretary; and L. Kent Robinson, Kansas City, treasurer. The secretary's office is established at 5629 Madison Avenue, Chicago.

We are in receipt of Harry Evans' sale catalogue. If you don't know who Harry Evans' is, it is only necessary to mention that he began breeding Poland-Chinas at Pleasanton, Kans., a few years ago by buying U. S. Sensation 43772. If you still don't know who is meant, it may be well to mention that this sow has a record of 103 big-boned pigs in nine litters and that this is the kind of stuff that Evans has been raising ever since. The nicest way to find out about this bunch of hogs that will be sold at Pleasanton on December 29, will be to get a copy of his catalogue, which can be had for the asking, and then go to Pleasanton and see the hogs for yourself. If you don't consider this herd well named—the Sensation Herd—it will be plain that your ideas differ from those of other folks who claim to be good judges.

Genial and benign T. A. Hubbard, Rome, Kans., and treasurer-elect of Sumner County, has the following to say about his inimitable Poland-Chinas and Berkshires—and the weather: "Hogs are doing nicely; sales good. Am pretty well supplied with Poland-Chinas and Berkshires; think I have more good show Poland-China sows than can be found on any farm in the world, excepting possibly one herd. I would like to sell one hundred bred sows and twenty-five boars at private sale in the next fifteen or twenty days, and then go to the reunion and feast at Topeka. If you want to show next year and be counted in, or want a foundation for a good herd of Polands or Berkshires, come and see. I can do you good. I have a few show short yearling boars of each breed, bred in the purple and as fine as silk. Lots of rain and snow and plenty of mud; good

for wheat, which looks well, and we anticipate a good crop of everything next year. The ground is in fine condition for crops. All stock looks fairly well; land has advanced in price."

An effort is now being made by the breeders of Sumner County, Kans., and Kay County, O. T., to organize a local association for the advancement of the interests of pure-bred cattle, and with a view to mutual help in the holding of combination sales. The example set by the Marshall County Hereford Breeders' Association seems to be contagious, and several other such organizations are under way or else have been effected. In many communities breeders of the same breed of stock become competitors to the extent of reducing prices for the breed in that neighborhood. With a properly managed association of this kind, the individual competition ceases, and the association as a whole deals with the buyer. Col. Lafe Burger, of Wellington, is much interested in the organization of this association and information in regard to its progress may be had by addressing him.

H. W. McAfee, of Prospect Farm, Topeka, has made some splendid sales of Clydesdale horses recently to Mrs. C. J. Devlin, of Topeka, for her stock farm at Spring Valley, Ill. Four span of mares raised and bred at Prospect Farm sold for \$2,000. One yearling span, one 2-year-old, one 4-year- and a 5-year-old span. The head of the Prospect stud is Attractive McGregor 8991, sired by old Prince Attractive 7195. He is the best sire ever used at Prospect Farm. Mr. McAfee has one of his stallion colts which is a typical Clydesdale and should get into good hands. In the Shorthorn division, the sales of Shorthorn bulls were made to S. B. Middleton, Ruleton, Kans., and to J. P. King, Wakefield. He still has on hand for sale five bulls ready for service, three of which are straight Cruickshank. The Shorthorn herd bulls now in use at Prospect Farm are Violet Prince 145647, sired by Lavender King 3d 96024. The assisting sire is Lord Butterfly 187717, sired by Golden Victor Jr. 137875.

The "swill-pail hog breeder," T. J. Harris, West Liberty, Iowa, announces on page 1274 his closing-out sale. He says: "My offering will be thirty-five bred gilts and forty bred sows, many prize winners and producers of prize winners at Iowa and Illinois State fairs, including daughters of Ideal Black U. S. and granddaughters, four sisters to Missouri Sunshine Waxie Chief, Iowa sweepstakes sow and first prize winner at Illinois State fair, Ideal's Maud, a first winner, also Constance, and Golden Tecumseh, Graceful Queen, dam of first boar and gilt and litter produce of sow at Iowa State fair 1902. One of the herd boars to be sold is Sunrise, brother to Ideal Sunshine. Another herd boar is T. R.'s Perfection, by Chief Perfection 2d, dam by Chief Tecumseh 2d. This is a good individual when in condition. I have bred about every month in the year. He was a second-prize winner at Iowa, 1902, with no equal for his get and no hog that won a prize this year has such a string of winning pigs."

Mr. E. W. Melville, Proprietor of Knollwood Farm Herd of big-boned, broad-backed Berkshires, Eudora, Kans., informs us that his trade in Berkshires is rushing. He reports a sale of twelve head to Kansas, two to Missouri and two to Oklahoma within the past week. It pays to advertise hogs in the Kansas Farmer. Mr. Melville still has a few extra-quality bred sows on hand and also one first-class prize boar that he could spare to head a good herd. As he owns one of the few herds of Berkshires that is able to in some measure meet the demands of the extraordinary trade this year it will be wise for anyone desiring first-class animals of this breed to write him or visit him at once. Mr. Melville is now offering a nice bunch of Holstein cattle out of N. E. Moore's unbeaten show-herd for sale. In the present manifestation of interest in the dairy business this information will be very valuable to the people who desire to secure a dairy herd or to add to one already possessed. Notice his announcement in the "special want column" today.

At last we can announce a sale of Galloway cattle from one of the best herds to be found in America. On page 1274 will be found the advertising card of I. B. & A. M. Thompson, Nashua, Mo., who are the owners of the oldest and one of the largest herds of Galloways in the West. The books of Secretary Parks, of the American Galloway Breeders' Association, show that this firm registered more Galloways than any other Galloway breeding institution in America during 1902. This firm are the breeders of their own show-herd which won so many prizes in the season of 1901 and 1902, and those who are familiar with the reports of the great shows and State fairs will remember the string of prizes that was always carried away by the Thompson herd. The offering in this sale will be one of the best ever put up at auction in the West that was bred by one firm, and one of the best that was ever offered in the United States. The offering will consist of a select draft of fifty-four head which are guaranteed to be absolutely as represented. All the heifers except three will be bred to the prize-winning bulls, Dragon of Wavertree or Caleb Miller of Brookside. A number of the bulls in this sale lot are good enough to head the best herds in the country. This will be a grand opportunity and one such as has not been offered so near home before. Visitors at the Topeka fair as well as the American Royal and the Colorado State Fair will remember the quality of these two herd bulls which belong to the show-herd and to which the heifers are bred. Write to I. B. & A. M. Thompson, Nashua, Mo., for catalogue and be present at Kansas City prepared to take home some of these wonderful beef-producing animals.

After twenty years of successful effort in building up a herd of Shorthorns and also in building up a reputation second to none as a breeder and dealer, Mr. R. T. Scott, Pawnee City, Neb., decided to go out of the Shorthorn business and devote the remaining years of his life to a less strenuous existence than has been his lot heretofore. At his home town, on December 20, was held a sale which resulted in satisfactory prices both to the seller and the purchasers. A total of sixty-nine head were sold for \$9,935, an average of \$144. Of these fifty-two were females which brought \$7,670, average \$147.50, and

Horse Owners! Use COMBAULT'S Caustic Balsam

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

CAR-SUL CATTLE DIP

CURES Mange and Itch; KILLS Lice, Ticks and Screw-Worms; HEALS Cuts, Wounds, Galls and all Sores. GUARANTEED to do the work without injury to eyes or other parts of animal. At dealers or by express, prepaid, \$1.50 per gallon. 25 cent cans—dealers only. Special price in quantities. Write to-day for book and free trial Car-Sul. Address MOORE CHEMICAL CO., 1501 Genesee St., Kansas City, Mo.

BALMOLINE The Corn-Husker's Friend. And Nature's Perfect Healing Salve MAN OR BEAST.

Druggists or by mail. Trial box, 4c; 2 oz., 25c; 6 oz., 50c. Balmoline Mfg. Co. St. L., Mo.

LUMP JAW.

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

Immune Hogs. The pigs are born Cholera-proof.

Inoculation before birth the most scientific and best hit ever made in preventing Hog Cholera. Write for free book and agency. ROBERT RIDGWAY, Box 300, AMBOY, INDIANA

FOR SALE: Black Percheron Stallion.

Keota Gordon 7-48, Black Percheron, foaled May, 1900, weight 1,600 to 1,800 pounds, bred by Silver Aster & Sons, Harlan, draft black sire and dam imported, foaled Oct. 1898, weight 1,500 to 1,600 pounds, and are Standard-bred; all mine makers. Address H. M. DAVIS, Thayer, Kansas.

seventeen bulls sold for \$2,265, average \$133.23. The top of the sale was brought by Countess of Gloster 9th and her bull calf by Baron Mysle, who went to Wm. Holt & Son, Fall City, Neb., for \$450. The deep red 3-year-old Cruickshank herd bull, Baron Mysle 176261, was sold to W. P. Lair, Horton, Kans., for \$385. Other purchasers were as follows: Frank Michaels, Sumnerfield, Kans.; James Gregg, Seneca, Kans.; W. D. Elmoro, Humboldt, Neb.; Thos. Hunt, Blue Rapids, Kans.; Albert Johnston, Douglas, Neb.; David Dellaah, Oketo, Kans.; L. J. Hitchcock, Fall City, Neb.; Frank Smiley, Humboldt, Neb.; Fred Hummel, Humboldt, Neb.; John McNair, Pawnee City, Neb.; H. O. Sheldon, Pawnee City; E. M. Hickman, Seward, Neb.; S. S. Sickle, Brookwater, Neb.; John Brentano, Purcell, Kans.; E. P. Marchand, Brock, Neb.; W. C. Johnston, Humboldt, Neb.; W. A. Mendenhall, Elborn, Kans.; W. J. Smith, Oketo, Kans.; A. B. Garrison, Beatle, Kans.; W. A. Frank, Table Rock, Neb.; T. J. Cummins, Howe, Neb.; B. Rottinghouse, Seneca, Kans.; G. D. Ramsey, Seward, Neb.; Henry Cooper and E. Nims, Humboldt, Neb. It is a significant fact that Kansas furnished a majority of the buyers from a distance.

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Horticulture.

Sweet Potatoes.

L. H. NEISWENDER, SILVER LAKE, BEFORE OAK GRANGE INSTITUTE.

Not many years ago, in the winter and spring, especially in the Middle and Northern States, sweet potatoes were considered a luxury; and they were to be found only on the tables of a few who were well-to-do, and who were able to buy them in limited quantities by the pound for especial occasions. But of late years, through the adoption by growers of the method called the kiln-drying process,—by which sweet potatoes can be kept nearly the year around,—they are now regarded as one of our most common and staple articles of food; and are within the reach of nearly every one, their value being appreciated by all classes alike, from the colored people, with their favorite of all dishes, "possum and sweet potatoes," to the highest and most aristocratic classes in the land.

In Texas and other Southern States sweet potatoes are cut up in small pieces and planted the same as Irish potatoes. When the vines begin to spread over the ground, about ten inches of the ends of the vines are cut off, and the remainder of the field is planted from these cuttings from which comes their best yield—five and six hundred bushels to the acre being a common crop. But here in the North where the seasons are shorter, we have to resort to a different method of getting our plants early. This is done by sprouting the sweet potatoes in a hotbed early in the spring and transplanting to the field as soon as danger from late frost is over.

THE HOTBED.

Much care must be exercised in making and looking after the hotbed, and I would like to add a few words of caution that might be of some benefit to one who has not learned by experience some of the important points of making a hotbed; as success or failure of crop depends upon having a good bed, and reasonably early plants.

WHEN TO MAKE THE SWEET POTATO HOTBED.

The time to make the hotbed is the latter part of March or first of April. The material is the ordinary barnyard manure with hay bedding. This should be evenly distributed and from ten to fourteen inches deep—depending on when the bed is made. The earlier in the season the bed is made the deeper it should be. This is well tramped and sprinkled, if dry, then the boards or frame for confining the sand, with a ridge board in the middle for supporting the canvas is placed on the bed. This frame should be somewhat narrower than the bed; and a convenient width is about seven or seven and a half feet, as then three strips of muslin a yard wide sewed together will reach over the ridge-board and cover the bed.

After the frame is in place, the bed is covered with from four to six inches of sand, or very sandy soil. Right here is where a mistake is more often made than anywhere else in the sweet potato business by beginners, and also those who have had considerable experience—that is, in not putting enough sand or soil on top of the bed before the sweet potatoes are bedded, which leaves them too close to the heat, causing them to decay.

The canvas is now put on and the bed allowed to stand a few days to warm up. If convenient the bed should be made east and south, because if made east and west the sun will strike more directly on the south side, heating it up too hot, often burning up the potatoes on that side while those on the north side would be all right.

BEDDING THE SWEET POTATOES.

When the bed begins to feel warm to your hand it is ready to put in potatoes. They are placed evenly on the sand already referred to, just close enough to not touch each other and then covered with about two inches of sand. The bed should be carefully watched leaving the canvas on to keep it warm or taking it off both day and night, as well as wetting the bed with cold water to cool it off if it should get too hot.

KIND OF SWEET POTATOES.

The kind of sweet potato to raise to satisfy the general market is the Yellow Jersey or the Yellow Mansimon. Other varieties, such as Red Jerseys, Red Bermudas, Black Spanish, Vineless,

Southern Queen, and Up River Chunks may be raised for early marketing in the fall or for seed in the spring. It is best, however, to raise these varieties in limited quantities, as they are used but little for the table in the spring and their time for marketing in the fall is short.

SELECTION OF SEED.

A word about seed potatoes. The medium or smaller sized sweet potatoes smooth in shape, are preferable for bedding purposes. This has been my experience, and from inquiry have learned it is also the experience of Mr. Aker, of Wamego, who is perhaps the greatest sweet potato raiser and shipper in the State. This is due to the fact that the smaller sweet potatoes throw out but a single plant from an eye, whereas the large potato throws out a number of plants, making those from the smaller potato, if not too small—stronger than those from the larger. It has this advantage also—a bushel of small potatoes will bed a larger surface, and utilize those potatoes too small for table use.

It is thought also by some that sweet potatoes shipped in from Iowa or New Jersey make better seed than those grown here, but such is not the case. If good native stock is used it will out-yield those shipped in and will be as good quality.

SEASONING THE PLANTS.

The bed should be kept well watered, and a week or more before time to set out the plants the canvas should be removed and kept off entirely. This gives the sunlight and air an opportunity to toughen the plants so that they are stronger and will bear transplanting better. Many times plants have been weakened by keeping them covered until time for transplanting, making them so tender that only a part of them would grow.

SOIL.

The soil to be selected for growing the best grade of sweet potatoes—as regards equality, color, uniformity of size, shape and other points to insure the highest market value—should be of a very sandy character. The soil, however, should be of good productive strength without the addition of fertilizers, and should be pretty level.

The Wamego stock, the Muscatine, Iowa, southern Illinois, and farther East the New Jersey stock are noted for their golden yellow color, uniformity of size, and smooth, chunky shape, and those grades bring the highest price on the shipping market. An excellent stock is also grown near Oakland, and other places, in limited areas, along the Kansas River.

It is absolutely necessary to have very sandy soil in order to raise the highly colored and best grade of sweet potatoes. Larger yields, although of inferior grade, may often be raised on darker but well-drained soil, which in a measure offsets the difference in market value, making it a profitable business even for those not having the best sandy soil.

SWEET POTATOES AFTER CORN.

In selecting the ground for sweet potatoes, as a rule it is better to follow a crop of corn. The sweet potatoes are more certain to grow chunky, less likely to be troubled with weeds, consequently of less expense to care for them. I have always experienced larger yields on corn ground than on any other.

The stalks should be thoroughly cleaned off the ground early in the spring, and the ground should be cultivated.

What is the brightest name in American story?

MACBETH'S is on the brightest lamp chimneys.

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



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No gearing; no friction. Thousands in use. Four-horse mill grinds 60 to 80 bushels per hour; two-horse mill grinds 30 to 50 bushels per hour. We make a full line of FEED MILLS, best ever sold, including the famous Iowa Grinder No. 3 for \$12.50. Send for free Catalogue.

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SEEDS

vated or disked shallow, but not plowed. Plowing the ground loosens the soil too deeply, making the potatoes grow too long. The harrow is also used to keep the small weeds from starting and to conserve the moisture in the soil till setting out time.

THE TIME TO SET PLANTS

Is from about the first till the last of May. The earlier settings as a rule out-yield those set out later on. It pays to have large hotbeds and plenty of early plants.

CULTIVATION.

In the last few years some have advocated the level cultivation of sweet potatoes, but the experience of most growers has been that the ridge has given the best results. The ridges should be about three feet apart made with the lister, leveled off with a "float" or light roller, and the plants set out by hand with a dibble, about fourteen inches apart, making eleven or twelve thousand plants to the acre. East of Topeka there have been a few machines tried for setting out plants, but so far as I can learn they have not given satisfaction, and some of them can now be bought for half price. They are adapted to level cultivation only.

No crop responds better to good cultivation than sweet potatoes. This is done with the cultivator, or better still, the first time with a surface cultivator made to fit the ridge, and with the hoe till the vines are long enough to "lay the sweet potatoes by." This job is done by throwing the vines over on one side of the ridge out of the way and then going between the rows with the lister. The work of throwing over the vines may be greatly facilitated by arranging sharp sticks about a foot long on the cultivator in the place of the shovels and changing the beams throwing the outside sticks ahead, and thus going over the field. This loosens the vines from the ground and lays them on top of the ridge, and but little work is needed then to throw them over.

YIELD.

If everything is favorable a yield of from two to three hundred bushels to the acre is an ordinary crop.

STORING THE CROP.

In order to keep sweet potatoes over winter they must be put in a cave, or cellar, made expressly for sweet potatoes, so that artificial heat from a stove may be applied to them to cure them. Subjected to this treatment they are called kiln-dried. It is not necessary to have an expensive cave for this purpose. The posts and lumber for a cave that will hold twelve hundred bushels should not cost to exceed \$40, and any farmer can do the work of making one.

