

KANSAS FARMER

Volume XLII. Number 4

TOPEKA, KANSAS, JANUARY 28, 1904.

Established 1863. \$1 a Year

KANSAS FARMER.

Established in 1863.

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

E. B. COWGILL.....President
J. B. McAFEE.....Vice President
D. C. NELLIS.....Secretary and Treasurer

SUBSCRIPTION PRICE: \$1.00 A YEAR

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

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



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Display advertising, 15 cents per line, agate (fourteen lines to the inch). Continuous orders, run of the paper, \$1.54 per inch per week.
Special reading notices, 25 cents per line.
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Every advertiser will receive a copy of the paper free, during the publication of the advertisement.
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KANSAS FARMER CO.,
116 West Sixth Ave., Topeka, Kans.

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The first two days of this week gave Kansas a taste of real winter. The thermometer registered several degrees below zero. Whether the coal trust took another cinch in its belt is not stated.

The annual meeting of the Illinois Stock-breeders' Association was addressed January 27 by Mr. H. A. Heath, advertising manager of the KANSAS FARMER on "Promoting the Interests of Breeders of Fine Stock."

How much the tax bills of Kansas had to do with the present political activity will probably not be reported. Certain it is that the "plain people," the "substantial citizens," the "conservative elements" are all taking unusual interest in politics. This is well.

Senator Burton, of Kansas, has been indicted by a federal grand jury at St. Louis charged with having accepted a bribe. The Senator's explanation is that he was employed as attorney for the president of a concern popularly designated as a get-rich-quick concern. Its purpose was to swindle people out of their money. Mr. Burton's explanation is about as disreputable for a United States Senator as would be a plea of guilty to the charge of bribery.

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 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, Kans.

Special to Our Old Subscribers Only.

Any of our old subscribers who will send us two NEW SUBSCRIPTIONS at the introductory rate of fifty cents each, during January, 1904, will receive for the trouble one copy of the KANSAS FARMER's New Wall Atlas, descriptions of which have appeared in these columns from time to time; or we will send any one of the following publications as the old subscribers may choose, viz., "Woman's Magazine," "Western Swine Breeder," "Vicks' Family Magazine," "Blooded Stock," "Poultry Gazette," "Dairy and Creamery," or "Wool Markets and Sheep."

THE KANSAS FARMER TWENTIETH CENTURY SPECIALS.

Some three years ago the KANSAS FARMER began the publication, as an original feature, of a series of Twentieth Century Specials, which met with such popular favor that we now find them indispensable. Many of our subscribers claim that a single copy of any one of the special editions is worth the subscription price of the KANSAS FARMER for a whole year. We now

have in contemplation during the next few weeks two or three of these specials.

On February 4, we will issue our breeders' special, which will contain the proceedings of the fourteenth annual meeting of the Kansas Improved Stock-breeders' Association, the official report of the Kansas State Poultry Show, and a special report of the annual meeting of the National Live Stock Association, held at Portland, Oregon.

On February 11, the KANSAS FARMER has been selected to publish the official proceedings of the Central Shorthorn Breeders' Association for the annual meeting to be held at St. Joseph, February 2 and 3. Extra copies of this edition will be sent to every Shorthorn breeder in the United States to be preserved for reference by them.

Our annual Dairy Special will be issued about February 18, and will contain the only complete publication of the proceedings of the Kansas State Dairy Association besides considerable especially prepared matter relating to dairy husbandry. A sufficient number of extra copies of each of these editions will be printed to accommodate the special demand for them. The great value of these Twentieth Century Specials to advertisers is owing to the fact that they are carefully preserved for reference throughout the year by those who receive them.

"THE CARE OF ANIMALS."

