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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.

The snow and rain of the last few days is of inestimable value to the growing wheat of Kansas. Throughout the greater part of the wheat belt the snow was heavy, varying from five inches in Pratt County to eight in Russell, six in Finney, four in Dickinson and six in Shawnee. In Harper County the depth was only two inches and in Cowley half an inch, the snow being replaced by sleet and rain along the southern border of the State.

Last January Topeka held a very enjoyable midwinter exposition. It was for the exemplification of Kansas' resources and enterprises. The large auditorium belonging to the city is admirably suited for the purposes of such an exposition. Last year's show paid a good deal more than expenses. The surplus is being used to make a more

complete exposition this year. Its dates are January 19-31. R. S. Brigham, Topeka, is secretary and manager.

Two of the great events of the present season are the annual meeting of the Kansas State Board of Agriculture, Topeka, January 14, 15, 16. F. D. Coburn, Secretary, Topeka, and the annual meeting of the Kansas Improved Stock-breeders' Association, Topeka, January 12, 13, 14, H. A. Heath, Secretary, Topeka.

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

EDITOR KANSAS FARMER:—Will you kindly give through your valuable paper the most economical balanced ration for growing hogs, and also to finish same? The price of feeds here is as follows: Corn, 35 cents per bushel; bran, \$14 per ton; middlings, \$16 per ton; oats, 30 cents per bushel; alfalfa, \$6 per ton. What is the best device for feeding alfalfa hay, both whole and cut? Also the cheapest and best hand-cutting machine for alfalfa? T. L. PARIS, Jefferson, Okla.

The increasing frequency of inquiries like the foregoing indicates a growing appreciation of the importance of applying in our feeding operations all of the knowledge stored up from the experience of the past. Not very much science or mathematics is needed to determine that to feed twenty head of average cattle will require four times as much hay and grain as to feed five head of average cattle. No man can be found who will deny the applicability of such computation. Further, it agrees with experience.

General experience has shown that all animals do better when given a variety than when confined to one feed, even though this one feed be the universal animal favorite, Indian corn. Recorded experience has shown that not variety alone is important, but that feeding materials composed of nutrients which taken together correspond measurably well with the materials which compose the animal body give the best results. The animal must find in its food the materials of which its body is constructed. This proposition is as indisputable as that, for building a modern frame house, there must be provided various kinds of lumber, nails, etc. The food must also furnish the fuel which keeps the animal warm and gives it energy.

The chemist has done valuable service in determining the nutritive ingredients needed for various animals and the proportions in which they are found in average feeding stuffs. The experimental feeder has contributed valuable information from his records of experiments and has shown how much of each of these nutritive ingredients is required for each class of domestic animals per 1000 pounds, live weight, on the average.

Turning to the records of information thus derived, we find the following given as the requirements of hogs per 1000 pounds live weight:

Age in months.	Average weight per head, lbs.	Total dry matter, lbs.	Protein, lbs.	Carbohydrates, lbs.	Fats, lbs.	Nutritive ratio, 1 to—
2-3.....	50	44	7.6	28.0	1.0	4.0
3-5.....	100	35	5.0	23.1	0.8	5.0
5-6.....	120	32	3.7	21.3	0.4	6.0
6-8.....	200	28	2.8	18.7	0.3	7.0

Period	36	4.5	25.0	0.7	5.9
First period.....	36	4.5	25.0	0.7	5.9
Second period.....	32	4.0	24.0	0.5	6.3
Third period.....	25	2.7	18.0	0.4	7.0

Likewise the accepted tables of digestible nutrients in feeding stuffs show the following averages for the feeds mentioned by our correspondent:

Feed	Dry matter, lb.	Protein, lb.	Carbohydrates, lb.	Fats, lb.	Price, cent.
Corn.....	0.894	0.078	0.667	0.043	0.00625
Bran.....	0.877	0.123	0.371	0.026	0.007
Middlings.....	0.879	0.128	0.530	0.034	0.008
Oats.....	0.890	0.092	0.473	0.042	0.009375
Alfalfa hay.....	0.916	0.110	0.396	0.012	0.003

The problem proposed by our correspondent is how to prepare from these feeds at these prices economical rations for growing hogs and for finishing same. It will be observed that the nutrients demanded in the table of requirements are all found, but in varying proportions, in the feeds specified. It is not intended to convey the impression that other ingredients are not needed. Water is of course essential. Bones can not be formed from any combination of the nutrients named without the addition of several mineral substances. But the additional substances required are generally abundant in feeds, so that the attention of investigators has been given chiefly to determining the amounts of each of the above three "nutritive ingredients" required for the most economical ration.

As has been heretofore mentioned in the columns of the KANSAS FARMER, the two nutrients, carbohydrates and fats, are similar in their effects and can in some measure replace each other, it being observed that fats are worth considerably more than carbohydrates. This is especially true in the production of animal warmth and energy. These are among the chief purposes served by these ingredients. For this purpose fats—vegetable oils—are worth about 2 1/4 times as much as carbohydrates—starch, sugar, etc.—pound for pound. To simplify the problem proposed by our correspondent we may, therefore, consider the carbohydrates and the fats together in discussing animals' requirements and the composition of feeds. For this purpose it is necessary to multiply the numbers representing the fats by 2 1/4 and add the products to the corresponding numbers representing the carbohydrates in each case. This sum will be called "carb." Tables I and II treated in this way give respectively Tables III and IV.

Age in months.	Average weight per head, lbs.	Total dry matter, lbs.	Protein, lbs.	Carbohydrates, lbs.	Nutritive ratio, 1 to—
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

Period	36	4.5	25.6	5.8
First period.....	36	4.5	25.6	5.8
Second period.....	32	4.0	25.1	6.3
Third period.....	25	2.7	19.0	7.0

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

Feed	Total dry matter, lb.	Protein, lb.	Carb. c+2 1/4 f. lbs.	Nutritive ratio, 1 to—	Price, cent.
Corn.....	0.894	0.078	0.764	9.79	0.00625
Bran.....	0.877	0.123	0.429	3.48	0.007
Middlings.....	0.879	0.128	0.608	4.73	0.008
Oats.....	0.890	0.092	0.567	5.11	0.009375
Alfalfa hay.....	0.916	0.110	0.423	3.85	0.003

Our correspondent's first inquiry is for an economical ration for growing

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hogs, the ration to be composed of some feed or mixture of feeds given in Table IV. The size of the growing hogs is not stated. It will be observed that the table of requirements for growing swine mentions only breeding swine. But no great mistake will be made in feeding to growing store hogs the ration stated for young breeding stock. Assuming that our correspondent's growing hogs are 3 to 5 months old, having average weights of 100 pounds, he would then require:

Total dry matter, lbs.	Protein, lbs.	Carb. (c+2 1/4 f.) lbs.	Nutritive ratio, 1 to—
For 100 shoats.....	35	5	25.1 to 5

The problem is not a difficult one with the aid of algebra. There is also an arithmetical solution which has been proposed by Professor Willard. The writer prefers the algebraic solution because it is simpler than the arithmetical. But for the purpose of simplifying the application of the algebraic solution the writer now proposes to deduce formulas which may be applied readily by any who can add, subtract, multiply, and divide. The process of deducing the formulas will be given here so that this discussion may have a degree of completeness, but those who do not care to follow this part of the work may skip from this point to the rules for computing balanced rations.

DEDUCTION OF FORMULAS FOR THE ESTIMATION OF BALANCED RATIONS.

Let the ration be composed of two ingredients. (If it be desired to use more (Continued on page 1238.)

Agricultural Matters.

Poisoning Gophers.

EDITOR KANSAS FARMER:—Permit me to request Professor Lantz to describe in detail just how he ascertains where to force the tool he describes into the ground in order to strike the run of the gopher. Does he begin near a mound of earth pushed up by them and push his spear down at different places around the mound, until he strikes the run? And if so, what tells him he has found it? I have trapped hundreds of them, but as he suggests, it requires quite an amount of labor; and to find their runs is not by any means easy. I have often had to make quite a search with spade or shovel before finding them. And I have also occasionally found them exceedingly cunning; so much so that they will push the dirt in front of them onto the trap and throw it so that they are no longer in danger. I have set a trap as often as a dozen times for one of these smart ones, and failed to catch him. So that, in view of all the labor, expense of a number of traps, and repeated failures, I feel confident that Mr. Lantz's method is by far the cheapest, most speedy, and most successful, if as he claims, they will always eat a bit of poisoned potato.

G. BOHRER.

Lyons, Rice County.

REPLY BY PROFESSOR LANTZ.

EDITOR KANSAS FARMER:—Your correspondent asks a question which it is rather difficult to answer intelligibly in writing. A very short demonstration of the field would be much more satisfactory to him than anything I can say in an article on the subject.

The mounds of the gopher usually exist in an irregular double line across alfalfa field or meadow. Usually, there are more of the hills on one side of the line than on the other.

if possible, because this is always kept open by the animals in traversing it, while the laterals are often obstructed by accumulations of loose soil. At the freshest mounds thrown up the laterals come close to the surface and there is a reasonable presumption that the animals will return to do further work and thus find the bait. By inserting the tool in a slanting manner, pointing it toward the main runway, at these freshest mounds, one is reasonably sure to strike the lateral at the first thrust. But by a little careful observation and study of indications, one can also become expert at finding the main runway; and this is the more desirable place to insert the bait.

We have recently had fine success in poisoning gophers with the liquid prairie-dog poison we have been manufacturing. I soak corn in boiling water and let it stand over night. Then pour off any surplus water and pour the liquid poison over the corn adding a little syrup. Let it stand over night, tightly covered. Add corn-meal to take up the excess of moisture before putting it out. A teaspoonful dropped into the holes made in the runway as described before, will be all that is needed. This poison has the advantage over dry strychnine, that it may be handled with less labor and danger. The State furnishes it at cost of materials. As we buy the materials in large quantities, a considerable saving is made to the consumer. D. E. LANTZ, Field Agent, Kansas Experiment Station, Manhattan, Kans.

A Good Pond for Stock Water.

In many portions of Kansas the chief reliance for stock water is the artificial pond. The following sensible suggestions from the Oklahoma Experiment Stations on ponds are timely:

The winter season may be very profitably spent in building ponds on farms where there is not an abundant natural water supply. A constant supply of wa-

ter of good quality is essential to success with live stock and there are but few farms on which the present sources of supply could not be improved. Water for household purposes must be obtained from wells, cisterns, or springs. The last are not common and the water from wells is very variable both in quality and in amount. The Oklahoma Experiment Station at Stillwater has analyzed waters from wells in practically every part of the territory and while they are usually free from organic contamination, a large proportion of them contain too much dissolved mineral matter to make them either palatable or healthful. Cisterns if properly constructed and looked after, constitute a very desirable source of pure water for drinking and cooking.

Unless there is a natural stream that contains water throughout the year, the source of stock water is either wells or artificial ponds. Where more than a few head of stock are kept and watered from a well, a windmill is almost a necessity and while Oklahoma has the reputation of being a very windy country, there are many days and even weeks at a time when windmills do not turn. If a windmill is depended upon, there must be a storage tank of sufficient size to hold a supply for calm periods. Thus the outfit must consist of a well, a pump, windmill, and storage tank if this plan of securing water is resorted to. The cost of this will vary from one hundred to three hundred dollars and the outfit requires constant attention to keep it in good working order.

Thousands of ponds have been built as sources of stock water but very few of these ponds have been properly made. Water for any use about the farm should be as clean and pure as it is possible to make it. Pond water at best is not ideal but the average pond is constructed with every facility for the making of the water of the pond the worst possible. Cattle and hogs stand and wallow in it, then drink of it or refuse to do so and go without water. Then they become sick for some "unaccountable reason" when there was plenty of water in the pond. Too often, the pond gets the drainage of the barnyard, being located solely with reference to proximity and with no regard to the kind of water that will flow into it.

PURE WATER.

A pond which is to furnish water for stock should be located so as to receive its water from native prairie hay land; if this is not possible, then from native prairie grass pasture. More water will run off from such land than from cultivated fields, it will be cleaner, and will not carry with it so much sediment that will in time fill the pond. The pond should be fenced so that no animal can get into it and if any fence on the farm is kept in perfect repair, it should be the fence around the pond. A galvanized iron pipe should be laid through the dam at such a point that it will completely drain the pond and the end of the pipe inside of the pond should be staked up out of the mud and be provided with a fine strainer. A cut-off may be placed either inside or just outside of the pond bank and the pipe should be at least a foot below the surface of the soil where it comes out of the bank. Nearly every one knows how to build a pond bank. The chief cause of leaky ponds is failure to remove the sod where the bank is to be. The sod in time rots and causes leaks. On some sandy soils, the hauling of clay may be desirable but this is seldom necessary.

Up to this point, the cost of the construction of the pond, where the ordinary natural advantages exist, will be about the same as digging a well. If the pond is in a pasture, a galvanized iron stock tank with an automatic float valve should be connected with the pipe just below the pond bank. If water is wanted at other places on the farm, it may be piped if sufficient fall can be secured and this should be taken into consideration when locating the pond.

Such a pond as this, with a capacity of about one million gallons and full of water now, may be seen on the experiment station farm. It is on a hill in the pasture and gets its water from sod land above it. Water is piped to all of the feed lots, including the hog pasture lots, and flows by gravity to the second floor of the barn. As it runs from the faucets, it is as clear as the average well water and it tastes good. The cost of building the pond and of piping the water for about one-third of a mile was about four hundred dollars. Barring unusual accidents, it should cost nothing for repairs and it doesn't cost a cent to operate. It is possible that in time, the pipes may become clogged with sediment, the fall being so slight that the water does not go through the pipes with sufficient force to keep them clean. But if taken in time when first indications of trouble are noticed, and water is forced through with a force-pump, the job of cleaning the pipes will be a small one. This will in all probability not occur in several years.

There are few farms where a pond could not be constructed in the same manner and but few cases where so much piping will be required. Ponds built during the early winter have time to settle and the spring rains will fill them and insure a supply of water throughout the summer. But it does not pay to neglect reasonable precautions and the expenditure of a little money in providing good water is economy of the best sort.

TO CURE A COLD IN ONE DAY

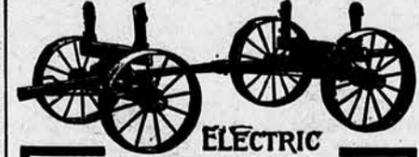
Take Laxative Bromo Quinine Tablets. All druggists refund the money if it fails to cure. E. W. Grove's signature is on each box. 25 cts.

Alfalfa a Medicine.

With every season's new additions to the growers of alfalfa come new accounts of the marvelous values of the plant. Here is a contribution to alfalfa lore from W. S. McAuley, of Americus, Lyon County, Kans.:

"A few years ago," said he, "farmers were almost afraid to raise hogs on account of the prevalence of cholera. Once that disease got a start in a herd and it generally succeeded in practically destroying it. Not only the aged stock, but the pigs as well were affected. Hog cholera remedies were sometimes used to good advantage, then again they proved to be ineffectual in stopping the ravages of the plague. Since the farmers have taken to growing alfalfa extensively as a field forage plant for hogs, however, the situation is changed. Now hog cholera in our part of the State is rare and the loss of swine by the disease has been reduced by more than 50 per cent. Farmers everywhere attribute the change to that wonderful plant, alfalfa, and I sincerely believe that is what worked the transformation.

"The difference in the health of hogs that have been pastured on alfalfa and those that have been kept in feedlots and fed grain and dry feeds is pronounced, and particularly so with regard to young pigs. Sucklings that have alfalfa fed mothers are far more rugged and healthy than are those that trace their ancestral dam to the pig sty. Sows



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make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or staggered spokes. Wheels any height from 24 to 40 inches. White hickory axles, steel fenders. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free. ELECTRIC WHEEL CO., BOX 46, QUINCY, ILL.

that forage on alfalfa raise lusty, hearty pigs that seldom fall victims to cholera, while the mothers that are kept on other feeds and not permitted the freedom of the alfalfa fields are generally inclined to be sickly. Kansas has made great strides in growing alfalfa the past two or three years and I think you will find those sections of the State that raise the greatest quantities of that plant are turning out the cleanest hogs and complain less of the prevalence of cholera.

"If there is anything that will solve the great question of hog cholera, one that has troubled farmers since the beginning of all time, it, in my estimation, is alfalfa. The time will come, I believe, when every hog feeder and grower will plant many acres of alfalfa each year for no other purpose than grazing hogs. I do not expect to see the millennium approach, but when the universal alfalfa times rolls around, I should not be surprised to find hog cholera put on the shelf as a back number, while the swine of that day do not know what sickness is."

M. A. ROGERS, Sedgwick County, Kans., says:

"Alfalfa really seems to be a medicine for swine that are permitted to graze in fields of that plant invariably show up better than other hogs. In my part of the country this is especially true. To the South of us, where little alfalfa is grown, the hogs are in bad shape. Most of the herds are badly infected with cholera and farmers are complaining bitterly, while our hogs are healthy in the extreme.

"Alfalfa is a wonderful laxative and is a particularly cooling feed. When a hog first takes the cholera fever, the plant has a miraculous effect upon the animal, clearing its system and stimulating it into life and action. I believe the farmers who have been searching for that which will wipe cholera off the face of the earth will find just what they are seeking for in plain, everyday alfalfa."

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.

\$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.

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



Valuable Work by Experiment Stations

In his annual report Secretary Wilson of the Department of Agriculture mentions some of the valuable work of experiment stations, in part as follows:

IMPROVED CEREALS.

"The origination and introduction of improved varieties of cereals through the agency of the stations of the grain growing regions, cooperating with this Department, is resulting in a vast increase of the grain-producing capacity of the country. As an illustration of this it may be cited that a variety of oats imported by the Department and tested and improved by the Wisconsin Station, among others, has been widely distributed and grown, with results which indicate that its general introduction will be followed by an average increase of yield which may be safely estimated at from three to five bushels per acre. As the acreage of oats in Wisconsin alone in 1901 was, according to our statistician, 2,290,288, producing 66,647,381 bushels, worth \$25,992,479 this would mean a gain to the farmers of Wisconsin annually of from \$2,400,000 to \$4,400,000 on the oat crop alone.

"Marked improvement in the yield and quality of wheat in the Northwest States is resulting from the distribution of improved varieties originated by the Minnesota Station. One of the results of the work of the Illinois Station on the breeding of corn has been the formation of the Illinois Seed-Corn Breeders' Association, a chartered organization, with a limited membership of reputable and well-known corn-growers, pledged to select and grow their seed according to definite rules formulated by the station and to sell only their own crop. The success of this enterprise has been phenomenal. All of the available supply of the improved seed is rapidly disposed of to farmers and much of it is engaged in advance. The work of this station on corn is proving to be far-reaching in its results, not only in improving the general quality of seed corn, but in inducing practical men to undertake breeding for special qualities—for protein, for oil, or for starch—which the station has demonstrated to be entirely feasible. The influence of station investigations is also being widely exerted in the grain-growing region in the introduction of rotations to conserve soil fertility in place of the exhaustive system of continuous grain cropping heretofore generally followed.

INSPECTION OF FEEDING STUFFS.

"The recent introduction into a number of States of a system of inspection by the stations of feeding stuffs, similar to that which has been in force for some time for fertilizers, furnishes a very effective means of protecting farmers against fraud and of inculcating correct ideas regarding feeds and feeding. It is encouraging to note that in many States farmers are now following very closely the advice of the stations regarding the purchase of concentrated feeds and the balancing of rations made from home-grown products.

"The rapid extension of the rational use of silage and the very general adoption of the round form of silo is directly traceable to experiment station influence.

INSECTICIDES AND FUNGICIDES.

"Through the efforts of the Department and the stations, the application of insecticides and fungicides as means of protection against injurious insects and plant diseases has become almost universal, and the benefits and profits resulting from the practice are no longer questioned. Striking evidence of the readiness with which farmers and fruit-growers will now adopt promising means of plant protection is furnished by the fact that the method of formaldehyde treatment of smut of oats, proposed by one of the stations, was almost immediately put into use by over 25,000 farmers in the State of Wisconsin alone, with the prospect that the number using the method will be vastly increased the next year. As the estimated loss from oat-smut in Wisconsin varies from \$3,000,000 to \$7,000,000 annually, according to the season and other conditions, the value of an effective means of prevention of the disease can be readily estimated.

DRY FARMING.

"The Utah Station has achieved notable success in its study of the extent to which dry farming, that is, farming on lands in the arid region which can not be irrigated, may be practiced with profit and the conditions necessary to success. This work is bearing fruit in the rapid extension on a safe basis of what has heretofore been a very precarious system.

DEMAND FOR EXPERTS.

"So rapidly has the demand for the services of agricultural experts spread in different directions that the workers in this service have in many instances been overworked, or, at least, have been forced to dissipate their energies in attempts to cover too many fields. There is, therefore, a most urgent necessity that the number of workers in our agricultural institutions should be increased so as to permit proper specialization of work. The station investigators must be relieved of teaching, lecturing at farmers' institutes, and other services, which, while important in themselves, distract their attention, dissipate their energies, and seriously hinder the progress of effective investigations.

"It will be of little use to construct expensive laboratories and equip them with elaborate apparatus unless they are manned with first-class investigators. There is nothing new in this proposition, but the progress of agricultural institutions in this country in recent years makes it imperative that the work of the experiment stations and of this Department as the source of new knowledge on agricultural problems should be raised to the highest grade and kept there. The wider the work of the agricultural colleges, schools, farmers' institutes, and other agencies for the education of our rural population becomes, the more important is it that the institutions of research in agriculture should be the best that human wisdom can devise. It is now necessary to insist on this more strongly than ever before, and it will be necessary to reiterate it until the managers of agricultural institutions and the friends of agricultural progress accept this principle in practice as well as in theory. Under present conditions a large number of the experiment station workers are attempting too many different kinds of work, and the progress of the station is seriously hindered from this cause.

"One result of the lack of a sufficient number of well-trained and experienced workers in our agricultural institutions is that the best men are constantly being shifted from one institution to another or are departing to outside enterprises offering larger salaries and other attractions. The past year has witnessed an unusually large number of such changes in the personnel of the experiment stations. This is a very serious matter, since the time element in the conduct of agricultural investigations is an important one. Until the tenure of office in our stations is much more stable than at present we must expect that there will be much waste of work and funds in incomplete investigations due to the frequent shifting of the officers in charge. There is also need of increased funds for the general expenses connected with agricultural investigations."

Will Irrigate at the Hays Experiment Station.

Mr. C. T. Johnson, Assistant Chief of Irrigation Investigation of the Department of Agriculture, visited the Fort Hays Branch Experiment Station recently with a view of arranging some cooperative work in irrigation. Mr. Johnson is connected with the Western branch of the service with headquarters at Cheyenne, Wyo., and thinks that the prospects for some good work are very promising. On the Branch Experiment Station there is about 1,000 acres of bottom land along Big Creek that is underlaid with an abundance of water at a depth of about thirty-five feet. Plans and estimates will be worked out for putting down wells at convenient places for taking out this water. The Department will send surveyors to locate and lay out ditches, and supervise other work. The Station will be expected to furnish the apparatus, which will consist of a traction engine, and a four-inch rotary pump. The engine will be needed for the work. The pump will cost perhaps not more than \$50. The bottom land lies almost perfect for irrigation, so there will need to be but a very small outlay.

The Station has twenty-two acres of alfalfa that was sown on sod last spring that will be available for a trial. Half can be watered and a comparison made. Mr. Johnson said that he never saw a more perfect stand of alfalfa even where they irrigate and sow twenty-five pounds of seed per acre. But fifteen pounds were sown on this field. As there was only \$3,000 available for work this year on the 3,800-acre farm, it will be readily seen that very little could be done. This matter will have to be presented to the Legislature next month, and an appropriation made before anything can be done. Mr. Johnson will present figures on the probable

THE GLORY OF HEALTH.

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cost of the operations, and also the probable benefit to be derived from watering crops. It is the opinion that alfalfa could be made to triple its yield by irrigation.

This is a question that is fast coming into prominence, and as the population of this Western country increases, the importance of having a dependence that is more certain than the elements, becomes more imminent.

Cutting Alfalfa in Early and in Late Bloom.

EDITOR KANSAS FARMER:—My experience in cutting alfalfa is different from some others, for instance, most if not all the writers on the subject say, cut the first crop early, when one-tenth of the plants are in bloom. And the succeeding crops will be much heavier than if the first crop is allowed to stand until it is all in bloom. I have just read Bulletin No. 114, issued from the experiment station at Manhattan, and it says, "Alfalfa should be cut when not more than one-tenth of the plants are in bloom. Early cutting invigorates the plant. The late cutting of the first crop seems to injure the plant more than at any other time." In September 1901, I planted six acres to alfalfa and got a splendid stand. In the last week of May, 1902, I concluded that one-tenth of the plants were in bloom, and the crop was ready for cutting, and I cut ten swaths around the field. It set in so rainy and cloudy, that I stopped the mower and waited two weeks for fairer weather, lamenting all the time that I was injuring the crop by letting it stand so long without cutting. But I was surprised when I came to cut the second crop to find that the piece that I cut earlier did not turn off more than about one-half as much as the piece I cut later; and this was the case with the third and fourth cuttings. All through the season I could distinguish the very line where the earlier cutting left off and the later cutting commenced. The ground and soil is all the same, rich bottom, about thirty feet above permanent water, no weeds, foxtail or crab grass in the field. The hay from the earlier cutting did not remain on the field to injure growth of second crop. Please explain to me why my alfalfa acts so contrary.

J. M. CRAIG.
Garnett, Anderson County.

Setting the Prices.

EDITOR KANSAS FARMER:—As this is the season of the year for a great many associations to meet, I thought it might be of interest to suggest a few things for some of them to think about and discuss. It has always been a matter of surprise and wonder to me that the very occupations which form the foundation of all commercial activity, of all substantial value, and of all material existence, should be the only ones that have no fixed standards of value and are absolutely at the mercy of unprincipled gamblers and selfish manipulators. This is particularly true of the agricultural interests of this and all other countries. The old adage has it that "in union there is strength," and in matters political all nations have proved its truth.

But in matters commercial the proposition is that "in competition there is

prosperity." Absolute competition means perfect individuality, a thing that has never been accomplished in civilized commercialism, and does not exist to-day in any branch of human activity to any great extent, except in agriculture, with its branches, horticulture, stock-raising, etc. Every other business, to a great extent fixes the value of its product, and hence can determine, with some degree of accuracy, the results of business in investment and effort, the value being largely determined by the amount of the investment, the labor of producing, and the risk incurred in production.

In no other occupation are these factors more easily determined, than in agriculture, then why should not agriculture and its allied industries fix the prices of their products? The most casual consideration will show the vast benefits to be derived from such a course, benefits accruing not only to the producer, but to those whose business it is to distribute.

Every branch of legitimate business enterprise would be vastly benefited. Only the gambler and manipulator would suffer, and who would regret the disappearance of these human sharks, who follow in the wake of the old ship of Honest Effort and make and devour the victims of a pernicious system?

What say you, Mr. Agriculturist and Mr. Stock-raiser? Shall we assert our right and say what the product of our farms and ranches, the fruits of our brain and brawn are worth, in the great exchanges of the commercial world?