It is very important that sweet potatoes should go into the cave in good condition. They should be dug only on sunny days and allowed to lay on the rows after they are pulled out, exposed to the sun and air for several hours till they are dry, then they are handled in crates made to hold about a bushel. Care should be taken to not bruise nor skin them as that will induce a tendency for them to rot in the cave.

A digger made expressly for the purpose is used to run under the sweet potatoes to loosen them so that they can be easily pulled out.

The cave should have good ventilation and the temperature should be kept to about 80° or 90° for about two weeks after they are first dug, to thoroughly cure them. This can be told by the feel of the potatoes or the smell in the cave. The temperature then should be allowed to fall to about 50° or 60°. Care should be taken to not let the temperature reach near the freezing point. Neither should the temperature be kept

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so high as to sprout the potatoes, as this causes a shrinkage and makes a great deal of labor to remove the sprouts in preparing them for the market.

DEMAND IS GOOD.

There is always a good demand at good prices in the early fall, and nearly always in the spring for sweet potatoes, and there is no crop that is so sure of a good yield regardless of season, and no crop that will give a farmer better returns for his labor in raising and marketing, if he raises good stock and puts them on the market in good condition.

L. H. NEISWENDER, Silver Lake, Shawnee County.

Preparing Celery for Market.

I. C. SMITH, WISCONSIN.

When placing stock in storage, consider the amount of your trade, so as to have the celery ready at the proper time. You must have a sufficient control of the temperature of the storage-pit to be able to keep certain parts of it warmer than others, so as to control the ripening.

The dressing should be done in the pit to avoid breakage in handling and save moving the waste, at a time when it is neither cheap nor convenient to do so. Remove all yellow or decayed stalks, then cut the root to a point, be careful not to cut too high. This takes five or six strokes with a 6-inch butcher knife. Hold the plant with the root from you and cut with a motion as if you were whittling shavings.

The washing room should be in a warm basement or room where water is convenient and a boiler or caldron at hand to warm water. A square-cornered tub is most convenient. Use plenty of water and have it quite warm, 90 to 100 degrees. This gives a gloss to the celery not obtainable with cold water. Dump a box of celery into the tub with the butts toward you; then with a common soft scrubbing brush give each head two or three downward strokes with the brush. This takes all the dirt out of the creases and gives it a bright, shiny appearance.

The tier stands at the table and ties it up four bunches to the dozen, using common white wrapping twine for the purpose, and running it twice around each bunch. All decayed leaves or tips should be carefully clipped off. It is now ready to pack for shipment or home delivery. If you have a large amount of celery, it is sometimes well to grade it, making a fancy of the largest, and a standard grade of the remainder. Do not try to bring your trade to the size of your packages, but make packages to suit the trade. We have found that a case holding about one bushel is as large as it is profitable to use. This will hold about ten dozen good-sized celery. Line cases with paper to avoid drying in warm weather and freezing in cold. Ship by express after cold weather sets in.

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The Young Folks.

Conducted by Ruth Cowgill.

"CHRISTMAS-TIDE."

At Christmas-tide the fields are bare,
A shiver of frost is in the air;
The wind blows keen across the wold,
Gone is the autumn's glimmer of gold;
But lo! a red rose opens wide
In the glowing light of the ingle-side—
A rose whose fragrance, sweet and far,
Is shed at the beaming of Bethlehem's star;
And once again the angels sing
That love is heaven, and Christ is King.

At Christmas-tide the children go
With dancing footsteps over the snow;
At Christmas-tide the world is bright
With the sudden splendor that thrilled the night,
And made the dawn a shining way,
When first earth awakened to Christmas-day.
Ah! hide your faces, churls and rude,
For none have a heart to share your mood;
At Christmas-tide the open hand
Scatters its bounty o'er sea and land.
And none are left to grieve alone,
For love is heaven, and claims its own.
—Margaret E. Sangster.

Some Strange Christmas Customs.

While we are enjoying Christmas day, with its gladness and merry-making, it is interesting to think of the manner in which people of other nations and other times have celebrated the holy day.

Christmas, as we know it, was first observed in the fourth century and many of its customs are merely modifications and adaptations of heathen festivals, which were in vogue before that time. In the first instance it was intended, I believe, to make the day a reminder, as vividly as possible, of the Savior's birth. The people gave a play in the church, in which the shepherds were watching their flocks, their astonishment at the wondrous light, and their following of the guiding star made the first scene. This was followed by the scene in the stable where a waxen image lay in an improvised manger, and the wise men brought their gifts. In some localities this scene was made the occasion of generous gifts to the church by the people, who brought fruit, grain, lambs, etc., each gift the most perfect of its kind obtainable. In some countries, remote and secluded among the mountains, this custom still prevails. In other places, the manger is the receptacle for Christmas gifts, as the tree is for us.

At one time (and a remnant of this strange custom still remains in some places) St. Nicholas (or some one disguised to represent him) rode around from house to house distributing gifts of apples and nuts. He was generally accompanied by another being, strangely gotten up, who carried rods and ashes, the Christmas gifts for the bad children. This Saint Nicholas took many different forms in different communities. Among some, he would be a maiden, with white wool upon her head, her face made ghastly white with flour and her body covered with a white sheet. At other places, he was a severe old saint riding on a white horse or some one dressed oddly and followed by his train of servants. This good saint, no matter in what form he appeared, was almost invariably accompanied by the evil one, dressed grotesquely in black, with horns, and his bundle of rods for the bad children. One can easily see how the Christmas time might be a season of terror, if one's conscience was not entirely free.

In Holland, the Christmas season had the beautiful significance which it bears for us. It was a time of peace. People were not allowed to quarrel, and strife of any kind was punishable with fine and imprisonment. Instead of hanging up their stockings as we do, the whole family set out their shoes, all close together, to show that they all were at peace with one another.

Holland was the original home of Santa Claus, and from there, also, we get our custom of hanging our gifts upon a tree.

In many countries, it was thought that at this season the Christ had a direct influence upon the fruits. Sometimes a corn-cake was baked and offered to the largest tree, as king of the orchard; or the frugal goodwife shook the crumbs from her table-cloth upon the ground in the orchard. At other places the trees were beaten or shaken. A strange custom—and an uncomfortable one for the participant, one would think—was it, for a man to go to his orchard at midnight, unclothed, and bind his trees with straw.

In England there were many strange superstitions. One was that the oxen all fell upon their knees at midnight on Christmas night; another, that if water was drawn at that time, it would be miraculously turned to wine. In Canada these same ideas had credence and some others equally outlandish. For

instance, it was thought that the cure or priest of the parish of the former generation was resurrected, with all his parishioners, and all went through their church ritual at Christmas midnight; and that the light of the stars penetrated the crevices of the earth and sometimes revealed hidden treasures.

This was a season of great jollity in merry old England. There was drinking and boisterous hilarity. One never-to-be-neglected custom was the burning of the Yule log. The stout goodman and his sons and neighbors went to the woods and felled the biggest tree. They dragged it in with shouts of merriment and drew it to the hearth, where it was kindled, to burn throughout the entire season, drawing around it hospitably, friends and kin and neighbors.

Another important ceremony was the bringing in of the boar's head, richly decked with greens. It was attended with great pomp and dignity.

A beautiful habit was the singing of the children, who went from house to house, in the early morning, sending their clear, happy voices through the frosty air. This, indeed, is the only custom whose forgetting is a loss to us. For the most part we rejoice that the sacred festival is celebrated quietly, with gifts of affection and opportunities for self-forgetting. It is a day of peace and good cheer.

We wish all our readers a Merry Christmas with all the joy of the season.

Our Symposium on Animal Intelligence.

A WISE PIG.

Penelope is a pet pig, and much given to wisdom. She never likes to waste anything, so when she has had enough to eat and finds an ear of corn in the yard she carries it to an old straw-stack and hides it for a rainy day. Lately when the farm hands were butchering, one of the men gathered corn-cobs to replenish the fire. Penelope was lying close by enjoying the heat. Next day all were surprised to see the pet pig gathering cobs in her mouth and putting them on the dead coals left from the day before. She was going to have a fire of her own. W. D. SCULLY. Petersburg, Ill.

I will try to relate an incident which seems most singular to those who are acquainted with the wild nature of a ranch-bred horse.

Last spring father purchased an unbroken horse from a ranchman with the provision that one of his cowboys was to break it to ride. The horse was loosed and tied in a corral where I carried it water in a bucket, and fastened it with a forty-foot lariat in which it would get entangled every little while. I would help it get straightened out. It soon looked upon me as a protector. When the herdsman got his saddle strapped on he leaped into the saddle and the ball commenced. The horse pitched as hard as it could until it espied me standing nearby looking on, when it ran directly to me and stopped, evidently expecting me to help it as I had done previously. I think this shows intelligence and trust, as the horse had led a wild free life until the lariat was strung upon its neck several days previous to the incident related. Hobart, Okla. RAY ARNOLD.

THE MOST WONDERFUL INSTANCE OF ANIMAL INTELLIGENCE I HAVE EVER SEEN.

Two years ago this autumn we built an addition to our house, and we needed some stone for a foundation. An old dry well, abandoned for a long time, contained the necessary stones. Accordingly the old planks were torn off and about half the stones taken out, which supplied our need. The well was about forty-five feet deep. Some stones which had dropped down were lying on the dry bottom. A strange half-grown kitten which had taken up its abode at our place a few days before, while prowling about in the dark, fell into the well. We could hear its pitiful mewling all night. The next morning at breakfast my oldest brother said he would put a stop to that noise, and would experiment on shooting straight down in the dark. But we girls begged that he try to get the kitten out. He finally consented and said he was going to see how much sense a cat has. He got a barrel-lid and drove three nails in the edge on opposite sides, tied a short rope to each nail, then tied them to a long rope which made a level platform. He put a biscuit on it and lowered it to the bottom of the well. No sooner had it reached the bottom than the kitten went for the biscuit.



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Up started the elevator, but the kitten jumped off with the biscuit. Soon it began mewling again and he let the elevator down empty. He drew it up and down before the kitten, and from curiosity, perhaps, it climbed on, and up it started at a steady, gradual rate until it was pretty near the top, when it jumped against the dirt wall, thinking, no doubt, to climb the short distance with its claws. We girls screamed, my brother frowned, and all was quiet till thump at the bottom of the well on the sharp rocks. Mew! mew! mew! came the cry from the kitten again. The elevator was lowered, but it took considerable coaxing to get kittle to venture another ascent but by this time she seemed to see the philosophy of the rope and lid, and on it she stationed herself, and up she came as before; but again, the top was too tempting for her patience, and she gave another spring to the wall, and mew! mew! mew! to the bottom again.

We thought this must have killed her, but no, we could see her bright eyes looking longingly up at us again. Down went the elevator the third time to rescue her, but she seemed to lose confidence and would not try it for a time; yet after hard coaxing she again gave herself the chance and up she came until she reached half-way where the offset of the stones was. On this little shelf she stepped. He raised and lowered the lid in front of her for a time calling to her. She would answer, look up at us, then to the lid in the most interesting and pitiful way, then station herself upon it, but as soon as it would start, her courage would fail and she would jump back on the rim of the rocks. Presently, as if knowing the one chance was in the means before her, she walked boldly out in the middle of the elevator, sat calmly down and awaited the completion of her third ascent. She jumped off but nearly fell in again from the crumbly edge. Her actions seemed almost too sensible for the dumb creatures of her race. Yet they must have been prompted by her intellect. She looked very haggard. We washed her and cared for her bruised feet, but in a few days she died from the effects of her extraordinary adventure. Elnora Baringer.

Beattie, Kans.

The December American Boy.

The Christmas number of the American Boy gives the place of honor to Jumbo—King of Elephants, who during his lifetime had more boy friends than any other animal that ever lived, and to Alfonso XIII, the boy King of Spain. Of equal interest with these stories are the following: "A Moose Hunt on the Yukon;" "Old Beauty"—a humorous story of how a boy won a race astride a pig; "The Hero of the Coal Breakers;" "Rocks, He's Our Dog;" "The Nerve of a Horse;" "Uncle Sam's Island Children;" "A Foundered Colt;" "The Charter Oak," and a continuation of the Napoleon Bonaparte story. The leading articles aside from the stories are: William Jennings Bryan to Boys; Top or Bottom—Which?; Traps, and How to Make Them; Bridge Building for Boys; A Shorthand Lesson; A Wag on That Sails Like a Ship; Popped Corn Delights; For the Winter's Fire; An American Boy's Interview With General Booth, of the Salvation Army. Full of interest are the regular departments, namely: Boys in the Home, Church, and School; Boys as Money Makers and Money Savers; Boys in Games and Sports; Boys and Animals; The Agassiz Association; Boys' Books Reviewed; The Boy Journalist and Printer; The Boy Photographer; The Boy Stamp,

Coin and Curio Collector; Boys Who Are Doing Things, and the usual number of Tangles.

With to-day's issue, our offer for animal stories is withdrawn. Next week the name of the prize-winner will be announced. The stories will be published from time to time, for they are all good; several of them are excellent. We shall be glad to hear from you again, on any subject of real and general interest. We, of course, always reserve the right to reject whatever does not possess sufficient merit to warrant our giving it space. However, do not be afraid, and if you fail once, just try a little harder next time.

For the Little Ones

SANTA CLAUS' POOR SPELL.

Word came from the country where Santa Claus dwells
That he was alarmingly ill;
And fears were expressed that he'd not be on hand
With presents the stockings to fill.

The children had fancied the precious old saint
Secure from all mortal mishaps,
And they said it was queer that at this time
of year
He should have such a dreadful collapse.

"Oh! what shall we do?" cried the little ones
all,
With grief that they could not control;
"Oh! what shall we do? for our pennies are few
And there isn't a toy that is whole!"

"I thought that he'd bring me a wagon," said Jack;
"I want a new dolly," said Jane;
"I looked for a sled this Christmas," said Fred,
And they all fell to crying again.

"It won't be like Christmas, I'm certain of that,
Said young Master Frank with a pout;
"And the bells will dingdong a monotonous song
If Santa Claus isn't about."

"I guess," said mama, "that the Giant Despair
Came into our castle to-day,
And filling with gloom each heart in this room,
Took all of our sunshine away."

"For Christmas is coming; and Christmas must be
A season of gladness and cheer;
Though broken our toys, let us make it, my boys,
The merriest day of the year.

"Dear Santa Claus doesn't like children that pout,
And make such a dismal ado;
Because he, black! has a pain in his back
And feels much more wretched than you.

"A smile on the face will do Santa Claus good,
And help him, I'm sure, to get well,
And our hearts may keep time, with a musical chime,
Though Santa Claus has a poor spell."
—Josephine Pollard.

I'm not sure that this is a true story, for the North Wind told it to me and I do not feel certain that he always tells the truth. But he certainly ought to know about this, for it happened up in the northern snowy-land which is his home. This is what the North Wind said:

St. Nicholas lives in a beautiful house all made of snow, and the windows are of clear, sparkling glass and when you are far off from it and the sun shines upon it, it glitters like a brilliant diamond, and when you are lost on the wide snowy prairies, you will sometimes see it gleaming like a beacon light, and if you can manage to struggle to his door you will be cared for and sheltered and loved and petted by the old man and good Mrs. Nick, until you are ready to be taken home. There are beautiful things in the great snow-house, toys, dolls, skates, dogs, sleds, baseballs, muffs, candy, nuts, ice-cream, roast turkey, warm clothes, flowers, pictures, story-

books—oh! everything a child could possibly wish for.

One day St. Nick had been gone a long time and Mrs. Nick was standing in the door watching for him.

Presently she saw him coming flying over the snow in his sleigh, and far off she could hear the sleigh-bells and his cheery voice talking to his twelve rein-deer:

"Trot along, Vixen; That's right, McFry-bells; Keep it up, my pretty pets—hurrah, hurrah for merry Christmas!"

He reached the door almost before you would know it, for he goes faster than the North Wind, and there in the sleigh with him was a little boy!

"Here, Mother Saint," he said, "Take this little boy in and make him comfortable. Find him something to eat and something to play with, for he has come a long way and he is going back to-night."

Then he jumped into his sled and took his reindeer to the stable. Before you could say "Merry Christmas," he was back again.

"Getting enough to eat, honey-boy?" he asked the boy, who sat gazin at him with round eyes across the steaming dinner.

"That's right—mother knows how to treat boys well. Here, catch this orange—it's a fine one. It came all the way from Florida."

And while Saint Nicholas was talking so fast, he and Mrs. Nick were filling a great sack with all kinds of nice things.

Soon he gave a long low whistle and there was a clatter and a jingle, and the reindeer and the sleigh appeared.

Saint Nick tossed the boy into his sleigh, jumped in himself, said "Good-bye" to Mrs. Nick, cracked his whip, and was away, skimming over the glistening snowfields towards the homes where the children were already dreaming of him.

I think I should be glad to be lost near Santa Claus' house, for it must be a lovely place to visit. I tried to get the North Wind to tell me more about it, but he only gave a great roar of laughter, and went whistling on his way.

The Home Circle.

CHRISTMAS.

Hark through out Christendom joy bells are ringing;

From mountain and valley, o'er land and o'er sea.

Sweet choral melodies pealing and thrilling,

Echoes of ages from far Gallilee;

Christmas is here, Merry old Christmas,

Gift-bearing, heart-touching, joy-bringing

Christmas, Christmas,

Day of grand memories, king of the year.

In volume majestic deep anthems are pealing,

Harmonies heavenly swell on the air;

Lofty and lowly in brotherhood kneeling,

Peasant and prince mingle praises and prayer;

Christmas is here, Sanctified Christmas,

Christ-bearing, life-giving, soul-saving Christ-

mas, Christmas,

Day of fond memories, king of the year.

Tender remembrances softly are stealing

Over the souls of the weary and worn;

Mists of the past, full of balm and of healing,

Soothing the sorrow of sad and forlorn;

Christmas is here, Merry-voiced Christmas,

Grief-soothing, heart-cheering, hope-bearing

Christmas, Christmas,

Day of sweet memories, king of the year.