The most useful book for the owner of stock that has appeared in recent years is Dr. N. S. Mayo's "Care of Animals." It is a volume of 459 pages, written in plain English and illustrated sufficiently to enable the stock-keeper to understand what is meant. The book is divided into eighteen chapters. These are devoted to the following subjects: I.—General Advice—Feeding and Watering, Exercise, Protection, Personal Attention. II.—Care of Animals in Stables and Yards. III.—Care of Pets. IV.—The Horse—Judging and Handling. V.—Lameness and Shoeing. VI.—Indication of Diseases of Animals. VII.—Treating Sick Animals. VIII.—Surgical Cases. IX.—Breeding and Veterinary Obstetrics. X.—Diseases and Injuries of the Bones, Limbs, and Joints. XI.—Diseases of the Alimentary Tract and of the Digestive Function. XII.—Diseases of the Respiratory System. XIII.—Diseases of the Brain and Nervous System. XIV.—Diseases Affecting the Skin and Eye. XV.—Parasites. XVI.—Contagious and Infectious Diseases. XVII.—Miscellaneous Diseases. XVIII.—Recipes and Brief Advice.

In examining the book the editor has been impressed with the practical value of every chapter. It is difficult to say which is likely to be used most. The last chapter, besides containing brief directions for treatment of disorders, gives the number of the page on which full discussion of the subject will be found. The ailments are arranged alphabetically in this chapter. To illustrate the ready usefulness of the book, suppose an animal has black-leg. Under this title in Chapter XVIII, we read, "Remove the well animals from the infected quarters or pasture

and vaccinate them. Purge the sick and give them exercise. Stimulants and laxative foods should be given.—Page 362." In this chapter many of the veterinary medicines are named and the dose of each stated, and in most cases are stated the diseases for which the medicines are useful.

The eminently practical character of the book can best be illustrated by a quotation. For this purpose we select from Chapter IV the directions for

EXAMINING A HORSE.

"In examining the horse in the stable, do not disturb him at first, but watch him closely for a few moments; he will be likely soon to show any stable vices that he may possess. Among vices to be looked for is 'weaving,' a habit some horses have a moving head or body from side to side, often for an hour at a time, especially when not eating. Cribbing and wind-sucking are vices which should be carefully looked for. Kicking in the stall and crowding an attendant against the sides of the stall are vices. Some horses have the bad habit of kicking at the side of the stall. Persistent pawing is also to be looked for. The horse should be made to 'stand over' by gentle pressure against the hip, when he will frequently show signs of chorea or stringhalt. A common symptom of this disease is the apparent inability of the horse to lift the foot of the affected leg—the foot is seemingly glued to the floor. After a considerable effort, the horse gets the foot loose, lifts it high and moves over with a kind of straddling hop. These symptoms are not shown when the horse is made to jump suddenly by a cut of the whip or a slap of the hand; therefore such actions about a horse should be looked upon with suspicion. It should also be noticed whether the horse stands squarely on his feet, or 'points' a foot to get relief from lameness or soreness in the part. Halter-pulling is another vice which it is difficult to detect. A sudden movement about the horse's head, which startles him, will usually cause him to fly back on the halter, if he possesses that vice. Horses strongly tied by ropes or similar arrangements about the head should be regarded with suspicion.

"After the horse has been examined in the stall, he should be led out on level ground where the light is good, and every part of the body should be examined for defects and disease. It is generally a good plan to begin at one nostril and to go over the whole side of the animal; then, returning to the opposite nostril, to examine the other side. The nostril should be examined for any sign of glanders, or other suspicious discharges. The mucous membranes lining the nostril should be a healthy rose-pink color, free from ulcers, scars, or disagreeable odor. Any sign of a recent cleaning of the nostril, dull color, or an irritated condition of the mucous membrane should be regarded with suspicion. The mouth should be examined as to age and freedom from decayed, split, ulcerated or irregular teeth. The saliva should be free from any disagreeable odor. The tongue should be normal, held in position, and free from scars. A scarred

tongue is indicative of the use of a harsh bit to control him, and is always to be carefully considered. The incisor teeth should be examined for parrot mouth and signs of cribbing, the latter being shown by the edges of the teeth being worn away, so that they do not come close together. The side of the face should be examined for running sores or enlargements that might come from diseased teeth. The lower jaw is to be examined for the same condition, and, in addition, for an opening or fistula of Steno's duct, which carries the saliva from the large gland below the ear and pours it into the mouth. This duct winds under the lower jaw at the front edge of the large muscle, and when opened discharges a clear, watery fluid, especially when the horse is eating. The glands in the hollow between the lower jaws should also be carefully examined as to their size, whether tender to the touch or grown fast to the adjoining tissues. Enlarged, adherent glands here are a symptom of glanders.