Hoping that the grain associations, the live stock associations, and the individual producers will take this matter up and discuss it reasonably, intelligently, and unprejudicedly, I remain

Yours for improvement,
O. M. RICE.
Agricola, Coffey County.

Moles—How to Exterminate Them.

EDITOR KANSAS FARMER:—In reply to an inquiry of one of your readers regarding moles and their extermination, I can give the benefit of my experience in this line. Up to about five years ago I was very much annoyed by moles working in my vegetable garden. All efforts to stop their burrowing proved unavailing, until I tried bi-sulphide of carbon. I filled an ordinary sewing-machine oiler with the liquid, made a small hole near the level ground into the burrow with a lead pencil, injected the poison into the burrow through the opening, and then closed the opening by covering up with a little loose dirt. From that day till now I have not seen any of their work in my garden. This remedy is easy of application, costs only about five minutes of time, and one cent's worth of the bi-sulphide.

J. H. CLAUSSEN.
Wilson, Russell County.

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The Stock Interest.

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

December 19, 1902—Hanna & Co., Howard, Kans., Percheron horses, at Kansas City.
 January 13, 1903—L. B. & A. M. Thompson, Nashua, Mo., Galloways, at Kansas City.
 January 14-15, 1903—C. W. Armour and Jas. A. Funkhouser, Herefords, 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 25-26, 1903—C. A. Jamison, Peoria, Ill., Shorthorns, at Chicago.
 February 2, 1903—G. E. Fuller, Morrowville, Kans., bred Poland-China sow sale.
 February 3, 4, and 5, 1903—Combination Sale, Wichita, Kans., Percherons, Shorthorns, and Poland-Chinas.
 J. W. & J. C. Robinson, Snyder Bros., and others.
 February 5, 1903—Thompson Bros., sale of Poland-China bred sows and gilts, at Marysville, Kans.
 February 10-11, 1903—G. M. Casey and T. J. Wornall, Shorthorns, at Kansas City, Mo.
 February 10, 11 and 12, 1903—J. F. Stodder, George Bothwell and others, Shorthorns; also C. A. Stannard and others, Herefords; Oklahoma City, Oklahoma.
 February 17, 1903—Geo. F. Kellerman, Shorthorns Kansas City, Mo.
 February 20, 1903—S. S. Spangler, Milan, Mo., Percheron horses.
 March 3, 1903—L. M. Monsees & Son, Smithton, Mo., larks, Jennets, saddle horses and Poland-China swine.
 March 3 and 4, 1903—C. H. Garner and M. A. Judy, Aberdeen-Angus cattle, Chicago.

Points to Be Considered in the Economic Production of Beef.

Extract from an address delivered by W. J. Kennedy, Vice-Director of Iowa Experiment Station and Professor of Animal Husbandry, Iowa Agricultural College, before Iowa State Farmers' Institute.

A prominent statistician, in a recent report, has very clearly shown that the greatest gain in wealth, education and population in this country has taken place in those States where farming and the production of first-class live stock are being carried on together. This has been amply illustrated throughout the corn belt States and in this respect we, as Iowa people, may well be proud of the fact that our State stands first and foremost of them all.

SOMETHING FOR HAWKEYES TO LEARN.

Notwithstanding the fact that we are in the very front rank, we still have a great deal to learn regarding the production of the various kinds of meat-producing animals. High-priced farm lands and strenuous competition from many sources are daily making the profitable production of meat a more difficult problem. Things are very different from what they used to be when land was worth from \$20 to \$40 per acre, and corn could be purchased for 20 cents per bushel. In order that we may successfully meet these changed conditions which have been brought about by the marked advances in the value of farm property our former methods may have to undergo some modification. Not that the stockmen who bred and fed animals during the last two decades were ignorant men and did not understand their business. They, as a class, were just as intelligent and solved the problems which confronted them in a much better way than most of our men are doing to-day. Old-time methods which can be successfully applied under present conditions must not be replaced by new and untried theories. Before adopting any method, new or old, we should consider very carefully as to what the outcome will be, and as to where we will land should we follow the same. In this connection I am reminded of an epitaph which is to be found in a cemetery in old Virginia which reads as follows:

"Remember, man, as you pass by;
 As you are now, so once was I;
 As I am now, so you must be;
 Prepare for death and follow me."

The Virginia epitaph, however, has received an addition in the following couplet which has been written below the original in a clear, old-fashioned hand:

"To follow you is not my intent,
 Until I know which way you went."

Just so in the live-stock business; before following the methods of those who have been successful we must be sure of what the outcome will be under the present conditions.

PRODUCTION OF BEEF.

It is not my intention to dwell on the production of live stock in general as I have been asked to discuss a few features pertaining to the economical production of beef. In the past no branch of live stock, save the fat hog, has been so generally handled throughout this State as has beef-cattle. Iowa's natural conditions have been most favorable and have done much towards making her the greatest breeding and feeding center of the Central West. Her virgin soil was so well adapted to the production of corn and the growth of blue-grass pasture, the

two things which, when combined, have no equal for economical production of beef of the very best quality. Then she is situated between the range territory where so many cattle are grown, and the leading cattle market of the world. These conditions have been of untold value to the Iowa farmer. Notwithstanding these advantages, in many sections of this State farmers who formerly reared and fed cattle for the market are no longer engaged in the business. They claim that with land selling in the neighborhood of \$100 per acre it is too valuable to carry stock on. When land was cheap they reared their own cattle, when land advanced to \$50 or \$60 per acre they changed their business and became cattle-feeders, but now, since land has made such marked advances in value, they are compelled to go out of the business. We are glad to note, however, that we have a great many very successful beef-producers. Men who reared cattle when land was cheap, are still, since land has advanced, successfully and profitably rearing and finishing cattle which, when consigned to market, always command the very top price.

We have had and are likely to have for some time to come two classes of men engaged in the beef-cattle business. The first class, which at one time was much the larger of the two, might be called the "beef-grower." He reared his own calves, fed and finished them for the market. To the second class belong that now large number who might be termed "cattle-feeders." They do not pretend to rear their own cattle, as they have no cattle whatever on the farm during a part of the year. They buy their feeders from the ranges or from the small farmer who rears a few calves each year.

BEEF-GROWER OR CATTLE-FEEDER.

One of the most vital problems which many a farmer has to solve at the present day is, where he should classify. Will he be a beef-grower or a cattle-feeder? At the present day and under existing conditions there is room for both. Where good judgment and common-sense business methods are applied a man can make a success of either method. Both methods have their advantages and disadvantages. The man who rears his own cattle can control the quality of the animals he feeds. On the other hand he must force them from the day they are dropped until ready for the butcher if he hopes to realize a profit on our present high-priced lands. He has a herd of breeding cows to feed and care for the year round. Can he afford to keep and feed a cow for the calf alone? It takes a good calf to bring \$25 to \$30 at weaning-time, while at the present prices of feed stuffs it will cost at least \$30 per year to feed a cow. This looks like a losing proposition and it surely is on high-priced land. This leads up to the question of milking cows, something which the average man does not take kindly to, but a question which sooner or later he will be obliged to solve. In England this question has been solved. Over there the first requisite of a beef-cow is that she be a fair milker. A cow that will not give a liberal flow of milk is condemned. At the Iowa Experiment Station we have cows of more than one of the recognized beef breeds which, in addition to possessing the desired beef form, have produced from three to four hundred pounds of butter per year. We have also found that when the milk is separated while warm and fed directly to the calves, the addition of some flax-seed-meal, oat-meal, or corn-meal to the skim-milk rears practically as good calves as when whole milk has been fed. The butter-fat, when separated from the milk, netted us from \$50 to \$80 per cow. Calves from these cows, fed on skim-milk and the adjuncts mentioned, have been marketed at 26 months of age when they weighed over 1,400 pounds.

STOCK-RAISING ON HIGH-PRICED LAND.

When land reaches the \$100 mark it requires careful farming and stock-raising to return a paying profit on the investment. But the Iowa farmer must not abandon stock-raising, else his land will surely deteriorate in value. In many of the Eastern States when land advanced in value the owners considered it too valuable for stock-raising, thus in many instances they went out of the business. What has been the result? There is but one outcome of any such practice. This is worn-out farms, which, in many instances, have been deserted. They have been taught a valuable lesson, one which the farmer of the Central West should not have to learn through experience. Successful

farming can not be carried on continuously without live stock. Commercial fertilizers may apparently answer the purpose for a short time, but soil fertility may only be maintained in one way and this is by stock-farming. In England, stock-farming is the main stay of the farmer and land is worth twice as much as it is here. In the island of Jersey, land rents around \$20 per acre, still live stock, especially dairy-farming, is their main occupation. If Iowa farm lands are to maintain their present values, and they surely will, it will be because the farmers will adhere to the live-stock business. In this respect no line of live stock is better adapted to our conditions than beef-cattle when produced from the dual-purpose cow, the cow that will net her owner \$40 or upwards for the butter-fat sold, and at the same time produce a calf which can be marketed at the age of 2½ years weighing in the neighborhood of 1,500 pounds. Such a method is practicable and when adopted by the Iowa farmer he will not consider land too valuable for the economical production of beef, even at \$150 per acre.

CATTLE-FEEDERS.

We have at the present time a great many men who are cattle-feeders. This method has some advantages and many disadvantages. There seems to be a great many uncertainties about this kind of work. The cattle-feeder must, first of all, buy his animals right else he can not hope to realize a profit. It is very difficult to get animals of good quality. This is due largely to the fact that the men who breed the cattle have been accustomed to receiving a certain price for animals of the various ages with little or no discrimination so far as quality is concerned. All 2-year-olds brought about the same price, thus there was not much encouragement for the breeder who spent money in securing valuable sires. We are glad to note a decided change in favor of the man who breeds good cattle. The feeders are acting wisely when they are willing to recognize good blood and quality by more for the same. It is certainly most gratifying to receive a letter from a commission merchant stating that he is about to receive a bunch of cattle from a certain ranch where nothing but the best of pure-bred sires have been used for a certain period of years. Range cattle are no longer being sold as just "range stuff." They are being graded and sold on their merits. When this policy is universally adopted the results will be far reaching. It will mean better markets for our surplus bulls, better feeders for the corn-belt farmer to put in his feed lot, and last and most important of all, a much better market through which the farmer may dispose of his corn crop.

IMPORTANCE OF THE RIGHT KIND OF ANIMALS.

Success in any line of work is largely governed by the methods pursued at the beginning. This is especially true in the production of beef. There is no other one feature of the business quite so important as to have the right kind of an animal—an animal possessing the desired form combined with plenty of quality. Bear in mind that width of back, loin, and hindquarters are indispensable in the good steer. The three factors which determine the selling price of the steer on any of our leading markets are percentage; that is, per cent of dressed weight to live weight; quality; that is, a thick covering of good flesh over back and loin; and proportion, which means as much weight as possible in the back, loin and hind-quarters where the high-priced cuts are to be found.

LABOR AND FEED.

Having secured the right kind of an animal the next and most essential point is how to secure the greatest gain in weight at the very lowest cost. When feed-stuffs were low in price and labor was high the feeder acted wisely when he economized labor at the expense of feed. With corn ranging 40 to 50 cents per bushel he can no longer follow such methods. It is not a question of economizing in feed. The feeder must get more pounds of gain from a bushel of corn than he has ever done in the past. In this respect there is a great need for investigations pertaining to the advisability or non-advisability of feeding lighter grain rations. If fifteen or eighteen pounds of corn per steer per day will give as good results as twenty-five and thirty pounds of the same, it certainly would be much more economical for the feeder to adopt such methods. Feeding experiments conducted at the Minnesota Station and at the Ontario Agricultural College, with light, medium, and heavy rations for fattening steers have shown the me-

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dium and light rations to be much more economical than the heavy rations.

THE HOG AS A FACTOR IN CATTLE-FEEDING.

In these experiments, however, the gains calculated were those made by the cattle alone, as there were no hogs to utilize that part which the steer did not assimilate. With our present methods of feeding we are simply at the mercy of the hog and the ravages which afflict him. If cholera attacks the hog and wipes him out, about 25 per cent of our high-priced corn is wasted except from a fertility standpoint. This is a question which every farmer should study carefully. How can he make beef without the hog to consume the waste feed? Not that we have any objections to the hog, for he certainly is the farmer's best friend, but we must be prepared for emergen-

cies. We must feed cattle oftentimes when we have no hogs. We must study more carefully the process of digestion of feed stuffs. When we see from 20 to 30 per cent of the corn which a steer is made to consume, passing through the digestive system, it is a sure indication that there is something wrong. We are either feeding the animal more than it can assimilate or its digestive system is out of condition. In most instances the trouble is due to a deranged digestive system caused by over-feeding. This leads up to another point which is the mixing of grain and roughage together which is, in our estimation, the ideal way of feeding cattle.

FEEDING GRAIN WITH ROUGHAGE.

When grain is fed separately from the roughage it is greedily swallowed and passes into the third and fourth stomachs of the animal, thus escaping mastication and the action of the saliva of the mouth which has the power of converting starch into sugar which is digestible. By mixing the grain with the roughage it will be remasticated, thus much more thoroughly digested than when each are fed separately. This method of feeding involves the cutting of roughage, a step which most farmers are not prepared to take as yet, but one which they can well afford to be thinking about as in the near future it will be practiced by the most successful cattle feeders.

THE SILO.

Another question which is worthy of our attention is the silo. The silo, while a new thing in Iowa, is by no means an experiment. It has been thoroughly tested in the Eastern States and Canada and when once tried it speaks for itself. It is now considered to be indispensable on the dairy farm, and while it has not been, as yet, very generally used in the production of beef, the results as reported to date are most encouraging. The silo is by all odds the cheapest medium through which we can obtain succulent feed for our stock during the winter months.

THE SUCCESSFUL FARMER OF THE FUTURE.

In recapitulation, I may say that the successful farmer of the future will be the man who combines the production of first-class live stock with his farming operations; who keeps beef cows for the double purpose of producing butter and calves intended for the block; who gets nearly as many pounds of gain from sixteen pounds of corn as the average feeder of to-day gets from twenty-five pounds when fed to cattle; who combines his grain with the roughage fed to his animals thereby securing more complete digestion of the same; and who stores his corn-stalks in the silo that they may be converted into beef and dairy products instead of being burned in the fields.

Foot and Mouth Disease.

The Vermont Experiment Station sends us the following statement as to the symptoms of foot and mouth disease and a brief history of the outbreak in that State. Inasmuch as the veterinarian of the station has been placed in charge of the suppression of the malady in Vermont by the Chief of the National Bureau of Animal Industry, the statement may be considered authoritative.

This disease is a highly contagious eruptive fever resembling in many ways some of the contagious eruptive fevers common to man. It usually attacks cattle, sheep, or swine but may be communicated, though less readily, to goats, deer, rabbits, man, fowls, dogs and horses, the likelihood of communication being in the order indicated, goats being most and horses least open to attack.

SYMPTOMS.

From twenty-four hours to fourteen days may ensue after exposure before the symptoms become manifest. The onset of the disease is marked by dullness, shivering and loss of appetite. The mouth is hot and the eyes are often swollen and tearful. Discomfort in the feet is shown by moving them uneasily about. When the animals are caused to move they appear stiff and lame, keeping the feet close together. Very soon blisters appear in the mouth, on the inside of the lips, upon the tongue and gums and more or less upon the outside of the lips and muzzle. These also appear around the top of and between the claws and frequently upon the udder and teats. This discomfort due to the blisters in the mouth causes the animal to move the lips almost constantly with a characteristic smacking sound. These are soon ruptured, and a yellowish, ropy, sometimes blood-stained saliva oozes from the mouth. Irregularly shaped red ulcers

INFLUENZA.



INFLUENZA is characterized by inflammation of the mucous membranes, stupor, cough, loss of appetite and general debility. It is caused by some specific poison and is contagious.

Treatment—If there is constipation three to four ounces of raw flaxseed oil should be given, mild febrifuges or remedies to allay fever should be employed, such as two ounces of liquor acetate of ammonia three times a day; or ounce doses of sweet spirits of nitre should be given in a half pint of water three times a day. If there is much lassitude tonics should be employed. Quinine in two dram doses three times a day with gentian and ginger should be given. Animal should be kept comfortable clothed at all times and should be protected against sudden changes of temperature.

All through this treatment give Dr. Hess' Stock Food, a powerful tonic and reconstructive, which gives additional value and nutriment to the food and steadily strengthens the animal's entire systemic condition. The improvement will be noticeable after the first three or four doses—and entire recovery will quickly follow.

Dr. Hess' Stock Food is the scientific compound for horses, cattle, hogs, and sheep. It is sold on a positive written guarantee in 100-pound sacks for \$5, smaller packages at a slight advance; fed in small dose.

Dr. Hess is a graduate of famous medical and veterinary colleges which recommend and use this famous preparation. No unprofessional manufacturer can equal it. If these institutions of learning know of nothing better, it must be good.

In every package of Dr. Hess' Stock Food is a little yellow card which entitles the holder to a letter of advice and a prescription free from Dr. Hess, the eminent veterinarian, on all stock diseases and injuries.

Dr. Hess has written a book on the diseases of stock and poultry. It is the only complete treatise for farmers and stockmen published. It is consulted and commended by many leading veterinarians.

Write and state what stock you have, what stock food you have fed; also mention this paper. Address Dr. Hess & Clark, Ashland, Ohio, and you will receive this valuable book free, postage paid. You can not get a more valuable book for any amount of money.

then form in the mouth, and more or less ulceration of the feet and between the claws occurs. The udder and teats also become sore. The milk flow is generally suppressed early in the course of the disease, and is not re-established until the animal is convalescent. There is a characteristic offensive odor about the animals, especially noted in the more severe cases and in those having intestinal involvement with diarrhea. The high fever which characterizes the early stage of the disease usually ceases after the blisters rupture. All the affected parts finally peel and usually heal rapidly, the whole course of the disease being of about a two weeks duration. Different from some maladies, one attack does not give immunity against subsequent attacks. Animals have been known to suffer two attacks in one month, and may have four or five attacks in one year.

Quarantine, slaughter and disinfection rather than attempted care are the only safeguards with such an extremely disastrous disease. The statement recently sent broadcast throughout the State press that this disease has existed in Washington and Orange Counties for years and has been successfully treated by a local practitioner, is without foundation in fact.

HISTORY.

The present epidemic of contagious foot and mouth disease in New England was first discovered near Boston, where it rapidly spread into many towns in Eastern Massachusetts and into Rhode Island and Vermont. The history of its outbreak in Vermont is as follows: Sixteen cows bought at a sale at Acton, Mass., were shipped to Gasset's station in the town of Chester, and received on November 21, whence they were driven to a nearby farm. Thirteen of these cows were sold and driven to Chester station, four miles distant, on November 24, where they were distributed among the farmers who purchased them. These infected cows caused a new outbreak of the disease at each place where they went, and also infected the highway over which they traveled. Four of them were driven fifteen miles further to a farm in the town of Windham, from which in turn other farms have become infected. November 26, two days later, the original Vermont buyer, becoming alarmed, drove the diseased Massachusetts cows back to his own farm. Before becoming aware of the presence of the disease in his herd, however, he sold two calves to two parties living near Perkinsville in the town of Weathersfield, in whose herds foot and mouth disease now prevails. Two herds in the town of Springfield are quarantined on suspicion because of exposure through these Perkinsville cases. No cases are now

known to exist outside of this area. Inasmuch, however, as highways, the feet of animals passing thereon, the shoes of pedestrians, of visitors to infected farms, etc., may bear the infection, particular watchfulness and care are called for on the part of all stock owners.

The Harned-Marshall Combination Sale.

The combination sale of Shorthorn cattle, held by W. P. Harned, Vermont, Mo., F. M. Marshall, Blackwater, Mo., and S. W. Roberts, Pleasant Green, Mo., was held on Friday and Saturday, November 28 and 29, at the Kansas City Fine Stock Pavilion. While the breeding represented in this sale was of the best, the animals had not been fitted for the sale and appeared before the audience in rather thin flesh. This, together with the international sales announced for the week following, and the small crowd in attendance, made the prices rule rather law. It was noticeable that whenever an animal that was sired by Godoy or one that was bred to him appeared in the ring there was a manifest increase in interest on the part of the audience.

A total of seventy-three animals were sold for \$7,110, average, \$97.39. Of these sixty-two were females, which brought \$5,875, average \$94.75, and eleven were bulls, which brought \$1,235, average \$112.27. Owing to some misconnection in the mails the report of this sale did not reach us in time for last week's issue. The sale in detail is as follows:

COWS.

- Lady Berkeley 3d, 4 years, sire Young Oakland 122470, Marshall to S. B. Yancey..... 165
- Bashful 6th (calf at foot), 5 years, sire Prince President 2d 116890, Marshall to T. J. Wornall & Son, Liberty, Mo..... 430
- Queen of Marys 4th (and calf), 6 years, sire Monarch of Saline 124239, Marshall to S. B. Yancey..... 120
- Mary of Blackwater, 16 months, sire Orange ero 152689, Marshall to S. B. Yancey..... 100
- Idlewild Belle, 19 months, sire Godoy 115675, Harned to Geo. Lowe, Vermont, Mo..... 185
- Golden Rose 2d, 19 months, sire Godoy 115675, Harned to S. B. Yancey..... 125
- Lily of Idlewild, 15 months, sire Godoy 115675, Harned to H. Ferriguy..... 105
- Constance Irwin, 3 years, sire Sheriff Hutton Irwin 127818, Harned to W. P. Harriman & Son, Pilot Grove, Mo..... 60
- Godoy Duchess, 19 months, sire Godoy 115675, Harned to H. Ferriguy..... 150
- Lily Peterson 4th, 16 months, sire Imp. Scottish Pride 142504, Harned to C. S. Barclay & Son..... 100
- 3d Lily of Twin Springs (and calf), 11 years, sire 11th Baronet of Linwood 84502, Harned to Geo. Lowe..... 130
- Lady Irwin of Idlewild, 6 years, sire Lord Linton 2d 127529, Harned to H. Ferriguy..... 130
- Nancy Barrington, 10 years, sire Double Mary Duke 3d 107176, Harned to S. B. Yancey..... 90
- Lily Winters, 10 years, sire Britisher 106627, Harned to Geo. Lowe..... 65
- Mary Acomb 5th, 5 years, sire Scotch Minister 117294, Roberts to S. B. Yancey..... 105
- Iva Airdrie 2d, 7 years, sire Sharon Airdrie 135712, Roberts to W. P. Harriman & Son..... 60
- Lily Royal (and cow calf), 4 years, sire Royal Ambassador 127764, Roberts to S. B. Yancey..... 110
- Flora Hutton (and calf), 3 years, sire Sheriff Hutton Irwin 127818, Roberts to C. F. Wolf & Son, Ottawa, Kans..... 140
- Flora Airdrie 6th, 6 years, sire Barbarian 117934, Roberts to W. C. Lucas, Osceola, Mo..... 60
- 2d Duchess of Goodness, 3 years, sire Sheriff Hutton Irwin 127818, Roberts to S. B. Yancey..... 85
- Red Bud 31st, 5 years, sire Barbarian 117934, Roberts to W. P. Harriman & Son..... 70
- 5th Airdrie Duchess of Clear Creek, 7 months, sire 75th Duke of Airdrie 135712, Roberts to S. E. Wornall, Kansas City..... 100
- Airdrie Duchess of Clear Creek, 4 years, sire Grand Duke of Haddington 5th 131573, Roberts to S. B. Yancey..... 150
- Gentry's Oakland, 20 months, sire Azalea's Victorious 132413, Marshall to Brown, Randolph & Igo..... 65
- Edith Gentry, 18 months, sire Azalea's Victorious 132413, Brown, Randolph & Igo..... 75
- Taylor's Beauty, Duchess 11th (and calf), 10 years, sire Grande Duke Eclipse 103459, Marshall to W. C. Lucas, Osceola, Mo..... 80
- Darling of Blackwater, 17 months, sire Orange Hero 152687, Marshall to I. Hudson..... 110
- Grace Howard, 23 months, sire Howard 132750, Harned to Brown, Randolph & Igo..... 50
- Barrington Lassie 3d, 23 months, sire 75th Duke of Airdrie 135712, Roberts to R. K. Thompson, Sedalia, Mo..... 55
- Barrington Lassie 6th, 10 months, sire 75th Duke of Airdrie 135712, Roberts to R. K. Thompson..... 70
- Craggs Duchess of Airdrie 17th, 8 months, sire 75th Duke of Airdrie, Roberts to R. K. Thompson..... 50
- Craggs Duchess of Airdrie 19th, 7 months, sire 75th Duke of Airdrie, Roberts to R. K. Thompson..... 60
- Grand Duchess of Oaks, 7 months, sire 75th Duke of Airdrie, Roberts to R. K. Thompson..... 80
- Airdrie Duchess of Oaks 3d, 7 months, sire 4th Duke of Oaks 170215, Roberts to R. K. Thompson..... 70
- Airdrie Duchess of Kent 2d, 7 months, sire 75th Duke of Airdrie, Roberts to F. M. Marshall, Blackwater, Mo..... 55
- Grand Duchess of Oaks 3d (twin), 7 months, sire 4th Duke of Oaks 170215, Roberts to R. K. Thompson..... 60
- Lady Filbert Airdrie 3d, 6 months, sire 75th Duke of Airdrie 135712, Roberts to Ed Woodworth, Muscotah, Kans..... 60
- Walnut Duchess of Airdrie 17th, 6 months, sire 75th Duke of Airdrie, Roberts to Joseph McConnell, Kearney, Mo..... 65
- Oxford Duchess of Edgewood, 7 months, sire 75th Duke of Airdrie, Roberts to F. M. Marshall..... 110
- Ida Oakland 3d (and calf), 6 years, sire Barbarian 117934, Roberts to W. P. Harriman & Son, Pilot Grove, Mo..... 80

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IN 45 MINUTES.

Fleming's Spavin Cure has never yet failed. One treatment only usually needed. Not severe, can't harm, does not scar. Every claim made good or no pay. Nothing else at all like it. You can't afford not to write us today. Equally good for Carb, Splint, Ringbone, etc.

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Every case. No pay if Fleming's Lump Jaw Cure ever fails. Now used by nearly every prominent stockman on the continent.

Write us today for circulars on any or all the above remedies. State which circulars are wanted.