Day of the poor, bringing Jesus the lowly,

Bearer of burdens and giver of rest,

Comforter, Saviour, Redeemer most holy;

Christianity's birth-time, eternally blest;

Christmas is here, Merciful Christmas,

Faith-raising, love-bearing, all-blessing Christ-

mas, Christmas,

Sweetest and holiest day of the year.

Compressed Air as a Transportation Agent.

The Scientific American contains in a special "Transportation" number an article by Mr. Waldon Fawcett on compressed air locomotives from which the following has been taken:

"With a more extensive use of compressed air for power purposes has come a corresponding broadening of the scope of its employment as a transportation agent, and indeed it has been conclusively proven that pneumatic traction has decided advantages over all other forms of mechanical haulage for a large variety of operations. Prominent among these are the various phases of underground haulage. For coal mines where here is danger from mine-gas its utilization is almost essential, whereas the advantages which commend its employment in non-gaseous mines are almost as potent. A rather unique field has been opened by the introduction of compressed air locomotives in railway tunnels, where the smoke, vapor and gas from steam locomotives are objectionable.

For the ordinary compressed-air haulage plant there are five essential features, namely, the locomotives, constructed to carry stored-up energy in the shape of compressed air, a charging sta-

tion, a stationary reservoir, usually consisting of one or more storage tanks in which the air is compressed, an air compressor capable of compressing any desired number of cubic feet per minute to any pressure desired, and power for operating the compressor, either steam or water power being applicable for this purpose.

"The general machinery of an air locomotive, cylinders, frames, wheels, etc., is usually very similar to that of a steam locomotive, save that the weight is greater, the bearings larger and the details of construction stronger than in a steam machine of the same power. The main points of difference are found in the fact that instead of the usual boiler with its fuel and water accessories for developing power, the air locomotive is equipped with one or more strongly constructed main storage tanks, which are charged with compressed air at high pressure, a combination regulator and automatic stop-valve and an auxiliary low-pressure reservoir in which the air is carried at a uniform working pressure for distribution to the cylinders. The cubic capacity and the pressure of air in the main storage tanks on a motor are determined, of course, by the amount of stored energy required by the length of the run which such locomotive is to make and the weight of the train which it is called upon to draw. Not infrequently locomotives are built to carry an air pressure of 800 or 1,000 pounds, but relief valves make it impossible to charge the motor-tanks to a higher pressure than is required. The initial storage pressure decreases, of course, while the locomotive is working. As illustrating the capabilities of the compressed air motors, it may be mentioned that there are in service in this country a few locomotives which are fitted with seamless steel tubes and carry a pressure of from 1,500 to 2,500 pounds per square inch.

"For charging the locomotive storage tanks previously referred to, there are provided the charging stations, which are connected with the stationary receiver or reservoir by a pipe. It is customary, when the reservoir or storage system is a pipe line, to have the charging station at each end of the line, so that the motor may take a charge of air at the end of each single trip or each round trip as required. Air locomotives may be charged either direct or by a reservoir. However, direct charging is very wasteful, and consequently the method most generally accepted involves the use of the stationary reservoir.

"The reservoir for a compressed-air transportation line usually consists of either a pipe-line or one or more storage tanks of construction similar to the locomotive storage tank, although usually designed to carry a somewhat higher pressure. By means of the reservoir system the compressor may be kept in nearly continuous operation at a fairly uniform speed. By an automatic system of governing the compressor, when the work is light, slows down in speed, whereas when the demand for air increases, the speed is quickly brought up to the required capacity."

Oil in Russia.

At Baku one will find a flourishing city of 120,000 inhabitants, which has grown up on the immense petroleum product of the region. Here, since very early times, Parsee priests, or fire-worshippers, had nourished a perpetual flame by utilizing jets of natural gas issuing from the rocks. Up to within three or four years Parsee pilgrims have come yearly from as far as India to visit this sacred shrine. But the discovery of petroleum wells has turned everything to commercial value. An area of only a few miles square is now producing more

crude petroleum than all the wells in the United States put together! About a year ago one well was struck which poured forth 2,000,000 barrels in two months, flooding the country so extensively that the damages assessed against its owner more than ate up the profit. They do not pretend to run the oil at the wells into tanks, but dam up the valleys and store it in ponds and lakelets.—From "The Crimea and the Caucasus," by George Frederick Wright, in the Chautauquan.

Kansas State Teachers' Association.

The fortieth annual meeting of the Kansas State Teachers' Association will be held at Topeka on Monday, Tuesday and Wednesday, December 29, 30, and 31, 1902.

Officers.—Prof. Joseph H. Hill, Emporia, President; Prof. J. W. Wilson, Effingham, First Vice-President; Supt. W. M. Fisher, Arkansas City, Second Vice-President; Supt. W. F. Murray, Kingman, Third Vice-President; Supt. Bertha Marlatt, Concordia, Secretary; Prof. W. C. Lansdon, Fort Scott, Treasurer.

Executive Committee.—Prof. Joseph H. Hill, Prof. J. W. Wilson, Supt. W. M. Fisher, Supt. W. F. Murray, State Supt. Frank Nelson.

Committee on Entertainment.—Prof. W. H. Wright, Topeka.

Railroad Secretary.—Supt. W. M. Davidson, Topeka.

Auditing Committee.—Supt. John Thomas, Phillipsburg, Chairman; Supt. R. V. Dyer, Abilene; Supt. J. H. Adams, Ottawa.

The following is the programme:

GENERAL MEETINGS.

Monday, December 29, 1902, 8 o'clock p. m., in Representative Hall.—Music, Duet, selected, H. L. Shirer, H. W. Jones. Prayer, Rev. H. A. Ott, pastor First English Lutheran Church, Topeka. Address of Welcome, W. B. Stanley, Governor of Kansas. Response, J. D. S. Riggs, President Ottawa University, Ottawa. Music, "Invitation to the Dance" (Weber), Mrs. M. S. Horton, Sisters of Bethany, Topeka. President's Address, Joseph H. Hill, State Normal School, Emporia. Music, (a) Song from the Persian; (b) The Danza (Chadwick), Jessie M. Tipton, Topeka. Announcement of committees.

Tuesday, December 30, 9 o'clock a. m., in Representative Hall.—9:00: Music, Boys' Choir from Industrial School. 9:05: Paper, The Rural School—A Survey of the Field, Mary E. McCreary, Superintendent of Lyon County, Emporia. Discussion: John F. Barnhill, Superintendent of Miami County, Paola; Anna Keller, Western branch State Normal School, Hays; Wm. Sense, Superintendent of Sedgwick County, Wichita. 9:50: Address, The Rural School Curriculum, Henry Sabin, ex-State Superintendent, Des Moines, Iowa. 10:45: Paper, The Study of Animal Life—Its Place in the Public Schools, S. J. Hunter, State University, Lawrence. 11:05: Paper, Industrial Phases of Common School Work, E. R. Nichols, President State Agricultural College, Manhattan. 11:25: Essentials of Oral Reading, R. E. Pattison Kline, Ottawa University, Ottawa, 11:45: Election of members of Nominating Committee.

Tuesday, December 30, 8 o'clock p. m., in High School Auditorium.—Prayer, Dr. J. S. Glendenning, pastor Second Presbyterian Church, Topeka. Shakspearean Recital, Macbeth, Prof. Frederic M. Blanchard, University of Chicago.

Wednesday, December 31, 9 o'clock a. m., in Representative Hall.—9:00: Paper, The Country School-House—a Literary Club House, L. H. Murlin, President Baker University, Baldwin. 9:20: The Library Movement and the Common School, Gertrude Shawhan, State Normal School, Emporia. 9:40: Address, The Rural School as a Social Culture Center, D. E. McClure, deputy State Supt., Lansing, Mich. 10:35: Address, Frank Strong, Chancellor State University, Lawrence. 11:10: Address, The Educational Outlook, Frank Nelson, State Superintendent of Public Instruction, Topeka. 11:30: Address, I. L. Dayhoff, State Superintendent elect. 11:40: Reports of Committees.

Wednesday, December 31, 8 o'clock p. m., in High School Auditorium.—Music, "Beloved, it is Morn" (Aylard), Octavia Greenwood, Topeka. Prayer, Dr. J. T. McFarland, pastor First M. E. Church, Topeka. Music, Vocal solo, Vida Wood, Washburn College, Topeka. Lecture, Education and Efficiency, George E. Vincent, University of Chicago. Music, Vo-

cal solo, Bert Sutton, Washburn College, Topeka.

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cal solo, Bert Sutton, Washburn College, Topeka.

COLLEGE AND HIGH SCHOOL DEPARTMENT.

Tuesday, December 30, 2 o'clock p. m., Room 8, fourth floor State House.—W. F. Murray, Third Vice-President, Superintendent Kingman County, chairman. "Articulation between the Rural District School and the High School," Homer S. Myers, principal Dickinson County high school, Chapman. "Articulation between the High School and the Higher Institutions of Learning," A. H. Bushey, superintendent of schools, Peabody. "High School and College Athletics," E. M. Carney, State Normal School, Emporia. Papers limited to 15 minutes. General discussion, 15 minutes; open to all.

Wednesday, December 31, 2 o'clock p. m., Room 8, fourth floor of State House.—W. F. Murray, Third Vice-President, Superintendent Kingman County, chairman.—"Will Commercialism Drive the Classics, History, Literature and Philosophy from the College and High School Courses?" D. E. Krehbiel, principal high school, Newton. "The Ethics of the Curriculum," W. H. Andrews, superintendent schools, Blue Rapids. "How far shall Colleges and High Schools Attempt to Supervise or be Responsible for the Manners and Morals of the Students?" Richard R. Price, superintendent schools, Hutchinson. Address: Liquid Air Experiments, E. C. Franklin, State University, Lawrence. Papers limited to 15 minutes. General discussion, 15 minutes; open to all.

COMMON AND GRADED-SCHOOL DEPARTMENT.

Tuesday, December 30, 2 o'clock P. M., in Representative Hall.—W. M. Fisher, Second Vice-President, Superintendent Schools, Arkansas City, chairman.—Paper, The Americanizing Force of the Common School, C. S. Risdon, superintendent schools, Independence. Paper, How Connect the Home and the School: (1) Socially, (2) Intellectually, (3) Morally, John Van Arsdale, principal schools, Jetmore. Paper, How Teach American History So as to Develop and Foster Patriotism? Ida M. Case, county high school, Norton. Address, Some Things Outside the Curric-

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DR. J. W. DROY, D.D.S. Write for VERMONT BEL

ulum Which the Common-School Teacher Should Know, F. C. Demorest, president Southwest Kansas College, Winfield. Papers limited to ten minutes each. Discussion after each paper, open to all.

Wednesday, December 31, 2 o'clock p. m., in Representative Hall.—W. M. Fisher, Second Vice-President, Superintendent Schools, Arkansas City, chairman. —Paper, How May Our County Normal Institutes Be Made More Efficient? E. A. Shepardson, superintendent schools, Anthony. Paper, Personal Enrichment of the Common-School Teacher, A. F. Senter, superintendent schools, Minneapolis. Paper, Equal School Privileges for All, I. B. Morgan, superintendent schools, Troy. Paper, Common-School Graduation and Graduation, Geo. K. Thompson, superintendent Marshall County, Marysville. Papers limited to ten minutes each. Discussion after each paper, open to all.

PRIMARY DEPARTMENT.

Tuesday, December 30, 2 o'clock p. m., Supreme Court Room, second floor State House.—J. W. Wilson, First Vice-President, Principal Atchison County High School, Effingham, chairman.—2:00: I. Kindergarten Methods in the Rural School, Miss Laura Rankin, Burlington. Discussion. II. Industrial Training in the Schools, Mrs. W. A. Johnston, president of Kansas State Social Science Federation, Topeka. Discussion. III. General discussion of problems in the rural primary grades.

Wednesday, December 31, 2 o'clock p. m., Supreme Court Room, second floor State House.—J. W. Wilson, First Vice-President, Principal Atchison County High School, Effingham, chairman.—2:00: 1. Need of More Attention to Primary Methods in the County Normal Institute, Minnie V. White, Superintendent Chautauqua County, Sedan. Discussion. II. Literature of Fact vs. the Literature of Fancy as Meeting the Life Needs of Children in the Primary Grades, Eleanor E. Arnold, principal schools, Hamlin. Discussion. III. General discussion of problems in the rural primary grades.

DEPARTMENT OF COUNTY SUPERINTENDENCE.

Tuesday, December 30, 2 o'clock p. m., Senate Chamber.—Frank Nelson, State Superintendent of Public Instruction, chairman.—2:00: Defects in Our Rural School Work, and Remedies for Same, W. W. Miller, superintendent of Osborne County, Osborne. 2:20: Discussion, led by Willard E. Lyon, superintendent of Lincoln County, Lincoln. 2:40: The Importance of Reading and Literature in the Rural Schools, Kate Southwick, superintendent of Labette County, Oswego. 3:00: Discussion, led by Edward O'Connor, superintendent of Stafford County, St. John. General discussion.

Wednesday, December 31, 2 o'clock p. m., Senate Chamber. Frank Nelson, State Superintendent of Public Instruction, chairman.—2:00: The Consolidation of Rural Schools, C. T. Sherwood, superintendent of Coffey County, Burlington. 2:20: Discussion, led by Frank Lennen, superintendent of Rice County, Lyons. 2:40: The Permanent Gradation and Classification of the District Schools, Mrs. G. G. Burton, Topeka. 3:00: Discussion, led by W. W. Austin, superintendent of Chase County, Cottonwood Falls. General discussion.

CITY SUPERINTENDENTS' ROUND-TABLE.

Tuesday, December 30, 2 o'clock p. m., Room 6, fourth floor of State House.—W. S. Heusner, Superintendent Schools, Junction City, chairman.—I. Comparative Statistics of First- and Second-Class Cities of Kansas; What They Show, Geo. R. Crissman, superintendent schools, Salina. II. The Course of Study for the Grades, M. E. Pearson, superintendent schools, Kansas City. III. Yearly or Half-Yearly Promotions—Which? D. F. Shirk, superintendent schools, Newton. IV. The Relation of City Teachers to the County Normal Institute, A. B. Carney, superintendent schools, Concordia. 5. How to improve the Work of Inefficient Teachers, R. F. Knight, superintendent schools, Wichita.

Wednesday, December 31, 2 o'clock p. m., room 6, fourth floor of State House.—W. S. Heusner, Superintendent Schools, Junction City, chairman. I. The Problem of School Taxation in Cities of the First and Second Class, J. W. Spindler, superintendent schools, Winfield. II. The California Plan for the Support of Public Schools, John MacDonald, Western School Journal, Topeka. III. The Entrance Requirements of the State University, W. A. Stacey, superintendent schools, Burlington. IV. Elective Courses in the High School, R. L. Russ, superintendent schools, Pittsburg. V. High School Graduating Exercises, H. P. Butcher, superintendent schools, Argentine.

Winfield. II. The California Plan for the Support of Public Schools, John MacDonald, Western School Journal, Topeka. III. The Entrance Requirements of the State University, W. A. Stacey, superintendent schools, Burlington. IV. Elective Courses in the High School, R. L. Russ, superintendent schools, Pittsburg. V. High School Graduating Exercises, H. P. Butcher, superintendent schools, Argentine.

HIGH-SCHOOL AND PRINCIPALS' ROUND TABLE.

Tuesday and Wednesday, December 30 and 31, 4 o'clock p. m., Room 9, fourth floor of State House.—J. W. Hurlinger, Kansas City, chairman.—Topics: Intensity vs Extension in High-School Work; The Solid Daily Session vs the Double Session; The Lecture or Entertainment Course as a High-School Factor; The Present Crusade of "Doing." Is it a Fad? Shakespeare for the Laborer, or How to Improve the English of the Youth; Literary Societies in the High School, and How Best Managed; The Place for the Common Branches in the High School; The School Year: Relative Merits of One, Two, or Three Terms; Latin: The First-Year Work, and Place for the Subject; The Recitation Period; Single Daily, or Double the Time on Alternate Days.

All high-school principals and teachers are invited to be present and call for or lead in the discussion of any of the above-named topics.

HISTORY AND SOCIOLOGY ROUND-TABLE.

Tuesday, December 30, 4 o'clock p. m., Room 5, fourth floor of State House.—Geo. E. Rose, Principal of Kansas City, Kansas, High School, chairman.—I. To What Extent Should Public Schools Be Held Responsible for the Morality of a Community. II. Cooperation of Employers and Employed, and a Sharing in the Profits of Labor. 3. Is the Consolidation of Rural Schools Against the Development of Individuality? IV. The Duty of Society to the ex-Convict. V. The Best Class Recitation in History that I Ever Heard. VI. What Should Be Done With Those Who Are Mentally Incapable?

Each of the following parties has promised to present a strictly five-minute paper on some one of the above subjects: J. F. Lyon, Williamsburg; E. L. Cowdrick, Lawrence; W. J. Hull, Sabetha; Bennett Grove, Newton; E. T. Fairchild, Ellsworth; W. C. McCroskey, Kansas City; Rev. Jas. A. Staveley, North Topeka; A. J. Higdon, Galena.

Note.—Three-minute discussions, open to all. Wednesday, December 31, 4 o'clock p. m., Room 5, fourth floor of State House.—Geo. E. Rose, Principal of Kansas City, Kansas, High School, chairman.—I. Can Rural Forces Be Federated? II. The Little Tough: His Making and His Breaking. III. The School Room as a Promoter of Democracy. IV. The Pension Proposition: Causes and Effects. Should It Be Extended to Teachers? V. How to Utilize the Social Forces of a School-Room.