"The eye should be clear and bright and free from specks, cloudiness, or a well-defined white ring around the outside of the colored iris. By closing the eye with the hand and excluding the light for a moment, the pupil will be dilated to its utmost capacity; when the hand is removed and the light strikes the eye, the pupil should rapidly contract to its normal size. This shows that the eye is sensitive to light. Small, irregular masses of dark coloring material, commonly called 'soot balls,' are usually seen at the edge of the pupil in a horse's eye, and are often regarded with suspicion by those not familiar with the appearance of the eye. They are normal, and of no importance. The eye should also be examined for any signs of inflammation or abnormal discharges from the inner corner. Persistent discharges from the eye usually scald the skin and cause the hair to be shed in this region.

"The throat should be examined for any thickness or enlargement, especially of the glands which form a goiter. The top of the head and neck should be examined for poll-evil, for swellings of any kind, and to determine whether or not the horse will allow a bridle collar to be put on readily. The mane should be thrown over and the side of the neck examined for fistulae or running sores, tumors, or swellings of any kind. Brands should also be looked for here. The letters I. C. on the neck indicate that the animal has been inspected and condemned in service in the United States Army for unsoundness, vices, or inability to stand gunfire.

"After going over the neck, the withers should be examined for fistulae, and the back for tumors, galls, or 'sitfasts.' The shoulder, also, should be examined for tumors, galls, collar-boils, and sweeney, the last a wasting of the muscles on the outside of the shoulder-blade. The elbow should be examined for capped elbow, or shoe-boil. The knee should be examined for bony enlargements, wind-puffs, and scars on the front. Scars in this region indicate that the horse is a stumbler. Look just below the knee on the inside for speedy cuts, scars, or bunches, due to the hitting of the opposite foot. Sprints should also be felt for, and looked for on the inside of the fore leg, and bony bunches on the outside. The front of the cannon bone should be smooth and free from bunches and scars. The back tendons should be smooth; if contracted, they give the knee a 'sprung' appearance, as the horse stands squarely. Parallel marks or scars resulting from 'firing' should be looked for. Above the fetlock the leg should be examined for wind-puffs on either side, just in front of the tendons. The fetlock and pastern joints should be examined for ring-bones, bunches or scars. Small, puffy enlargements over the large nerves which pass down toward the back of the fetlock and along the edge of the tendons, below the fetlock indicate the injection of cocaine, which is done to disguise lameness temporarily. Scars in these places on both sides of the leg indicate that the horse has been 'nerved.' Just at the top of the hoof, on either side, the lateral cartilages should be examined to

see that they have not ossified, forming side bones.

"The foot should be of good size and shape, free from rings of horny growth, the wall not concave. The heels should not be contracted. The wall should be carefully examined for sand-cracks, quarter-cracks and seedy-toe, the last a softening and degeneration of the wall at the toe of the foot. The bottom of the foot should be examined for corns, the cleft in the frog for thrush, and the sole for bulging.

"After finishing the fore leg, the examiner should go carefully over the horse's side and belly, looking for any tumors, sores, hernia, or ruptures. In the male, the penis and sheath should be examined for tumors or disease. It should be noted whether the hair on the belly in front of the sheath is normal in appearance, as some horses do not protrude the penis in passing urine and the skin in front of the sheath is irritated so that the hair is shed. The scrotum in males should always be examined for tumors, and geldings must be scrutinized to be sure they are not ridglings. In examining the hind legs of a strange horse, it is always well to take precautions to prevent being kicked, by having an assistant hold up one fore foot.

"The muscles of the hip should be examined for scars, the stifle joint for any enlargement or soreness that would indicate stifle. A thorough examination should be made of the hock joint, because of the number and importance of the defects that may occur in this region. The back of the hock joint should be examined for capped hock, curb and scars which may indicate that the animal is a kicker. Just in front of the point of the hock, look for thoroughpin. The hock joint proper is to be examined for spavin, both bone-spavin and bog-spavin, also for any enlargements or any irregularities of movement. Below the hock, look for wind-puffs, ring-bones, scratches, and diseases of the foot. After completing the examination of one side, go over the opposite side with equal care.