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- April Violet, 19 months, sire Lochiel 119976, Roberts to W. C. Lucas..... 55
- Lochiel's Lustre 2d (twin), 13 months, sire Lochiel 119976, Roberts to Ed Vanderman, Lamar, Mo..... 55
- Udora Airdrie 3d, 8 months, sire 75th Duke of Airdrie, Roberts to Joseph McConnell..... 65
- Walnut Duchess of Airdrie 15th, 7 months, sire 75th Duke of Airdrie, Roberts to R. K. Thompson..... 75
- Constance Oxford 4th, 7 months, sire 75th Duke of Airdrie, Roberts to R. K. Thompson..... 45
- Walker (and calf), 4 years, sire Young Oakland 122470, Marshall to I. Hudson, Fredonia, Kans..... 125
- Hilpa's Rena (and calf), 5 years, sire Barrington Duke of H. R. 124240, Marshall to C. S. Barclay & Son, West Liberty, Iowa..... 130
- Miss Rosamond, 8 years, sire Scotch Minister 117274, Marshall to Brown, Randolph & Igo, Indianola, Iowa..... 80
- Hilpa of Blackwater, 17 months, sire Orange Hero 152689, Marshall to C. S. Barclay & Son..... 105
- Miss Butterfly of Maple Hill, 5 years, sire Favorite 119214, Marshall to C. S. Barclay & Son..... 105
- Craggs Duchess of Airdrie 3d, 7 years, sire 53d Duke of Airdrie 107211, Marshall to S. E. Wornall, Kansas City..... 120
- Mary Lassie, 17 months, sire Orange Hero 152689, Marshall to C. F. Wolf & Son, Ottawa, Kans..... 105
- Queen Mary 6th, 17 months, sire Orange Hero, Marshall to C. F. Wolf & Son..... 95
- Lassie's Inez, 4 years, sire Barrington Duke of Hazelridge 124240, Marshall to C. S. Barclay & Son..... 95
- Constance Airdrie 3d, 8 months, sire 75th Duke of Airdrie, Roberts to Joseph McConnell..... 60
- Scotch Moss Rose, 5 years, sire Scotch Minister, Roberts to R. K. Thompson 100
- Jeanette 3d, 5 years, sire Barbarian, Roberts to Lucas..... 55
- Lady Minna Walnut 18th, 4 years, sire Barbarian, Roberts to R. K. Thompson..... 70
- Red Rose Sharon 6th, 8 months, sire 75th Duke of Airdrie, Roberts to R. K. Thompson..... 55
- Scotch Ida 3d, 2 years, sire Sheriff Hutton Irwin, Roberts to C. F. Wolf..... 100
- Lady Minna Walnut 12th, 7 years, sire Barbarian, Roberts to R. K. Thompson..... 100
- Godoy's Udora, 8 months, sire Godoy, Roberts to R. K. Thompson..... 50

BULLS.

- Orane Boy, 13 months, sire Orange Hero 152689, Marshall to C. J. Johnson, Palmyra, Mo..... 130
- Orange Flower, 11 months, sire Orange Hero 152689, Marshall to Will Henn, Kansas City..... 95
- Orange Sharon, 17 months, sire Orange Hero, Marshall to J. R. Holt, Harrison, Ark..... 110
- Nickolas, 17 months, sire Victorious, Marshall to S. B. Yancey, Armstrong, Mo..... 230
- Darling Duke, 15 months, sire Orange Hero 152689, Marshall to J. F. Schmidt, Council Grove, Kans..... 105
- Godoy Monarch, 11 months, sire Godoy 115675, Harned to Will Henn, Kansas City..... 85
- Dodoy Lustre 2d, 13 months, sire Godoy 115675, Harned to Schultz Bros., Concordia, Mo..... 85
- Baron Lancaster, 17 months, sire Godoy 115675, Harned to Gifford Bros., Milford, Kans..... 60
- Idle Lad, 18 months, sire Victoria Chief, Harned to Gifford Bros..... 80
- Godoy Steward (pure Scotch), 12 months, sire Godoy 115675, Harned to Dr. A. Neff, Marshall, Mo..... 195
- Godoy Duke 2d, 14 months, sire Godoy 115675, Harned to Will Henn..... 60

The Pugh Hereford Dispersion.

On Wednesday, December 10, was held a dispersion sale of Maple Glen Herefords at the Kansas City Fine Stock pavilion. Mr. Pugh is a well-known breeder of Herefords and a familiar figure in the Hereford sale rings where he is a liberal buyer. Owing to business necessity he felt obliged to disperse this herd of Herefords which contained many imported animals and some of the choicest breeding to be found in the West. The crowd in attendance was very small and many of the animals in thin flesh though not poor. These facts, together with the additional fact that a large portion of the consignment

consisted of animals too young for immediate usefulness, tended to pull down the prices.

Kansas, Missouri, Nebraska, Iowa, Oklahoma, South Dakota were all represented by purchasers at the sale and among the most liberal buyers were Mr. Robt. H. Hazlett, Eldorado, Kans., who bought the \$715 Dale's Duplicate at the Logan-Gabbert sale on the preceding day, and the firm of Powers & Swihart, Parsons, Kans., who seemed to have an eye for good pedigrees.

A total of fifty-two head was sold for \$5,595, making an average of \$107.59. Forty of these were cows and heifers, many of them with calves at foot, which sold for \$4,620, average \$115.50. The twelve bulls in the sale brought \$975, average \$81.25. The sales above \$100 are as follows:

FEMALES.

Table listing female animals for sale, including names like May Delight, Lady Astelle, Lady Wilton, etc., with prices.

BULLS.

Table listing bull animals for sale, including names like Lucifer, Mack Fowler, Monitor, etc., with prices.

The Logan-Gabbert Sale.

On December 8 and 9 was held a combination sale of Herefords at the Union Stock Yards, Kansas City, Mo., by Dr. J. E. Logan, of Kansas City, and Benton Gabbert & Son, of Dearborn, Mo. The sale was a good one in spite of the very small number of breeders and farmers in attendance.

In this sale the 22 bulls brought \$4,915; average, \$223.40. Fifty-four females sold for \$12,340; average, \$228.51. The entire offering of 76 animals brought \$17,255; average, \$225.72. In Benton Gabbert & Son's consignment were 15 bulls which brought \$3,900; average, \$260. And 25 females, which sold for \$6,455; average, \$258.20.

GABBERT'S CONSIGNMENT.

FEMALES.

Table listing female animals in Gabbert's consignment, including names like Winnie Wilton, Lady Countess, etc., with prices.

Table listing animals at the top of the BULLS section, including Columbia Maid and May Hesiod.

BULLS.

Table listing bull animals for sale, including names like Columbus 51st, Missouri Chief, etc., with prices.

J. E. LOGAN'S CONSIGNMENT.

FEMALES.

Table listing female animals in J. E. Logan's consignment, including names like Zaza, Adelina, Hilaria, etc., with prices.

BULLS.

Table listing bull animals in J. E. Logan's consignment, including names like Sir George, Chant Marshall, etc., with prices.

Gossip About Stock.

Joe Watson, of Watson, Wood Bros. & Kelly, importers of celebrated draft horses, will start for England on June 6, for two car lots more of Shire and Percheron horses.

At the combination sale of Aberdeen-Angus cattle held at Morning Sun, Iowa, last week a total of forty-one head were sold for \$5,500, an average of \$134.

Mr. Geo. W. Scott, of the firm of Scott & March, the great Hereford breeders at Belton, Mo., was married about two weeks since to Miss Cassie P. Darst, of the same city.

One year ago the directors of the American Shorthorn Breeders' Association gave notice that after January 1, 1903, the fee for recording the pedigrees of cattle 3 years old or over would be \$10.

Abram Renick, of Clarke County, Kentucky, was present at the International with six representative Shorthorns of the famous Renick Rose of Sharon family.

The Crescent herd of O. I. C. swine, owned by John W. Roat & Co., Central City, Neb., has a reputation that is not bounded by State lines.

that can not be excelled for breeding or individual merit. They have a few fine fall pigs now ready for shipment and the man who wants a start in this excellent breed of hogs, can get it from the Crescent Herd but he will have to hurry.

Through the activities of the National Live Stock Association, and on account of the irregular and unsatisfactory laws of the different States regarding the quarantine line for cattle, a bill has recently been introduced in Congress, which has for its purpose the clothing of the Secretary of Agriculture with such power as to give him absolute control of cattle movements across the dead line.

Mr. Wm. Tibbles, Haddam, Kans., recently held a public sale of a small number of pure-bred Hereford cattle on the streets of Washinton, Kans. His offering consisted of six bulls and was something of an innovation in the way of holding pure-bred stock sales.

W. L. Reid, R. F. D. No. 1, North Topeka, Kans., has a few mighty nice young Poland-China boars for sale that somebody ought to get next to right away. They were sired by Shawnee Chief 28502, who is by W. P. Goode's Black Queen's Chief whom everybody knows.

The National Cornstalk Remedy Company, of Omaha, Neb., has discovered a positive preventive for the so-called "cornstalk disease" now so prevalent among stock. It is guaranteed to prevent this disease or no pay. In order to show their confidence in this remedy, the company makes an offer to send their remedy to any farmer or stock-raiser who will thoroughly test it by feeding it to his stock with salt according to directions, and if no good results are secured, no pay will be asked.

H. W. Cheney, proprietor of Shady Brook Stock Farm, North Topeka, writes that his herd of nearly 200 Poland-Chinas is in perfect health and vigor. He still has a number of boars ready for service for sale at reasonable prices.

On Wednesday, December 17, at Dr. Steven's barn, Wellington, Kans., will be held a great sale of fashionably bred Poland-China hogs. This offering will consist of fifty head of tried sows bred for early litters; both bred and open gilts; boars ready for service, and fancy pigs of both sexes.

Good Poland-China breeding hogs are being sought for by hundreds of breeders in Kansas and Oklahoma and the great difficulty with many is to know just where to go to get the kind they want.

In view of the fact that the Iowa Agricultural College again carried off the Spoor trophy for the best animal exhibited in the fat steer class and in view of the enormous sum heaped upon that institution it is interesting to speculate as to what might have been public opinion had the prize gone to others than an agricultural college.

date, of the agricultural colleges and those of a more varied nature which are used by other breeders and feeders. While the result may not absolutely prove anything it does serve to establish the agricultural Colleges more firmly in the estimation of the people for whom they are conducted. It was a frequent remark and a very sound one of the late President Fairchild, of the Kansas State Agricultural College, that in real advancement towards success and in thorough enjoyment of life a four years' course in college would add ten years to any man's life by making him efficient as a man that much earlier. This certainly applies in the art of feeding cattle.

T. K. Tomson & Sons, owners of Elder Lawn Farm, Dover, Kans., who made such a remarkable showing with their young herd of Gallant Knight Shorthorns during the fair circuit this fall, write to make a change in their advertisement. They announce that the bulls, cows, and heifers which they now offer for sale are a good lot all around and are held at bargain prices.

On Monday, December 22, will be held a dispersion sale of the Hereford herd belonging to the estate of the late Geo. A. Carpenter, Carbondale, Kans. The sale will be held at the farm of J. A. Carpenter, near Carbondale, and will consist of about seventy head of Earl of Shadeland, Lord Wilton, Anxiety 4th, Beau Brummel and other equally good and fashionable blood. His herd bull is Beau Gondolus 133277 by Beau Brummel out of Gwendoline 10th 71732.

That S. S. Spangler, proprietor of Mt. Vernon Stock Farm, Milan, Mo., is a capable breeder of Percheron horses was shown by the report of awards at the International Stock Show at Chicago last week. In Class 7, champion mare any age, there were thirty entries. First prize was awarded to Regina 28817 by Bon Coeur, dam Victoria, which was credit enough for any one breeder but which was well deserved by this mare.

Some months ago the writer had the pleasure of visiting the herd of Meadow Brook Shorthorn cattle belonging to F. H. Conger, Yates Center, Kans., and was much pleased with what he saw. On a farm of some twelve hundred acres, Mr. Conger has brought together a fine lot of Rose of Sharon, Young Mary, Darlington, Princess, Ruby, Goodness, and other choice families of cows, and then secured a Cruickshank Lavender bull. When we saw him he seemed contented and happy and we felt sure that his future was entirely assured.

On January 22 and 23 will be held a combination sale of Hereford cattle at South Omaha, that ought to prove of great moment to both veteran breeders and new beginners. Mr. W. W. Gray, Fayette, Mo., will be one of the contributors who will part with some of his Anxiety Wiltons at that time.

Kansas Farmer's Handy Guide

Contributed from various sources, including correspondents, scrap-books, and farm papers. Compiled and arranged by J. Clarence Norton, Moran, Kans.

DEHORNING.

Dehorning Calves While Young.—What I claim to be the best and most humane method of disposing of horns, and thereby save all loss by death or other causes, is to take a common long firmer handle and insert a No. 10 gun wad cutter and place this over the germ of the calf's horn any time from 5 to 10 days after birth. Cutting square to the bone, then tip the tool to an angle of 45° and remove from skull the germ that forms the pith of the horn, taking out a cup-shaped piece of bone which can be told, if done well, by placing the finger in the cut. Put nothing on the wound, which will fill with blood and heal in ten days if care is taken to have the horn germ in the center of the cutter. I am using this plan on every calf I grow.

Dehorning Calves.—Calves should be dehorned when quite young. Wash the horn germs with soap, to remove oil from skin, then dip one end of a stick of caustic potash into water until it becomes softened. With this touch each horn a few times; in a few weeks the horns will peel off like scabs and leave the head smooth. The operation is inexpensive and apparently painless; caustic potash can be bought at the drug store and should be kept in corked bottles.

Short Cut to Dehorning.—When the calf is two or three weeks old, or just as soon as you can see the beginning of the horns, dampen them a little, and place a small quantity of granulated lye on them, and the horn will not grow any more. The horns must be damp, so that the lye will adhere to them. This is a sure method and does not hurt the calves.

Dehorning Calves.—A pair of sharp pruning shears is a good instrument to dehorn calves. A heifer nine months old seemed to suffer no inconvenience from having her horns clipped off close. Carbolated vaseline was used to dress the wound. It is a cheap and useful ointment for many purposes.

Dehorning Calves.—The horns of a calf from one to three weeks old may be prevented from growing by pursuing the following course: Wrap a stick of caustic potash with tinfoil or other substance to protect the hand. Leave one end of the caustic free. Wet the free end and apply it briskly to the little horn; continue rubbing until it is entirely eaten out, when it will begin to bleed. Be careful to prevent the caustic from contact with your own flesh or that of the calf, except a space the size of a silver dime immediately upon the embryonic horn. When the horn is burned out, apply cider vinegar to the sore, after which fill the cavity with finely pulverized alum. In most cases the bleeding will be slight. The above treatment may have to be repeated in two or three weeks if the first application fails. We have used this method of removing horns for three years with unvarying success.

DINNER.

Keep Your Dinner Hot in Cold Weather.—Have a box just large enough to hold your dinner box and coffee can. Now make a tight cover, put some hay in the bottom of box; then put a large hot soapstone in. Set your dinner box and coffee can on that, then pack hay in the corners, lay two or three thicknesses of cloth on top, then close over, and your dinner will keep warm in the coldest weather.

Preparing Dinner in Hot Weather for Sunday.—Bake light bread, cake and pies Saturday morning, and Saturday evening dress chickens and gather vegetables. Then, while getting breakfast Sunday morning, cook vegetables and fry chickens, also make tea. Cold tea is real nice in hot weather if you have no ice. Set the table when you get home from church; your dinner will be ready.

DISHWASHING.

Dish Cloth.—Old white socks may be made use of in the following manner: Take one, cut it down the seam in the back as far as the toe; then overcast the edges so they will not ravel, and it will serve as a dish cloth for a long time.

A Nice Dish Drainer.—When a person has a sink to wash dishes in, a shelf at the end of a sink with a rack is made as follows: Two sticks $\frac{3}{4}$ inch square, the length of your shelf, put together with strong wires one inch apart, mak-

ing the rack the width of your shelf. The shelf should slant a little toward the sink, one end resting on the top of it so the water will run off into the sink. The other end of the shelf should have something to prevent the dishes falling off and to lean others against.

Soap Dish and Salt Gourd.—For keeping soft soap on dish washing table nothing quite equals one of the larger-sized gourds, cutting off handle and leaving only bowl with opening large enough to comfortably insert the hand. For salt take one of the larger kind and cut opening in upper part of side and fill with salt. This can be hung on wall by cutting small opening in back large enough to slip over nail or hook. Coconut shell with one quarter section cut out, can be made nice to hang on the wall for keeping buttons and the like in or even growing plants.

Dishwasher.—A good, cheap dishwasher can easily be made at home in the following way. It will save a great deal of labor: Buy a tin wash boiler any size required. Have a tinner make a wire boiler exactly the shape of the tin one, but about two or three sizes smaller. It should be made of fine meshed wire and have stout iron legs about four inches high. This sets inside the tin boiler and should be two inches lower at the top, so the lid of the outer vessel will fit snugly. Have the handle of the boiler lid removed, and in its place a hole, made large enough to put in a small churn dasher handle through. This should have a small rag or brush fastened to it each time the washer is used. The wire basket, or inside boiler, should have the legs so arranged that they can be used as stands when it is removed from tin boiler to drain dishes. Place dishes according to size around between the wire basket and the boiler. Pour boiling water, in which a little soap has been dissolved, in washer until nearly full. Put cover on, and churn up and down as you would butter, a few minutes. Life out wire basket, place dishes in it, pour rinsing hot water over them, cover closely to keep hot, and the dishes will come out after an hour, clean, sweet and polished.

Dish Washing.—This great bug-bear to so many women and children is indeed trying sometimes, and consumes much valuable time; and even with the hottest of soap suds and the cleanest of towels, it leaves housewives with large families little time for higher pursuits, when help can not be secured, or is considered undesirable for reasons of economy. These ways lighten the burden somewhat and save many precious moments. 1. Do not hurry; clean as you proceed. 2. Have a liberal supply of clean cloths and old newspapers to throw over such dishes and pots as will be soon used again. 3. Plan beforehand, so you will not need so many dishes at one meal. In every department of life good judgment is needed to avoid the repetitions so wearisome to the flesh.

Dish Washing.—A few years ago I came in possession of a dish drainer very similar in appearance to the old-fashioned apple drier, but only about two feet square, which is large enough to hold dishes for a family of six. With two large pans of water, one to wash the dishes in and one to rinse, a table full of much dreaded dishes can be disposed of in a very short time. When taking a pile of plates from the rinse allow them to drain a moment in the hands, then place them on edge in drainer, resting the first plate on back of drainer or some high dish, allowing each one to slip between different slats that air may pass between them. When all dishes are in place, a clean cloth is thrown over them and thus they remain till wanted for the next meal, when they are found as smooth and dry as any one could desire. This is written with the thought that some mother will be induced to change her mode of drying dishes that her daughter may not dread the after-dinner work as many of us did in childhood days. It is surely wise to make work as easy as possible, which must be done over one thousand times every year.

MISCELLANY.

To Free Head from Dandruff.—One tablespoonful of sulphur in one pint of rain water. Shake well before using. Rub thoroughly. This will keep it off for a time, then apply.

Desk and Writing Materials.—Did it ever occur to you how hard it is sometimes to get a good pen and ink without an "awful hunt" in homes where everything else seems comfortable and convenient? Desks are cheap. Get one if you do ever so little writing. Have plenty of pens, ink, paper, envelopes and stamps, as well as a good supply of blotting pads on or in the desk. Use it yourself, and teach the children to use



What Rural Free Delivery Has Done for the Farmer.

First Assistant Postmaster General, Robert J. Wynne, will contribute an article to **The Twentieth Century Farmer** of December 24, on "What Rural Free Delivery Has Done for the Farmer." He starts his article by saying, "I do not think that any development of recent years, not excluding irrigation and the opening of vast tracks by trans-continental railroads, has done half so much for the farmer as rural free delivery." This is one of a number of articles by men of national prominence, which we are publishing each week.

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it carefully. If you can not afford to buy a desk, and do not know how to make one, have a little table on purpose for writing and writing materials. Keep ink stands covered. Get a little thread box for pens, lead pencils, etc. Another little box for cards, envelopes and stamps, and still another larger one for note paper and blotting paper. Keep all free from dust, and you will find "no end of comfort" in these little conveniences.

Various Devices.—For poking fine manure in piles. When cleaning stables make a scraper of a 10-inch plank, about 2 feet long with a handle of a stick split at the end and fitted in auger holes. To make a good substitute for a barley fork which is very useful to carry chaff and other light substance at the barn, take a piece of stout wood about 18 or 20 inches long and bore as many holes in it as you want fingers in the fork. Bore the holes rather slanting so as to have the right curve for the fork, the handle can be made out of an old fork handle or dressed out. To make water flow down a V-shaped spout, without slopping over, when pumping, take an old rubber boot, cut off the top down to the ankle and the toe, and fit this over the pump snout, and you can pump as fast as you wish without having the water slop over.

Disease Among Chickens is More Easily Prevented Than Cured.—There are a few simple rules, which, if followed, would prevent nearly all sickness. To begin with, we must have healthy fowls, for we can not raise vigorous chickens from unhealthy parents. Chickens from too closely inbred fowls will be weak and sometimes blind. A damp, dark and filthy house is the home of disease. No quarters are healthy unless the sun shines in them. Ventilation is also necessary. Avoid draughts. They cause swelled eyes. Feeding and watering have a great deal to do with their health. When chickens run at large, they pick a great deal of what they need, but when confined we must supply their wants. Last year my chickens grew finely, fed on "cheap" flour and bran baked, then softened before feeding, in warm water. But in addition to this, feed some cracked grain, tender grass and a supply of grit. Milk is an excellent food. For a while I feed every two hours after the chickens are 24 or 36 hours old. They need no food before that age. Do not put soft food on the ground or floor, for there is more or less filth. Oats cracked are good food for them. Always have an abundance of pure, fresh water under some shade. Give them a tuft of green grass and see them enjoy it. Above all things do not crowd in the house or yard. They will not bear it any better than our crops will. Cleanliness in everything is the best preventive of disease. If chickens are furnished with clean quarters and have plenty of pure, fresh food and water, they will not be likely to have cholera or any other disease.

For Diseased Peach Trees.—Sure cure for what is often taken for the yellows in peach trees. One part of saltpeter to two parts of salt, placed around the body of a tree before a rain. It seems not only to destroy any vermin which may be infesting the roots, but to act as an excellent fertilizer.

To Check Diarrhoea in Children.—Take mutton suet, melt, and sweeten to suit the taste. Give from two to three teaspoonfuls at a dose two or three

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times a day, till the child recovers. This is also good for croup. Chronic diarrhea indicates inflammation of the lower bowels, and in most cases, strong medicine will keep up the irritation, and the child will get worse. It is a never-failing cure.

Coffee Grounds as a Disinfectant.—Coffee is one of the best disinfectants for a sick room. As it would be too costly to use as purchased, I write to tell you how we use it. Instead of throwing the coffee grounds out after the coffee is used, put them on a pie plate and set on the back of the stove until they are thoroughly dry, when they can be put away in a baking powder or other box until needed. When they are needed for use, lay a live coal on a shovel and put two or three spoonfuls of the dried coffee on it. If the coal is white hot the burning coffee will emit a most agreeable odor, burn for a long time and purify the air wonderfully.

Long-Handled Dibble.—Make a handle $4\frac{1}{2}$ feet long with an iron point, also a stick 1 yard long, 1 inch wide, $\frac{1}{4}$ inch thick. Measure 12 or 14 inches from point of long handle, cut a groove square across the handle $\frac{1}{4}$ inch deep, 1 inch wide, bore a hole in center of groove, also bore a hole same size in yard stick at 12, 14, 16, 18, 20, and 24 inches from the end. Take bolt the size of hole, long enough to reach through handle and stick. To fasten, use washers and thumb-screw. Fasten yard stick at hole the same distance from end that you want plants apart. Have your ground marked, rows proper distance apart, then take dibble and point end of yard stick ahead directly with the row. Make first hole at proper place, and notice where end of yard stick is. Make next hole at this place, etc. With very little practice you can make the holes nearly as fast as you can walk. Make holes down one row and back the next; then have a boy to drop plants for you one to each hole, you follow planting down and back. By the time you get around, your back will need straightening (if I may judge by mine), if your "truck patch" is of any size, and you will find the long-handled dibble just the thing to take the kinks out of it. Try this way and you will be surprised how fast, and how easily you can set out plants.

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The Home Circle.

THE LAND OF MAKE-BELIEVE.

It is well to wander sometimes in the Land of Make-believe, Through its ever-smiling gardens, where the heart may cease to grieve, Where the beds are gay with roses and the paths are paved with gold, And our hopes, like soaring songsters, their mercurial wings unfold. Let us all be little children for a while and make our way Through the sweet and sunny meadow land of Make-believe to-day.

There's a queen within an arbor, where she rules in high renown, With a lily for a sceptre and a rose wreath for a crown, And her laws are love and laughter, for they know not sorrow there— Never hate or pain or money enters in her Kingdom fair, So we sing the songs the children sing, and play the games they play As we wander in the golden Land of Make-believe to-day.

—Selected.

Work of the Kansas State Historical Society.

GEO. W. MARTIN, SECRETARY OF THE SOCIETY.

During the period beginning November 1, 1900, and closing June 30, 1902, there have been added to the library 1,373 volumes of books, 5,371 unbound volumes and pamphlets, 2,019 volumes of newspapers and periodicals, 198 single newspapers and single magazines containing matter of historical interest, 128 maps, atlases and charts, 2,469 manuscripts, 397 pictures and other works of art, 219 pieces of script and other miscellaneous relics. Thus to the library proper of books, pamphlets, newspapers, and periodicals during the period of twenty months have been added 8,763 volumes. Of these, 8,511 have been procured by gift and exchange, and 252 by purchase.

The library now has 123,139 pamphlets, books, and newspaper volumes. The accessions for the year amounted to 4,018.

The seventh volume contained papers on the development in Kansas of gypsum, cement and plaster, lead and zinc, natural gas and commercial orcharding, all of a purely historical trend, and most interesting. Hon. James C. Horton, of Kansas City, has promised a paper on "Business in Kansas—Old Times and Now." Politics and office-holding is not all of history. Neither is it essential that a person must be old, in age or citizenship, to belong to or participate in the work of this society.

The society has been favored the past year with an interesting contribution of original papers, letters and correspondence, concerning politics and public affairs, from Mrs. Sara T. D. Robinson, Samuel N. Wood, John Martin, and George W. Martin. Mrs. Robinson's collection includes letters from John C. Fremont, Henry Wilson, David Wilmot, Nathaniel P. Banks, Andrew H. Reeder, Eli Thayer, Richard C. Drum, James Montgomery, Galusha A. Grow, John Brown, Jr., Gaius Jenkins, and others. They are of infinite value touching the slavery contest leading up to the admission of Kansas. About 500 letters, the correspondence of Samuel N. Wood for a period of four or five years, were found in the sub-basement of the State House. No one knows how they came there. Many of them pertain to railroad building in Kansas. They bear dates from 1870 to 1873, including a few written during the territorial period. John Martin's contribution embraces many books of great value to our collection, with others of importance in exchanging, and several political cartoons of the campaigns of 1840 and 1844, and town plats and local maps of Kansas issued many years ago. These letters throw great light on events, oftentimes mysterious in the absence of some knowledge of the motives of the actors. Many of the Eastern States are largely publishing much correspondence 200 and 300 years old. The State is full of personal letters covering territorial and pioneer days, but much has been lost by the indifference of descendants who fail to appreciate their value.