Each of the following parties has promised to present a strictly five-minute paper on some one of the above subjects: Hattie J. Kirby, Wakeeney; D. L. Countryman, Utica; F. H. Baker, Long Island; J. T. Albin, Osage City; J. E. Edgerton, Manhattan; C. J. Smith, Emporia; U. A. Scritchfield, Argentine; F. C. Jacoby, Sterling.

Note.—Three-minute discussions, open to all.

STATE CHILD-STUDY SOCIETY.

Tuesday, December 30, 2 o'clock p. m., Room 4, fourth floor of State House.—Harold Barnes, ex-Superintendent Schools, Beloit, president; Mrs. Christine Nelson Kennett, Concordia, secretary.—A Study of Some Precocious Children, J. H. Glotfelter, State Normal School, Emporia. Child Psychology in Its Relation to Moral and Religious Training, Norman Triplett, State Normal School, Emporia. General Discussion.

MUSIC DEPARTMENT.

Tuesday, December 30, 2 o'clock p. m., Room 2, fourth floor of State House.—H. W. Jones, Music Supervisor, Topeka, chairman.—2:00: Possibilities for Music in Rural Schools, Helen Willard, Hutchinson. 2:20: Discussion, C. A. Boyle, State Normal School, Emporia; T. J. Perry, Alma. 2:40: Music, Boys' Choir from Industrial School, Topeka. 2:45: The Disciplinary Value of Vocal Music, Mrs. G. P. Grimsley, Washburn College. 3:05: Discussion, Grace Noble, Abilene; Daisy Hunter, Topeka; H. W. Charles, superintendent Boys' Industrial School, Topeka.

Wednesday, December 30, 2 o'clock p. m., Room 2, fourth floor of State House.—H. W. Jones, Music Supervisor, Topeka, chairman.—2:00: Is the Correlation of Vocal Music Possible? Is so, With What? Mrs. Lottie F. Montrose, Junction City. 2:20: Discussion, Mil-



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dred Hazelrigg, Topeka; Geo. B. Anderson, principal schools, Lindsborg. 2:40: Vocal Music in County High Schools, H. D. Wilson, Chapman. 3:00: General discussion. Practical problems in school music. 3:20: Election of officers. Adjournment.

GENERAL INFORMATION.

The opening exercises of the association will be held in the House of Representatives.

Papers are limited to the time indicated on the program, and the chairmen of the various meetings are requested to see that this rule is strictly observed.

All the afternoon sessions of the different departments of the association will be held in the State House. See program for number of room for each department.

Discussion.—Members of the association are invited to study carefully this program, select the topics in which they are interested, and come prepared to discuss in three-minute speeches such phases of the work as in their judgment will add to the value of the paper and the interest of the meeting. It is intended that every one who desires shall have an opportunity to speak at these meetings, and the only limitation is that of time.

Membership Fees.—Those who were members in 1901 are required to pay but 50 cents, the annual fee. All others will be required to pay \$1. The membership ticket admits the holder to both of the evening entertainments.

Sale of Valuable Government Publications.

The United States Geological Survey has called the attention of the public to its geologic folios. These publications consist of sets of topographic and geologic maps in pamphlet form, especially of selected regions rich in mineral deposits or of economic importance, together with concise letter-press descriptions of the physical and geologic features of the regions and, in some instances, handsome photographic reproductions. The maps have been compiled at great expense and are beautifully colored to illustrate the succession of formations. The folios are representative of the most careful work of the Geological Survey, and because of the light they throw on the location and extent of ore-deposits and all the important productive districts of the country are of widespread value to engineers and investors.

A number of the series are rapidly going out of print and, owing to the cost of publication, are not likely to be renewed. An unusual opportunity is thus offered for those desiring the information contained in these publications to complete sets or to procure the folios in full. Descriptive lists will be furnished on application to the Director of the Geological Survey.

Tell your friend you mean to spend your life fighting for money and power, and he will, if he be an average man, applaud your decision; tell him you mean to dwell in the country, gaining a simple livelihood from your labor, and he will either not believe you mean it, or will conclude you are a beaten competitor in the city's race. Most people do not know they are the slaves of their modern improvements, so-called. They build houses larger than they can occupy—for show; they pinch and scrape year after year to pay for them, and after that continue pinching to pay taxes, repairs, and other maintenance charges. A large house demands expensive furniture. Then fine dress. And the demands increase. The man keeps his nose on the grindstone, the woman wears herself out taking care of the fine feathers. No time to just live and enjoy it; got to make a snow first—going to take a real rest, and cut off all the little vanities next winter—next summer—some other time, when matters are not quite so pressing.—National Magazine.

The average number of criminals is 38 to the 1,000, among bachelors; among married men, the ratio is only 18 per 1,000.—Exchange.

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Prof. A. D. Shamel in Washington

Read in The Farmers Voice and National Rural for December 27, 1902 the young corn expert's own story of his work at the Department of Agriculture. Every farmer and agricultural student should read it. Tells you just how to get your seed tested. It will be sent you free of charge if you will send a postal card asking for it to THE FARMERS VOICE CO., 45 Plymouth Court, CHICAGO, ILL.

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BALANCED RATIONS FOR HOGS—A NEW AND EASY METHOD FOR THEIR COMPUTATION.

(Continued from page 1251.) rations be computed for growing swine 5 to 6 months old and averaging 120 pounds. See Table III.

CORN AND ALFALFA RATION PER 1000 POUNDS OF 120-POUND, GROWING HOGS.

For this computation we have, from tables III and IV, the following memoranda:

- C=22.3. P= 3.7. c1= 0.764. c2= 0.423. p1= 0.078. p2= 0.11.

The formulas for these will be

Corn=(C x P2 - c1 x P) / (c1 x P2 - c2 x P1) Alfalfa=(P x c1 - p1 x C) / (c1 x P2 - c2 x P1)

Placing in the first of these equations the values of C, P, c1, c2, p1, and p2 from the above memoranda we have

Corn=(22.3 x 0.11 - 0.423 x 3.7) / (0.764 x 0.11 - 0.423 x 0.078)=18.6 lbs.

Performing the several arithmetical operations indicated we find 18.6 pounds to be the proper amount of corn to be used in this ration for 1000 pounds of these growing hogs averaging 120 pounds each.

Placing in the second of these equations the values of C, P, c1, c2, p1, and p2 from the above memoranda we have

Alfalfa=(3.7 x 0.764 - 0.078 x 22.3) / (0.764 x 0.11 - 0.423 x 0.078)=21.31 lbs.

Performing the arithmetical operations we find 21.31 pounds to be the proper amount of alfalfa hay.

Persons who have never fed alfalfa hay to hogs will have an argument with those who have used it as to the utility of feeding hay to hogs. It is certain that this and almost any ration can be improved by the addition of skim-milk, a feed that is available in varying quantities on almost any farm. To illustrate further the use of the formulas and at the same time the method of preparing rations containing more than two feeding stuffs let us compute a balanced ration composed of corn and skim-milk.

CORN AND SKIM-MILK RATION PER 1000 POUNDS OF 120-POUND, GROWING HOGS.

For this computation we have from tables III and IV the following memoranda:

- C=22.3. P= 3.7. c1= 0.764. c2= 0.052. p1= 0.078. p2= 0.029.

Placing these values in the formulas we have

Corn=(22.3 x 0.029 - 0.052 x 3.7) / (0.764 x 0.029 - 0.052 x 0.078)=25.1 lbs.

Skim-milk=(3.7 x 0.764 - 0.078 x 22.3) / (0.764 x 0.029 - 0.052 x 0.078)=60 lbs.

We now have two rations either of which is balanced. They are

Table with 2 columns: Pounds, and rows for Corn (18.6), Alfalfa (21.3), Corn (25.1), Skim-milk (60.0).

If it be desired to feed these half-and-half the combined ration will be

Table with 2 columns: Pounds, and rows for Corn (9.3), Alfalfa (10.7), Corn (12.6), Skim-milk (30.0).

It is doubtful whether a better ration than this can be formed. The question of cost will be considered further on.

It will not be possible to form a balanced ration for these hogs from alfalfa and skim-milk for the reason that each is long on protein and short on carbonaceous matter, or as the books express it, each has a nutritive ratio below that of the standard ration for this class of hogs. Likewise it is not possible to form a balanced ration of skim-milk and bran, or skim-milk and middlings, or bran and middlings. In preparing a balanced ration for these hogs from the feeds here specified it is necessary in every case to use corn as one ingredient.

From the feeds named the following rations may be computed by the use of the formulas as above shown:

Table with 2 columns: Pounds, Price, cents. Rows for Corn (19.2), Bran (18.0), Corn (12.2), Middlings (21.6).

Table with 2 columns: Pounds, Price, cents. Rows for Corn (17.4), Alfalfa hay (21.3), Corn (25.1), Skim-milk (60.0), Corn (26.65), Cottonseed-meal (4.35).

A suitable ration for these hogs can not be made from corn and oats because each has a higher nutritive ratio than the required ration. However, the nutritive ratio of oats is nearly the same as is needed for these hogs. It is, therefore, entirely proper to substitute oats for a part of any of these balanced rations if the feeder so desires. To feed a suitable amount of protein for 1000 pounds of these hogs would require 33 1/2 pounds of oats per day if the ration were composed entirely of oats. At prices given this ration would cost 31 1/2 cents, making oats the most expensive ration of the list.

The cheapest ration in the list consists of corn and alfalfa hay; next to this is corn and cottonseed-meal. Theoretically a ration composed of corn, cottonseed-meal, and alfalfa hay should be a good one. The cottonseed-meal is an exceedingly concentrated feed and will equalize the too great bulk of the alfalfa, while the loosening effect of the alfalfa should counteract the constipating effect of the cottonseed-meal.

As before shown these several rations may be mixed together in any desired proportions without destroying the balance.

In these considerations no account has been taken of individual peculiarities that may be possessed by any animal nor of variations in the composition of any of the feeds. In these discussions it is possible to take account only of average animals and feeds of average good quality.

It is hoped that the correspondent who raised these inquiries will report his experience in the use of the feeds so that the entire KANSAS FARMER family may have the benefit.

The discussion of rations for finishing the hogs is reserved until another time.

STATE FAIRS.

For a number of years the various State industrial societies have endeavored to secure a representative State fair or exposition as an annual event for Kansas with the State behind the enterprise.

Every agricultural State has a well-equipped State fair with liberal support from the State. The writer has visited the Western State fairs for several years, and it is a significant fact that they are growing better each year in all of the departments, and the public interest is increasing, as shown by the material increase in attendance. In fact, these annual expositions are worth millions to the States so represented. It is an object lesson for the citizens of the State, and an incentive to improve each branch of the industrial system of the State. In addition to the advantages accruing to the citizens of the State, it is the most effective advertisement to the world at large of the resources of the State.

To those who visit other Western State fairs it is humiliating to have everybody asking, "What's the matter with Kansas?" In years past we used to have an annual State fair. The presumption is that Kansas is going backward; is in the semi-arid belt; does not dare to show with other States. This is the only agricultural State that does not have a State fair or exposition with the State behind it. It is a positive detriment and loss to the State of Kansas, by reason of this backward movement. What will Kansas do about it?

In England and Scotland for a hundred years the Royal Shows have been great annual events for the people, and at the same time have proven valuable object lessons for the farmer and breeder. As a consequence the intelligent farmers are prosperous and her breeders of pedigreed stock, famous by reason of the annual shows, have been able to dispose of their pedigreed stock at very long prices to American fanciers. As a matter of fact, the breeders of Kansas produce as good stock of all classes as are produced in England and Scotland, but having no State exhibition, Kansas fine stock and products are practically unknown outside of our own borders.

There is to be a great World's Fair at St. Louis in 1904, at which place Kansas is anxious to maintain the proud prestige of the past, and show to the world the great progress we have made during recent years in every line of agricultural industry, but under exist-

ing conditions this must be a matter of individual enterprise, whereas if we had a well-equipped State fair or exposition, for 1903, it would form a nucleus about which to collect our best products and exhibits for a magnificent and representative display at the World's Fair in 1904.

It is the hope of the KANSAS FARMER that the incoming Legislature will properly meet this condition and help to place Kansas in the front rank where she properly belongs. Readers of the KANSAS FARMER who appreciate the need of an annual exposition of the great and varied resources of Kansas should not fail to encourage their Representatives in the Legislature to seriously consider the matter of a representative State fair.

The State of Minnesota has one of the ideal State fairs of the United States. It is perhaps the most complete in all appointments and in its grounds of all of the Western States. In voting these grounds for the purpose, the section of the statutes relating to it reads as follows:

"For the purpose of exhibiting thereon, under the management of the State Agricultural Society, or its successors, annually, the agricultural, stock-breeding, horticultural, mining, mechanical, industrial, and other products and resources of the State of Minnesota, including proper exhibits of the arts, sciences, and all other public displays pertinent to or attendant upon exhibitions and exposition of human art, industry or skill."

The entomologist of the Texas Experiment Station estimates that the losses in that State due to insect pests aggregate \$75,000,000 a year. He urges that provision be made for reconnoitering the positions of this enemy and for putting up a good fight.

Dietetic Value of Vegetables.

If we would be healthy we must first be wise enough to eat vegetables and plenty of them, says the Rural Californian. These bodies of ours can not be perfectly healthy without them. No one can attain health and high mentality without physical strength. Mother Nature has provided liberally for her children. It remains for us gratefully to accept the largest of her gracious guardianship.

Parsnip and salsify are highly nutritious if used in season. There is danger in eating parsnips very late in the spring. After they begin to sprout they acquire a calid taste and are poisonous.

Potatoes, both sweet and white, are allied to several powerful narcotic plants, as well as to other esculents, such as tomato and egg-plant. Potatoes consist almost wholly of starch, and are accordingly deficient in nitrogen, and illy adapted for an exclusive article of diet; though, as an accompaniment to other heavy foods, they are very healthful.

The squash has great food value. Its properties are similar to those of the sweet potato. The carrot is a moderately nutritious food, with the same properties when used internally as when applied outwardly in the form of a poultice, allaying inflammation. Its chief value is in the form of a digester. It contains pectic acid, which acts upon other foods in a manner that dissolves them and so promotes digestion. It is said that the frequent use of carrots will bring brilliancy to the eye, smoothness and gloss to the hair, and clearness to the complexion.

The cucumber and muskmelon possess remedial qualities for rheumatism. Their juices are also valuable as an emollient of lotions, cold creams or pomades.

The young shoots of asparagus have from remote time been held in high repute as a culinary vegetable owing to its delicate flavor and diuretic virtues. The ancient Romans served it at their most elegant banquets. No vegetable is more favorably known as a cleansing agent for the kidneys.

The cabbage family, of which there are many branches—namely, Brussels sprouts, one of the most delicate of table vegetables; the common drumhead of which sauerkraut is made; the red cabbage, excellent for pickling; broccoli sprouts and kale; besides numerous other varieties unfit for table use—adapted to the needs of animals, all contain a large percentage of nitrogenous compounds as compared with other articles of food. They are a mental and physical tonic, but unless eaten very fresh are difficult of digestion, and have a very decided tendency to produce flatulence.

The common bean is more nutritious than wheat. It is however, a rather coarse food and difficult of digestion.

Wax and butter beans, when cooked tender, are wholesome and nutritious. The Dutch and Germans recognize their virtues and preserve large quantities in salt for winter and spring use. Peas are equally as nutritious and wholesome as beans. Very few appreciate the value of dry peas in a puree.

The watercress is a pungent stimulant with anti-scorbutic properties. Nasturtium pods have similar attributes to the horseradish and watercress. The medicinal qualities of the radish stimulate, cleanse and tone the system. Lettuce is especially healthful because so easy of digestion. Added to these are the laxative and soporific qualities, which make it a valuable salad for nervous people. Okra has a soothing effect upon the system. Laxative properties are found in parsley. Spinach exerts a strong influence over lungs and liver. Its seeds are often prescribed in the Orient for inflammation of the liver and to relieve difficult breathing.

The purgative properties of the onion recommend its frequent use to cleanse the general system. Is especially promotes discharge from the mucous membrane of the lungs and trachea. Horseradish is a good local stimulant and a mental and physical tonic. Its frequent use will relieve a tendency to dropsy, and it contains properties that are beneficial to chronic rheumatism sufferers.

Rhubarb is a most efficient stomachic. By its use the stomach is strengthened and incited to healthy action. Its censorship over improper diet is important and beneficial, inasmuch as its laxative qualities cleanse the system of much effete matter.

Transplanting Cedar Trees.

EDITOR KANSAS FARMER:—I would like some information about transplanting cedar trees. Some say they must be set on flat rocks in the grounds, while others are of different opinion. I would like to know the proper way for I am going to transplant some.

ORIE A. HIGH.

Sterling, Rice County.

If the ground freezes sufficiently hard this winter to enable you to take up a big frozen ball of earth containing the roots, and if you care to do the extra work, the best time to transplant any kind of evergreen is while the ground is hard frozen. Have the holes dug in advance and plenty large enough. Then dig out a big round ball of frozen earth containing the roots, slide it onto a sled and draw it to the hole, then slide it in and tamp fine earth into all vacant spaces under and around the frozen ball. The tree "will never know it was moved."

Never mind about the stones. Cedars grow very well on stony land, but they grow equally well in good soil free from stones.

If you can not or do not care to transplant while the ground is frozen to considerable depth, defer the work until May; then have your holes ready to receive the trees; take them up carefully and quickly cover the roots immediately with moist earth, or plenty of damp burlap, or some other protecting material. Place them where they are to stand with as little exposure of roots as possible, and fill around the roots firmly with moist earth. Handled in this way the loss should not be great.

Don't Forget

The meeting of the State Cooperative Union at Topeka, January 20 and 21. An important meeting; all cooperators invited. Every cooperative store, elevator, creamery, insurance company in the State is urged to elect a delegate.

Come, let us council together. Open rate on all railroads in the State of one fare for round trip on January 19, good for ten days to attend the Topeka Mid-winter Fair.

Take notice, you must buy ticket the 19th. The 20th they charge full rate. Write A. Wardall, secretary, Topeka, of your coming.