"After going over the whole horse, the examiner should carefully compare corresponding members, as to their symmetry and form. The two hips should be compared to see that one is not 'knocked down' or 'hipped,' and that the muscles are equally developed. The tail should be carried squarely; it should be handled and a line or rope drawn under it to prove that the horse is not vicious in this regard. The nostrils, hips, eyes, and ears should be compared, and any signs of paralysis or drooping of the parts noted.

"After examining, manipulating, and comparing the parts of the animal, he should be thoroughly tested in his paces. He should be driven, or led, with plenty of rope, to and from the examiner, and then moved by him at a good, free trot, when any signs of lameness or peculiarities of movement should be carefully looked for. Turning the horse shortly to the right or to the left, so as to bring the weight alternately on the right and left legs, will usually increase the signs of lameness. The horse should also be tested as to his ability and willingness to back a load. In testing for the wind, the horse should be allowed a full drink of water, and then should be ridden or driven rapidly for some distance and brought to a sudden stop, close to the examiner, who will look for any abnormal sounds or movements in breathing. A 'wind-broken' horse can be detected by the peculiar roaring or whistling made as the air is taken in. In heaves, there is usually difficult breathing, with a peculiar bellows-like motion of the flank. By pinching the animal's throat, the peculiar and characteristic grunting cough will be given. The horse should also be tested to determine whether he eats and drinks properly.

"The ability to detect unsoundness can be largely increased by practice and close observation; and yet some diseases and vices can not be detected by an ordinary examination, and it is only after a person becomes familiar with the animal that these will be observed."

Written by the veterinarian of the Kansas State Agricultural College and veterinary editor of the KANSAS FARMER, the book is published by the Macmillan Company, New York. We have not been advised of the price but have written the publishers for price and discount. We expect to be able to furnish it at such a figure that every owner of stock can have a copy.

THE NEW AGRICULTURAL "YEAST."

Find enclosed an article that I clipped from the Youth's Companion. I would like a little more information on this subject, a little fuller description, and the process of obtaining a quantity of the substance; also what name does it go by? R. A. WILSON, Ford County.

Following is the Youth's Companion article:

A GREAT AGRICULTURAL DISCOVERY.

"Four-fifths of every breath of air which the lungs inhale is pure nitrogen. It is one of the commonest of the elements. And yet, says a writer in Harper's Monthly, it is the one thing for the lack of which wheat-fields, cotton-fields, and corn-fields are abandoned as 'worn out' because it is the most expensive plant-food for man to supply to the soil, and one which most plants are unable to absorb in its pure state from the air. To remedy this, the Department of Agriculture at Washington is preparing to distribute among farmers a substance resembling compressed yeast, which will raise, not bread, but crops; for when applied to certain plants it will enable them to take up abundant nitrogen from the atmosphere. The 'yeast' is really a mass of germs, which bid fair to become most efficient gardeners.

"It has long been known that clover and other leguminous crops flourish in 'worn-out' soil, and when plowed into it partially restore the fertility of it. Studying this phenomenon, scientists have found that in such a soil the plants have nodules, little bunches, or swellings, on their roots, which they do not have when grown elsewhere. These nodules are formed by bacteria called radiocola.

"Professor Nobbe, a German investigator, found that lupines which had the nodules would grow in soil devoid of nitrogen. Without the nodules the lupines would not grow. He obtained some of the radiocola from the nodules and propagated them in gelatine till he had many millions of the germs.

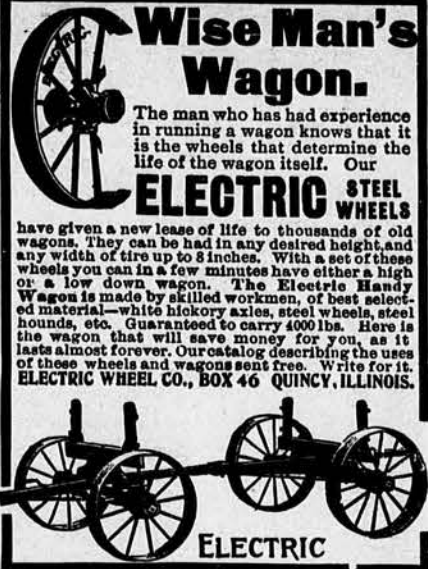
"He then put into three jars equal quantities of sterilized sand containing no nitrogen whatever. In each jar he planted beans. The first he fertilized with all the usual plant-foods except nitrogen. The second he supplied with the same food and saltpeter, a form of nitrogen easily absorbed by plants. The third he fed like the first, and in addition inoculated the sand with his radiocola.