At the suggestion of Colonel O. E. Learnard, of Lawrence, and Mr. C. E. Cory, of Fort Scott, I have attempted to gather the record of the towns started and afterwards abandoned in Kansas. A knowledge of the location of several of them, because of their historic prominence, is essential in some respects to a proper understanding of the story of early Kansas, and in a lesser degree with the development of many counties in western Kansas. I have not as full response as I had hoped, but will continue the effort until the list is tolerably complete, if not fully so. Many counties with the most

interesting points have made no return as yet, but I have promises that they will be fully reported. Twenty-eight counties report 151 such abandoned towns. Doniphan County leads with twenty-one, and Kearny and Labette follow with twelve each. The incidents gathered so far are of great interest, showing the spirit and the sacrifice of those who figured in the beginning of our development.

"The application of the legislature for the cession of the State of an acre or so of the Fort Riley reservation, embracing the first capitol building, has not yet received action. It is possible that the question of civil jurisdiction may interfere with a transfer, and render it more advisable, if anything is to be done at all, for the State to make repairs on the building with the title as it is, and to ask only for such consent. In all probability an acre under State control inside of the military reservation would be a lodging place for the vicious, involving a nuisance to the military or a great responsibility to the State. During the year the site of Pawnee has assumed much importance from the military maneuvers and which if they are to be continued, as is apprehended, on a more extensive scale, will give it world wide fame. It would be exceedingly appropriate for the State to place that building in order, since the point is likely to be a mecca for the army, the militia and visitors, for years to come. The place was established in good faith by the first governor, who held authority, and one of the important clashes in the incipient stage of the great battle occurred in that stone building.

"Mrs. Lucy G. Hall, of Labette County, presented the society with a spinning wheel made in Strausburg, Germany, in 1621, and brought to America in 1700. This wheel has passed by will, one member of the family having possession seventy-six years and another seventy-four years. Mrs. Hall has also left with us a rifle made by her brother, J. W. H. Golden, when he was gunsmith at Fort Leavenworth during the war of the rebellion. Mr. Golden was severely wounded by pro-slavery men at Tonganoxie. He was elected sheriff of Leavenworth County in 1858, and commissioned by Governor James W. Denver. Mrs. Hall writes that she expects to move to Texas to spend the remainder of her days, and that she prefers to give what she has to Kansas rather than to Texas.

"The society has received from Charles W. Smith the gun brought to Kansas in 1854, and carried through the territorial trouble, by Samuel Walker, Julius Neuman, deceased, of Atchison, willed the society a sword, brought by him from Germany, which we have received through Robert F. Forbriger, the administrator of the estate. Mr. Neuman made the first pre-emption entry of land in Kansas, April 21, 1857, at the LeCompton office.

"J. H. Bonsell, of Arkansas City, has negatives of portraits of the members of the Wyandotte Constitutional Convention, the LeCompton Constitutional Convention, and the first Free-State legislature. They should be procured, but the society being without funds for such purposes there have been no negotiations."

Some Facts About the Sun.

What does the sun give us? Why, that is a simple conundrum. Light and heat of course. Right enough; but now how does the sun give us light and heat? Since it was more than Sir Isaac Newton could do to find that out, you need not be ashamed to give it up, though perhaps you may be tempted to guess at it.



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In the first place the sun is a globe of fire. A very big globe, and a very hot fire, so hot that if this little earth of ours were by chance to fall into it, it would burn us up, earth and all, as if we were but a grain of powder in a kitchen range. And this is not theory but demonstrated fact. Why, scientists have even gone so far as to weigh the sun and take its measure. They know what it burns in that hot fire, and they know a great deal more; but, after all, what they do not know would make a bigger book than what they do know.

I might tell you how these marvelous things were discovered and proved, and you would be most surprised at the clearness of the reasoning and the simplicity of the methods by which all these facts are established; but we may be satisfied with what an investigation of light and heat will teach us.

A man whose eye should come into sudden and violent contact with the closed fist of Mr. James Jeffries or Bob Fitzsimmons might with truth declare—after a sufficient lapse of time to enable him to express himself at all—that he had seen stars. Now, there may not seem to be any connection between Mr. Jeffries' astronomical labors and the matter under discussion; and yet there is an intimate connection.

The man whose eye encountered the aforesaid closed hand did not really see stars, but he did see flashes of light caused by the sudden pressure on the retina of the eye. The sun is in the place of Mr. Jeffries, and sends out from itself a constant succession of waves, which, striking the retina, produce the sensation of light. These waves are very tiny, of course, and measure from one-thirty thousandth of an inch to one-sixty thousandth of an inch in length. They are supposed to be produced by the agitation caused by the vibrating atoms; just as you might make waves in a pond by moving your finger in it.

That is the way the sun gives us light; but it may astonish you to learn that the same wave which brings you light does not bring you heat. Heat comes riding to us on an entirely different set of waves. The two sets of waves come in company, but are as distinct as black and white; and just as you get no heat from the light-waves, so you get no light from the heat waves. And these facts are true, not only of the sun, but of any luminous and hot body.

These facts will be better understood when they are demonstrated, and, although experiments made before your eyes would be most convincing, a verbal explanation may suffice for the present. Professor John Tyndall, one of the most clear, logical and simple in style of scientists, has made a number of beautiful experiments to establish these facts, and we may, without shame, submit to follow him.

Instead of the sunlight an electric light is used as more convenient. The object is to separate the light-waves from the heat-waves, because if you can get the light-waves by themselves it will be very easy to test them, and find out if they contain heat, while, on the other hand, you may also find out how much light there is in the heat-waves. At the same time, the experiment, if successful, will prove that there are such things as light- and heat-waves.

If you will place a rod of iron and a rod of wood in the fire, you will learn, among other matters, that iron is a good conductor of heat, and wood a poor conductor. Glass, you may have



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noticed, is a good conductor of light, while wood is a very poor conductor. There are three substances which are good and bad conductors for light and heat. What, if by chance, we should find a substance which would admit light, but not heat through it, and another substance which would transmit heat and not light!

We have precisely such substance. Iodine dissolved in bisulphite of carbon will conduct heat, but not the faintest glimmer of light; while a solution of alum in water will conduct light, but not heat. Now darken the room, turn on the electric light, and concentrate the rays by means of a focussing mirror, which is exactly the same in principle as concentrating the sun's rays by a burning-glass.

Put a piece of guncotton at the focus. Puff! it goes—burned up. Now, put your solution of alum between the light and the focus. The focus is still visible there, for the light is not cut off any more than it was before. Now put a piece of guncotton at the focus. No puff. The guncotton is still there. Now put your iodine mixture in the line of light. The light is cut off, and we can not see our focus, but we know where it is, and we place the cotton there. Puff! It is gone.

Can there be any argument here? Is not the result conclusive of the statements made? And yet how simple are the methods employed, how clear and unanswerable the logic by which the really wonderful knowledge is gained! And yet, simple as the means are, easy as it is to follow in the footsteps of the man of science, the few facts which we have taken but a few moments to jot down are the result of generations of thinking and experimenting. First one step would be secured; then would follow groping in the dark; then another step, then more groping, until the patient worker, reaching the top at last, could grasp the light and turn it down the tollsome way, now made light and easy for the merest child who would but turn his face lightward.—N. Y. Weekly.

Wiggs—I always like to hear a man say what he thinks. Wagg—But the people who always say what they think generally think such disagreeable things.—Philadelphia Record.

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FOR OVER SIXTY YEARS An old and Well-Tried Remedy. Mrs. Winslow's Soothing Syrup has been used for over Sixty Years by Millions of Mothers for their Children while Teething, with Perfect Success. It soothes the Child, softens the Gums, allays all Pain, cures Wind Colic, and is the best remedy for Diarrhoea. Sold by Druggists in every part of the world. Be sure and ask for Mrs. Winslow's Soothing Syrup, and take no other kind. Twenty-Five Cents a Bottle.

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TWO ROSES.

I think the white rose is so white because
Love breathed into it every holy thought,
And garbed it in the chasteness of the
stars

To make a fitting chalice for his heart;
Until, apart from every painted thing,
Unkissed to color by voluptuous suns,
It joins the quiet cloister of the spring
Among a white-robed Sisterhood of nuns.

I think the red rose is so red because
Love burned it from desire and the whole
Intensity and fire of the stars,
And in its crimson bosom laid his soul;
Till, drunk with all the passion of his
themes,
And glowing with the warmth of count-
less springs,
It joins the mad procession of his dreams,
A wanton in the world of blooming
things.

I think, somehow, that if the chance befall
Which urged a choice among his flower
host,
That Love himself would find it hard to
tell
Which one, betwixt these two, he loved
the most!

—Ella Bentley, in New Orleans Times-Democrat.

Home-Made Christmas Gifts.

Surely there is a value to gifts of one's own manufacture that other gifts lack; for the fact that time and thought were spent in preparing them makes them doubly dear. And besides, the home-made gift has the flavor of the giver's personality, which the one bought ready made utterly lacks.

Sometimes it is difficult to think of suitable gifts to make. One feels that he wants to give something, be it ever so small, that has a real value besides the mere one of sentiment. We want to give what will bring to our friend pleasant thoughts of us.

Here are a few suggestions:

THINGS A BOY CAN MAKE.

I have a brother who for three years has made many Christmas gifts by the aid of his knife and a few simple tools,—a saw, a hammer, a plane. One of the first things he made was a picture frame. He found in the attic a discarded bedstead of walnut. From this he cut a piece eight by six inches in size, and after cutting an oval hole in the center, and "hollowing out" a space large enough to hold an ordinary photograph, he sand-papered and varnished it, and behold! a picture frame fit to adorn more aristocratic walls. I was the fortunate recipient of another article manufactured from this same walnut bed-frame. It was a small plant stand. An octagonal piece about twelve inches in diameter formed the top. The base consisted of eight smoothly finished pieces of walnut, neatly joined, and about two feet in length. It is a thing of beauty and a joy forever. These are mentioned as suggestive of the possibilities of a few tools and some old lumber, coupled with a little ingenuity.

It is true that boys labor under a disadvantage in the point of manufacturing gifts, yet, if they will, they can devise many a novel and original gift which will be very precious to the lucky one for whom so much thought and labor are expended.

SOME SUGGESTIONS FOR GIRLS.

There are any number of things a girl can make—that is, if she is nimble of finger, and has unlimited time. Most beautiful handkerchiefs can be made of drawn-work. A yard of handkerchief linen at 75 cents or \$1 a yard, or of India linen at 25, 30, or 40 cents a yard will make four handkerchiefs. These may be simply hem-stitched, or made very elaborate with several rows of drawn-work. Drawn-work is easy to do but rather tedious. First, at the proper distance from the edges, the threads are drawn—three, four, or six, as your taste dictates. Then, having turned in the hem to the edge of the drawn space and basted it down, with a needle and fine thread, hem it all around, taking up four or five of the threads of the linen and throwing the long thread over your needle to form a sort of knot-stitch. It is slow work at first, but grows increasingly rapid with practice.

Besides handkerchiefs, ties, pillow-cases, napkins, and a great many other things will suggest themselves for this kind of adornment according to the taste of those for whom they are intended and the length of the pocket-book.

A very useful article for the mother is the darning-bag. This is made of cretonne, or some other firm, pretty, and inexpensive material. A yard and a half should be sufficient quantity. A straight piece, twelve or fourteen inches wide, and a yard and a half long is

cut from the material. Then three pieces of heavy paste-board are cut, six inches long and eight wide, with rounded lower corners. These are covered smoothly with the material. Now sew, firmly and neatly, the two gathered sides of the straight piece to the edges of the pasteboard all around except on the upper edge. Now you have your bag for the stockings. Upon the outside of one of the pasteboard pieces, fasten a bag, made by gathering a piece of the cretonne quite full. This is for thimble, scissors, thread, etc.

To the other pasteboard, attach several pieces of flannel cloth, of the same shape, for needles, and over this, so that it can be lifted like a flap, fasten the last piece of pasteboard. This makes a very pretty gift, as well as a most useful one. It is sometimes finished with a frill of tape of a harmonizing color, along the top of the thread-bag and around the edges of the flap. A half-dozen brass rings are sewed at regular intervals along the top of the bag, and a piece of the tape is run through them, by which it is to be hung up.

Now that posters have become so much the fashion, very pretty gifts can be made very cheaply. Whenever you see a pretty or striking picture, with one clear-cut figure, cut out carefully this prominent figure and paste it upon a mat of green or red, or any color that seems to suit. The magazines very often contain pictures suitable for this use; some are in colors, some in black and white. If the pictures are very good, it sometimes pays to frame them in passe-par-tout. This means simply to have glass cut the proper size, and around the edge instead of frame, paste passe-par-tout paper, which is a heavy glazed paper in black or colors. This is a gift that will be appreciated by any one. The main thing to be considered in poster-making and passe-par-tout work is neatness. The work is all very simple, but requires a great deal of care to make it satisfactory.

It is hoped that these few descriptions may be helpful and suggestive. Any one of them may be elaborated and changed and modified in a great many ways, and will offer opportunity for the exercise of originality, which is the charm of home-made gifts.

Our Symposium on "Animal Intelligence."

WONDERFUL EXHIBITION OF ANIMAL INTELLIGENCE.

The most wonderful exhibition of animal intelligence I have ever seen, or heard of, was a large black and tan trailing hound. This dog belonged to Mr. R. M. Gant, of Knoxville Township, Jay County, Indiana. The dog was a constant companion of Mr. Gant and had showed its intelligence in many remarkable ways. Mr. Gant lived in a thickly wooded country and did a great deal of clearing. The dog being with him all the time soon learned to carry the smaller stocks and pieces of brush and place them upon the pile. When the pile became too high for him to climb upon he would drag them up close and leave them. Of course he could not carry a very big load, but he made a great many trips in a day, and at night he would have carried almost as much as his master.

When the Civil War broke out in 1861, Mr. Gant enlisted in the 89th Indiana Infantry. He served two years and was killed at the battle of Nashville. The body was embalmed, and after a lapse of about three months, was shipped home. On the day that he was killed the dog acted very strangely. He could not be induced to eat, and howled almost constantly. He kept this up for about three days and then became very sullen and grief-stricken. Nobody knew of Mr. Gant's death at this time and did not know anything of it until the corpse arrived. They could not account for the dog's strange actions, nor did they attribute it to anything connected with his master.

On the day that the body came and before the train arrived, the dog commenced his strange actions again. When the train arrived, the dog was on the platform, and tried in vain to get into the express-car. As soon as the body was unloaded he stationed himself beside the box and could not be induced to leave it. When the coffin was carried into the house the dog would have followed had he not been prevented. He howled and scratched at the door, and finally succeeded in getting in by jumping through a window. There was only one place he would be satisfied to lie and that was upon the coffin. After several unsuccessful attempts to keep him off he was allowed to remain there in peace, and

there he lay until the coffin was carried out and taken to the graveyard. The dog followed and took up his abode upon the grave, and here he stayed until he was forced by thirst and hunger to leave. As soon as he got something to eat he would return to the grave. In this strange and lonely place, through all kinds of weather, he stayed by his master's grave almost a month when he died of what was supposed to be a broken heart.

R. F. BAND.
Vesper, Franklin County.

A WISE DOG AND AN INTELLIGENT HEN.

I have seen several instances of surprising intelligence in animals, and can hardly tell which of the following is the most wonderful.

Flora was a Shepherd dog who came to spend her last days at our house, after leading a useful life of sheep-herding. I might tell of how she guarded the flock by herself one day after her master had been drowned while trying to ford a swollen creek. But I was not an eye witness to that scene, as I was to the ones I am now going to tell about.

After Flora came to live with us she had the dearest little pup imaginable, but, cunning as he was, she was very jealous of him, and never could we caress him without her thrusting her nose in between us and him.

One summer evening when the family were sitting on the porch in the twilight, the puppy was playing about us and we were caressing it as usual. Flora came up and showed plainly by her actions that she did not approve of the attention the pup was receiving, so my husband said, "Flora, if I were so jealous of that pup, I'd take it away from here." Instantly she seized the pup by the neck and dragged it some fifteen or twenty feet away, then returned and laid her head in his lap, as much as to say, "I knew you loved me better than you did the pup."

Once when Flora was unusually long in bringing up the cows, my mother went to the pasture to see why she did not come. She was trying to separate the cows from the other stock. This we always did when some of us went with her, but we never expected her to do it alone. Poor old Flora died soon after this. Peace to her ashes!

It is commonly supposed that chickens have little intelligence, but I can prove the contrary.

Last winter we had an insignificant looking little speckled hen. We also had a granary containing wheat. The granary was weather-boarded on the outside and there was one loose board—the second from the ground.

One day I was in the vicinity of the granary and I heard a strange rapping sound. Looking about I saw this little hen pecking on the loose board and at every rap a few kernels of wheat fell to the ground. She picked this up, then gave two or three more pecks with the same results; and thus the performance continued as long as I watched. When I told my husband about it, that evening, he said that he had seen her do this several days before. Every day the little hen could be seen at her trick, and although other chickens would come and help themselves to the wheat, I never saw any other fowl peck the loose board.

Another hen-story and then I am done:

Blackie is a big black hen of humble origin, who after successfully rearing a large brood of chicks last summer, suddenly disappeared. Great was my disappointment as she had proven herself such a valuable hen I wished to keep her. One day while mowing

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weeds, Mr. U. found her, tucked away in a fence corner, under some weeds, with a nest of eggs. Daily we carried her food and water until the chicks began to come forth. The August sun had by this time wilted the weeds so they afforded little shade; consequently I spread an old lap-robe over them to protect the nest and occupants from the fierce rays of the sun. This was one day about noon. When I went to the nest again in the evening, I found that as the sun had declined, the shade had moved and left the nest fully exposed to the sun. But Blackie was a wise hen! She had moved her eggs to the shady spot (eighteen or twenty inches away) and all the chicks had followed except one little fellow who was too young and weak. Blackie was coaxing him to come, but he could not travel so far. I rescued him just in time and now he and the rest of them have grown up to young hen-hood and rooster-hood.

PRUDA B. UTLEY.
Prosperine, Mo.

A WISE DOG.

A friend of mine whom we will call Jack, once owned a dog of which he was very proud. The dog was very intelligent and often made his master angry, although at the same time he was intensely amused at his cunning. The dog's name was Towser. Towser was a dear lover of rats. He knew the name, and when his master shouted "Rats," Towser would hunt until he found the rat. Jack was in the habit of giving Towser a bath every week. The bathroom was in the basement of the house. The master would start down in the basement with Towser at his heels. He would then turn on the water, let the tub fill up, and then go upstairs. First he would bring down the towels and then everything else that was necessary, one thing at a time, with Towser trotting obediently behind. But when Jack would start down with the soap Towser would sit at the top of the stairs and look sideways at his companion. All the coaxing, commanding, begging, or teasing could not make Towser budge from his place at the top of the stairs. Sudden-

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ly his master calls, "Towser, here's a rat!" Down goes Towser and his master calmly shuts the door and proceeds to give Towser his "rub."

MARY BRADLEY.
Abilene, Dickinson County.

A Mistake.

By a mistake we were made to say, in last week's issue, that our discussion on animal intelligence would be closed December 10, which was meant to read December 19. On account of the blunder, we will keep open our offer one week longer than was at first intended, closing it December 25. The stories we have received have been excellent, almost without exception. We hope several more will, in the next week, take advantage of our liberal terms, a year's subscription to the KANSAS FARMER for each article, and a prize of \$1 for the best. Let us hear from you.

For the Little Ones

THE SQUABBLE BIRD.

Have you ever heard of the Squabble Bird, Who comes when you mean to be good? He makes a noise like a million of boys When they're not in the ploucest mood. Did you ever hear, with quakings of fear— You, mother, or father, or aunt— A noise in the room like cannons aboom? Though you try to stop it you can't.

Try as we may to be good at our play, That Squabble Bird flies in the game. It is he that is cross and tries to be boss— Now, why should we kids be to blame? That Squabble Bird tries to make trouble, and flies Out and ruffles our tempers that quick That we never know how we got into the row— He ought to be thrashed with the stick.

I do not know where is the Squabble Bird's lair, But I b'lieve that his nest's in my bed, For he wakes when I wake without the least shake, And on anger my ma says he's fed, She says that he knows me from head to my toes, And tells me to quarrel with Ted; When I wake in the morn till the day is all gone Sir Squabble puts "fight" in my head.

Some night very soon, by the light of the moon, I'll search Mr. Squabble Bird out, And I'll cut him in three so he won't bother me— Then there'll be no more squabbling about.

—Ex.

Little Miss Geranium.

All the flowers went to sleep when the north winds began to blow, except little Miss Geranium. She wondered to see them all nodding their heads, and then silently going to bed under the dropping leaves, for she did not feel sleepy in the least. But she was lonely and when the frost came, she shivered with cold.

So you may be sure she was glad when she felt some one digging around her roots and then gently lifting her into a snug little pot.

After a little while she was carried into a big light room that seemed, oh! so comfortable and warm after her cold home out of doors. She was put into a window where the warm sun shone almost all day long and where she could see out-of-doors where the cold wind was whirling the leaves and the soft snow fell silently, and she felt very thankful that she had a shelter. She began to grow strong and beautiful and sent out from her thankful heart a little bud which grew and grew, until it was a beautiful blossom and the lady said, "My little geranium is smiling at me. I think that is the way it thanks me for caring for it."

One day the lady came to the window and looked down at the flower. "Dear little geranium," she said, "you are so beautiful that I wish to keep you. But we must not be selfish."

Little Miss Geranium did not know just what she meant, but she knew it was always right. So when she was wrapped up close and warm in a big newspaper tent, and carried through the cold to another house, she did not grumble, but still smiled happily with her beautiful blossom.

"Little May, here is a present for you." Then the paper was taken off, and she looked straight into the face of a dear little girl. The little face was pale and tired, but it broke into smiles when she saw the smiling blossoms of Miss Geranium. "Oh, thank you," said the child's little voice, "I shall love it dearly."

Then the little flower was put in on a stand where the little girl could see it and it grew taere happily ever afterwards. And best of all, the little girl grew well and happy like the flower. For one smile always calls for another, and one happy flower makes many happy people.

Horticulture.

Potato Growing.

B. H. PUGH, BEFORE OAK GRANGE, SHAWNEE COUNTY FARMERS' INSTITUTE.

Potato growing, like any other industry, has its ups and downs, its times of prosperity and its times of failure. Although the newest of agricultural pursuits in this State, it has grown to be one of the most important and, during the early summer months, the influence of Kaw Valley is felt all over the Western and Central parts of the United States.

Owing to the soil conditions, this industry is mostly confined to the valleys and along streams where is found the sandy loam which is much required by this indispensable vegetable. Potatoes can be grown to a greater or less degree in any part of the State and in almost all of the States but it becomes dignified as an industry only in localities where the tuber can be produced in shipping quantities. The Kaw Valley is the potato emporium of Kansas and the present discussion will be confined to potato growing in this valley, the writer having had no experience or knowledge of the crop as grown in other States or in other parts of this State, except what he has gleaned from visits to various potato districts of the country.

Taking it for granted that those interested in this business are seeking the most direct, economical and profitable course to pursue from beginning to end, let us start with the preparation of the soil. Potato culture should begin, in all possible cases, in the fall. Whether the land has been in wheat stubble, a former crop of potatoes, clover or other crop, the land should be plowed in the fall seven or eight inches deep or even deeper and early enough to allow trash plowed under to begin decomposing before freezing weather sets in. But, whether early or late, plow in the fall. There are three good reasons for this:

1. The combined action of the air and frost in the soil loosens much plant food hitherto unavailable.
2. Moisture is gathered from snow and winter rains which will be mostly lost in spring plowing, and in case of a dry spring, the dry soil will hardly sprout the seed and, with a poor stand, no one can raise a good crop.
3. And far from the least, the grower avoids the spring rush when plowing is likely to delay planting; a serious drawback, and frequently fatal to the prosperity of the crop.

SELECTION AND CUTTING OF SEED.

For several years, it has been the custom of the writer to use only Northern seed, grown in the Red River Valley of Minnesota and Dakota. Native-grown seed is sometimes used to good advantage when well selected and kept free from sprouts till planting time. Some claim better yields from seed grown here one year, but the growing tendency over the entire valley is to discard native seed and plant only the best Northern early Ohios. Native seed sprouts quickly on warm spring days and a very small sprout will diminish the vitality of the tuber and the second sprouts put out will be much weaker than the first. In my opinion, it is a mistake to use the native seed.

I prefer seed cut with the curved potato knife, which does the work in such a way as to make each cutting as bulky and free from thin edges as possible, also allowing the potato planter to feed without clogging. A man or woman, or even a boy, with a little practice, will cut twenty bushels per day with accuracy. The automatic cutters now in the market injure the eyes and tear the tubers and do irreparable damage to the seed. It is best to plant as fast as the cutting proceeds. A few days will not injure the seed, if cut ahead, but the cuttings should not be allowed to dry out or to sprout before planting. The result would be a poor stand and an unsatisfactory crop.

PLANTING.

Always plant early. Almost without exception, I have found that the last planting results in a poor stand, hardest to cultivate, most weedy, and shortest in yield. From March 15 to April 10 is a good time for planting, but every day after April 10 is taking greater chances. A large grower living near Topeka states that he began planting last spring about March 8 and finished in about two weeks. His average yield he reported to be 300 bushels to the acre. Frost may sometimes cut down the plants but this occurrence is infrequent and seldom severe enough to prevent the plants coming out just as strong as if never damaged. Late plant-



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SEEDS

ing is much more disastrous than frost. Some growers plant in the moon. This is agriculture at too long range for present discussion. However, one instance may serve to illustrate. One of my friends who from youth has held the idea of planting in the dark of the moon, found himself late in April one year with his spring plowing, and before planting could be accomplished, the moon had slipped from out its shadow into glaring, ungrateful moonlight. For one supporting his belief, there seemed but one course to pursue. He calmly, trustfully, waited for the dark of the moon in May. Meanwhile, two sets of sprouts appeared on the seed and had to be rubbed off. At last, the moon withdrew to its shadow again and the soil was nice and dry to a depth of six inches or more. The potatoes were planted with the inevitable result. But, faithful to the teachings of his youth, he lost his faith in potatoes and held to his faith in the moon.

Whether fall or spring plowed, the ground should be harrowed, then cross harrowed immediately before planting. This enables the planter to drop the seed at uniform depth and cover properly. Three to four inches is deep enough to plant the early Ohios. The Aspinwall planter, set to plant thirty-two inches apart and the pieces ten to thirteen inches apart in the row, will do the most satisfactory work. Rows wider than this entail a waste of land; closer than this will obstruct the cultivation and digging. Growers will find it a saving of soil to use ten pickers on the Aspinwall in place of eight as there will be less skips in the rows and it has been proven that a larger yield of good potatoes will be obtained from heavier seeding. Light seeding is not economy but a waste of soil. Heavy gardeners in the East sometimes plant as high as thirty bushels per acre and receive enormous yields therefrom.

CULTIVATION.

A week or ten days following the planting the field should be cross harrowed or, better still, harrowed with the rows, placing a board four inches wide under each half of the harrow and fastening the board directly in front of and against the last row of teeth. This will level and pulverize the soil at the same time and will allow the sprouts to come up quickly through the warm earth. As soon as the rows can be seen across the field, the cultivator should start.