"I'm sure," said the clumsy man as he slipped off his horse again, "that I'll never learn to ride." "Oh!" replied the riding master, "just keep on trying." "But I'm having my own troubles trying to keep on."—Catholic Standard and Times.

Swiss cowbells have been introduced into the Himalayas as a protection for cattle against tigers. The tigers are said to run as soon as they hear the bells.

In many hotels in Europe the guests are provided with slippers. The soles are of pasteboard and the rest brown paper. New ones are furnished to each guest.

The Veterinarian.

We cordially invite our readers to consult us when ever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the Kansas Farmer. Give age, color, and sex of animal, stating symptoms accurately, of how long standing, and what treatment, if any, has been resorted to. All replies through this column are free. In order to receive a prompt reply, all letters for this department should give the inquirer's postoffice, should be signed with his full name, and should be addressed to the Veterinary Department, Kansas Farmer, Topeka, Kans.

Urticaria.—My mare the summer when she was a yearling began to break out in small pimples on her neck and shoulders, which apparently itched a great deal. The hair slipped off from the top of the eruptions leaving bare spots. When winter came they disappeared and the hair grew in all right. Last spring she broke out again only a great deal worse than the previous summer. This time all over her body and she would bite and rub till her breast was raw and bloody. Her hair slipped off in large patches and the pimples were numerous. This winter her hair grew in again. She will be a 3-year-old next spring and has always run in the pasture at home with healthy horses. Can you help her?

Cross, Okla. J. H. MYER.
Answer.—It will be best to keep her up in the spring and diet her some. When warm weather comes, give her bran, mostly, and a little oats and regular exercise; and if the disease appears give her one ounce of Barbadoes aloes and one pound of Glauber salts in a drench at once; and follow up with arsenious acid one and a half drams, nitrate of potash, ten ounces, sulphur, twelve ounces, glauber salts, one and a half pounds, mix and divide into thirty powders, and give one twice a day, in feed, dry or drench. Wash her whenever she shows any signs of irritation with zenoleum, one to twenty of warm water once a day.

Fistula.—I have a 3-year-old mare that has been running in pasture for four months, not having been worked since the first of June. She has a swelling about the size of your hand on top of her shoulder-blade. It has the appearance of a fistula and has been there about ten days. What is the cure?

G. A. TROUDNER.
Carbondale, Osage County.
Answer.—Clip off the hair and apply Russian cantharides, one and a half ounces, in three ounces of hog's lard; mix and boll five minutes and when cool, rub in well with the hand; leave on thirty hours and wash off, and grease. Repeat it in five days. Keep her up and feed out of a level manger so that she will not have to reach down to eat.

Ulcerated Tooth.—I have a 3-year-old mule unbroken that has a hard lump on the left side of the nose, about three inches above the nostril and the size of your fist. It has been there about a month and a half. I have used liniment but it has done no good. What shall I do for it?

J. M. EDWARDS.
Osawatomie, Miami County.
Answer.—Have a qualified veterinary dentist examine the teeth. It will probably be necessary to extract one.

Lameness.—I have a sorrel colt, 6 months old, which had a small lump on his stifle joint. At first he was not lame, but now is quite lame; does not stand on his foot unless the leg is back, and

does not use his leg much. Has been lame for three months, the lameness coming on gradually. Could he be stified? We have blistered it, but it does not seem to do any good. How should it be treated?

GEORGE GLASER.
Waverly, Coffey County.
Answer.—Take tincture of cantharides, three ounces, tincture of iodine, four ounces, soap liniment sufficient to make one pint, mix and apply over the enlargement and on the inside of the stifle joint, repeat every ten days. Give him a shed or box stall to run in and no other exercise. It is a weakness of the ligaments in the inside of the joint, and will take some time to strengthen up.

Contagious Abortion.—I have a 3-year-old cow that aborted, lacking three months of time of calving. The same cow, last spring, gave birth to her calf one month too soon, but calf lived and thrived as well as any of the rest. There was one other cow in the same herd that aborted about a month or six weeks ago within four months of time of calving. Have had some difficulty getting cows with calf, some of them taking the bull and going six weeks before coming in heat again. Have used no treatment for cows that have aborted. Abortion seems to be somewhat prevalent in parts of this county.

(1, Is this contagious abortion? (2) What is the most practical treatment that can be used, and can treatment be successful without separating affected cows from the others? There is no veterinarian in this part of the county.

L. H. HASCALL.
Sharon Springs, Wallace County.
Answer.—Yes, they can be treated with the healthy ones, and you would have to treat the bull and all. Would recommend all of the cows that have aborted be separated from healthy ones, and disinfect everything thoroughly where they have been kept. It is a particular job to treat each one locally, but if you wish to do so report and we will give you full directions in next issue.

Reported Case.—The inquiry made by me several weeks ago came to my notice in issue of December 11, and I would state that I have been using Kendall Spavin Cure on it during the intervening time; have now finished one bottle and am not pleased with result. I feared results of any treatment, from the fact of the location of the wound. Since writing you it has healed over in short time, but on November 28 I noticed it was forming a gathering which I opened on December 2. I took from off the hair next the opening two small pieces of bone. They seemed to be somewhat decayed and of a scaly nature. I can not detect any trouble but the enlargement; the gathering is all healed. You will greatly oblige me farther at an early issue of your department.

J. J. WILLENBURG.
Humboldt, Allen County.
Answer.—Inject the cavity full of peroxide of hydrogen and hold it there a few seconds, and wash out with warm water. Then inject nitrate of silver, one dram, in half a teacup of water. Repeat these injections every other day for ten days afterward; wash out a few times with carbolic acid, one to thirty of water to heal up.

Rheumatism.—I have a jack, 7 years old last August; he had rheumatism in one of his front legs; he got over it in about two weeks, now he has it again in one of his hind legs. What can I do for him? He seems to have some fever while lame, but eats well all the time. I keep him in a good dry stall, and give him good care, and some exercise. His lame leg does not swell, but seems to pain him some. I feed him oats and bran, prairie hay and a little alfalfa and Kafir-corn, but do not feed him heavy this time of year.

LEWIS J. COX.
Concordia, Cloud County.
Answer.—Take iodide of potassium, two ounces, and a half, sodium salicylate, three ounces, fermgruk seed ground, eight ounces, mix and divide into twenty-four powders, and give one twice a day. If it should interfere with his stomach too much so as not to eat enough, or his eyes and nose begin to run or water too much after you have given them a while, wait a few days and then continue them.

What Governor Bailey Said About Beef Production.

Reporting in 1898 to the State Board of Agriculture, Hon. J. W. Bailey, now governor-elect of Kansas, said: I have had seventeen years' experience in beef-production in Kansas, preferring the product of Shorthorn cows and Hereford bulls: I both raise and buy those I handle, but usually those I raise are superior, because I pay more attention to breeding and care than does the

average farmer. The calves run with their dams until about 6 months old; the first winter I feed, say a bushel of shelled corn twice a day to fifty calves, with all the timothy and clover hay they want; sometimes I feed oats also. I castrate at 8 to 12 months. Immediately after weaning the hand-raised or skim-milk calf will thrive best, but I can see no particular difference, after a few weeks, between it and the calf that has been allowed to run with its dam. I begin full-feeding home-raised steers at two and one-half years, and finish in from four to six months, marketing at about 36 months. When prices are as high as at present a farmer should sell his few steer calves; otherwise, be governed by conditions and environment. My best gains in weight were made on a car-load of high-grade Shorthorns, 30 months old, weighing about 1000 pounds, fed in an open lot with a shed opening to the south. They are given one-half bushel of shelled corn and five to seven pounds of linseed oil-cake meal per day each, with clover hay for "roughness," for 30 days, their gains being four pounds per day. I think it not profitable to tie in stalls. Rather than have grain constantly before my stock, I feed twice daily, at as nearly the same hours as possible, and want the cattle to clean out the troughs between feeds. In this way an edge is kept on their appetites, and they have fresh feed all the time. I pasture my cattle in the corn-stalks, and feed shelled corn. At one time I used shredded or thrashed corn, but consider it rather expensive. Corn produces for me the greatest and most valuable quantity of food for cattle growing. I have found native grasses equal to the tame for quick growth. I can graze cattle at \$3 per head for the season of about 5 1/2 months. I would not have more than 250 head fattening in one inclosure; still smaller bunches are inclined to do better. From two to three weeks is required to get cattle onto full feed from pasture, but less time will do from stalk fields. I think there is an advantage in good "roughness," but do not advocate feeding too much; if it is fine, the quantity used should be limited. The best "rough" feeds are clover hay and flax straw; bright wheat straw, especially from headed grain, is good. I use these sparingly but regularly. I fed a bunch of cattle on pasture six pounds of cottonseed-meal and six pounds of linseed oil-cake meal daily with excellent results; the last month I added 14 pounds of ground corn to the above, and made ripe, finished cattle. I did this when corn was worth 40 cents per bushel, cottonseed-meal \$16, and linseed oil-cake meal \$18 per ton. If corn is worth 25 cents a bushel, I pay \$25 a ton for old-process linseed oil-cake meal as an appetizer or condition powder, feeding three to five pounds a day to each steer. If corn is above 25 cents, and meal under \$24, three to five pounds of linseed oil-cake meal per day is excellent and profitable. With prairie hay at \$2 a ton, I would value red clover at \$4, wheat straw at \$2, and oat straw \$1. I use barrel salt. I prefer hornless cattle. They save trough and rack room, are more quiet, and they even up and make a better appearance. For the feed lot I think them worth \$1 per head more than equally good cattle with horns, but they may not sell for more. The advantage is in their more ready fattening. I dehorn calves before a year old with a saw. The steers I have put on the market with greatest profit were 3-year-olds, weighing 1150 to 1200 pounds, full-fed four to six months. Of Western cattle, I have found native Wyoming and Montana 3-year-olds the best for this locality. With stockers at 4 cents and fat cattle at 4 cents a pound, and corn at 10 cents a bushel, it will pay to feed. For a farmer who understands his business, feeding on a small scale is profitable. When preparing to ship them, treat cattle in a humane manner. They should neither be gorged nor starved. On the market they are bought on the basis of what they will dress, and an unusual "fill" will be taken into account by the buyer in making prices.

Everybody reads newspapers and the bright man uses them. Write us for the Daily Capital and KANSAS FARMER one year for \$4.00, the price of the Capital alone.

An exchange states that a fox farm is conducted by Elijah Norton, near Bangor, Me. He finds the raising of foxes more profitable than the culture of grain or vegetables.



Breeding Wheat and Corn.

A series of articles on how to improve these grains; by Thomas L. Lyon, Professor of Agriculture of the University of Nebraska, will begin with the issue of January 7, 1903, in

THE TWENTIETH CENTURY FARMER

This work of grain breeding, resulting as it does in the increase of the yield per acre, is one of the most interesting subjects to the progressive farmer. 24 to 48 pages weekly. \$1.00 per year. Write for Free Sample Copy and Booklet. TWENTIETH CENTURY FARMER, 1735 Farnam St., Omaha, Neb. Agents Wanted at Every Post Office.

To Kill Lice.

A lady correspondent of the Kansas Farmer, says this in regard to keeping lice off from young chicks: "Take a soft white cloth and sprinkle with kerosene, just enough to make the cloth look greasy, but not wet; put one end in a basket or old pan, place the little chicks in it, and turn the other end over them nicely, and let them remain in this fume bath for one or two hours (looking at them occasionally to see that they are all right). At the end of that time, remove them to clean, dry quarters. You will be surprised to see the amount of creepers on the cloth. Just pour boiling hot water on them, and you may rest assured that you will not be bothered with them again. If you let the chicks run with the hen, you may have to repeat the process again. She, however, should be thoroughly dusted with insect powder—never with sulphur. I have followed this method of treatment for years, and find it far better than the old way of greasing the little fellows all over with salty grease. It is entirely original. It is very effective and perfectly harmless; try it. I never lose a chicken by a natural death, and very few by accident."

The Girl Who Did As She Pleasid.

Dear mother declared at eight-thirty one morn,
She thought it an excellent scheme
To try the experiment just for a day,
And smiled at the hazel eyes' gleam.
A great breezy hug and a whirl on the rug,
For baby a kiss and a squeeze,
Then off to her play ran a glad little girl
All day to do just as she pleased.

At first it was better than parties and drives,
She swung just as high as she could
And gathered the buds that would soon
Have been flowers,
Then wandered away to the wood,
Not needing to ask, "May I go?" But she soon
By terrible panic was seized;
She found she was lost in the old forest's gloom—
This girl who did just as she pleased.

She had to be rescued by men who were gruff,
And oh, how her pink frock was torn!
You see, she had put on her prettiest one
Instead of the check she had worn.
All day she ate cookies and frightened the birds,
The baby she cruelly teased.
'Twas strange how she grew more unhappy and cross
The more she did just as she pleased.

Until at the evening time she is rude
To auntie; has broken a vase,
And now she has an ache in her heart
And her head,
A long kitty-scratch on her face.
She comes in the twilight with down-drooping eyes—
Dear mother the penitent sees,
And hears as she nestles her small girlie close:
"I'd rather not do as I please."
—Myrna Anderson Lewis.

Christmas and New Year Holiday Rates.

The Missouri Pacific will sell tickets on December 24, 25, and 31, and January 1, between points within two hundred miles distance, at rate of one fare for the round trip with minimum rate of 50 cents. All tickets limited to continuous passage in each direction.

Talk No. 18.

FITTING THE EYES.

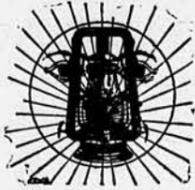
A good many people have a dread of having their eyes examined. They fear that there will be something painful connected with it; that the eyes will be injured or harmed in some way. This is a decided mistake. Taking the measure of the eyes for glasses is no more injurious or disagreeable than having your picture taken. You do not even have to "look pleasant" and if the optician thoroughly understands his work the tests are not even tiresome. I believe that I understand my work. I have every facility for doing that work thoroughly and accurately. If your eyes give you trouble in any way I want to see you. I make no charge for consultation.

My Exclusive Attention is Given to Fitting Glasses.

DR. C. BENNETT,
Registered Optician.

720 Kansas Ave. : Established 1879.

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 names on application. **DRS. THORNTON & MINOR, 1207 Oak St., Kansas City, Mo.**



As Light as Day

tinctive feature is that all "Dietz" Lanterns are non-explosive and perfectly safe. Isn't that a pretty good and cheap kind of fire insurance? Your nearest dealer sells them. Make no mistake, look for the word "Dietz." It's always a guarantee of lantern quality. We mail illustrated catalog free. Ask for a copy. Established 1840.

is the first expression of surprise by a new user of Dietz Lanterns. He never believed that it was possible for a lantern to make such a clear, white, brilliant and penetrating light. This is a "Dietz" characteristic. A quality possessed by all "Dietz" Lamps and Lanterns. Another distinct feature is that all "Dietz" Lanterns are non-explosive and perfectly safe. Isn't that a pretty good and cheap kind of fire insurance? Your nearest dealer sells them. Make no mistake, look for the word "Dietz." It's always a guarantee of lantern quality. We mail illustrated catalog free. Ask for a copy. Established 1840. R. E. DIETZ COMPANY, 95 LAIGHT ST., NEW YORK.

The Poultry Yard.

Me an' Jake Hefner.

Things are changin' mighty fast in the chicken business since me an' Jake Hefner moved over from Indiana to Newbraska, thirty-two years ago this fall. Both of us brung a dozen hens and a rooster with us, the wimen folks changed roosters forard and back and changed eggs fur settin', and they hed good luck raisin' chickens except the klotes would keep carryen of 'em off.

Mighty hard times here in Newbraska them days. Grasshoppers one year and blizzards enough winter times to freeze the heart of a brass monkey; then there would come dry weather and hot winds, then it would change off and come grasshoppers.

I don't know what we would done if it hadn't been fur the hens, seemed like the harder the times was, the bigger hump them hens would git on themselves.

Jack rabbits was kindo plenty and some good folks over in Iowa took pity on us homesteaders and sent over a carload of meal to give out in Clay County, and with the meal and jack rabbits and what coffee we traded eggs fur, we got along pretty good.

I never seen better hens than them and I've been to a good many poultry shows. There was no swell heads to 'em, either on account of aristocracy or havin' the rupe.

As I said on the start, things are changin' mighty fast. Instead of the dudes outo the cities comin' out here to learn how to raise chickens they are settin' themselves up as the teachers.

Poor Jake Hefner, he's dead now, but if me and him had lived forty years longer, we would get so we didn't know anything; but perhaps it's better that Jake haint no more. If you was livin' now Jake, your old gray-necked rooster would be a cock and the young roosters would be cockerels, and your hens would be fowls and the whole business put together would be birds.

Jake was quite a chicken-raiser. I remember an old gray-necked rooster he had that would lick any rooster I ever saw. I'd give six bits if I had him now to put up agin a tomfool swingin' feed-trof I sent away fur. I imagine I can see him backin' off and comin' at that feed-trof every time it swung. Yes, sir'ee, I would give more than six bits if he could lick that feed-trof.

I thought sure I wouldn't get taken in any more, but I did. I was still stickin' to my old Indiana breed of chickens. One day a feller come along and asked me what I was raisin' mongrels fur. He told me about his fowls, they was high-scorin' Buff Cochins, with a beautiful golden plumage, layed a rich golden egg, was good setters and mothers and had a plump carcass. His mouth seemed to water when tellin' of it.

I studied about it and sold off my hens and bought eggs from him. I raised a good many that summer. One day another feller come along and said, why didn't I get some Leghorn roosters and make a cross? He said they would breed activity and more egg-layin' onto the clumsy Buff Cochins so I bought some roosters from him.

Next fall a feller come along that said he was the correspondent fur the Hen Tribune, therefore he was onto the chicken business. He asked me what I was raisin' mongrels fur. I don't get mad very often but I got madder'n a hornet when I see what was up to. Says I to him, "I'm goin' to raise whatever kind of chickens I please." I give him to understand right there that I was no hay-stack or a market fur different kinds of chickens.

The last round-up I had with the chicken cranks was to a poultry show. You know, if you have been to a show, how a feller gets the fever for some kind of chickens that will swipe things, but I kept my fever down. They kept cumin' around askin' me to sign fur poultry papers and to look at their mashed-up stones, as well as I can remember they called it come kind of grit. They had rupe and colera medicines, liver medicines, feather-growers, egg-makers and a thing they called a trap-nest so that when a hen was fool enough to git in it she would hafta lay an egg before she could git out.

Everybody looked happle, everybody was pointin' at their ribbons and show-

in' what they called score-cards; seemed like everybody had won everything in sight, comon lookin' roosters had price tags on their coops sayin' rather than ship back he was fur sale at \$10.

I was standin' to one side like, watchin' the judge, with the long judge coat, sayin' "94 points, 96 points," when a feller touched me on the arm and asked me if I didn't want to buy some poultry guides. I asked him what his books was about, I had left my specks at home. He begun to tell over the things that was in the books.

"All about the great American hen, how she was cot in the jungles of India, how she was discovered in obscurity and brought across the stormy waters with the Pygrims and since then had been bred, reared and improved by ingenious mortal man. All about how the Egyptians hatched eggs in ovens with the camels and pyramids in the background, all about artificial incubation and brooding, the formation of the egg, the layin' of the egg, the fertility of eggs, all about temperature and humidity, the growth of the chick in the shell day by day. All about the great American Jim Crack egg-maker, all about Professor Buke's feather promoter, how to carry fowls over moulthin' season."

Says I to him, "Mister, it seems to me that I don't hardly need the book since you told me all there was in it." Everybody began to laf and if I didn't git madder'n a rail before I found out that they was lafin' at the other feller. Then a feller come along and asked me if I didn't want to buy some Gina pigs. I told him I didn't care to change my breed of hogs. After while I was round to where his coops was and if they wasn't the runtiest, orniest lot of pigs I ever seen. They looked more like ground hogs than anything else, with their tails froze off.

Another feller wanted me to look at his Belgian Hairs. I have been in Newbraska a long time but I never seen a leaner set of jack rabbits in my life. Next time I go to the show, I am goin' to take a paririe dog to put up agin some of their Holly Terrier dogs; they said they was Scotch Terriers, but was holly terriers on rats. I have just got the horse behind the cart, that's all. Clay Center, Neb. I. H. S.

The Motions of Underground Waters.

The amount of water within the crust of the earth, says Prof. Charles S. Slichter, in a paper entitled "The Motion of Underground Waters," recently published by the United States Geological Survey, "is enormous, amounting to 565,000 million million cubic yards." His estimate is based upon the supposition that the average depth which waters can penetrate beneath the surface is six miles below the land and five miles below the ocean floor. This vast accumulation, if placed upon the earth, would cover its entire surface to a uniform depth of from 3,000 to 3,500 feet. Under the influence of gravitation the water is generally in motion, and the object of Professor Slichter's paper is to describe the rate and manner of its overflow and the laws governing the same. Experiments have shown that not only do sands and gravel possess porosity, but rocks presumably solid and compact may be traversed by water. Even so hard a rock as Montello granite, selected for the sarcophagus of the tomb of General Grant on account of its great strength, shows a porosity of 0.23 per cent. The most productive water-bearing rocks, however, are found to be the porous sandstones, and in some cases limestones, whose inner texture has been chemically dissolved.

The popular idea of underground waters is derived from the rivers of copious discharge found in the Mammoth and other caves. But this idea is erroneous, as such streams, though of great local importance, are comparatively rare. The great mass of ground water slowly percolates through sand and gravel deposits, sandstone, and other porous material under a wide extent of territory. Though its motion carries it but a fraction of a mile in a year, this ground water is so widespread and often so accessible as to be of the greatest economic importance.

The rate of movement of the underflow has been the subject of long and careful investigation. To determine

this interesting question measurements have been made in the river gravels of streams whose surface flows have ceased, and from such measurements more or less trustworthy results have been obtained. One of the most accurate and interesting of these is a series of experiments conducted by Professor Slichter along the valley of the Arkansas river in western Kansas. The method is an electrical one. A double row of inch and a quarter drive-wells is sunk across the channel of the river whose underflow is to be tested. The upstream wells are then charged with a strong electrolyte, which dissolves and passes down the stream with the moving water. The passage of the electrolyte toward the lower well is shown by the gradual movement of the needle of an electrical instrument, and the final arrival at the well is shown by the sudden and strong deflection of the needle. It is exceedingly interesting to watch the gradual movement of the water, which can be traced from the beginning of the experiment in this indirect way. By this method the rate of flow ten feet below the bed of the Arkansas river was found to be two and one-half feet per day. Other experiments in the beds of the Hondo and San Gabriel rivers in southern California, gave rates of three and one-half, four, five and one-half, and seven feet per day.

The knowledge of the underflow that exists beneath the gravel of all river valleys has been taken advantage of in arid sections of the West, where the running dry of streams deprives irrigators of their water supply. By excavating to bed rock in river gravels and building an impervious barrier across the channel, these underground waters are saved in sufficient quantities to be of great value to the farmer. A notable subsurface dam of this kind has been constructed on the Pacoima Creek, California, to furnish water for irrigation and domestic use.

Deep zones of flow are a most important feature of the movements of underground waters, and open up an interesting field for investigation. The wonderful artesian basin of North Dakota and South Dakota, which has proved such an important factor in the economic development of these States, forms one of the illustrations used by Professor Slichter in the explanation of deep-seated underflows. A cross section of this part of the country clearly shows the interesting fact that the water which comes to the surface in the gushing wells of the Dakotas travels underground all the way from the Black Hills and Rocky Mountain slopes, in the water-bearing strata known as the Dakota sandstones. Another illustration of extensive basins due to deep underground flows is found in Wisconsin, where an extensive area of water-bearing rocks nearly 1,000 feet thick, conducts water of singular purity under large areas of the State.

It must be borne in mind that there is a limit to the amount of water which can be drawn from an artesian basin, and that there is no such thing as an inexhaustible underground supply. The gradual failure of the wells which supply the city of Denver clearly illustrates this fact. So great a demand was made upon this basin between the years 1884 and 1890 that it has been estimated that, if all the wells were now plugged, the water-bearing strata of the basin would require forty years to recover the saturated conditions which existed when the first well was sunk.

In the eastern part of the country the value and extent of underground waters are illustrated by the enormous quantity used in the city of Savannah, Ga. In 1888 the entire supply of the city was drawn from wells yielding 5,850,000 gallons a day, a total for the year of 2,135,842,000 gallons. In the course of time this supply somewhat diminished, and it was suspected that the flow was obstructed in its entrance to the wells. The pipes were accordingly flushed by forcing into them water under high pressure, and the flow was markedly improved.

The study of underground water in its relation to the effective water sup-

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Herd headed by Premier 4th 55577 assisted by Rutgers Judge 2d 61106. ONLY THE BEST. Imp. Hima Lady 4th 44663; the highest priced Berkshire ever sold in Kansas City, is in our herd and she is others like her. Inspection invited six days in the week. WILHEL RHODES, Tampa, Marion Co., Kans

Fall Berkshire Boars

For Sale, Quick, At A Reasonable Price. We have for sale a few choice yearlings, sired by Baron Duke 30th 50017, he by Baron Lee 4th 39446, and out of Duchess C 35th 33683. The dams of these boars are of the most desirable strains. . . . Inspection or correspondence desired. Address ACHENBACH BROS., Washington, Kans. Breeders of Berkshire Swine, Double Standard Polled Durham Cattle, W. P. Rock Chickens.

CATTLE.

COBURN HERD OF RED POLLED CATTLE. Herd now numbers 115 head. Young bulls for sale. Geo. Greenmiller & Son, Centropolis, Franklin Co., Kans

D. F. HORTON'S Breeder of Pure Bred SHORTHORNS SHORTHORN CATTLE Herd Bull, Imported British Lion 133692. Young stock for sale.

Aberdeen-Angus. EVERGREEN STOCK FARM.

Have 15 registered bulls—7 to 21 months old, sired by Hiel of Lakeland 2244; also registered cows and heifers, highly bred. Will sell in lots to suit. Call or address GEO. BRUMMOND, Elmdale, Chase County, Kansas

Corrector Herefords.

A few choice yearling and 2-year-old heifers bred to one of Corrector's best sons for sale very reasonably; also some 4-year-old cows with calves at foot and rebred, and just four bulls under 1 year out of Lord Wilton and Grove 8d cows. Visitors welcome. Correspondence prompt. WM. TIBBLES, Haddam, Washington Co., Kans.

CATTLE.

ENGLISH RED POLLED CATTLE—Pure-bred Young Stock For Sale. Your orders solicited. Address L. K. HASELTINE, DOACHERS, GANNON Co., Mo. Mention this paper when writing.

HEREFORDS FOR SALE.

Having sold the most of my herd, I have left for sale 5 fine yearling bulls. Write me for particulars. I will sell them cheap. E. B. Cowee, R. R. 2, Burlingame, Kas

MEADOW BROOK SHORTHORNS—Ten fine young bulls for sale—all red. Red Laird, by Laird of Linwood, at head of herd. F. C. KINGSLEY, Dever, Shawnee County, Kansas.

POLLED DURHAMS. Three choice D. S. bulls, strong in Polled blood, 3 Cheviot rams, and 20 Shropshire ewes; also registered Angora bucks. A. E. BURLEIGH, KNOX CITY, KNOX COUNTY, MO.

HEREFORDS AND SHORTHORNS FOR SALE.

23 registered Hereford bulls, 8 to 10 months; 12 registered Hereford heifers, 8 to 10 months; 9 registered Shorthorn bulls, 14 to 24 months; 50 registered Bates and Cruickshank Shorthorn cows, 2 to 8 years old, bred to Rosebud's Prince 168748. Prices very low. Call or address Louis Hothan, Carbondale, Kans.

CLOVER CLIFF FARM REGISTERED GALLOWAY CATTLE.

Also German Coach, Saddle, and trotting-bred horses. World's Fair prize Oldenburg Coach stallion Habbu, and the saddle stallion Rosewood, a 16-hand 1,100-pound son of Montrose in service. Visitors always welcome. BLACKSHERE BROTHERS, Elmdale, Chase County, Kansas.

GLENWOOD HERDS

SHORTHORNS headed by Victor of Wildwood, by Golden Victor, he by Baron Victor. Late herd bull Gloster 137952. Polands headed by Glenwood Chief Again. For Sale—Choice young bulls; also females. Prices right. Choice fall boars and gilts cheap. Visitors invited. Correspondence solicited. Address C. S. NEVIUS, Chiles, Miami County, Kansas 40 miles south of K. C., on main line of Mo. Pac. R. R.

E. H. WHITE, ESTHERVILLE, IOWA, Importer and Breeder of GALLOWAY CATTLE

HERD FOUNDATION STOCK A SPECIALTY. A Few Choice Females and 14 Bulls For Sale. Inspection or Correspondence Invited.

THE ...N. MANROSE... Shorthorns

Rural Route No. 5, Ottawa, Kansas. Giltsur's Knight 171591 at head of herd. Young bulls ready for service for sale.

SUNFLOWER HERD OF SCOTCH AND SCOTCH-TOPPED SHORTHORN CATTLE AND POLAND-CHINA SWINE

Two Scotch bulls in service. Representative stock for sale. Address Andrew Pringle, Carville, Wabasha County, Kansas.

H. R. LITTLE, HOPE, DICKINSON CO., KANS., Breeds Only the Best, Pure-Bred SHORTHORN CATTLE

Herd numbers 125, headed by ROYAL CROWN, 125696, a pure Cruickshank, assisted by Sharen Lavender 14002. FOR SALE JUST NOW—16 BULLS of serviceable age, and 19 Bull Calves. Farm is 1 1/2 miles from town. Can ship on Mo. Pac. R. I. or Santa Fe. Foundation stock selected from three of the great herds of Ohio.

GREENDALE RANCH. BREEDERS OF PRIZE-WINNING SHORTHORN CATTLE, BERKSHIRE SWINE, and SHROPSHIRE SHEEP.

Great constitution and lung capacity gained in high altitudes. A few select young swine and sheep for sale. ED. GREEN, MORRISON, COLO.

"The Wayside" Herd of Registered HEREFORDS.

"ANXIETY WILTONS," with Printer 66684, March On 14th 106876, and Good Sign 140387, as Service Bulls, will be represented at South Omaha, January 22-23—get a Catalogue and Kum. Some excellent young things among this year's calves for sale—private treaty. Do you want SHOW HERDS that will WIN? Get one by Printer, and one by March On 14th, be on top, and see them take first and second place. W. W. GRAY, Fayette, Missouri.

CATTLE.

ABBOTTSFORD STOCK FARM OF SHORTHORNS.

For sale, after August 15, the herd bull, Imp. Beauty's Heir 145126; also 30 high grade cows and heifers, good milkers. D. Ballantyne & Sons, Herington, Kans.

ESKDALE HERD OF ABERDEEN-ANGUS CATTLE.

YOUNG STOCK FOR SALE. JAMES FRATER, Fredonia, Wilson Co., Kas

WESTON STAMP HERD REGISTERED HEREFORD CATTLE

ANXIETY 4th females with Weston Stamp 9th at head. Contributor to Annual Sale Marshall County Hereford Association. WM. ACKER, Vermillion, Kansas.

Shorthorn Bulls For Sale From the Valley Grove Herd.

An extra good lot, reds and roans, sired by Lord Mayor 112727 and Knight's Valentine 167068. T. P. BABST & SONS, AUBURN, KANS. (Telegraph Station, Valencia, Kans.)

RED POLLED CATTLE.

CHAS FOSTER & SON, Foster, Butler Co., Kans. FOR SALE—A few calves, also Prize-winning Light Brahma Chickens. Call, write or telephone.

MODEL BLUE GRASS FARM. HEREFORDS.

Stock For Sale. OVERTON HARRIS, Harris, Mo.

JAMES A. FUNKHOUSER, PLATTSBURG, MO., BREEDER OF HIGH-CLASS HEREFORDS.

BULLS IN SERVICE: Heslod 2d 40679, March On 6th 90537, Heslod 85th 116352, Onward 2d 118599

ALLENDALE HERD OF Aberdeen-Angus Cattle

The Oldest and Largest in the United States. Splendid recently imported bulls at head of herd. Registered animals on hand for sale at reasonable prices at all times. Inspect herd at Allendale, near Iola and La Harpe; address Thos. J. Anderson, Manager, Iola, Allen Co., Kans., R. 2, or—Anderson & Findlay, Proprietors, Lake Forest, Ill.

Vinewood Herd of Registered SHORTHORNS

Armor Bearer and Lavender King cows with American Royal prize-winner Orange Lad 171599 and Lavender Gloster 166056 in service. Advance Guard and Lavender King yearling bulls for sale. D. K. KELLERMAN & SON, MOUND CITY, LINN COUNTY, KANSAS.

Walnut Valley Stock Farm Breeders of Scotch and Scotch-topped SHORTHORNS.

The prize-winning bull, Scott Junior 124222 at head of herd. Choice young bulls and heifers for sale. W. J. Snodgrass, Gordon, Butler Co., Kas

THE SUNFLOWER HERD PURE-BRED Angus Cattle

Herd headed by Hale Lad 80645. Herd numbers 250 head, the largest herd bred by owner in America. Stock for sale. Address PARRISH & MILLER Hudson, Stafford Co., Kans

CHAMPION GALLOWAYS

FOR 1902... Up-to-date Galloway Cattle, All Ages, For Sale. Personal Inspection or Correspondence solicited by C. N. MOODY, Breeder, ATLANTA, MISSOURI.

HESIOD HEREFORDS.

Highest class females with Heslod 16th 56466, and Copyright 90079 at head of herd. CHOICE YOUNG BULLS including two show animals for sale WESLEY SLOAN, Wellsville, Kansas.

M. E. MOORE, CAMERON, MO., is offering some fine Pure-bred HOLSTEIN-FRIESIAN BULLS for sale from official tested dams and sires. A few choice females to offer.

It is Real Cosy

That is what ladies say of THE CALIFORNIA LIMITED. Private compartments, ample dressing rooms and observation parlor, all daintily furnished. Perfect dining-car meals. Why stay at home? The California tour described in our books. Address T. L. KING, Agent, Topeka.

Santa Fe.

AGENTS \$4 to \$7 a day selling Ideal 25c. Inhaler. Cures Catarrh, Colds, Headache, Neuralgia, etc. Sells by letting people try it. Sample 10c. IDEAL SPECIALTY CO., 120 South 14th Street, OMAHA, NEBR

Agents

\$1,000 buys a good one from us this fall. It pays you to buy one now as you get him cheaper and keep out competition. Don't pay a big price for a horse, but come and see ours and get a good one for less money than a small importer can possibly sell for. Our stables are across the road east of the Burlington Depot. WATSON, WOODS BROS. & KELLY, Lincoln, Nebraska.

Draft Stallions

Percherons, Shires, Belgiums. 60 Head to Select From All Imported by Us and Guaranteed....

Percheron horses, and ABERDEEN-ANGUS CATTLE. GARRET HURST, Breeder, ZYBA, SUMNER COUNTY, KANSAS. Young stock for sale of either sex. All registered.

CATTLE.

VERMILLION HEREFORD CO. VERMILLION, KANSAS.

Imported Alberta 2d blood. Boatman 56011 at head of herd. A few excellent, young bulls for sale. Contributor to Marshall Co. Hereford Ass'n Annual Sale. E. E. WOODMAN, VERMILLION, KANSAS.

Registered Herefords.

THOS. EVANS, Breeder, Hartford, Lyon County, Kansas. Special Offerings: Young cows and heifers, and few bulls for sale.