The next tool to be used is indispensable to potato growing. It is the weeder. The weeder mostly in use is manufactured by D. Y. Hallock & Sons, at York, Pa. This is a tool costing six or eight dollars which, used at the proper time, will keep the potatoes entirely free from weeds and will do more in one day during the early growth of the plants than six men will do in thirty days later. Always use the weeder directly after the cultivator and crosswise of the rows. A man with a lively horse will get over twenty acres a day and do the best of work. Two cultivations with the weeder will be enough. After that, the cultivators will throw enough dirt to the plants to kill all weeds. Besides, the plants will not stand the weeder after they are eight or ten inches high. A spring tooth cultivator is preeminently the best tool with which to cultivate potatoes and that should not be allowed to go deep except during the first cultivation. The roots of potatoes spread across the rows rapidly and it is possible to do much injury to the young plants by plowing too deeply. Cultivation should be continued about once a week until the plants no longer allow the horse to pass down the rows.

BUGS.

If any novice is inclined to consider potato growing a snap or a kid glove occupation, I trust this chapter will dis-

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pel the illusion. Nevertheless, it is not admitted that other crops are more easily handled. Corn-husking, wheat-threshing and hay-making, as well as the dairy business, all have drawbacks so grievous that one frequently wishes there was no occasion for such work.

Bugs are like interest on a mortgage; they work day and night. When the broods first begin to hatch, it is time to act. The only remedy, practical and effective, known at present, is paris green. This is mixed with water and scattered on the plants. The spraying apparatus is too well known to be described here. However, I wish to offer a method of mixing the poison that, once tried, will be religiously adhered to. To each barrel of water, use six or seven pounds of cheap flour and three-fourths of a pound of paris green. Mix the flour first in a large bucket containing two gallons of water and add the paris green while stirring. When the whole mixture is thoroughly stirred, pour into the barrel of water on the spraying machine and keep the contents of the barrel stirred while the sprayer is in motion. The only serious objection to this mixture is that it tends to clog the screens in the pump. This can be avoided by having the screens so that they can be taken out and reinserted quickly. The screens can thus be cleaned in a short time and the spraying go on without further interruption. The operation may seem troublesome at first but one spraying kills the bugs, no matter if it rains within two hours after the poison is applied. Dew and rain and wind will not remove it from the plants and traces of it will remain for two weeks and continue to destroy each new hatching of the insects. The flour forms a paste that catches the fine particles of paris green and in turn adheres to the rough plant leaves. If a field is sprayed thoroughly in this way, a second operation will not be necessary. The pump may be put away and the grower rest assured that he is through with the bugs for the season. The sprayer should not be driven too fast but each plant be allowed to get its share of the poison. A barrel of this mixture should cover two acres.

MARKETING THE CROP.

This is the next important step and one in which the grower must greatly exercise his own judgment, regardless of the newspaper reports and the advice of his neighbors. Each year is a year unto itself and will require a different procedure from any of the preceding years.

Selling the crop should begin while the vines are yet green and continue until there is a glut on the market which will occur two or three weeks after the first digging. It is better to stop digging at this juncture and wait

until after the market recovers, after which there will probably be few fluctuations for two months or more. The price will advance five to seven cents in the fall and it seems to be a growing practice in this valley to reserve a portion of the crops for late digging. The principal objection is that the fields become foul with weeds and crab-grass, rendering it a hard and expensive task to dig the crop. To store potatoes for spring sales usually results in a loss to the grower. There are only occasional years when this is not true. One of the best plans known to the writer is to put the fields of potatoes intended for fall digging into millet as soon as the vines begin to dry. A good crop of rough hay will be obtained in this way and the soil will be left in excellent condition for fall digging. The millet will certainly be no more of a tax upon the soil than the usual worthless crop of weeds. The writer, after harvesting a crop of potatoes which made a yield of 300 bushels per acre, sowed millet immediately. By September 1, the millet was mowed, making two tons per acre. Following this, rye was sown on the same soil and is now furnishing good pasture for stock. This is practically three crops on the same soil. Side by side with the above plot of ground, a five-acre tract of land was set out in cabbage as soon as the potatoes were removed. There was plenty of rain and the crop of cabbage matured. It netted \$45 per acre. However, this is my first experience with field cabbage. Another attempt might not prove as successful. Cabbage must have rain during September or it will yield nothing.

DIGGING.

This is one of the most important items in potato growing. If it is made easy, half of the grief following the occupation will vanish. For a small grower with five or six acres, use the Eclipse two-horse digger, and, of all two-horse diggers, we consider this the best. Following this, a man should gather from sixty to seventy-five bushels per day in a yield of 150 bushels per acre. After this plowing, the rows will have to be harrowed and possibly reharrowed and ricked in order to get all the potatoes. For all heavy growers, the four-horse digger is almost indispensable. There are a great many growers in the Kaw Valley who consider these diggers impractical and use the two-horse style exclusively. But a digger that gets down under the potatoes and lifts them all out clean, separates them from trash and vines and lays them out in a row so that a picker can gather from ninety to 125 bushels per day, seems to me to be a practical and economical machine. The Dowden and Hoover are the two best makes, with the preference in favor of the Hoover. The only fault which prevents them from coming into universal use is the likelihood of breakage and wearing of the minor parts after digging fifty to one hundred acres. This difficulty is being remedied by the manufacturers and we may soon expect a durable and effective digger. No harrowing is necessary; the soil is left in a level and well pulverized condition, just right for sowing an after crop and will not need to be plowed. The large diggers cost from eighty to one hundred dollars.

ENRICHING THE SOIL.

Potatoes, to do well, must have good soil. They may be grown almost indefinitely on the same soil. Some of the heavy growers about Lawrence assert that ten years' continuous growing on the same soil has raised the yield from 100 bushels to 200 and 300 bushels per acre. Some growers claim that continuous growing on the same soil makes potatoes scabby. We consider this as much the fault of the seed and the season. No crop responds more quickly to enriched soil and no method of enriching is equal to that of rotating with clover or alfalfa, especially the latter. In Colorado, no one attempts to grow potatoes without the use of alfalfa on the land. Once properly sown, it will make a better stand than red clover and will produce a greater tonnage of high grade, high priced hay than any plant known and is, in addition, the greatest of soil renovators. With two years' growth of alfalfa on the soil, potatoes should make an extra yield of

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50 to 100 bushels per acre for three or more years following.

Cow peas are being used by some growers with good results. They are planted immediately after the early potatoes are dug, either broadcast or drilled in, using three pecks per acre of the variety called the Clay cow pea. A heavy mass of foliage, two feet high, will result, and, if plowed in just before frost, will make a very marked improvement in the soil. The plant is of the clover family, and adds nitrogen to the soil. Three years ago, on a small field of potatoes, the writer tried a plan which gave excellent results, but the following season occurred the severe drouth and the second attempt did not result as successfully. The method was as follows:

Instead of fall plowing, a lister was used, going down deeply and the rows set as closely together as possible. During the winter, manure was hauled and scattered thinly on the bottom of the furrow. In the spring, the ridges were spilt and the soil leveled with a float and good Northern seed, early Ohio, planted directly over the manure. This field yielded 250 bushels per acre while the field immediately adjoining gave only 150. This is a plan capable of much development, and is certain to make money for the one who will take pains with it.

To summarize, we may say, the grower who will take care of his land, plowing deeply in the fall, planting only good, firm, unsprouted seed, and cultivating the crop thoroughly, can be sure of a good yield nine times out of ten and the tenth occasion will probably be a general failure when his culls will bring \$1 per bushel.

From the time Sir Walter Raleigh discovered the potato, in 1585, to the present time, its history has been one of increasing usefulness. It has come into commercial use by bounds, till today, it is as indispensable as wheat or corn. It holds an important place on the wealthiest tables of the land and is never absent from the tables of our humblest poor. No restaurant, hotel or cafe could long continue in business if the festive tuber should be permanently stricken from its bill of fare. In our homes, it is introduced at the breakfast and is not lost sight of until after supper. It is mashed and fried and boiled; it is stewed and escalloped, French fried, German fried and Lyonaised. It enters conspicuously into salads, soups, dressings and croquettes. Saratoga chips have become a market commodity and potatoes on the half shell are robbing oysters of half their glory. So varied are the different preparations of the succulent tuber that the dictionary refuses longer to supply names and French terms are being imported to keep pace with the ever-widening field of potato culinary.

Peaches, apples and grapes have their seasons, but potatoes are always moving. Not a railroad from the Atlantic to the Pacific but adds largely to its income from transporting this vegetable. It takes 2,500 million bushels of wheat to supply the world annually; it takes 4,000 million bushels of potatoes. And with its rapidly increasing consumption, it is but a question of a few years, until the potato will take its place as one of the greatest commodities of our country.

Cellar-Forced Rhubarb.

In general, the forcing of vegetables in winter requires greenhouse facilities and other special equipment which the farmer does not possess. There is one exception to this rule in the case of rhubarb. The operation as described is most simple, and any farmer who is willing to take the pains and has a reasonably warm cellar will have excellent success.

Good, strong roots should be dug about the first of December, left on the surface a few days to freeze, and then removed to the cellar. Pack them in closely and water when the soil becomes dry.

A reasonably warm cellar where the temperature is about 50 degrees is quite satisfactory, and a semi-dark place is best. In four or five weeks you will be rewarded with a crop of heavy stalks of a bright red color, with a very small leaf at the end.

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

(Continued from page 1227.)

than two ingredients in the ration, balanced rations of the required nutrients may be computed composed of pairs of the feeds available. Any one of such pairs may be used in any desired proportion with any other one or more of the pairs, and the result will still be a balanced ration.)

Let p_1 = the weight of protein in 1 pound of the first ingredient of the proposed balanced ration.

Let p_2 = the weight of protein in 1 pound of the second ingredient of the proposed balanced ration.

Let P = the entire weight of protein required in the proposed balanced ration.

Let c_1 = the weight of the carb. ($=c+2\frac{1}{4}$ f.) in 1 pound of the first ingredient of the proposed balanced ration.

Let c_2 = the weight of the carb. ($=c+2\frac{1}{4}$ f.) in 1 pound of the second ingredient of the proposed balanced ration.

Let C = the entire weight of the carb. ($=c+2\frac{1}{4}$ f.) in the proposed balanced ration.

Let x = the number of pounds that must be used of the first ingredient of the proposed balanced ration.

Let y = the number of pounds that must be used of the second ingredient of the proposed balanced ration.

We shall then have:

$p_1x + p_2y = P$, and

$c_1x + c_2y = C$.

Whence

(1) $x = (Cp_2 - c_2P) \div (c_1p_2 - c_2p_1)$, and

(2) $y = (Cp_1 - c_1P) \div (c_2p_1 - c_1p_2)$

DEDUCTION OF RULES FOR COMPUTATION OF BALANCED RATIONS.

Formulas (1) and (2) will be found exceedingly convenient for persons who are accustomed to the use of formulas. For the convenience of those who prefer to use arithmetical rules the following may be deduced from the formulas:

TO FIND NUMBER OF POUNDS OF FIRST INGREDIENT.

1. Find the difference between the product of carb. in required ration by protein in second ingredient and the product of carb. in second ingredient by the protein in required ration.

2. Find the difference between the product of carb. in first ingredient by protein in second ingredient and carb. in second ingredient by protein in first ingredient.

3. Divide remainder found according to rule 1 by remainder found according to rule 2; quotient is number of pounds required of the first ingredient.

TO FIND NUMBER OF POUNDS OF SECOND INGREDIENT.

4. Find the difference between the product of carb. in required ration by protein in the first ingredient and the product of carb. in the first ingredient by protein in required ration.

5. Find the difference between the product of carb. in second ingredient by protein in first ingredient and the product of carb. in first ingredient by protein in second ingredient.

6. Divide the remainder found according to rule 4 by the remainder found according to rule 5; quotient is number of pounds required of second ingredient.

THE PRACTICAL APPLICATION.

Persons who are accustomed to the use of formulas will find the application of (1) and (2) very easy and expeditious. It will therefore not be necessary to take space here to exemplify this. But let us apply the rules to the calculation of a ration for our correspondent's 100-pound growing hogs.

Let us first make a ration composed of corn and alfalfa hay, calling corn the first and alfalfa hay the second ingredient. From Table X we shall have the following

MEMORANDA.

Protein in first ingredient (corn).....	Pound.	0.078
Carb. in first ingredient (corn).....	0.764	
Protein in second ingredient (alfalfa hay).....	0.11	
Carb. in second ingredient (alfalfa hay).....	0.423	

And from Table X we shall have

Protein in required ration.....	Pound.	5.0
Carb. in required ration.....	25.1	

By simple inspection of the nutritive ratios in Tables X and Y it will be seen that the nutritive ratio required lies between that of corn and that of alfalfa. It is therefore entirely practicable to form a balanced ration of these two feeds.

Applying Rule 1, we have from the above memoranda,

Carb. in required ration.....	25.1
Protein in second ingredient.....	0.11
Product.....	2.761

Carb. in second ingredient.....	0.423
Protein in required ration.....	5

Product.....	2.115
Difference 2.761-2.115.....	0.646

Applying Rule 2 we have

Carb. in first ingredient.....	0.764
Protein in second ingredient.....	0.11

Product.....	0.03404
--------------	---------

Carb. in second ingredient.....	0.423
Protein in first ingredient.....	0.078

Product.....	0.0368
Difference 0.03404-0.0368.....	0.0472

Applying Rule 3 we have

$0.646 \div 0.0472 = 13.68$ pounds of corn in ration.

Applying Rule 4 we have

Carb. in required ration.....	25.1
Protein in first ingredient.....	0.078

Product.....	1.9578
Carb. in first ingredient.....	0.764
Protein in ration.....	5

Product.....	3.820
Difference* 3.820-1.9578.....	1.8622

Carbohydrates in second ingredient....	0.423
Protein in first ingredient.....	0.078

Product.....	0.0330
Carbohydrates in first ingredient.....	0.764
Protein in second ingredient.....	0.11

Product.....	0.0840
Difference* 0.0840-0.0330.....	0.0510

Applying Rule 6 we have

$1.8622 \div 0.0510 = 36.5$ pounds of alfalfa in ration.

It will doubtless be said that a ration consisting of

Corn.....	Pounds.	13.68
Alfalfa hay.....	36.5	

is entirely too bulky for hogs. This is true and emphasizes the importance of using for young stock some concentrated feed other than corn. This ration should not have weighed more than thirty-five pounds in all. The use of skim-milk with corn and alfalfa is always profitable.

But this discussion will be continued over until next week, the editor having taken as much space as can be spared for this purpose this week.

(To be continued.)

THE MONROE DOCTRINE.

Within the last few days the British Empire and the German Empire have sent hostile fleets to the coasts of Venezuela, South America, for the avowed purpose of seizing the customs receipts of her ports in satisfaction of certain claims for indebtedness to English and German subjects.

This hostile demonstration has been resented by Venezuela and open hostilities have commenced.

The question of the interest of the United States in the case has been often raised. Reference is made in this connection to the "Monroe doctrine," as defining this country's position in the matter. It becomes important, therefore, to understand just what this Monroe doctrine is.

In his message to Congress December 2, 1823, President Monroe declared, that the American continents, by the free and independent condition which they have assumed and maintained were henceforth not to be considered as subjects for future colonization by any European power; and that the United States would consider any attempt by the allied powers of Europe to extend their system to any portion of this hemisphere as dangerous to our peace and safety, that with the existing colonies and dependencies of any European power we have not interfered and should not interfere, but that with the governments who have declared their independence and maintained it, and whose independence we have on great consideration and just principle acknowledged, we could not view with indifference any interposition for the purpose of oppression or controlling in any manner their destiny by any European power in any other light than as a manifestation of an unfriendly disposition toward the United States, and that it is impossible that the allied powers should extend their political system to any portion of either [American] continent without endangering our peace and happiness.

This Monroe doctrine has been re-

*It will be observed here that the first product is subtracted from the second, the second being the larger. Where this is true of both dividend and divisor the result requires no unusual interpretation. Should it be true of only the dividend or the divisor the result would be a minus quantity indicating that an absurdity had been introduced in assuming that a balanced ration could be formed from the two feeds chosen. This may always be avoided at the outset by observing the nutritive ratios, being sure that one of the ingredients has a larger and the other a smaller nutritive ratio than is required for the balanced ration.

peatedly reaffirmed by the United States. It caused the sudden withdrawal of French support for Maximilian whom Napoleon III had placed on a throne in Mexico. With the loss of French backing Maximilian soon lost both his throne and his life at the hands of the Mexicans.

One of the later prominent occasions for the use of the Monroe doctrine came during President Cleveland's administration when England and Venezuela were apparently about to engage in hostilities over a dispute as to the boundary between British Guiana and Venezuela. England was induced to arbitrate the disputed points and a settlement of a long-standing controversy was reached.

Doubtless the Monroe doctrine is now about all there is between Venezuela and the forcible appropriation of her territory. There is no little uneasiness in many parts of the United States lest it may become necessary on the present occasion to back up the Monroe doctrine with our battle ships and bayonets. Such fears are doubtless premature.

A CLEAN STATE FAIR.

At this, the end of the fair season, which has been culminated in the magnificent display at the International, it is well for all, and especially for those interested in the management of fair associations, to take accounts of this season's events. Much has been said and written against the giving of concessions by fair associations for entertainments of various kinds. Much more has been said and written against the quality of the entertainment furnished by these concessionaires. We hope the battle will be waged until a concession of any kind, except possibly for an eating place, shall be wholly unknown on the fair grounds. The old argument that a fair can not succeed without the money received for these concessions has been disproved and discredited.

A State fair is the State itself illustrated. Its purpose is educational. Its object is the advancement of the great industries whereon our people thrive. Nothing should be admitted within the grounds which will detract attention from the main object of the fair. Certainly no reasonable claim can be made by fair boards that they have attempted to carry out the wishes of their constituents while they at the same time use every means in their power to defeat the prime object and attract attention away from the legitimate exposition by admitting all sorts of fake shows, saloons, gambling devices, and criminal-making institutions. A State fair is inaugurated for the purpose of showing what is best in the State and not what is worst. It should be uplifting in its character and not degrading. When any board attempts to bring together the best and the worst that is obtainable, they succeed in drawing a crowd to patronize the worst and drive away those who would patronize the best. A clean State fair is not an iridescent dream. It is a matter of fact. It was accomplished in 1902 right here in the West and proved an educational and financial success, in spite of extremely adverse weather conditions. Missouri has set an example for the world. In spite of a terrific wind and rain storm on the opening day which destroyed both property and animals, and in spite of the fact that the week closed in a continued drizzle, the people came in such crowds on the one good day the fair had, that all debts and premiums were paid and cash left in the treasury.

Some day Kansas will want to hold a State fair under the management of State officials, and when this time comes we hope to see the excellent example set by Missouri adopted as a model. The Missouri State Fair of 1902, was only her second annual State fair, yet it was given entirely without concessions for fakirs, amusements, saloons, etc. No liquor was allowed on the ground and intoxicated men who were disorderly were promptly ejected therefrom. Dinner was furnished on the grounds by a church society, but no exorbitant charges were permitted. Every opportunity was given to the visitor to study the exhibits and make the most of them without having his attention constantly distracted by robbery and by crime-making institutions. We want to see a State fair established in Kansas which shall illustrate Kansas, and not the amount of sin and crime that can be imported. Kansas is the State which does things; let her do her State fair right. As a good book is enhanced in value by appropriate illustrations, so a State is more readily accepted her true place among her sisters when well illustrated by a State fair.

RURAL FREE DELIVERY.

A letter from Mr. Wm. Moore, Danby, Ness County, Kans., makes inquiry in regard to the steps necessary in securing a rural free delivery mail route. We take pleasure in giving what information we possess in regard to this exceedingly important matter. Under the published regulations of the post office department it is only necessary for the residents along the proposed route to petition the department for its establishment.

The petition is filed in the department and in time a special agent is sent out to inspect the route. If it is found that there are a sufficient number of residents along the proposed route; that the roads are well kept and the bridges secure from damage by flood, the special agent reports favorably, and his report, together with the petition, is filed for action in the department in the regular routine. If the neighborhood is such that it will not keep the roads in good repair; if there are unbridged streams crossing the route; or if the residents refuse to comply with the rules of the department in regard to the purchase and placing of approved mail boxes, the route will not be granted. Mail boxes of one of fourteen different makes are the only ones sanctioned by the department rules. These boxes are frequently given as premiums by enterprising newspapers or may be bought direct from the factory.

The securing of a route through petition is the method generally recognized and approved, though within the last year or so the department has experimented on what it calls a county system. When it is learned that the citizens of a certain county desire the rural mail service, the department has in a few cases selected such county for the establishment of a county system. In this case the special agent is sent in to the county with the instructions to map out the necessary routes and establish them regardless of lines petitioned for. The first experiment of this kind was made in McPherson County, Kans., where Col. H. J. Ormsby established so perfect a system that the county patrons are enthusiasts and the department well pleased. Later on a similar system was established for Sumner County, Kans., but it was not secured through any county organization as our friend seems to think. When a neighborhood has sent in its petition for a route it has done all that can be done under the requirements of the department and must wait then until the department takes action. Sometimes this wait is a long one and parties have been known to urge their congressman to hasten department action. In fact the influence of a congressman is of very great importance in securing early action on a petition. Our friends are now with two options before them. They can either wait patiently until their turn comes in the regular routine of business, which may be a year, more or less, or they can bring to bear such influence on the department as their congressman may wield and thus secure an earlier action than would be possible if left to the routine order.

LEARN TO FEED.

It has been claimed, and very justly we think, that no breed of cattle has shown more advancement than have the Galloways in the last few years. This leads us to remark that the breeders of this breed have also learned that feeding is as important as pedigree. For years it has been true that the Galloways have shown undoubted merit, but that their breeders have not learned to feed as they should, and hence the show rings sometimes contained poorly fitted cattle. This year the show-rings have contained cattle that were remarkably well fitted, and this, together with the number on exhibition, has served to create a more wide spread interest and a deeper inquiry into the merits of the Galloways. It would be fortunate if it were possible to hammer it into the heads of all breeders that their efforts are practically failures unless they know how to feed. Of course in the show-ring one sees well-fed cattle as a rule, but in the sale-ring the reverse is too often true. While the average buyer will tell you that he does not want to buy animals in show condition but only in good breeding condition, the fact remains that he will scarcely offer a bid unless the animal is fat. While the practice of the buyer in the sale-ring frequently differs from his announced intention, he is in some measure justified in his practice. If an animal appears in thin flesh the buyer has a right to suppose that it is either ailing, or is unthrifty. The supposition is a fair one that animals appearing in either show- or sale-ring are at their best, and if they appear

thin, suspicion is at once aroused, or interest in the animal is lost. The writer recently attended a sale of pure-bred cattle where the offering consisted of animals of the most fashionable families for that breed. Behind this offering was a reputation of long years standing of the breeders. The animals themselves were good animals and everything seemed to indicate a prosperous sale until the animals were examined. They had not been fed properly and this was the sole reason for a low average price at the sale. Buyers of pure-bred cattle will pay much more for tallow in auction sales than will any packing house, and a few dollars invested in feed and care will bring many dollars in returns in the sale ring. One of the great missions which the agricultural colleges have in the live-stock world is that of teaching its students, and through them the farmers of the State, how to feed. The recent victory of the Iowa Agricultural College in winning the Spoor trophy at the International is a great victory for progress, and the reputation which some of the professors of agriculture in these colleges have won will be the foundation on which the success of our breeders in competition with the world will be founded. Pedigree is a necessary thing, but it only indicates the possibilities of the animal. Good feeding is another necessary thing, and the two combined will produce a Shamrock or better each year for the skillful breeder and wise feeders.

THE STATE GRANGE MEETING.

The Kansas State Grange held its annual meeting last week at Lyndon, Osage County. The growth of the order during the last year was reflected in the increased representation. It was clearly apparent that the time and spirit of expansion have struck the grange and are meeting with a steady response.

Many years ago the order was placed in a position of disadvantage by the machinations of politicians. It long since turned away from all such allurements, but the evil effects of such dallying as was done have been slow in passing away. But those who have kept the organization in existence are men and women of conservatism and sense. They have emphasized the principles and purposes of the grange and have insisted upon strict observance of the constitution.

The minor advantages of membership in the grange are directly financial, but the principal advantages are social and educational.

The State Grange did its regular annual work, a full report of which will be published in the KANSAS FARMER by the secretary. The master's annual address will be found in the Grange Department this week. Its next meeting will probably be at Arkansas City, although the final determination of the place for the next meeting was left to the executive committee.

The Thirteenth Biennial Report of the Kansas State Board of Agriculture is expected to come from the printer about the first of January. This, the Secretary says, is to be a book of about 1140 pages, containing 230 illustrations, and a sort of cyclopedia, to date, of information relative to agriculture and animal husbandry. Being issued some time before the legislature will have provided postage for its distribution, persons desiring an early copy will need to send the Secretary, F. D. Coburn, at Topeka, the necessary stamps—probably 32 or 33 cents.

Publisher's Paragraphs.

The McMillan Fur & Wool Co. have placed their circular of December 1 on file at our office for reference. This house was established a quarter of a century ago, and on account of their extensive business, they are in a position to pay high prices. Shippers find their dealings with them very satisfactory.

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 year and expenses, payable \$19.70 a week in cash and expenses advanced. Position permanent. Business successful and rushing. Standard House, 334 Dearborn St., Chicago.

The ounce of prevention is especially valuable when a cure for a disease once started has not yet been discovered. Kine, a positive preventive of cornstalk disease, will prevent this fearfully fatal disease among stock. When a firm so eminently trustworthy as E. E. Bruce & Co., of Omaha, recommend a preventive for cornstalk disease, it certainly merits the attention of farmers and stock-owners. If you own a herd of stock you should write them at once E. E. Bruce, Omaha, Neb.

A very good opportunity is now afforded our readers to purchase a standard stock fence at a greatly reduced price by W. H. Mason & Co., of Leesburg, Ohio, who are advertising in our columns. It is a fence equal to any on the market for general farm purposes, and the price, 29 cents per rod, should arrest the attention of all who

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is but a question of getting all the cream (butter fat) out of the milk. With the old setting system your loss is over 80 per cent greater than with a

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make an effort to buy to their own best advantage. The firm carries a full line of wire fences and fence supplies. They will gladly mail their catalogue free to any one writing them for it.

While the beef-cattle and the hogs are among the best money-making animals there is no animal that is so profitable for the money invested or that brings so regular returns when properly handled as the hen. The grain-raising farmer meets with certain "dry spells," when his surplus capital is invested in his crops and his labor bills, and ready change is a little scarce. Right here is where the hen gets in her fine work. Poultry and poultry products are always present and always saleable. In order to get quick action on your money a large number of hens is necessary and these must either be purchased or raised. By the ordinary process the raising is slow hence the wonderful results that are obtained now by the manufacturers of incubators. Incubators have been improved with increasing knowledge until they seem well-nigh perfect, but, like any other machines, brains are required to run them successfully. After a personal trial of several incubators we believe the Hiawatha to be one of the best and it has the added advantage of being the only one manufactured in Kansas. A card addressed to the Hiawatha Mfg. Co., Hiawatha, Kans., will bring a handsome little book that will tell you all about it.

Delighted With Results.