Elder Lawn Herd Shorthorns.

Headed by GALLANT KNIGHT and Imp. Tilly Cairn. Bulls, Cows, and Heifers, for sale at bargain prices. Can supply car-load lots if desired. Some show yard material. T. K. TOMSON & SONS, Dover, Shawnee Co., Kans

BILL BROOK BREEDING FARM Shorthorn Cattle and Angora Goats.

Herd bull Iowa Scotchman 2nd 138687. Write for what you want. Address, H. O. TUDOR, Holton, Kansas.

Rocky Hill Shorthorns and Saddle Horses

Sempstress Valentine 157771 and Mayor 129229 at head of herd. Young animals reserved for annual sale at Wellington, Kans., November 22. Larkin's Duluth and Kansas King at head of Saddle Horse Herd. J. F. TRUE & SON, Perry, Kans. Railroad Station, Newman, Kans.

JOHNSON'S Hereford Ranch.

Herd headed by Dick Turpin 81521. Choice young breeding animals of both sexes for sale. Parties met at train if notified. L. F. JOHNSON & SON, Route 4, Gouda Springs, Kansas.

HAZFORD HEREFORDS

Herd headed by the young show bull, Protocol 2d 91715, assisted by Major Beau Real 71621 a nephew of Wild Tom. Females largely the get of Bernadotte 2d 71634. A few choice young bulls for sale. Robt. H. Hazlett, Eldorado, Kans

ANOKA FLOCKS.

Cotswolds and Ramboulllets. Foundation for flocks a specialty. Correspondence and inspection invited. GEO. HARDING & SON, Waukesha, Wis.

McFADDEN BROS. WEST LIBERTY, IOWA.

Breeders of PRIZE-WINNING Shropshire Sheep. Choice lot of rams and ewes—both Canadian and home bred—for sale. Can supply car lots. Write for our low prices.

..GEORGE ALLEN.. Importer and Breeder of SHROPSHIRE SHEEP and SHORTHORN CATTLE.

For Sale—100 Rams and 100 Ewes. Greatest winner of any Shropshire breeder in America. Address ALLETON, VERMILLION CO., ILL.

It is Real Cosy

That is what ladies say of THE CALIFORNIA LIMITED. Private compartments, ample dressing rooms and observation parlor, all daintily furnished. Perfect dining-car meals. Why stay at home? The California tour described in our books. Address T. L. KING, Agent, Topeka.

Santa Fe.

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\$1,000 buys a good one from us this fall. It pays you to buy one now as you get him cheaper and keep out competition. Don't pay a big price for a horse, but come and see ours and get a good one for less money than a small importer can possibly sell for. Our stables are across the road east of the Burlington Depot. WATSON, WOODS BROS. & KELLY, Lincoln, Nebraska.

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HORSES AND MULES.

PERCHERON HORSES, AND ABERDEEN-ANGUS CATTLE.

GARRET HURST, Breeder, ZYBA, SUMNER COUNTY, KANSAS. Young stock for sale of either sex. All registered.

Cheyenne Valley Stock Farm.

F. H. Schrepel, Ellinwood, Kans., -Breeder of-

PERCHERON HORSES, AND POLAND-CHINA HOGS

For Sale—Fifteen young stallions and a few mares. Inspection and correspondence invited.

LIVE-STOCK AUCTIONEERS.

CAREY M. JONES, Live Stock Auctioneer Davenport, Iowa. Have an extended acquaintance among stock breeders. Terms reasonable. Write before claiming date. Office, Hotel Downs.

Live Stock Auctioneer COL. J. N. HARSHBERGER Lawrence, Kansas.

Special attention given to selling all kinds of pedigreed stock; also large sales of graded stock. Terms reasonable. Correspondence solicited. Mention Kansas Farmer.

JAS. W. SPARKS LIVE STOCK AUCTIONEER MARSHALL, MO.

Posted on pedigrees, quality, and values. Am selling for the best breeders in America. Terms very reasonable. Write before fixing dates.

R. L. Harriman LIVE STOCK AUCTIONEER, Bancroft, Mo.

SALES made everywhere. Thoroughly posted and up-to-date on breeding quality and values. Have a large acquaintance among and am selling for the best breeders in the country. Terms low. Write for dates.

..LAFE BURGER.. Wellington, Kans. Live Stock Auctioneer SALES MADE ANYWHERE.

I am booked for some of the best combination sales of high-class stock held in America. Posted on pedigrees and individual merit. Wide acquaintance with breeders in Kansas, Oklahoma, Indian Territory, and Texas. Wire or write for dates.....

An idea written with but a single drop of ink may make you rich. You get many ideas in the KANSAS FARMER.

M. L. AYRES' PERCHERONS

My October importation now in my Shenandoah Barns. 100 REGISTERED PERCHERONS on the farm; 75 STALLIONS. Most of them ton horses. Come and see them. M. L. AYRES, - - SHENANDOAH, IOWA

Draft Stallions

Percherons, Shires, Belgiums. 60 Head to Select From All Imported by Us and Guaranteed....

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HORSES AND MULES.

HENRY AVERY & SON, BREEDERS OF PURE PERCHERONS.

The largest herd of Percheron horses in the west and the best bred herd in America. A choice collection of young stallions and mares always on hand. Prices consistent with quality. Address, or come and see, at Wakefield, Clay County, Kansas.

Prospect Farm.

H. W. McAFEE, Topeka, Kansas, Breeder of CLYDESDALE HORSES, AND SHORTHORN CATTLE.

For Sale—25 Clydesdales, including 3 registered stallions of serviceable age, and 13 mares. Inspection and correspondence invited.

TWO RACKS OF TEXAS

A NEW FAST TRAIN Between St. Louis and Kansas City and OKLAHOMA CITY, WICHITA, DENISON, SHERMAN, DALLAS, FORT WORTH

And principal points in Texas and the Southwest. This train is new throughout and is made up of the finest equipment, provided with electric lights and all other modern traveling conveniences. It runs via our now completed Red River Division.

Every appliance known to modern car building and railroading has been employed in the make-up of this service, including Café Observation Cars, under the management of Fred. Harvey. Full information as to rates and all details of a trip via this new route will be cheerfully furnished, upon application, by any representative of the

FRISCO

ONE OF THE GREAT- During the Convention of the National Live Stock Association at EST ATTRACTIONS... Kansas City, Mo., week of January 12 to 17, 1903, will be the

ARMOUR-FUNKHOUSER PUBLIC SALE

Of Imported and American-bred

114-HEREFORDS-114

At Kansas City Stock Yards Sale Pavillon, Wednesday and Thursday, January 14 and 15, 1903.

The Armour cattle for this sale were carefully selected and will be the choicest lot of Imported Herefords, as well as the greatest number, ever offered in the auction arena.

This collection includes seventy-five (75) Imported females, well advanced in calf or with calf at foot, and a few choice young Imported bulls. The Funkhouser offering is made up of American-bred Herefords of superior quality, consisting of promising young bulls, each individual affording reasonable ground of hope for a record breaking future, and cows and heifers of unexcelled merit.

We give you our assurance that the highest class of cows and bulls each herd affords, can be had at this sale. Write for Catalogue.

CHARLES. W. ARMOUR, Kansas City, Mo. || Reduced rates on all Railroads during Convention week. || JAMES. A. FUNKHOUSER, Plattsburg, Mo.

Public Sale of Registered Shorthorns!

During the Convention of the National Live Stock Association,

AT FINE STOCK PAVILION, KANSAS CITY MISSOURI, ON FRIDAY, JANUARY 16, 1903.

60-REGISTERED SHORTHORNS-60

10 BULLS AND 50 COWS AND HEIFERS.

REPRESENTATIVE OF OUR RESPECTIVE HERDS.

FEMALES WILL BE BRED TO OUR SCOTCH HERD BULLS.

Sale Opens at 12.30 P. M., Sharp. For Catalogues, apply to

H. C. Duncan, Osborn, Mo., Joseph Duncan, Osborn, Mo., or George Bothwell, Nettleton, Mo.

Auctioneers: Cols. Woods, Edmonson, Sparks, Jones, Graham, and White.

Attention is called to Shorthorn sale by Novinger & Son, at Kirkeville, Mo., January 14; I. B. & A. M. Thompson's Galloway sale at Kansas City, January 13, and the Armour-Funkhouser Hereford sale at Kansas City, January 14-15.

Publisher's Paragraphs.

WANTED—Faithful person to travel for well established house in a few counties, calling on retail merchants and agents. Local territory. Salary \$1,024 a year and expenses, payable \$19.70 a week in cash and expenses advanced. Position permanent. Business successful and rushing. Standard House, 234 Dearborn St., Chicago.

The National Corn-stalk Remedy, advertised from Omaha, seems to be quite a success. Many stockmen in Nebraska who have been using it give it their unqualified endorsement. In fact, no chances are taken by the consumer for the reason that the company guarantees their remedies to do all they claim, if fed according to directions, or refund the money. Those having trouble with cattle in the corn-stalks should certainly give this a trial.

The Mahin Advertising Company will occupy the entire eighth floor of the Williams Building, 200 Monroe street, Chicago, on December 27—just four years to the day from the time this young agency commenced business with five persons.

Now it employs 116 persons, only 113 of whom are solicitors, the rest being necessary to execute all the details of advertising in the high-grade style instituted and maintained by the Mahin Advertising Company.

The new quarters give light on all four sides and are handsomely fitted for the magazine, newspaper, bill posting, painting, street-car advertising, literary, art, engraving, printing, accounting, checking and addressing departments. The total floor space is 12,000 square feet.

Two hundred and ninety-one active advertisers place their orders with the Mahin Advertising company.

An Exhibit of Guinea Pigs.

One of the most interesting exhibits at the recent International Live Stock Exposition at Chicago was that of Messrs. Parke, Davis & Co. This firm occupied a booth in the new Live-Stock Record Building, and the unusual character of its display served to attract a great many visitors during the progress of the meeting. The live-stock portion of the exhibit consisted of fifty guinea pigs—fat, sleek specimens—that were quite as interesting in their way as the grand champion carload of Angus steers, which commanded such universal admiration.

Parke, Davis & Co., whose head offices and laboratories are at Detroit, Mich., manufacture a vaccine for the prevention of blackleg in cattle. This preparation, which is in pill form, is marketed by the firm under the name of "Blacklegoids." One Blacklegoid is a dose, and by a very simple method is injected under the skin of the animal. By vaccination with a reliable blackleg vaccine the stockman secures for his cattle an immunity from blackleg, just as we prevent smallpox in the human fam-

ily by inoculation with the virus of cow-pox.

The guinea pigs which were on exhibition were only a handful from about four thousand which the company maintains for experimental purposes at its great laboratories at Detroit. The house is very particular that its blackleg vaccine shall measure up to the highest possible standard of efficiency. It must be free from impurities, and it must be active. Every lot of Blacklegoids which is placed upon the market must be shown to possess these virtues. The question of efficacy or lack of efficacy can be determined but in one way—by actual test of the vaccine upon living animals. This is what Parke, Davis & Co. all the "physiological test." And it is a most rigid one as applied to their Blacklegoids, the efficiency of which must be demonstrated by tests not only upon calves, but also upon guinea pigs, and every consignment carries with it this double proof of its efficiency.

Parke, Davis & Co. had several representatives at the Exposition, and they vaccinated a number of animals on the grounds, among them a fine herd of young cattle which had been brought from Canada, and which were to be shipped to El Paso, Tex., for breeding purposes.

A New Firm.

The Klondike Incubator Company, of Des Moines, Iowa, on October 1, 1902, passed into the hands of new owners and under a complete new management, all of the old company retiring and the new company assuming none of the liabilities of the old. The capital stock has been increased to twenty-five thousand dollars, new buildings and machinery have been purchased which has more than doubled their capacity. Their financial standing can be ascertained by enquiring of the Des Moines Savings Bank. The new company is in a position to fill all its obligations and contracts and the incubators and brooders put up this year are made of the very best material obtainable with all modern improvements, making them second to none in points of performance, durability and workmanship. All we ask is a trial Klondike Incubator Co., Box 978, Des Moines, Iowa.

Business and professional men whose labors are largely mental, whose work is a constant drain upon the nervous system, find it necessary to have a reserve of nerve force to withstand the effect of mental strain.

When sleep is courted in vain, when the stomach is frequently out of order; when the daily stint becomes a burden instead of a pleasure; when you rise in the morning with less of energy and ambition than when you retired, your condition is so serious as to demand instant attention and treatment. It is not a case to be cured by a few weeks' rest; nor of "my stomach slightly upset;" nor of "I'll be all right in a few days." It is a nervous disorder, which, if neglected, will lead to nervous prostration, with its attendant horrors of fainting spells, of men-

70-CHOICE-70 REGISTERED HEIFERS

The grand opportunity for cattlemen will be found in the Groom Shorthorn sale of 70 head of heifers and young cows, all range bred and registered.

WILL SELL AT WICHITA, KANSAS, ON FRIDAY, JANUARY 1, 1903.

Regardless of weather, in the warm and comfortable Sale Barns, at the WICHITA UNION STOCK YARDS. All heifers are bred to our best bulls—none better anywhere! All cows offered are young and just from calf. These cattle are range bred, grass fat, and have not been pampered, therefore show exactly what they are. They will bring you more sure money because they are fully acclimated and accustomed to field work.

THESE WILL SELL

When they go to the hammer they are in your hands and will sell for the highest bid offered regardless of the amount. This is your chance to get the best blood in America, in Shorthorn heifers and young cows. Every individual bred in the purple and just what you want.

REMEMBER THE DATE

and attend this sale, the first of its kind ever held in Wichita. Avoid high freight by purchasing nearer your home. Buy the best and you will never regret it. For further information address

B. B. & H. T. GROOM, Wichita, Kansas.

tal and physical weakness, irritability, morbid fears and ultimately, insanity. Under certain conditions these symptoms may lead to chronic headache, insomnia or nervous dyspepsia, and, if the sufferer is predisposed to heart trouble, the most common cause of sudden death.

When the system receives that aid from which will replenish nerve force and vitality; rebuilding and restoring nerve cells and tissue; strengthening the nerve centers of the brain, heart, stomach, lungs, or whatever organ is affected, the annoying symptoms will disappear.

Dr. Miles' Restorative Nervine nourishes the nerves. It quiets and strengthens them, rests and recuperates them, builds new tissue and restores health. It restores the exact element which weakened, exhausted, tired and hungry nerves lack. Dr. Miles' Nervine will preserve the balance of health and restore it when lost. It will counteract natural decay and establish a reserve of nerve-force which will

withstand the attacks of overwork and disease.

All druggists sell and guarantee Dr. Miles' Nervine. If the first bottle does not benefit you, you may have your money back. Send for free Treatise on Nervous Diseases.

Dr. Miles Medical Co., Elkhart, Ind.

"You ought not to beg," she said. "No, ma'am," admitted the tramp. "Why do you do it?" "Well, ma'am, I wouldn't if I could git people to give me money by jest lookin' sad."—Chicago Post.

BEES 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.**

THE MARKETS.

Kansas City Live Stock and Grain Markets.

Kansas City, December 22, 1902. The unparalleled dullness in the cattle market two weeks ago resulted in a slight betterment last week, but prices did not advance enough to cause much rejoicing from shippers. Continued declines and heavy supplies the first part of December alarmed the commission men throughout the country and they gave explicit instructions to hold back shipments. The orders were heeded a little, but still the runs last week were big enough to have anything but a pronounced effect upon the market. A load of fancy yearlings splendidly finished for the Christmas trade, sold for \$6.25, the top of the week. They were shipped in by W. H. Summers, of Salisbury, Mo., and had been fed by William Koch. The bulk of the beef-cattle sold between \$4.45. Many drafts of good heavy cattle sold at \$4.75.

A rapid advance and an equally rapid decline was a feature of the hog trade last week. Receipts were generally light all around the market circuit, and this stimulated packers up to and including Wednesday. The week's supply at Kansas City amounted to 35,500 head, compared with 41,500 the preceding seven days and 94,700 a year ago. By Wednesday the market had advanced 15¢/30c and top hogs were selling at \$6.40, the highest point in some time. These were marketed by W. L. Wood, of Louisburg, Kans. Packers soon began to repent their generosity in buying the market and the last three days of the week saw prices decline 10¢/15c, but leaving them at the close about a dime higher than in our last report. When trade finished for the week, top hogs were selling at \$6.25 and the bulk of sales ranged from \$6.10 to \$6.17 1/2. The future hog market will probably hang around \$6 for the bulk of sales and in the neighborhood of \$6.25 for tops. Packers are trying hard to bring prices below \$6 but receipts will not justify them in the fight.

The sheep trade for the week was characterized by a continued brisk inquiry for fat muttons and generally steady prices. Other markets vacillated badly, but buyers at this point ignored outside conditions and practically duplicated the market from day to day. Kansas again led in contributing to the receipts, the bulk of the arrivals consisting of fed Western stock from the Sunflower State. Muttons were in heavier supply than lambs. Several strings of yearlings from Zeandale feed-lots brought \$4.50, and a band of fed muttons from the feed-lots in the vicinity of Wichita sold for \$4.25. The Christmas demand for lambs was satisfactory at the beginning of the week, values ranging at \$5.25 or better. The holiday inquiry is now over, however, and no more sensational prices are looked for until the annual inquiry for Eastern lambs sets in. Native ewes advanced a trifle during the week, selling up to \$4. Medium sheep eased off a trifle at the close in sympathy with declines at Eastern markets. Traders count on no further advances in muttons during the next few weeks unless the runs fall off, which is hardly probable.

Horses, particularly big stock with quality, weighing 1,500 or better, sold a little higher, best drafts commanding \$175 to \$200. Medium horses and light harness stock sold steady. Mules were frightfully dull and the general movement was stagnant. Values were weak and moderate receipts alone prevented a serious decline in prices. An abnormally light demand from the South is responsible for the present dullness in mules.