Ada, Ind. Ter., November 23, 1902.
Dr. B. J. Kendall Co., Enosburg Falls, Vt.
Gentlemen:—I have used your Kendall's Spavin Cure for several years and am delighted with its results and take pleasure in recommending it to the public. You will please find enclosed a two-cent stamp, for which send me your "Treatise on the Horse and His Diseases." Most respectfully,
J. M. RANNEY.

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.

Business Opportunities for All.

Locations in Iowa, Illinois, Minnesota, and Missouri on the Chicago Great Western Railway; the very best agricultural section of the United States where farmers are prosperous and business men successful. We have a demand for competent men with the necessary capital for all branches of business. Some special opportunities for creamerymen and millers. Good locations for general merchandise, hardware, harness, hotels, banks, and stock-buyers. Correspondence solicited. Write for maps and Maple leaflets. W. J. Reed, Industrial Agent, 604 Endicott Building, St. Paul, Minn.

Surely it is not to be wondered at that an organ that has such an immense amount of work to do as the heart should be affected when exhausted by the use of coffee, tobacco, or other heart stimulants, or by wearing the clothing so tight that it interferes with its proper action.

How this may come about is to some extent explained by comparing the heart with the eye. The distinctiveness of sight is under control of a little muscle in the eye. When this becomes very tired from overwork or weakness, like all other muscles, it is liable to relax. Then the eye is out of focus and blurs.

When weakened by disease or overwork the heart becomes tired in consequence of its immense strain, and many disastrous results may occur if it is not strengthened and its powers restored. Thus the over-taxed fibers relax like the muscle in the eye and the overworked brain no longer receives its necessary amount of blood. Then fainting takes place. Should the heart muscles remain entirely relaxed for a minute or two, as that of the eye frequently does, the person drops dead.

If your heart flutters or palpitates; if you suffer from shortness of breath or smothering spells frequently at night, causing you to sit up in bed to breathe; if the feet and ankles frequently swell; if the extremities are often cold, showing thin blood and poor circulation; if you can not sleep lying on your left side; if you suffer from pain in the left side or in the region of the heart, your heart is weak or diseased, and treatment should not be delayed a single day.

Dr. Miles' Heart Cure will do away with the disagreeable symptoms by strengthening the nerves which control the heart's action, enriching the blood, improving the circulation and renewing wasted tissues. It has cured thousands where all else failed. It is a great heart and blood tonic.

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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.

Of Interest to Skimming-Station Operators.

The writer has visited a large number of skimming-stations the past few months in his travels about the State as a lecturer before farmers' institutes. Many clean and well-kept stations were in evidence. Of these we do not wish to speak but rather of and to those which are quite the reverse. It may be set down as a maxim that there is no excuse whatever for a dirty, filthy station. This term may express an idea a little too strong to describe all stations which are not absolutely clean, for there are all grades of care shown in the work.

The station-operator holds the same relation to the community wherein his station is located as does the butter-maker to the individual creamery. He holds the same relation to the central creamery that the butter-maker in the small creamery does to his commission merchant. In the community he should be the inspiration for cleanly dairying, and his example as manifested in the work about the station will be more than precept in the right direction. In fact if the station is allowed to become a place of accumulation of all kinds of odors and more substantial filth, he will not need to expect care on the part of the patrons in keeping milk clean before it arrives at the station.

Under our present system of creamery management the improvement of the milk-supply in quantity and quality must rest with the station-operator. He is in a responsible position. He need not say that he is not paid enough and hence can not afford to keep clean, or that because his wages are not very large he has a right to work just as little as possible. One of the sure ways to the confidence of the people is for the operator to do his part of the work so that it is above criticism. Very few people who have any pride in their work relish taking their milk to a dirty, ill-smelling station, and who can blame them? The writer has sometimes written about grading cream and paying for it according to its quality. The station-operator who does not keep everything bright and shining about his station will not be the man to do this grading.

There is another matter which the stationman should take some pride in, that is the outward appearance of his building and grounds. Too often the natural advantages are against the best work in this line, but there is absolutely no excuse for having everything about the place look as though it were a junk-shop. The skim-milk vat is often hardly fit to be seen, much less smelled. If the operator took pains to keep these things in best condition and exhibited a pride in the fine appearance of his station, we feel that it would be a bad management indeed that would refuse a little paint to keep things looking fresh and clean.

E. H. W.

Churning on the Farm.

Numerous inquiries come to the college relative to the difficulties met with in making butter on the farm at this time of the year. Quite often not enough data is given to give very intelligent answers.

There are several things which are of a general nature, which are the subject of inquiry. The usual time of churning should not exceed thirty to forty minutes. Frequently, some one says it takes from one to five hours. A number of things may cause this. A frequent thing is the filling of the churn too full. A barrel churn should never be filled over one-half full, better not over one-third full. When too full, the cream does not fall far or hard enough to make a concussion which is necessary to collect the minute particles of fat together.

Another difficulty is, turning the churn too slow or too fast; in either case the cream does not fall and hence does not receive the concussion it should. If too fast the cream is carried around with the churn; if too slow it runs down the side instead of falling. The operator must experiment until the feeling of the pounding is the greatest and keep that speed.

Another difficulty met in the winter quite frequently is churning at too cold temperature. We must churn cold in the summer but in the winter the cows are more or less strippers, the milk is more viscous and we do not ripen or sour it so much, hence we must raise the temperature of churning sometimes to nearly or quite 70°.

Sometimes in the winter a peculiar fermentation takes place in the cream owing to its standing at a low temperature which makes the churning difficult. It is better for this, and for quite another consideration, that of flavor, to use a good starter in the cream. This is a simple thing to do. When you have enough cream to make a churning, take some swim-milk if you have a separator, or whole milk if you do not have one, and put it in a warm place at about 80° and let it sour until it has a fine, hard curd or clabber. This must be pleasant to the taste to be desirable. The finer the flavor of the starter the better will be the butter. If it is just right to eat with some sugar and cream and make your mouth water for more, it is all right.

If you have four gallons of cream, add from two to three gallons of this starter, first pouring it over until it is thoroughly broken up and is creamy in appearance. Let the mixture of cream and starter stand for a few hours until the cream partakes of the same fine flavor as the starter and then churn at a temperature that will bring the butter in about thirty minutes.

Use a little color in your butter this time of the year, just enough to give it the grass-color of June. It will look better and will be more appetizing. There is not enough coloring necessary to harm the butter in any way. Instead of using coarse barrel-salt, use fine table-salt if butter-salt is not at hand. Churn until the butter is about the size of wheat-grains, and wash with clean, cold water and salt in this condition. Do not work the butter until it looks greasy. Do a little experimenting in all these things and study to suit your patrons' taste. A good grade of butter at this season of the year should bring from 25 to 30 cents per pound with private customers.

E. H. W.

Records of Individual Cows.

The value of records of individual cows can not be too highly estimated. It is the only way to find the profitable and unprofitable cow. The keeping of

records of individual cows seems to make the milker more enthusiastic. He does his work neater, more regular and better. He is anxious to know what the test is, and the weight of the milk from each cow. The Kansas State Agricultural College found by keeping records of individual cows, that 25 per cent of the scrub-herd were not profitable cows. A man who owns milk-cows can not afford to let the work go on and not keep a record of every cow in the herd. There may be a few cows in the herd that are keeping the average of the herd down and the owner does not know it until he has kept a record of each cow, and knows just how many pounds, and the test of the milk that each cow gives. One cow may give milk that tests 5 per cent, and the owner thinks she is the best cow in the herd, but she may not give enough milk to pay for the feed she eats.

Zargola, one of the college scrub-cows gave milk that tested 4.23, a good test, but only produced 3,730 pounds of milk in one year. While on the other hand a cow may give milk that tests only 4 per cent and she be the most profitable cow in the herd. Zacona, another of the college scrub-cows, gave milk that tested 4.21 per cent and produced 9,116 pounds of milk in one year. In the case of Zargola the cost of producing one pound of butter-fat was 19.8 cents, while with Zacona the cost of producing one pound of butter-fat was only 8.5 cents. Zacona produced 383.7 pounds of butter-fat, showing her to be the better cow although her test was not so high as Zargola's. But how did the managers of the herd discover this difference between the two cows? By keeping a record of each cow and comparing them at the end of the year. But you say that it takes too much time to keep so many records. How much time will it take to balance your milk-pail on the scales and weigh and record the weight and take a composite sample of each cow's milk? About one-half minute to each cow; counting one-

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half minute to the cow in one month you will have about thirty minutes that you have spent in keeping a daily record of each cow. You can do the testing of the composite samples at the end of each month in your leisure time. Then you know whether your cow is a profitable cow or one that is running you in debt for her feed and keeping the average of your herd down.

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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

"BLUE VALLEY CREAMERY CO., St. Joseph, Mo."

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. Beard, McLouth.
Secretary.....Geo. Black, Olathe.

Annual Address of E. W. Westgate, Master of Kansas State Grange.

To the Officers and Members of the Kansas State Grange: It is with pleasure that I welcome you as the chosen representatives of the Patrons of Husbandry in the State of Kansas to this our thirty-first annual session.

THE CONDITION OF THE ORDER.

The year 1882 marked the ebb of the tide in the decrease of membership and number of subordinate granges, and since that time we have steadily but slowly increased, and for the last year our gain in new granges organized, and dormant granges reorganized has been larger than that of any preceding year for the last twenty years, and nearly all of our subordinate granges have received substantial additions to their membership. Three more counties are entitled to representation in this body than at our last session. One Pomona Grange has been organized in Osage County. It is under good management and is doing good work. Other counties might well follow their example.

In co-operative grange stores, Kansas excels all other States in number, financial strength, and success. The exact condition will be given in other reports during the session.

But the one cooperative enterprise in which we are nearly all personally interested, viz., the Patrons' Fire and Tornado Association, is especially to be congratulated on its success, not only for the whole thirteen years of its existence, but especially for the last three years in which the premiums received have paid all losses and running expenses. This is the result, in part, of few losses, while those in other companies have been unusually large. Our rules require every risk to be examined by our agent before application is received, and no risk is accepted for more than three-fourths of its actual value.

Every agent should be held to a strict compliance with our rules, for if each agent is allowed to accept risks at his discretion as to amount of danger of loss, we lose our equal protection and our mutual benefit disappears.

THE NATIONAL GRANGE

held its thirty-sixth annual session at Lansing, Mich. For the last three years, Michigan has led all the States in increase of working subordinate granges and was thus fairly entitled to the honor of entertaining the National Grange. Banquets and excursions were freely offered, more than could be consistently accepted.

A certain amount of time spent in this way is by no means spent in vain. United States Senators and Representatives, State officials, city authorities, and leading business men in all departments of industry are brought into intimate intercourse with the leaders of our order and learn more fully our objects and desires. Friendly interchange of courtesies between representatives of conflicting, yet interdependent interests, frequently result in the good of both. As in our own, so in all the States collectively, more subordinate granges have been added to our list in the last year than in any one of the last twenty years. Two States, Maryland and Iowa, regained their representation in the National Grange. Twenty-seven States are now entitled to representation, and we have never been so well organized, never enjoyed the confidence of State and National authorities never wielded so great influence in the executive and legislative departments of the nation and in many of the States as at present.

We are the only organization of farmers that can send our representatives to Washington backed by a constituency that will command a hearing.

The report of the treasurer showed a balance of \$65,000, two-thirds of which are invested in real estate securities. This fund has been so wisely and carefully guarded that not a dollar has ever been lost.

The address of the worthy master and the reports of the several officers

and of the important committees will command the attention of the public to a degree rarely if ever surpassed. Upon the subject of education in district schools and agricultural colleges and upon the working of our transportation system, the National Grange spoke with no uncertain sound.

Invitations for the next meeting were received from Ohio, California, Connecticut, Maine, and New York, and New York, with its 60,000 Patrons of Husbandry, was selected for the meeting in 1903. The following subjects were recommended to, and urged upon, the attention of Congress:

1. The extension of free delivery of mails in rural districts, and that the service be placed on the same permanent basis as the delivery of mail in the cities, and the appropriations be commensurate with the demands and the benefits of the service.

2. Provide for postal saving banks.
3. Submit an amendment to the constitution providing for the election of United States Senators by direct vote of the people.

4. Submit an amendment to the constitution granting power to Congress to regulate and control all corporations and combinations, preventing monopoly and the use of corporate power to restrain trade or arbitrarily establish prices.

5. Enlarge the powers and duties of the Interstate Commerce Commission as provided in Senate bill No. 439.
6. Regulate the use of shoddy.
7. Enact pure food laws.

8. Provide for the extension of the market for farm products equally with manufactured articles.
9. The enactment of an anti-trust law clearly defining what acts on the part of any corporation would be detrimental to public welfare.

10. The speedy construction of a ship-canal connecting the Mississippi River with the Great Lakes and the Great Lakes with the Atlantic Ocean.

The several State Granges were asked to continue to urge upon their respective State legislatures appropriate legislation upon the following important matters:

1. Anti-trust law, and provision for State inspection of all corporations.
2. Secure law on taxation that will compel all property to bear its just proportion of taxation.
3. Pure food laws.

The present Congress has granted protection to the dairy interests by the enactment into law of the Grout bill. The friends of the bill in Senate and House were frank to say they would not have been able to secure passage of the bill without the united influence of our order.

The manufacturers of oleomargarine attempted to nullify the law by securing a ruling of the Secretary of the Treasury, allowing the use of palm oil in the manufacture of oleomargarine. The use of palm oil would have the effect of imparting a yellow color to oleomargarine. In accordance with the protest of our legislative committee the desired ruling was refused.

NEEDED LEGISLATION.

A very important bill affecting every tax-payer in the State will be presented to our Legislature at its next session. Its object is twofold—first, to cause the assessment of all property at its full value, and, secondly, to put upon the tax-roll a large amount of property and valuable franchises of individuals and of corporations that now escape taxation. This bill if it can be enacted as it is, will be a great improvement upon the present law upon taxation, but it will be persistently opposed by the mercantile and corporate interests through paid attorneys without regard to expense. It is therefore incumbent upon the farmers to see to it that those portions of the proposed bill, which will increase the assessed valuation of farm and farm products, be not enacted into law unless the corresponding portions relating to other property be also adopted.

FIELD MEETINGS.

In July a series of grange-picnics or field-meetings was held which resulted in at least one new grange and several additions to existing ones. Eleven of these meetings were held, eight of which were addressed by the National master, Hon. Aaron Jones, ten by the master of the State Grange, eight by Mrs. Calvin, of the Agricultural College, and seven by Prof. D. H. Otis. These meetings varied greatly in numbers present, more than ten times as many at some than at others, and yet I am not sure but the good accomplished was in inverse ratio of numbers in attendance. The greater part of the expense of these gatherings was met by the localities visited.

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Winfield, Kansas.

We will bind ourselves to buy your Separator Cream from any Centrifugal Separator on present basis for five years.

How Does This Proposition Impress You?

We will bind ourselves to buy your cream for five years on our present offer and give you the privilege of stopping at any time you desire. We will pay for Butter-fat in cream as shown by the Babcock test, on basis of quotation of Extra Separator Creamery Butter in New York, as follows:

New York Quotations Generally One Cent Higher than Elgin.
Within 150 miles of Winfield, 2 1/2c less | From 200 to 250 miles, 3 1/2c less
From 150 to 200 miles, 3c less | From 250 to 300 miles, 4c less
Mark your cans, deliver to your express agent, we do the rest. We will pay all express charges and return cans free of charge. We pay our customers twice each month. Give us a trial and you won't regret it.

We want your Cream; but you can stop shipping at any time it suits your interest, or convenience. If you send us only one can a month, we will thank you and use you right. When you commence doing business with us once you will have no reason to quit. Our manner of doing business, and our attractive inducements are bound to please. The enormous business which we have established, and which is increasing every day in the face of strong competition, is evidence that we have the very best outlet and procure the highest market values for our finished products. This of course enables us to pay you more money for your cream and produce than others. Write us or call on us for further information.

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

THE AGRICULTURAL COLLEGE.

Year by year the college and the Grange are uniting to a greater degree in our efforts to a common end, the creation of a nobler and happier manhood and womanhood in the rural homes of the land.

The Kansas Agricultural College is the largest of its kind in the world, and if it could be freed from the fear of control by partisan politics, and sufficient appropriations were regularly granted by the Legislature to obtain and retain the best teaching and administrative talent in the land, and thoroughly equip the various departments of the college, we would have not only the largest, but the best in the country. We have all heard that a prophet is not without honor save in his own country. So some of the most severe critics of the college are found at home, and probably none so well know its failings as those most intimate with it; and hence I am glad to notice that in the sharp—almost bitter criticism of the Agricultural College at the last session of the National Grange, our college at Manhattan was one of the few that were willingly excepted. Notwithstanding its trials many and troubles sore for the past few years, taken all in all, it ranks among the very first of its kind in the country. Every member of our order, every farmer with his wife, son, and daughter in the State of Kansas should demand that the management of the college should not be in danger of removal at every election and that ample funds be provided to meet all reasonable demands.

THE PRESS.

The influence and usefulness of the press as a means of reaching the people and commanding their attention, need no words of commendation at this time and place.

The National Grange Quarterly Bulletin, published by the lecturer of the National Grange, is the only regular publication under the control of the National Grange, and hence the only one for whose utterances that body is responsible. This paper is composed entirely of grange literature and a copy of it will be sent quarterly to the lecturer and possibly to every officer of every subordinate grange, but this will contain no grange news or information upon general current events.

At the meeting of the National Grange in 1901 it received a communication from the proprietor of the American Grange Bulletin, published in Cincinnati, Ohio, offering to publish free of charge of official communications from the officers, executive and legislative committees of the National Grange, and from the officers of all State Granges. Whereupon the National Grange adopted the following resolution, namely, "Resolved, that while we thank all papers for what aid they have rendered in the past and may render in the future in disseminating grange news and advocating grange principles and purposes, we recommend that all official communications from National and State Granges be also sent to the American Grange Bulletin, that we may make available this generous proposition to the fullest extent, and that we express our thanks to Brother Wolcott for his liberality on his part."

As far as I know this paper contains more information concerning the work, principles, and purposes of our order than any other regular publication, but the order is responsible for nothing in the paper unless signed by an officer of the National or a State Grange.

The Kansas Patron has long been the official organ of our State Grange and

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with the exception of two or three months last winter, the most valuable time for grange work, it has for the last two years contained more of solid grange literature than ever before within my observation.

The offer of the proprietors of the KANSAS FARMER of a page in that paper was accepted, and on account of its wide circulation throughout the State and beyond its borders, it has been the means of attracting wide-spread attention to the work and purposes of the order in the State and Nation.

GOOD OF THE ORDER.

This is, or should be, the real object of our meeting at this time; to compare notes, consider means, to consult and advise with each other and if possible devise methods by which one may more fully reap the benefits that may and should be derived from our union with the order.

More than half of our membership already enjoy to a great degree the advantage to be obtained from cooperation in buying every material object for household or farm use, but not so much has been done to obtain for ourselves our full share of the profits to be derived from the sale of our farm products; and that we do not receive our just share of these profits is evident from our own observation and is proven by the fact that while our farm products feed and clothe the 80,000,000 of Uncle Sam's numerous family, and besides this send to other countries enough every year if reckoned by the exporters' price, to make a present of a gold eagle to every man, woman, and child, who enjoys to its fullest extent, the privileges and protection of the Stars and Stripes, that while we produce 70 per cent of the wealth of the nation our share of it has shrunk from 55 per cent in 1850 to 21 per cent in 1900.

Some relief can be derived from national legislation, and as much or more may be gained if we but learn from our competitors in the struggle for the good things in this life to stand by and work with each other in the contest for our fair share of the results of our own labor, and thus live together in prosperity rather than to be driven to the wall one by one.

But though financial benefits are the principal incentives in the minds of some for uniting with our order, it is by no means the greatest good resulting from our organization. Mind is superior to matter, intelligence to ignorance, character to world wealth, and it is for the improvement of the individual first, with the increase of value and beauty of his surroundings, following as a natural consequence,

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that a great majority of our membership, especially in the older States, is earnestly working.

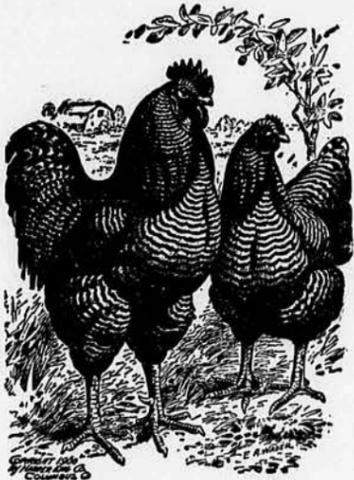
Frequent meetings, strict compliance with the laws of our order, faithful obedience of our sacred obligations, thorough study and appreciation of the ritualistic work, a literary program including every member as often as possible, and cheerful performance of every duty assigned for the lecture hour, a social hour now and then for old and young, occasional open meetings for the benefit of those who should know more of our work, a willingness to give as well as to receive, to do good as well as to get good, all tend to the upbuilding of the individual, to be improvement of the home, to the creation of a nobler life, not only for those who remain on the farm, but for those who are being steadily drawn from this great and most bountiful reservoir of healthy blood, moral force, and intellectual and business abilities to supply the great demands in other fields of human toil and achievement.

Brothers and sisters, with this session the duties of the position conferred upon me two years ago are brought to an end. If all has not been accomplished which we wished for them, our treasury is in better condition, our membership has been increased, our lines extended, public attention has been commanded and on the whole, there is a brighter outlook for the future than when we parted that dark night at Manhattan two years ago. I thank you for the honor bestowed upon me then. I have enjoyed your hospitality and friendly greetings. The privileges of the National Grange are a boon to every one favored by their possession. I cheerfully resign the gavel to my successor, and bespeak for him the hearty cooperation of every member under our jurisdiction. Officers and members, the duties of our thirty-first annual session are before you, those who sent you here look to you for renewed enthusiasm and counsel. Remember your obligation. Fraternaly,
E. W. WESTGATE,
Master Kansas State Grange.

The Poultry Yard.

Barred Plymouth Rocks.

Barred Plymouth Rocks of the present time that are well bred up to the latest standard requirements are quite a different bird from the Barred Plymouth Rocks of old. So much attention has been given the breeding of this popular variety, that they have attained advantages in different ways. Not only have they been increased in size and weight, but in color of plumage, shape, and constitution. In this breed we



find the most vigorous and hardy strains, rapid growth into pounds of choice meat, and the best egg-production. The Barred Rocks are not decreasing in popularity, but steadily on the increase, in whatever line they are handled. The enthusiasm of the fancier has not become dull in the least, and this variety is still standing at the head of the list at all the poultry exhibitions; they are on an equality with the best, and no bird demands any higher price than the well-bred Barred Rocks.

The Barred Rocks are with the leaders as a fowl, and perhaps more farmers have them than of any other variety. To breed Barred Plymouth Rocks, and have good standard birds, or even good hardy farm fowls, requires some knowledge in mating them to keep up their good qualities, for, like any other breed, they will deteriorate rapidly if carelessly kept. Cockerels should be selected, if cockerels are to be used, that are in good shape, not too leggy, but good

heavy bone, shanks of proper length, and not too short, legs golden-yellow to the points of the toes, free from feathers or down of any nature. Clear yellow beaks are mostly found on cockerels, but many good high-scoring ones have some black lines in beaks. Bright bay eyes, low combs, evenly serrated, five points preferred. Great interest is taken in this variety in the color of plumage, not only the surface color, but the color of the feathers down to the skin. The parallel bars of blue-black that appear on the surface of the feathers, should run down the feather to the skin if possible, but on cockerels it has been a difficult matter to produce a large per cent of such coloring. Some strains do, and I have seen and handled such stock, that in other good points do not lack either, so that it could not be said of them that the bird itself was overlooked for color of plumage. The highest scoring cockerel must thus be well barred down in all sections to the skin of even parallel bars. It is very common in cockerels to see the barring run down half the length of the feather, with traces of barring deeper, but not distinct. The wing-feathers, and tail-feathers should carry this barring in almost all cockerels, down to the roots, and those showing a white feather in tail or wing are not fit to use as breeders, as they do not show good blood.

The female in Barred Rocks seems to be somewhat of a different bird in her general make-up from the male. The plumage is much darker, as generally bred; and because of this great contrast in color between the male and female, and the standard's requirements of bringing them near an equality in color, the double-mating process has been used to some extent with fanciers. This is the selecting of light-colored males and females to mate together, thus producing light-colored birds, the pullets coming nearer standard color; the cockerels being too light to be of any use as breeders. Cockerel matings are made from dark standard color in pullets, and dark cockerels; thus mated they produce dark chicks, the cockerels of standard color, but pullets too dark to be of use as breeders. The Barred Rock female if good blood, is well barred down the feathers to the skin. She has not the bright clear yellow legs or beak, that the males have with but rare exceptions. We have no trouble in single-mating to produce a good even flock of Barred Rocks, and I have seen double-mating that did not show as good results in this line as a good system of single mating.

A. H. DUFF.

Larned, Pawnee County.

Winter Eggs.

EDITOR KANSAS FARMER:—The most successful winter poultry house I ever saw was a big open straw cattle-shed. The shed had been covered direct from the stacker of a threshing machine. The roof, north side, and ends were several feet of straw and chaff. Some thirty head of cattle were in the shed and yard nights, and running in the corn stalks daytime, besides there was a hog trough in the yard where the shoats got their daily slops of bran, shorts and waste vegetables.

I was a boy at home with my parents at the time. My father believed in being liberal with salt, the cattle had their salt box and all the slops for the swine were seasoned with salt. I remember that an argument was up as to whether the fowls would get too much salt at the hog troughs.

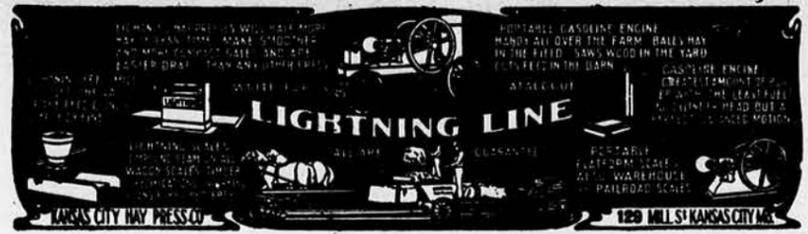
Up over head in this shed were a variety of poles and brush that served to hold the straw up. Flock after flock of the early hatches took up their roosting places in the cattle-shed and by cold weather, the regular hen-house was almost entirely deserted. Some 150 hens, mostly early pullets, were roosting in the cattle shed by December 1, and the daily output of eggs was from five to eight dozen, and it continued all winter.

When the weather got colder and stormy days came, the cattle were fed in racks, clover and timothy hay and millet hay, corn fodder, etc. The cattle were constantly working down some of the straw shed and finally the shoats went to sleeping in the litter.

That old straw-shed seemed to be a home for most everything that could get into it. Even the flock of quails made daily visits and worked with the hens in and around the yard and shed.

I do not remember of a single ailing fowl all winter and when spring came, they were bright and ready to hunt in the nearby grove and orchard.

At that time, I looked at all those things as a "matter of course," but since I have grown older and read and listened to up-to-date methods, scientific ventilation, jim-crack feeds and sani-



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SCOTCH COLLIES—Some fine females, from registered stock, for \$4. A. P. Chacey, R. R. 1, North Topeka, Kans.

I HAVE some very fine pedigreed Scotch Collie pups for immediate shipment. I also have some extra fine B. P. Rock hens and young cockerels will sell at a bargain if taken soon, as I need the room. Can furnish pairs, trios or pens headed by a male no kin to hens or pullets.
W. B. WILLIAMS, Stella, Neb.

tary poultry houses, my mind wanders back to the old straw shed, its simplicity and its success. I have firmly made up my mind that lots of up-to-date poultry theories are more theoretical than practical and if it was possible for all poultry raisers to have an old straw shed, that chicken doctors and remedies would not be so popular as they are now.

I am a firm believer in lots of litter for the fowls to work in, also a variety of feeds and unlimited pure air. Still more, I believe fowls should have plenty of salt and water. Stop and think of it, an egg is nearly eighty per cent water, the hens must have water in abundance and unlimited exercise and pure air. Yes, salt will kill fowls, and it will kill stock, too, but it will kill nothing if it has been managed carefully.

Sunshine and pure air were made for fowls as well as other life, and while it is so cheap, why be stingy with it? Straw, chaff, leaves and other kinds of litter are enjoyed by hens just as much as a pond of water is by ducks. The water may not do the ducks any particular good, but plenty of dry litter does the hens good, the scrotching in the litter keeps the hens warm and healthy, besides the litter absorbs moisture and keeps the ground or floor under it warm. In building poultry-houses we should study the hens more and ourselves less.
M. M. JOHNSON,
Clay Center, Neb.

Practical Poultry Points.

One advantage in feeding sorghum, broom-corn, Kafr-corn, or seeds of this kind without threshing is that it affords a means of exercise and of giving the fowls something to do, as they will pick off the seeds and scratch over the heads for some time after feeding. We are feeding two big wagon-loads this winter to our poultry, and have fed it several years to a good advantage, feeding whole corn at night and a warm feed in the morning and consider it one of the best of returns.

Fowls must have sand and grass with which to grind their food. This is especially important during the winter when of necessity the fowls are confined under cover. When they have a good range they are able to pick up all the gritty material they need, but during the winter months it is best to keep a supply convenient.

It will aid materially in securing a good supply of eggs during the two or three wet months, if care is taken to supply the hens with a warm breakfast. The scraps from the table, the vegetable parings, corn-meal, and wheat bran may be cooked with sweet milk until thoroughly soft and then fed warm as the fowls fly down from the roosts.

In breeding to improve, it is especially important that the male bird be right in every particular, for though he may have a dozen mates yet he is one-half of the yard. Be sure that he carries a high head, possesses a broad breast, and crows loud and long.

In fattening fowls to the best advantage it is the best to feed a little at a time often, rather than give more at any one time than is really eaten up clean. Many a case of indigestion may be traced to a heavy feed in the morning and the next meal taken from what was left over and trampled on by the fowls.

Powdered charcoal is a most effective disinfectant and the fact that fowls will pick up many pieces of it is good evidence that they enjoy it and that it supplies a want in their system.

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Miscellany.

That Dual-Purpose Cow.

EDITOR KANSAS FARMER:—If I understood it the question was a question of dairy breeds on the part of "Farmer" from Franklin County a few weeks ago...

That the Red Polled cow Mayflower 2d stood second in the list at Buffalo proves that the Red Polled is a dairy breed. The same writer, Charles Morrison, from Phillipsburg, refers to a cow that will give 7,000 pounds of milk...

Now why did he not give "Farmer" some definite points? Why did he not give their yearly earnings at dual-purpose cows? How much did they earn as dairy cows and how much as beef-producers?

That there is such a thing as a dual-purpose cow, I believe. That there is such a thing as a dual-purpose breed (profitable breed), I have never seen proved.

In the same issue, I. W. Cole, of Columbus, is a little more emphatic in favor of the Brown Swiss as a general-purpose breed. He says he has tried the Shorthorns, but they were a failure. He has tried the Jerseys, they were all right for milk and butter, but he hardly thinks it will pay a farmer to keep a cow for milk and butter alone.

This writer says a herd of cows (Brown Swiss) in milking condition will average about 1,400 pounds and make about 500 pounds of butter a year per head. Again how indefinite! How many cows in his herd or the kind alluded to came near 500 pounds?

Mr. Cole refers us to the World's Fair at Chicago, where a Brown Swiss cow made in three days thirty-eight pounds of butter, this was thirteen and two-thirds pounds per day. This of course is a clincher and entitles Mr. Cole or the Brown Swiss—to the belt, as a dual-purpose cow.

But the point I am after is, can a farmer afford to keep a cow for dairy products alone? Last year from January first to January first of this year, my herd consisted of twenty cows. These cows turned us in for butter alone an average of \$56.40 per cow. Credit them with 5,000 pounds of skim-milk at twenty cents per hundred, and the total is \$66.40 per cow.

This was for the year of extreme heat and drouth. This year they will do considerably better. I have said nothing about the beef and calf interest and only want to say that I can make more clear money feeding these Jersey calves and selling them at four and five months old than I can feeding hogs. Now the question is, will it pay to keep cows for butter alone? I say, yes.

M. E. KING, Buckeye Dairy Farm Altamont, Labette County.

What They Say of the Post Check Plan.

FROM REPORT OF POSTMASTER-GENERAL PAYNE FOR 1902.

"Millions of our people live more or less remote from any post-office, and a very large proportion of them are not able to buy money orders or bank drafts without great inconvenience. It is not unreasonable to expect from the Government that it will provide an easy, convenient, and safe method to transmit small sums, say, \$2 or less in amount, without putting the sender to the inconvenience and expense which now obtains in the purchase of a draft or post-office money order.

"I urge upon Congress the importance of passing some law, so that our people may have the advantage of it at as early a date as possible. Hundreds of thousands of letters carrying small amounts in silver or postage stamps are transmitted every year through the mails. These letters are a constant temptation to those handling them, as it is easy to identify letters inclosing currency.

"With the extension of the rural free-delivery service to the remote parts of the country, the use of postal checks would go far to provide the relief so urgently demanded, as it would conveniently serve those sections of the country not heretofore covered by or

adjacent to money-order offices or the banks of the county."

FROM REPORT OF THIRD ASSISTANT POSTMASTER-GENERAL MADDEN FOR 1902.

"It seems opportune to state that after a further investigation of the subject I am more than ever convinced that this (the Post Check plan) or some other method of making remittances, more simple and convenient than any now in existence, is a great need of the people."

FROM ARTICLE BY HON. H. A. CASTLE, AUDITOR FOR THE POST-OFFICE DEPARTMENT, IN NORTH AMERICAN REVIEW.

"This Post Check plan seems to be practicable, to accomplish several desirable results simultaneously, and to afford accommodation to the entire public at a minimum of labor and expense."

Citizens should request their representatives in Congress to see that more convenient money is furnished the people.

The American Society of Equity.

A new organization by the above title was organized December 4 at Indianapolis, Ind., with Arthur Dixon McKinney, of that city, as general secretary.

The objects stated are comprehensive enough to almost place the enterprise in the category of visionary schemes. They are officially stated as follows:

No. 1. To obtain profitable prices for all products of the farm, garden and orchard.

No. 2. To build and maintain elevators, warehouses and cold storage houses in principal market cities or in all localities where necessary, so that farm produce may be held for advantageous prices, instead of passing into the hands of middlemen or trusts.

No. 3. To secure equitable rates of transportation.

No. 4. To secure legislation in the interest of agriculture.

No. 5. To open up new markets and enlarge old ones.

No. 6. To secure new seeds, grain, fruit, vegetables, etc., from foreign countries, with the view of improving present crops and giving a greater diversity.

No. 7. To report crops in this and foreign countries, so that farmers may operate intelligently in planting and marketing.

No. 8. To establish institutions of learning, so that farmers and their sons and daughters may be educated in scientific and intensive farming and for the general advancement of agriculture.

No. 9. To improve our highways.

No. 10. To irrigate our land.

No. 11. To own real estate, build, maintain and operate elevators, storage houses, stock yards, railroads, ship lines, etc., as may be deemed wise and expedient.

No. 12. To promote social intercourse.

No. 13. To settle disputes without recourse to law.

No. 14. To conduct a great world's agricultural exposition.

No. 15. To borrow and loan money and do a banking business.

No. 16. To do an insurance business, both life and fire.

No. 17. To establish similar societies in foreign countries.

No. 18. To buy advantageously. (This object will be left to each local branch to act of their own will and as they see their needs.)

Kansas State Cooperative Union.

EDITOR KANSAS FARMER:—The annual meeting of the Kansas State Cooperative Union will be held in Topeka, January 20 and 21. All cooperative societies in the State are invited to send delegates, especially stores, shipping associations, creameries, mutual insurance, building and loan, and labor unions, are invited to send fraternal delegates. Let us counsel together, for our objects and interests are identical. One fare on all railroads in the State can be secured, January 19, in connection with the Topeka Midwinter Fair. Meeting will open 10 a. m. January 20. We expect to secure the council chamber in the auditorium for our meetings. Prominent cooperators from abroad have promised to assist. This will be an important meeting. Don't miss it. All earnest cooperators are cordially invited.

C. B. HOFFMAN, Pres. ALONZO WARDELL, Secy. Topeka, Dec. 12, 1902.

True Philanthropy.

Mrs. K. H. Fretter, Detroit, Mich., will send free to any woman who suffers from female weakness or painful periods, a sample of the remedy that cured her.

The Handy Little Lantern With a Great Big Light. This is the ideal lantern for going about nights. It is neat, small in size, light and sheds a strong, pure white, penetrating light. Like the "Blizzard" this new DIETZ JUNIOR LANTERN is "cold blast"—takes in only pure cold air, which produces perfect combustion and consequent strong light. It's the cheapest, handiest, safest little lantern ever made. Ask your dealer for it. If he does not have it, write to us; we will send it to you, express prepaid, on receipt of One Dollar. Write us for free catalogue. R. E. DIETZ COMPANY, 95 LAIGHT ST., NEW YORK. Established 1840.

PILES

Fistula, Fissures, all Rectal Diseases radically cured in a few weeks without the knife, cutting, ligature, or caustics, and without pain or detention from business. Particulars of our treatment and sample mailed free. Mr. M. McCoy, Goganc, Kans., Captain Company A, Fifteenth Indiana Infantry, writes: "Hermit Remedy Company, Dear Sirs:—I have doctored for piles since the Civil War—thirty-six years—and am now glad to report that after using your treatment for a few weeks I am completely cured. I believe you can cure any one, for a man could not be in a much worse condition than I was and live, and I am duly grateful to you. Respectfully, "M. MCCOY."

We have hundreds of similar testimonials of cures in desperate cases from grateful patients who have tried many cure-alls, doctors' treatments, and different methods of operation without relief.

Ninety per cent of the people we treat come to us from one telling the other. You can have a trial sample mailed free by writing us full particulars of your case. Address, HERMIT REMEDY COMPANY, Suite 736, Adams Express Building, Chicago, Ill.

Reduced Rates for Christmas and New Year Holidays.

The Nickel Plate Road will sell tickets December 24, 25, and 31, 1902, and January 1, 1903, at rate of a fare and a third for the round trip, to any point located in Central Passenger Association territory, good returning to and including January 2, 1903. Pullman service on all trains. Individual club meals, ranging in price from 35 cents to \$1 served in dining-cars. Address John Y. Calahan, General Agent, 113 Adams St., Chicago, for particulars. Chicago city ticket office, 111 Adams St.; Depot, Harrison Street and Fifth Avenue. (65)

ICE CUTTING is easy with DORSCH All Steel, Double-Row ICE PLOWS. Marks and cuts two rows at a time; cuts any size cake and any depth, and does it with ease and economy. Does the work of twenty men saving by half the days for itself in two days. No farmer, dairyman, hotel man or other can afford to be without it. Ask for catalogue and introductory prices. John Dorsch & Sons, 242 Wells St., Milwaukee, Wis.

Well Machinery. For drilling and boring either deep or shallow wells, in any kind of soil or rock; with engines or horse powers. Easily operated; built strong and durable. Used for over 80 years and they are no experiment. Before buying send for our free illustrated catalogue. THE W. M. THOMPSON CO., Sioux City, Iowa.

SKUNK MINK FOX WOLF and all other Raw Furs; also Cattle and Horse Hides shipped to us will bring the Farmer and Trapper 10 to 50% more than if sold at home. We want every Farmer, Trader, Trapper and Buyer in the U. S. and Canada to ship his Raw Furs and Hides to us. Highest market prices and prompt cash returns guaranteed. Write for our price list, shipping tags, Game Laws, etc. ANDERSCH BROS., Dept. 11 Minneapolis, Minn.

New way to smoke meat in a few hours with KRAUSER'S LIQUID EXTRACT OF SMOKE. Made from hickory wood. Delicious flavor, Cleaner, cheaper. No smoke house needed. Send for circular. E. KRAUSER & BRO., Milton, Pa.

Our 'Xmas Present to You:

A dainty Dolly and Handkerchief, nice enough for anybody, price is actual cost, 48 cents postpaid. Only one of each sold at this price to same person. Other goods at Holiday prices. MEXICAN DRAWN WORK EXCHANGE, Box 862, El Paso, Texas.

TO WOMEN WHO DREAD MOTHERHOOD!

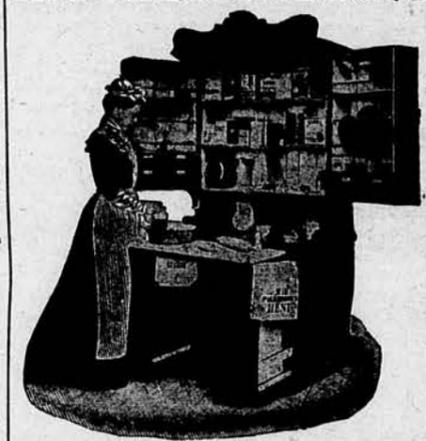
Information How They May Give Birth to Happy, Healthy Children Absolutely Without Pain—Sent Free.

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

ONLY \$1.00

RESERVOIR COOK STOVE, subject to examination. You can examine it at your nearest railroad station, and if found perfectly satisfactory, exactly as represented, the equal of stoves others sell at \$15.00 to \$20.00, then pay the railroad agent our SPECIAL PRICE... \$11.64 and freight charges, less the \$1.00 sent with order. This is the regular 8-10 size, 18x17x11 oven, 24x24 top, weighs 300 pounds, burns coal or wood, handsomely nickel trimmed, large porcelain lined reservoir, made in our own foundry and one of the best cook stoves built. WE SELL STEEL RANGES AT \$12.98 each, and in our own foundry we make all kinds of steel and cast iron stoves and ranges, also everything in heating stoves, which we ship to any address at actual foundry cost, with but our one small percentage of profit added. Write for FREE STOVE CATALOGUE. Address, SEARS, ROEBUCK & CO., CHICAGO, ILL.

THE ELWELL KITCHEN CABINET



Contains three tin-lined Flour Chests; Kneading Board; Bread and Meat Cutting Boards; fine tin Spice Boxes; six Small Drawers; two Large Drawers; one Cupboard and seven shelves; 3 feet 2 inches wide, 26 inches deep, and 6 feet 6 inches high, a little less floor space than a kitchen table. Ask your Furniture Dealer for a descriptive circular or write for one to the MINNEAPOLIS FURNITURE CO., 905 Fifth Ave. S. E., Minneapolis, Minn.

On Sale at the Big Store, Crosby Bros., Topeka, Kansas.

Visit San Francisco

A cosmopolitan city, gateway to the Orient. Reached by the Santa Fe over its own tracks from Chicago. Oil-sprinkled roadway and oil-burning engines—dustless, smokeless. Take the California Limited and see the fertile San Joaquin Valley. The California tour described in our books.

Address T. L. KING, Agent, Topeka. Santa Fe.

M. KOBER & SON, Wholesale Harness Mfrs., of Brownstown, Indiana. Take pride in making the best farm team harness ever offered for sale. They guarantee material and workmanship. Prices lower than the lowest. Send for price list and sample of their oak tanned leather. They pay part freight, if you will mention this paper.

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

The Poultry Yard.

Winter Eggs.

VICTOR D. CANEDAY, IN AMERICAN POULTRY JOURNAL.

There is considerable said and written now-a-days about "corners on eggs," as well as "corners" on other products; but for the poultryman who, in any marked degree, understands how to obtain a good winter egg yield from his hens, there is nothing to be lost by a so-called "corner on the egg market;" in fact it is his gain, rather than his loss, as he is then placing his product on the market and reaps the benefit of the rise in prices.

The late fall and winter egg yield is the hardest for the poultry keeper to control. In a general way all amateurs are successful with their fowls in the spring and summer months, but when winter sets in and the fowls can no longer have the benefit of their range out over the fields and along the woods in search of choice morsels in the way of bugs, worms and grasshoppers, it is quite another thing to keep up the supply of eggs and the general healthfulness of the flock.

FOWLS GET VARIETY WHEN AT LARGE.

Fowls on the range pick up a great deal which is beneficial to them, which, when confined to the houses in winter, the amateur poultry keeper often fails to supply. In fact the freedom and exercise obtained on the range in the summer has a great influence on the healthfulness of the flock and consequently on the production of eggs.

In our experience we have quite fully demonstrated that the three chief factors in a good winter egg yield are liberal feeding of foods adapted to egg production, an abundance of fresh air and plenty of exercise. True, there are other points of much importance, yet we feel quite certain that the majority of failures in obtaining profitable winter egg yields, where any real effort is put forth, can be easily accounted for by a lack of one or more of these conditions.

FEEDING FOR EGGS.

Perhaps liberal feeding of foods adapted to the production of eggs is of first importance, for it is readily recognized that hens can not make eggs out of nothing. However, it is a fact that a great many poultry keepers are annually looking for a liberal supply of winter eggs from flocks fed on a ration just barely sufficient to provide for the maintenance of the hens themselves. Such feeding is the poorest kind of economy, for it is the extra food saved that otherwise would be converted into eggs. Where more fowls are kept than the owner feels able to buy feed for, it is wiser to sell off a portion of the flock, reserving the most promising specimens to feed sufficiently heavy for a good profit, rather than retain the flock entire and feed sparingly at a total loss. There is more danger of underfeeding in large flocks than in small ones, and this mistake is most often made among farmers and poultry keepers who persist in keeping over more fowls than they have proper accommodations for. Overcrowding and underfeeding are two serious hindrances to a good winter egg yield, which usually go together, but underfeeding is by far the most serious hindrance to a profitable winter's work with the layers. There are isolated cases where hens are kept in quite crowded quarters and give a good account of themselves in winter eggs, but in the vast majority of instances a liberal amount of house room is recognized as a controlling factor for the best results in winter laying.

OATS FOR EGGS.

There are many prepared egg foods and tonics on the market, perhaps many of them are all that are claimed for them; we having never tried them and are not prepared to make any statements, either for or against their use. However, it is our opinion that many flocks are fed more condiments than are at all necessary. The grain we have found most conducive to heavy egg production is oats. We always aim to buy the heaviest and best oats obtainable, and, in fact, whatever grain we use, we make it a point to get the best quality we can. Damp, musty or spoiled grain will cause serious loss to the poultry raiser if fed to the fowls, and in every case in our experience has proved the most expensive kind to buy. In this case there is little doubt but that "the best is the cheapest." A poultry keeper should take a few lessons from his local grain buyer on judging the quality of the different grades of grain on the mar-

ket. Such knowledge will be of real and lasting benefit to him in his business.

OTHER FEEDS TOO.

Oats is a grain which can not be fed exclusively with good success, in fact, a variety of grains gives much the best results, but we consider oats far the best grain as an egg food. When fed exclusively the oats seem to go almost entirely to the production of eggs. We have had hens lay very heavily while continually losing in flesh themselves, and actually believe that a hen with the persistent laying habit thoroughly established in her by an unbroken line of prolific ancestors would lay herself entirely out of condition if fed oats as an exclusive grain ration. We purchase most of our oats from a farmer who grows what is sometimes termed succotash, that is, the grain when sown is mixed with a small proportion of wheat. It is claimed that both the oats and wheat are of better quality when grown in this manner and give a slightly better yield per acre and for feeding poultry we like it much better, as the wheat mixture gives the grain ration more of the food elements which go toward supplying the needs of maintenance of the body. We feed more or less corn, ac-

THE NATIONAL CORNSTALK REMEDY,

the greatest discovery of the age, prevents stock from dying of cornstalk disease. The Remedy is a real preventive. We have such absolute confidence in it that we require no money from buyers until they have fed and tested the remedy.

If it is not as represented you pay nothing. We want every farmer to try our remedy, it never fails when fed with salt as directed. Order to-day. \$10.00 will protect 60 head for the season. Address,

NATIONAL CORNSTALK REMEDY CO., OMAHA, NEBRASKA.

Hens eat a great deal more grass than most people realize, and when placed in the winter quarters they miss this bulky portion of their food more than anything else. Clover should occupy the most prominent place in the morning mash from the first of November to the first of April, for the best results in both health and eggs. Clover is the richest and best grass we can use for our fowls, and has in it many properties of value as an egg producer. With cut clover for the foundation of the morning mash, which should contain cooked vegetables in as large a variety as possible and mixed to a crumbly consistency with bran, ground oats, corn-meal and shorts, there will be little danger of feeding so heavily of it as to cause indigestion; but without the cut clover to supply the bulky portion of the soft food, the morn-

should be kept before the layers. We have known of many cases of egg-eating being caused by a lack of shell material, and when oyster shells were supplied the flocks they ceased eating their eggs.

WATER.

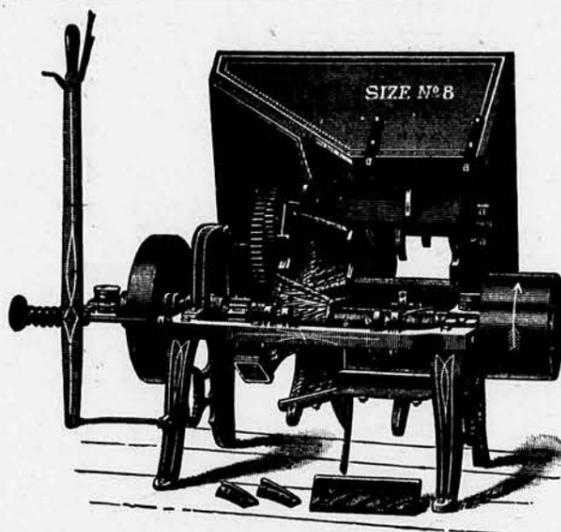
Eggs are largely composed of water, so if we expect the best returns from our hens during the winter months we must keep them well supplied with pure, fresh water at all times. The feeding of green food, such as mangels, cabbages, sugar beets, etc., is one of the most valuable aids in keeping up the health and productiveness of the flocks during these long northern winters. Onions chopped up fine as an occasional addition to the morning mash are to some extent a preventative of colds and are a decided aid in keeping up the general health. In this respect charcoal is also a valuable aid and acts well as a regulator and preventive of bowel troubles.

AIR AND WARMTH.

We would place an abundance of fresh air as the next most important factor in obtaining a good yield of winter eggs. Laying hens, to be kept in the best of health and vigor, which is absolutely essential to a profitable winter's laying, must be kept in the open air as much as possible in the daytime and their roosting quarters kept well ventilated by opening windows or doors as much as the weather conditions will permit at night, in all but the severest winter weather. We never close our windows up entirely until there is danger of the thermometer going below zero at night, and keep the flock out doors whenever the temperature is twelve to fifteen degrees above zero. We aim to keep our fowls at as even a temperature, night and day, as we possibly can, from the beginning of winter to the return of spring conditions. We do this by keeping them in as cool a temperature as possible during the daytime (of course avoiding danger of frosted combs), and as warm as possible at night, during the extreme cold weather. It is not the extreme cold weather that checks egg production in the winter, but the sudden changes, which, nine cases out of ten, may be avoided by the watchful poultry keeper. We keep a thermometer constantly at the north kitchen door and in going and coming from the poultry work can easily and quickly note any changes. If the wind swings into the northwest and the temperature begins to drop rapidly on a fine day, the fowls are closed into their scratching sheds, where they do not notice the change, and in like manner other sudden changes are avoided. The care of poultry during winter is no small matter, although it is composed of a multitude of small matters, which contribute each their part towards a profitable winter's work.

EXERCISE.

While we consider exercise one of the chief factors in obtaining winter eggs, we have placed liberal feeding of foods adapted to egg production and an abundance of fresh air as of most importance, yet in many cases much of the lack of success with the fowls in the winter is owing to a lack of exercise. A large roomy scratching shed is one of



A Combination.

A combination that is not a trust is almost an oddity in these days. Nowever, the "combination" to which we now refer is one of the mills of the well-known line made by the C. N. P. Bowsher Company, South Bend, Ind. This kind of combination is not apt to work harm to the public welfare; indeed, it is just the reverse, as we see hundreds of letters from satisfied users of these mills, speaking in the highest terms of their worth and the help they are to the individual. A prominent banker and stockman in Kansas says: "The Bowsher Mill is a blessing to the cattle-feeders of this country." As he ground over 100,000 bushels of ear corn that man evidently should know what he is talking about.

The Bowsher Mills for belt power are made in a variety of sizes, suitable for the needs of all classes of users. The manufacturers point out dozens of advantages in their mills over others, but make special reference to the conical-shaped grinding surface (different from all others) which secures light running qualities and enables the mill to handle all kinds of work; from ear corn with the shuck on, down to wheat-grinding. They are especially successful in grinding the damp ear corn that is found in many localities this year.

The Bowsher Company also makes the Globe Sweep Mill and are putting out this year a new four-horse sweep mill that grinds corn with the shuck and all kinds of small grain equally well. It has a capacity of forty bushels an hour of ear corn. This style mill fills a long-felt want among large stockmen who are without a motive power.

The pamphlet describing these mills is among the handsomest that ever came to this office, and it is sent free to all interested parties who address the C. N. P. Bowsher Company, South Bend, Ind.

According to the season and condition of the flock, probably about one-fourth or one-fifth of the grain ration during the winter. There is very great difference in individual flocks as to the amount of corn feeding they will stand. Where the flock is composed entirely of early hatched pullets of a "bred to lay" strain, there will be less tendency to lay on internal fat, and the food consumed will naturally be more utilized for egg production. Any one familiar with the best bred types of dairy cows will readily recognize their strong characteristic is that of converting the greatest proportion of food consumed into milk and butter-fat and they show comparatively little tendency to lay on fat, as do other breeds. The same characteristic must be bred into the flock of fowls which is intended to give us the greatest return in market eggs for the food and care bestowed on them.

THE CLOVERS.

The morning mash enables the poultry keeper in the winter to supply most economically many things the hens obtain on the range during the summer months. We place cut clover as of first importance in the making up of this mash, for the simple reason that the most of biddy's food she picks up on the range in summer is composed of grasses, seeds and green foods of that nature,

ing mash is one of the most fruitful sources of indigestion, liver trouble and kindred diseases we know of. Green cut bone, when readily obtained, is one of the very best foods for egg production, for it takes the place of the bugs and worms or summer time. Where it is inconvenient to obtain green cut bone, or other meat foods for the flock, one can get along nicely by using meat-meal, milk or some other form of animal food, mixed in the morning mash.