The pre-holiday poultry market during the past week was featured by general strength in prices. Turkey receipts were light and sellers had the best end of the bargain. Newspapers circulated stories to the effect that certain dealers were trying to corner the market and force prices to 20c a pound by Christmas, and this naturally had a bullish effect upon trade. On Monday of this week turkey-hens commanded 13c; gobblers the same; hens 8 1/2c; springs 9 1/2c; roosters 20¢/25c each; geese 9c. Declines are expected in the poultry market after the holidays. Beef is selling cheaper now and housewives are gradually changing their menu from birds to steaks and roasts.

Corn and oats hit the toboggan during the week and lost from 1¢/6c. More liberal receipts at the big markets and a collapse of the corner in December corn caused the decline. Wheat also broke a little. Quotations for cash grain at Kansas City the first of this week were: No. 2 wheat 66¢/67c; No. 2 corn 37 1/2¢/38 1/2c; No. 2 oats 31 1/2¢/34c. H. A. POWELL.

South St. Joseph Live Stock Markets.

South St. Joseph, Mo., December 12, 1902. The congested conditions East, clogged meat channels; nearness of the holidays and the abundance of the half-to two-thirds-fat steers coming to market caused conditions to rule decidedly to the reverse for the selling interests, and prices sagged 10¢/25c. There was also a lower trend in cow and heifer prices, choice, fat grades and canners declining 10¢/15c and medium to good kinds 25¢/35c. Supplies of stock cattle were under the wants of the regular dealers and there was a free movement of cattle to the country, under which conditions prices advanced 10¢/15c on all grades except the low-grade light kinds, which sold to no better advantage.

The course of the hog market was towards a higher level the first half of the week because of reduced supplies, but on Thursday and Friday supplies were materially increased and a good part of the advance was wiped out while on Saturday the light receipts caused prices to soar upward again. Another advance was scored to-day, with prices ranging from \$6.10 to \$6.35 and the bulk of sales at \$6.20 to \$6.30. The quality of the offerings last week was generally of good average and weights ran quite heavy.

Under light supplies and an urgent demand earlier in the week prices for sheep and lambs advanced materially, but with increased marketing later on and bad conditions ruling in the East the gain was lost. Offerings were well divided between Kansas, Missouri, and Nebraska-fed stock. On Tuesday the first shipment of Colorado-fed stock of the season was had here. Included in the shipment were 191 Mexican lambs of 63 pounds average and sold at \$5.25 and 340 ewes that averaged 89

pounds and brought \$3.40. They sold straight and were in half-fat condition, belonging to Wagner & Son at Fort Morgan, who marketed them just as a feeder of the market. The stock brought extra good values considering the condition they were in. During the week native lambs sold at \$5.50, Western yearlings and wethers were mixed at \$4.40, and Western ewes at \$4.10.

Lawrence Seed Markets.

Lawrence, Kans., December 22, 1902. We give you to-day's buying prices in our market. Outside prices are for best grades: Per 100 lbs. Red clover..... \$9.00@10.00 Alfalfa..... 8.00@11.00 Timothy..... 8.00@ 8.25 English blue-grass..... 2.00@ 3.50 Millet..... .75@ 1.00 Cane-seed..... .75@ .85 Kafir-corn..... .50@ .65 F. BARTELDES & CO.

Special Want Column.

"Wanted," "For Sale," "For Exchange," and small or special advertisement 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—A choice herd of registered Holsteins, six heifers coming 3 y and old, and one yearling heifer from first prize cow. A 2-year-old first prize bull from M. E. Moor's success in 1901 show herd. E. W. Melville, Eudora, Kans.

FOR SALE—One fine registered Shorthorn bull, 12 months old, red and white. Price reasonable. He is sold at Indianapolis, Ind., last June for \$200. D. C. Van Alce, Richmond, Kans.

FOR SALE—My herd bull, Baron Knight 124946, 4 years old, dark red, weight 2,200 pounds, got by Grand Knight 12488; also three Scotch-topped bulls, 14 months old, and a few cows with calves by side. J. P. Engel, Alton, Kans.

FOR SALE OR TRADE—For young cattle—one Percheron stallion; also for sale M. B. toms, headed by Tom 95 1/2; hens 94 1/2. J. W. Holsinger, Cottonwood Falls, Kans.

HEREFORD MALES—Three 2-year-olds, two yearlings, seven calves, 775 to \$125, sired by 2-year-olds 78813; two unregistered calves, \$35 and \$40; ten male calves, ungraded, \$25 to \$35. A few Poland-China males, registered, 150 grade cows in calf by registered Herefords, \$25 to \$35. R. J. Simonsen, Manager, Cunningham, Kan.

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

FOR SALE—Ten young Hereford bulls from the Evergreen Farm herd, headed by Lee 121222. Address Pearl I. Gill, Great Bend, Kans.

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 cow men. O. L. Thistler, Chapman, Kans.

FOR SALE—Six good Shorthorn bulls, four of them straight Crucifixion; prices reasonable; now is your chance to get a good individual. H. W. McAfee, Topeka, Kans.

HORSES AND MULES.

FOR SALE—Or will trade for stock, an 800-pound black jack, white point, 8 years old, sure foot getter, easy keeper. Address E. B. Irwin, Mudoc, Kans.

FOR SALE, CHEAP—One 3-year-old black jack, and red Shorthorn bulls and heifers; show stuff. George Manville, Dearborn, Mo.

FOR SALE—Full blood, imported Percheron stallion Leabos 1497. Color—black, sound and excellent breeder; also a Kentucky bred jack, 5 years old. For particulars, write or see John Kaetz, Alda, Kans.

PROSPECT FARM—CLYDESDALESTALLIONS, SHORTHORN CATTLE and POLAND-CHINA HOGS. Write for prices of finest animals in Kansas. H. W. McAfee, Topeka Kansas.

SWINE.

CHOICE Poland-China boars and gilts, ready for use; also 135 extra Barr'd Plymouth Rock cockerels. John D. Ziller, Hiawatha, Kans.

DUROC-JERSEYS for sale. A few males that are herd headers; also some good ones at reasonable price. Young gilts bred. M. H. Alberty, Cherokee, Kans.

YEARLING Poland-China herd boar for sale. Grand Chief by Grand Chief 245525. He will make a remarkable sire for some good breeder. Address L. W. Hamilton, Kearney, Neb.

FOR SALE—Berkshire boars, by son of Imported Commander. O. P. Updegraff, Topeka, Kans.

SWINE—Duroc-Jersey breeding stock, pure-bred and registered, for sale at \$5 to \$20, each, owing to age. Burton & Burton, East Seward Ave., Topeka, Kans.

POULTRY.

ANY ONE having yellow turkeys or may know of any one who has, will confer a favor by dropping me a postal card. T. G. McKinley, Junction City, Kans.

MISCELLANEOUS.

WANTED—Man to milk cows, \$30 per month. Wife to board farm help, \$10 each. House free. J. H. Taylor, Chapman, Kans.

SEPARATOR FOR SALE—Cheap, nearly new, U. S. No. 8, \$100-ma. line, capacity—400 p. units per hour. Have quit dairying. E. W. Adams, Berryton, Kans.

WANTED—Men to learn barber trade. New Method, big demand for graduates. Board provided, tools presented, wages Saturdays, write nearest branch. Mower System Barbers Colleges, Chicago, Ills, St. Louis, Mo., New Orleans, La, Minneapolis, Minn Omaha, Nebr.

FOR SALE—Guaranteed Formula for best horse, cattle, sheep, and swine conditioner and health producer and preserver. Money refunded if not satisfied. \$1.00 per copy for individual use. County rights for sale. E. S. Shockey, 274 Live Stock Exchange, Kansas City, Mo.

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

FARMS AND RANCHES.

FREE 200 printed farm and ranch descriptions in 15 counties, 55 m. from K. C. Prices, maps, statistical book. Write G. Winders, Ottawa, Kans.

IMPROVED farms and grazing ranches in eastern Kansas for sale. Send stamp for list. W. L. Seeling, Paxico, Kans.

WANTED TO RENT—I would like to rent a farm, from 80 to 500 acres of land, anywhere in eastern half of Kansas. Would like to have one already furnished with stock and farm machinery; or I will take charge of such a farm for the owner. Write me at Leocompton, Kans. H. C. Allen.

FOR SALE—A fine dairy farm of 158 a res, within six miles of Topeka. Six-room house, fine large barn, coal, a wind mill, c. lbs, and other buildings, 120 acres under cultivation, on 60 acres clover, all fenced and cross-fenced, three acres young orchard—6 years old, 4 acres timber, running water, \$7,000. We have many other farms. Write us about them. Moore & Jones, 600 Kansas Avenue, Topeka, Kans.

FOR SALE—Northeast quarter section 5-20-3, Marion County, Kansas, well improved, 60 acres in alfalfa, balance in good cultivation, fenced and cross-fenced, grove, orchard, good nine-room stone house, frame summer kitchen, coal house, cistern, two wells with wind mills, extra well built barn—36 by 36—for horses, cows, implements, storage for 20 tons of hay and 2,000 bushels of feed, cattle barn 60 by 24, with storage for 20 tons of hay, large granary—with driveway built on good foundation, corn cribs and poultry house. A splendid stock farm. Only one and one-half miles from shipping point and five miles from county seat. Also 160 acres adjoining same, 40 acres prairie, balance in good cultivation, fenced and cross-fenced, house, barn, corn cribs granary, two wells, one windmill, etc. The two farms can be used as one, or separately. J. S. Good, Canada, Marion County, Kansas.

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.

I CAN SELL your farm, ranch, city property, wild and unimproved lands, any place, anywhere. Send description and cash price and learn how. Customers all over the country. W. E. Ward, Colby, Kans.

FOR SALE—1,120-acre farm in Douglas County Missouri, 14 miles south of Willow Springs. It is fenced all around with four galvanized bar ed wire fencing. It has a new house, two stories high—with an L for kitchen; it has also a new barn, 24 by 40 feet, and it is especially suitable for a sheep or Angus goat ranch. There are seven springs on the place with plenty of water the year round for all stock. The reason for selling is that the owner is too old to attend to the ranch. There are 60 acres under cultivation, and the balance in pasture. Price \$4,000. Write to James Anderson, Leonardville, Kans.

EDGEWOOD FOR RENT—500 acres all rich land, 55 acres alfalfa, 245 in cultivation, 200 pasture and timber, abundance of good water, 10-room house large stock-barn, horse-barn, hog sheds, corn-cribs, work-shops, granary, hog-house, and other small buildings, corrals for 800 head of cattle, good water in all of them; situated at Neosho Rapids, Lyon Co., on the A. T. & S. F. R. R., twenty-five minutes from Emporia, four hours from Kansas City; one of the best dairy farms in the state. This farm can be rented for five years at a little less than \$2 per acre per annum, if needed before the 10th of January next. Twenty acres of alfalfa the season of 1901 more than paid the rent of the whole farm. For further particulars address H. H. White, Neosho Rapids, Kans.

JOHN G. HOWARD—Dealer in farms, ranches, and pasture lands. Always the best bargains in Real Estate. Write me what you want to buy or sell. My commission is only 2 1/2 per cent. Emporia, Kans.

FOR SALE—480 acres of wheat and cattle farm land, 160 acres of it in wheat, 10 acres in alfalfa. No buildings. Sure to water, good neighborhood. Price \$2,400. Write me at Jetmore, Kans., for particulars. A. T. Eakin.

FOR SALE—320 acres fine pasture land in Wabaunsee County, 2 miles from Hallfax, good grass and never-failing water. H. R. Rice, Tecumseh, Kans.

PATENTS.

J. A. ROSEN, Patent Attorney, 418 Kansas Avenue, Topeka, Kansas.

SEEDS AND PLANTS.

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

FOR SALE, ALFALFA SEED—A limited amount of orders filled promptly. Correspondence and orders solicited. O'Laughlin & Weber, Lakin, Kans.

Farms and Ranches.

We have in central and western Kansas, all kinds of farm and ranch property, large and small, improved and unimproved, for sale. In many cases we can make a desirable exchange. State what you have for sale or what you wish to buy, and we can accommodate almost any kind of a realty deal. Write for our list of bargains. All correspondence will receive our prompt attention. Address E. C. PREBLE LOAN CO. CUBA, REPUBLIC COUNTY, KANSAS.

If You Are a Buyer for a Ranch or Farm, write W. A. Willis & Co., Emporia, Kans. stating just what you want.

They have a large number of choice ranches in the best grazing belt of Kansas, and farms of all sizes, and have on their lists the best bargains to be had.

WANTED!

A bright man, with light team, in every county. Steady work and good wages to the right man. Reference required. For particulars address, KOCH, V. T. CO., Wison, Minn.

FARMERS

who wish to better their conditions are advised to write for a descriptive pamphlet and map of Maryland, which is being sent out free of charge by THE STATE BUREAU OF IMMIGRATION OF MARYLAND.

Address: Mr. H. Badenhop, Secretary, Merchants Nat'l Bank Bldg., Baltimore, Md.

The Stray List

Week Ending December 11.

Greenwood County—C. D. Pritchard, Clerk. HEIFER—Taken up by J. W. Mattingley, in Bachelor tp., November 22, 1902, one black heifer with horns, white face, 1 year old; valued at \$15. Riley County—O. M. Brees, Clerk.

STEER—Taken up by Wm. Delbier, in Manhattan tp., (P. O. Manhattan), November 3, 1902, one light red or ash colored steer, with small white spots, dehorned, 3 years old; valued at \$35. Also one light red steer, dehorned, 2 years old; valued at \$30. Cherokee County—S. W. Swinney, Clerk.

BULL—Taken up by T. T. Brown, in Spring Valley tp., October 23, 1902, one big, red bull, 4 or 5 years old, some white under belly and in bush of tail; valued at \$15. Lyon County—H. E. Peach, Clerk.

STEER—Taken up by T. I. Darrough, in Agnes City tp., (P. O. Allen), one pale red steer, 1 year old, branded on left hip with letter L. Also one black steer, 1 year old, indistinct brand on left hip, taken up by L. W. Mallory, in Agnes City tp., (P. O. Allen). Wallace County—O. N. Thurne, Clerk.

GELDING—Taken up by Alman Johnson, in Sharon Springs tp., (P. O. Sharon Springs), October 30, 1902, one iron grey gelding, 3 years old, W. on left hip; valued at \$25. Pratt County—John Mawdsley, Clerk.

COW—Taken up by S. O. Baker, in McClellan tp., November 4, 1902, one light red, mottled face; valued at \$12. Johnson County—J. G. Rudy, Clerk.

MARE—Taken up by W. B. Kerner, in Aubry tp., (P. O. Stillwell), July 15, 1902, one light bay mare, had halter on, shod all around with new shoes, weight 1,100 pounds; valued at \$50. Allen County—C. A. Fronk, Clerk.

COW—Taken up by S. P. Ruble, in Jola tp., September 9, 1902, one red cow, with star in forehead, lame in right front leg; valued at \$15. Elk County—G. J. Sharp, Clerk.

STEER—Taken up by W. A. Eastman, in Greenfield tp., (P. O. Grenola), November 15, 1902, one long yearling red steer, X on right hip; valued at \$25.

Week Ending December 18.

Lincoln County—J. S. Stover, Clerk. HEIFER—Taken up by E. L. Mack, in Beaver tp., (P. O. Lincoln), November 12, 1902, one 3-year-old red heifer, straight brand on left hip. Elk County—G. J. Sharp, Clerk.

COW—Taken up by A. B. Kessinger, in Greenfield tp., (P. O. Grenola), November 18, 1902, one dunn colored cow, poll on left side, circle on left jaw, M on right hip, smooth crop on left ear, two underbits in right ear; valued at \$10. Greenwood County—C. D. Pritchard, Clerk.

STEER—Taken up by J. H. Estes, in Eureka tp., November 1, 1902, one red, yearling steer, white face, white streak from head to shoulders, white on belly, has horns; valued at \$15.

Week Ending December 25.

Lyon County—H. E. Peach, Clerk. STEER—Taken up by D. S. Richards, in Center tp., one red steer, branded H on left hip. Linn County—J. A. Cady, Clerk.

MARE—Taken up by C. W. Simpson, in Mound City tp., one light bay western mare, 6 years old, weight about 900 pounds, white spot in forehead, branded I T on left shoulder. Greenwood County—C. D. Pritchard, Clerk.

STEER—Taken up by Henry Imthurn, in Madison tp., (P. O. Madison), November 13, 1902, one dark red steer, 2 years old, indistinct brand on right hip, dehorned. Rawlins County—A. V. Hill, Clerk.

COW—Taken up by Isaac Conner, in Driftwood tp., (P. O. Atwood), December 6, 1902, one red cow, lower part of both ears gone; valued at \$10.

Closing Out Sale THOROUGHbred

Poland-China

HOGS, DECEMBER 29, 1902, AT PLEASANTON, KANSAS

Three Herd Boars, 12 Brood Sows, 25 Spring Gilts, 10 Spring Boars. Everything on the place sells.

Above represents some of the best Poland-China blood in America, such as the get of Missouri's Black Chief, Missouri's Black Perfection, Chief Perfection 2d, Nox All Wilkes, Black U. S., Corwin, and Sensation strains. Write for Catalogue.

Frank Zimmerman, Centerville, consigns 10 Gilts, bred.

HARRY EVANS, PLEASANTON, KANSAS.

Hot lunch on the ground. Col. J. W. Sparks, Col. H. H. McGlothlin, Auctioneers. Farm Stock Sale at 10.30 A. M.

Hotel Oxford And Restaurant

Frank Long, Proprietor.

European and American Plans. 604-6 Kansas Avenue, Topeka, Kansas.

The hotel has moved into new quarters and everything is modern and first-class in all its appointments. Rates: American Plan, \$1.25 to \$1.50 Per Day. European, 75c to \$1 Per Day. The Finest Restaurant in Kansas. Visitors to Topeka are invited to

\$2 to \$2 PER DAY

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