GRIT.

During the winter months especially one should keep a liberal supply of good sharp grit constantly before the fowls. Where the bulk of the grain ration is composed of whole oats this is perhaps more necessary, but in any case sharp grit is an important aid to health and its absence either winter or summer is sure to result in serious trouble with the fowls. There are few farms where many fowls are kept, which furnish the hens with sufficient good grit, and after poultry has been kept on a place for several years the soil is pretty well gleaned of all the grit it contains that is really suitable for the purpose. Many failures are due to a neglect in supplying good grit. It is all the teeth biddy has, and without them she soon becomes dyspeptic and ceases to give her keeper any returns. Oyster shells also

DISEASES OF MEN ONLY.

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

Chicago Medical Institute,
513 Francis St.,
ST. JOSEPH, MO.

Free Rupture Cure

If ruptured write to Dr. W. S. Rice, 1516 Main St., Adams, N. Y., and he will send free a trial of his wonderful method. Whether skeptical or not get this free method and try the remarkable invention that cures without pain, danger, operation or detention from work. Write to-day. Don't wait.

the best and most economical investments the poultry keeper can make for his layers. Good health is recognized as an essential to the greatest degree of profit in all kinds of live stock and fresh air and exercise are the two greatest aids to health and vigor that we know of.

All whole grain should be fed in six inches or more of litter where the hens are compelled to scratch for all they get. In the fall, when pullets are first housed, the straw should be scattered over the floors only about two or three inches deep to start with and as they become accustomed to working for the grain the amount may be increased. The harder they work, provided they procure a sufficient quantity of food, the healthier they will be and the more eggs they will lay, if other conditions are equal.

Where the flock is compelled to work for their whole grain there is considerable less tendency to overeating, even when fed grains that are of a fattening nature; but if the grain ration is properly balanced to fit the conditions and needs of the flock, there will be no trouble from overeating in a flock which is made to work for their whole grain.

OAT STRAW.

The material we find best adapted for litter in the scratching sheds is oat straw, as it is quite tough and does not break up so easily as wheat or rye straw. Where storage room is limited the baled straw is much the best and can be bought very reasonably in the fall when the baling machines are at work. Many poultry raisers no doubt have straw on their farms in abundance; we trust they recognize its value as an aid to a better winter egg yield.

EGGS WILL BE HIGH.

Every one is looking forward to high priced eggs this winter, and in consequence there will be more than the usual interest in the reading of articles written upon the subject of "winter eggs." We have met with more than ordinary success in the past in obtaining winter eggs, and submit the above as the conditions we believe to have been the most responsible for the results obtained.

THE MARKETS.

Kansas City Live Stock and Grain Markets.

Kansas City, Mo., December 15, 1902. The five great markets of the country received 206,000 cattle last week, an abnormally large supply for the season. As a result the packers were overburdened with fat stock and prices declined from 50@75c on the bulk of the offerings, and cases occurred in which a more disastrous slump was recorded. Buyers really deserve credit for the way they stood up under the strain, for the combined heavy receipts were enough to have appalled them from the start. Christmas cattle were received in plenty, and generally sold well. Top price for the week was \$6.75, given for a bunch of 1,438-pound steers belonging to Gus Davidson of Clay County, Mo. Packers say the demand for fresh beef this fall is unprecedented, and had this not been the case the receipts would certainly have demoralized the cattle trade. Dealers look for a reduction in receipts next week and count on steady prices even if a reaction does not result. Cow and heifer stuff was slow sale all week, but did not decline over half a dollar. Light-weight stockers and feeders held about steady, but the heavy kinds declined in sympathy with fat steers and closed around 25c lower. Fair feeders can now be purchased for \$3.75 and good kinds for \$4.

Continued light receipts and renewed bearish tendencies on the part of the packers featured the hog trade last week. The supply at Kansas City was only 47,000, less than half that of a year ago, and other points showed big decreases, but the packers had blood in their eye and overlooked receipts. Salesmen still maintain that the hog supply warrants \$6 swine this winter, but the situation does not seem that way at present. Pigs are selling well in comparison with heavy hogs, the light supply of small hogs keeping prices right in line. Top hogs sold at \$6.20 on Monday of this week and the bulk ranged from \$6.05@6.15. Last week's sheep trade was featured by more liberal receipts, the total supply aggregating 32,000 head, compared with about a third this supply the corresponding time a year ago. Kansas was the heaviest contributor to the market, the State literally pouring choice fed Westerns into this slaughtering point. Killers reported a brisk export demand for muttons and were liberal buyers, taking all fat stock readily at an average advance of 25c from our last report. Although more muttons were received than lambs, the sheep market advanced more than did the lamb trade. Heavy fed Western wethers sold for \$4.25. Yearlings were free sale at \$4.50 and native ewes sold around \$3.65@3.85. Native lambs closed at \$5@5.50 for the best. Feeders were slow sale and no more than steady. At the present prices of thin stock it certainly looks like there ought to be money in feeding sheep. Mexican yearlings sold for \$3 and \$3.10, and lambs at \$3.25.

Southern horses, that is, light harness stock suitable for the Southern trade, declined a little in the face of a weaker demand. Drafts and heavy stock held about steady, with a scarcity of good kinds. Farmers would do well to feed their horses well before marketing them. Continued high prices were the rule on

the produce market. Receipts of all kinds of stock are lighter than the trade demands and this accounts for values being where they are. Eggs are worth 22c; hens 3 1/2c; springs 10c; roosters 20@25c; turkeys 12 1/2c; geese 9c; game is also in request. Traders look for the turkey market to weaken around Christmas, but so far trade has developed no bearish symptoms. All grains put on a little during the week, and the general inquiry was much brisker than in our last report. At the close No. 2 wheat was quoted at Kansas City at 67@69c; No. 2 corn 42@42 1/2c; No. 2 oats 33@34 1/2c. H. A. POWELL.

South St. Joseph Live Stock Markets.

South St. Joseph, Mo., December 15, 1902. The trend of cattle values was downward all last week under liberal supplies and very unfavorable conditions East, and at the close of the week prices were 15@60c lower, with medium to good grades of beefs mostly 25@50c lower. Choice finished grades were scarce, the best here going at \$6.25, while half to two-thirds fat steers were the rule. Prices for cows and heifers were lower in sympathy with the adverse turn in the beef steer market, values being 15@35c off, canners and choice fat cows and heifers selling at the best advantage. The demand for stock cattle was ahead of the supply on each day and the movement to the country was good, resulting in an advance of 15@25c, with good quality yearlings and weighty feeders showing the most gain. Aside from Wednesday, where there was an upward tendency in prices, the hog market showed a decline in each day, the heavy marketing in the East and lower values at all points causing packers to be in a bearish state of mind. The quality of the offerings was of fair to good average with weights continuing to run strong. Prices to-day ranged from \$5.95@6.25, with the bulk selling at \$6.10@6.20. Under moderate receipts and an urgent demand from all the killers, sheep salesmen enjoyed an excellent market for the greater part of last week, and prices advanced 25@50c in the first four days. Owners to the markets East being overburdened with supplies, resulting in a terrible slump in values, the local market broke 15@25c on Friday. Offerings ran mainly to Nebraska, Iowa, and Kansas-fed sheep and lambs of good to choice quality, with natives in light quota. Best native lambs reached \$5.75. Western yearlings and wethers mixed fetched \$4.50, and native ewes brought \$4.25.

Lawrence Seed Markets.

Lawrence, Kans., December 15, 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 Enville blue-grass.....2.50@ 3.50 Millet......75@ 1.00 Case-seed......75@ .85 Kaffir-corn......50@ .60 F. BARTEDES & 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—My herd bull, Baron Knight 134946, 4 years old, dark red, weight 2,200 pounds, got by Gallant Knight 12-468; also three Scotch-topped bulls, 14 months old, and a few cows with calves by side. J. P. Engel, Algen, Kans.

EIGHT pedigreed Shorthorns for \$75; one male, all red. D. Hostetter, Hope, Kans.

FOR SALE—Red Polled bull, 8 months old, Red Polled heifer, 19 months old, span of mule colts, 6 months old—good ones, 50 Buff Cochons and 25 Plymouth Rocks at 1¢ each. H. A. Thomas, Scranton, Kans.

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

HEREFORD MALES—Three 2-year-olds, two yearlings, seven calves, \$75 to \$125, sired by Socrates 75813; two unregistered calves, \$35 and \$40; ten male calves, high-grade, \$25 to \$35. A few Poland-China males, registered, 150 grade cows in calf or registered Herefords, \$25 to \$35. B. J. Simonson, Manager, Cunningham, Kans.

FOR SALE—One solid red, registered Shorthorn bull calf, 8 months old; also a few choice Poland-China pigs, eligible for register. P. H. McKittrick, McCracken, Kans.

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 121232. 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 Cruickshanks; prices reasonable; now is your chance to get a good individual. H. W. McAfee, Topeka, Kans.

HORSES AND MULES.

FOR SALE—Two Jacks. Inquire of undersigned. E. N. Woodbury, Cawker City, 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 Lebon 1497. Color black, sound and excellent breeder; also a Kentucky bred Jack, 5 years old. For particulars, write or see John Kautz, Alida, Kans.

PROSPECT FARM—OLYDES DALE STALLIONS, 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 15 extra Barred 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. B. Alberty, Cherokee, Kans.

YEARLING Poland-China herd boar for sale. Grand Chief by Grand Chief 215523. 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 \$3 to \$20, each, owing to age. Burton & Burton, East Seward Ave., Topeka, Kans.

FARMS AND RANCHES.

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 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 Angora 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, Le-mareville, 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, long sheds, corn-cribs, work shops, granary, hog-house, and other small buildings, corral 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. E. 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—In the famous Arkansas River Valley, Hamilton Co., Kans. only 1 1/2 miles to railroad depot. In all of them; 800 of this is the finest kind of alfalfa land, and when well set in grass will yield an annual net return of \$20 an acre. And we can sell this tract now for the astonishingly low price of \$20 per acre, one-fourth cash, balance long time, 6 per cent annual interest. A few more bargains like this. This valley is like a gold mine. L. C. Teed, Syracuse, Kans.

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

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

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.

POULTRY.

FOR SALE—Choice White Wyandottes and White P. Rock cockerels. R. F. Meek, Hutchinson, Kans.

MISCELLANEOUS.

SEPARATOR FOR SALE—Cheep, nearly new, U. S. No. 8. \$100-machine, capacity—400 pounds 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 Barber System Barbers Colleges, Chicago, Ill., St. Louis, Mo., New Orleans, La., Minneapolis, Minn. Omaha, Neb.

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.

PATENTS.

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

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., Winona, Minn.

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 ready deal. Write for our list of bargains. All correspondence will receive our prompt attention. Address

E. C. PREBLE LOAN CO. CUBA, REPUBLIC COUNTY, KANSAS.

FREE One of our beautiful GUN METAL PEN-HOLDERS, to every one sending us 10 cts. for a sample of our GREAT INKLESS PENS, that will not rust or break. Agents wanted. Grover Supply Co., 2521 Chestnut Ave., Kansas City, Mo.

The Stray List

Week Ending December 4.

Marion County—Ira S. Sterling, Clerk. COW—Taken up by J. W. Moore at his ranch in Moore tp., (P. O. Marion), November 18, 1902, one red cow.

Graham County—R. B. Garnett, Clerk. MARE—Taken up by C. Saunders, (P. O. Happy), August 9, 1902, one light bay mare, weight 900 pounds, white spot on forehead; valued at \$25.

Elk County—G. J. Sharp, Clerk. STEERS—Taken up by T. M. Carter, in Howard tp., (P. O. Howard), November 15, 1902, one 2-year-old brindled steer, under crop off right ear; valued at \$20. Also one 2-year-old red steer, letter L or T on left hip, spots and crop off right ear; valued at \$20.

Wabaunsee County—B. Buckli, Clerk. COW—Taken up by Geo. Ketterman, in Alma tp., (P. O. Alma), November 15, 1902, one dark red cow, swallow fork in right ear and silt in left, dehorned; valued at \$35.

Week Ending December 11.

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

Riley County—C. M. Brees, Clerk. STEER—Taken up by Wm. Debler, 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 \$40.

Cherokee County—S. W. Swinney, Clerk. BULL—Taken up by J. 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. Thurme, Clerk. GELDING—Taken up by Alman Johnson, in Sharon Springs tp., (P. O. Sharon Springs), October 30, 1902, one from 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 Mc Clellan 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 Anby tp., (P. O. Stillwell), July 15, 1902, one light bay mare, had balter 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. Rubie, in Iola 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 2-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 dun colored cow, p-h 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.

THE LITTLE RED BOOK

Tells all about Kaffir-corn, Sorghum, and Stock Peas. Three wonderful crops for farmers, 25 cents. You will like it. Send to-day to WILL B. OTWELL, CARLINVILLE, ILLINOIS

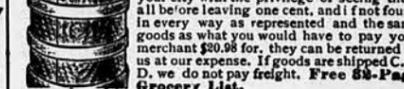
Corrector Hereford.

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.

Write and Tell Us What Kind of HARNESS OR SADDLE

you need. We allow 5 per cent. for permission to stamp our ad. on same. It helps us sell more goods and guarantees you our best quality.



SUGAR \$1.47 BBL

FREIGHT PAID to any city in United States if you send the full amount with the order \$11.98. If you wish us to we will ship you these goods to your city with the privilege of seeing them all before leaving one cent, and if found in every way as represented and the same goods as what you would have to pay your merchant \$20.98 for, they can be returned to us at our expense. If goods are shipped C.O. D. we do not pay freight. Free 58-Page Grocery List.

Table with 3 columns: No. lbs., Merchants Our Price, Price. Items include 50 Bbl Best Granulated Sugar, 2 Corn Starch, 5 Soda, our own, 1 Chocolate, 2 Coconut, 2 Pure Pepper, 1 Cinnamon, 1 Ginger or Mustard, 5 Baking Powder, 4 Oz. Lemon Extract, 4 Oz. Vanilla, 5 Bars Castle Soap, 10 Java & Mocha Coffee, 1 Gun Powder Tea, 3 Golden Rio Coffee Compound, 10 Bars Laundry Soap, 1 Qt. Pure Indigo, 10 Bars Tar Soap, 10 Cal. Prunes, 5 Best Rice, 5 Rolled Oats, 2 Pkgs. Yeast.

Your saving...\$9.00 Merchants Price \$20.98 Our Price...\$11.98 Reference, Chicago Savings Bank. KOHL E. J. & CO., Wholesale Grocers, 10 N. State St., Chicago, Ill.

Breeders' Directory.

DUROC-JERSEY SWINE.

D. TROTT ABILENE, KANS., famous Duroc-Jerseys and Poland-Chinas

Registered Stock, DUROC-JERSEYS, contains breeders of the leading strains.

N. B. SAWYER, - - Cherryvale, Kansas

M. H. ALBERTY, - - Cherokee, Kansas

DUROC-JERSEYS.

100 head for this year's trade; all eligible to record.

MAPLE AVENUE HERD Duroc-Jerseys. J. U. HOWE, Wichita, Kansas. Farm 2 miles west of city on Maple Avenue

FAIRVIEW HERD DUROC-JERSEYS

Watch for our Brood Sow Sale in February. J. B. DAVIS, FAIRVIEW, BROWN CO., KANS.

DUROC-JERSEYS.

DUROC-JERSEYS FOR SALE—Choice July, Aug., and September pigs for sale, both sexes; also 4 1901 bred sows. Prices reasonable. Newton Bros., Whiting, Kas.

WALNUT HILL HERD DUROC-JERSEY SWINE.

H. A. J. COPPINS, County Clerk, Eldorado, Kans Stock of both sexes for sale.

Duroc-Jerseys For Sale.

Sixteen choice, vigorous males of spring farrow, and 25 head of extra good gilts, either bred or open; best of breeding. Come and see them, or write your wants. Prices reasonable. J. F. CHANDLER, Frankfort, Kas

DUROC-JERSEYS. GRADE HEREFORD HE FERS I have for sale 50 Duroc gilts either bred or open, a few choice brood sows 2 years old, and some fine young boars old enough for service, one herd boar. Also 90 head of choice high-grade Hereford heifers bred to registered Hereford bulls. Write me your wants. T. F. ZIEGLER, LA HARPE, KANSAS.

MAY'S DUROC - JERSEYS.

Higgin's Hero 11889 at head of herd. Choice spring pigs of both sexes for sale.

Wm. A. MAY, Blue Hill, Nebraska.

ROSE HILL HERD OF DUROC-JERSEY HOGS

I have choice gilts bred for early pigs, boars ready for service, and a thrifty lot of fall pigs all from large prolific sows for sale; 2 State Fair prize boars in service. S. Y. THORNTON, Blackwater, Missouri.

Standard Herd of Registered

Duroc-Jerseys, Red Polled Cattle and Angora Goats.

Swine herd headed by BIG JOE 7383 and OHIO CHIEF Cattle herd headed by KANSAS 8308. Young stock for sale in season. PETER BLOCHER, RICHLAND, SHAWNEE COUNTY, KANSAS.

Golden Rod Herd of Prize-winning Duroc - Jerseys

Van's Perfection 11571, sweepstakes boar at all State Fairs of '02, at head. Both fall and spring pigs of both sexes and of his get for sale.

GILBERT VAN PATTEN, Sutton, Neb.

POLAND-CHINA SWINE.

V. B. HOWEY, R. F. D. 5, Topeka, Kas

BREEDER AND SHIPPER OF POLAND-CHINA HOGS, JERSEY CATTLE, S. L. WYANDOTTE CHICKENS. Eggs in season

Dietrich & Spaulding, Richmond, Kans.

FOR SALE: 20 boars ready for service; sows bred or open. 100 spring pigs. Our POLAND-CHINAS are at the Top.

Kansas Herd of Poland-Chinas

Has some extra fine gilts bred; also some fall boars. Will sell them, I know, he by Perfect I know. Address: F. P. MAGUIRE, Hutchinson, Kansas.

SHADY BROOK STOOK FARM POLAND-CHINAS

I keep constantly on hand all sizes and ages of high-class Poland China pigs. Quality high, prices low. Write for description and price to

N. W. CHENEY, NORTH TOPEKA, KANSAS.

CLOSING OUT

TWO GREAT HERD BOARS FOR SALE.

One son of Chief Perfection 2d, one son of Perfect Perfection; both good. Will sell cheap to deliver December 1st or after. Have just weaned 5 splendid litters of September pigs, grandly bred and all O. K. Will sell 3 for \$25; not akin if wanted. Ten aged sows all tried and found good enough. Sixteen spring gilts, 4 spring boars, 1 yearling boar, all at bargain prices. Address HARRY EVANS, PLEASANTON, KANS.

Big-boned only.

WAMEGO HERD

-of-

POLAND-CHINAS

With Black Teumseh 25116 at head, he by Big Teumseh 24423, a grand individual, and sire of large, strong, growthy fellows, nearly perfect in color, coat, and markings. Large M. B. turkeys and B. P. chickens for sale. Correspond with me at Wamego, Kansas, Pottawatomie County. C. J. HUGGINS.

POLAND-CHINA SWINE.

FOR SALE Poland-China Hogs, Hel-stein-Friesian Cattle either sex. Best strains represented. H. N. Holderman, Rural Route 2, Girard, Kans.

A. B. DILLE & SON, Edgerton, Kans. HAVE A FINE LOT OF YOUNG

Poland-Chinas

of the best blood, both sows and boars, at reasonable prices. Sows bred if desired.

VERDIGRIS VALLEY HERD OF POLAND-CHINAS

FOR SALE: Six 8 and 10 months old boars, every one a show boar and as good as I ever bought to use in my herd. Also 150 spring pigs that are immense. E. E. WAIT, Altoona, Kans.

SHADY LANE STOOK FARM

HARRY E. LUNT, Proprietor, Burden, Cowley Co., Kans.

A few choicely bred Poland-China Boars for sale, some choice open gilts and bred sows.

Elmdale Herd of High-Class

Poland-Chinas

W. L. REID, Prop. R. F. D. 1, North Topeka, Kans. Shawnee Chief 28502 at head of herd. Five choice boars by him yet for sale at a bargain, as I am crowded for room.

THOROUGH BRED

Poland-China Hogs.

Special price for next 20 days on 10 bred gilts, to farrow in April and May; they weigh from 200 to 275 pounds, and most of them are bred to Black Perfection 7182, the best breeder I ever owned. Also 20 fall pigs, and 4 boars large enough for service. 100 head in herd. Write for anything you want in Poland-China hogs. JOHN BOLLIN, R. F. D. No. 5, Leavenworth, Kans.

OAK GROVE HERD

OF PURE-BRED

POLAND-CHINAS

For Sale—A few choice Boars and 50 Gilts, some bred for early spring farrow. Write, or come and see.... GUS AARON, R. F. D. 5, Leavenworth, Kas

PECAN HERD OF POLAND-CHINAS

Having sold our farm here, we will make close prices on our

Poland-China BOARS AND GILTS

Have a very fine lot to select from. Sired by Model Teumseh, J. L. Best, and U. S. Wilkes.

J. N. WOODS & SONS, OTTAWA, KAS.

KNOLLWOOD FARM HERD

BLUE BLOODED 16 BONED ROAD BACKED BERKSHIRES . .

A few fancy young boars ready for service. Orders booked for spring pigs. E. W. Melville, Eudora, Kansas.

PROVIDENCE FARM

POLAND-CHINAS

Correct by Corrector, Perfection Chief 2d by Chief Perfection 2d, Jewell's Silver Chief, and Kron Prinz Wilhelm, herd boars. Up-to-date breeding, feeding qualities, and large, even litters in this herd. Young stock for sale. J. L. STRATTON, One mile southwest of Ottawa, Kans.

CHOICEST STRAINS

....OF....

Poland-China Hogs.

400 head in herd. Fashionably bred sows and gilts bred to Broad Gauge Chief 25733, first prize winner International Show 1900, and Simply O. K. 24290, first prize winner Missouri State Fair 1901. 200 winter and spring pigs in special offer. Bargains in Registered Stallions and Mammoth Jacks. Also SHORTHORN AND POLLED DURHAM CATTLE.

SNYDER BROS., Winfield, Kas.

North Elm Creek Herd

Pure-bred Shorthorns and Poland-Chinas

Scotch-topped Young Mary females with 9th Knight of Elmwood 161507 at head. Call on, or write, W. J. Smith, Oketo, Kas.

SCOTCH-TOPPED

SHORTHORN CATTLE.

FASHIONABLE

POLAND-CHINA SWINE.

REGISTERED BULLS FOR SALE. L. A. MEAD, Carbondale, Kansas.

CHESTER WHITE SWINE.



D. L. BUTTON, North Topeka, Kas BREEDER OF IMPROVED CHESTER WHITES Stock For Sale. Farm is two miles northwest of Reform School.

MAPLE CITY BREEDING FARM,

Breeders of Choice Strains of Registered



O. I. C. Swine, Galloway Cattle.

The prize winning boar, Ell 4049, at head of herd. The best in Chester Whites for sale in select young boars and gilts. J. S. GILKEY, Maple City, Cowley County, Kansas

THE CRESCENT HERD

O. I. C. WHITE



The World's Best Swine. Some choice spring Boars ready for service, and Gilts bred for sale. This stock is O. K. and can not be excelled for the money. Every hog guaranteed. Write for prices and free Delivery proposition. JOHN W. ROAT & CO., Central City, Nebraska.

CHAMPION HERD OF

..IMPROVED..

Chester White Swine

Perfection 11705, sweepstakes boar, 1901, and Pan America 11948, first prize, New York State Fair, first, Michigan State Fair, and first in class at Pan-American Exposition, at head of the herd. The champion herd, Nebraska State Fair, 1902. Choice spring pigs of both sexes for sale.

BLODGETT BROS.,

BEATRICE, NEB.

BERKSHIRE SWINE.

Large English Berkshires.

Boars and Gilts for sale at prices to suit. Write quick and get our prices. Also a few good yearling boars.

Manwaring Bros., Lawrence, Kans.

Berkshire Boars.

Possessing rare quality, substance and finish, of April farrow. Also, October pigs for sale.

Spring Brook Farm.

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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 Crutchshank Shorthorn cows, 2 to 8 years old, bred to Rosebud's Prince 168748. Prices very low. Call or address Louis Hothan, Carbondale, Kans.

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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

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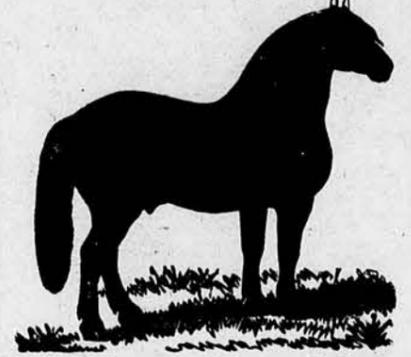
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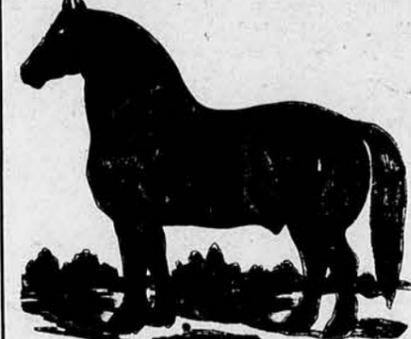
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Draft Stallions Percherons, Shires, Belgiums. 60 Head to Select From All Imported by Us and Guaranteed.... \$1,000 buys a good one from us this fall. It pays you to buy one now as you get him cheaper and keep out competition. Don't pay a big price 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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63--STALLIONS--63

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2 to 6 years old, weight 1,600 to 2,500 lbs. More black Percherons, ton stallions, largest French horse show winners, more government approved and stamped stallions of any one importer in the West. Iams speaks French and German; needs no interpreter, no buyer, no salesman; no two to ten men as partners to share profits. His buyers get middlemen's profits and salaries. Iams buys direct from breeders. This with his twenty years' experience secures the best. All the above facts save his buyers \$500 to \$1,000 on a first-class stallion and you get a first-class horse, as only second rate stallions are peddled by sleek salesmen to be sold. Good ones sell themselves. It costs \$600 to \$800 to have a salesman form a company and sell a second rate stallion. Form your own companies. Go direct to Iams' barns. He will sell you a better stallion for \$1,000 and \$1,200 than others are selling at \$2,000 and \$4,000. Iams pays horse's freight and his buyer's fare. Good guarantees. Barns in town. Don't be a clam. Write for an eye opener and finest horse catalogue on earth.

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References: St. Paul State Bank, First State Bank, Citizens' National Bank.



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For Sale--60 Shorthorn Bulls,
35 Registered, balance High-grades, and all Red.
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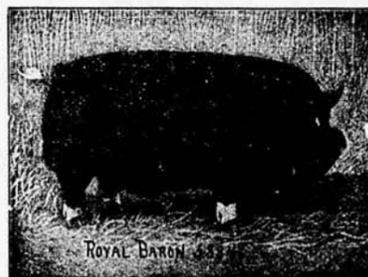
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