"The result was extremely interesting. The beans all came up, and for a few days grew alike. Then the first lot, having no nitrogen, turned yellow and died. The second continued to grow in normal fashion. But the third, although it got no nitrogen in the soil, flourished far beyond its neighbor, and developed a luxuriant and healthy growth, showing that the radiocola had enabled it to draw its nitrogen from the air.

"Professor Nobbe carried his experiments much further. He showed that while in neutral soil radiocola are all alike, once they have associated themselves with a given plant, as clover, they become very nearly useless for other plants, such as beans and lupines. Accordingly he has labored to produce highly specialized bacteria for each crop—gardeners germs trained to grow their specialty.

"Having done this, his next move was to place them in the farmers' hands. He grew them by millions, and packed them in bottles of gelatine. All that the farmer needed to do was to dilute the gelatine with warm water, mix it with the seed and a little soil, partially dry the mixture and sow it. The germs did the rest.

"There was much opposition to the



Wise Man's Wagon.

The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our **ELECTRIC STEEL WHEELS** have given a new lease of life to thousands of old wagons. They can be had in any desired height, and any width of tire up to 8 inches. With a set of these wheels you can in a few minutes have either a high or a low down wagon. The Electric Handy Wagon is made by skilled workmen, of best selected material—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. Here is the wagon that will save money for you, as it lasts almost forever. Our catalog describing the uses of these wheels and wagons sent free. Write for it. **ELECTRIC WHEEL CO., BOX 46 QUINCY, ILLINOIS.**

ELECTRIC

new 'fertilizer,' and one old farmer who did not believe in it planted in a big field a lot of the inoculated seed in a big letter "N," Professor Nobbe having named the gelatine compound "Nitragen." The farmer was amazed and convinced when above all his other beans that year there stood out the letter "N" in luxuriant and healthy plants.

"Professor Nobbe's glass jars are inconvenient to handle, so the United States Department of Agriculture, following up his experiments, has hit upon the 'compressed yeast-cake plan' as simple and satisfactory. It is now about ready to distribute them to farmers whose lands need renewing, especially in regions barren of radiocola."

Several articles of similar import to this have appeared in prominent papers. It is officially announced in the 1903 report of the Secretary of Agriculture—just received—that thoroughly satisfactory methods of cultivating, distributing, and using these nitrogen-gathering organisms for all important crops have been perfected and that during the past season the value of these bacteria has been demonstrated in extensive field-tests. It is further announced that the Department of Agriculture is now prepared to furnish in reasonable quantities, organisms for all the principal leguminous crops.

To secure the materials for promoting the growth of any leguminous crop—alfalfa, clover, peas, beans, etc.—write to Hon. James Wilson, Secretary of Agriculture, Washington, D. C., stating that a quantity of the new bacterial fertilizer is desired, and state for what crop and on what kind of soil it is to be used. The Department makes no charge for the bacteria nor for its transportation.

VALUABLE CATTLE BURNED.

A barn fire at Sunny Slope Farm near Emporia last week destroyed 82 head of Mr. Stannard's fine Herefords, including some of the most famous animals in America. The loss is estimated at \$20,000, partially covered by insurance. The Sunny Slope ranch is owned by C. A. Stannard, one of the foremost breeders of Hereford cattle in the country, and was formerly the property of C. S. Cross.

Barn No. 5 was an unpretentious-looking story-and-a-half building. The fire is believed to have caught from a tank heater in the building, and was not discovered until after the structure had collapsed, and long after every animal confined in it was dead. The animals burned included about forty bulls from 20 to 22 months old and five young heifers. The remainder were the best breeding cows on the ranch. None of the bulls burned was included in the famous Sunny Slope show herd, but all were valuable animals. The cows, however, were among the best of the breed the country has produced.

Mr. Stannard says that at the present condition of the pure-bred cattle market the animals burned were worth fully \$20,000, but that the loss to him as a breeder was much greater than this because some of the cows killed were simply priceless because of their records as producers. Among these

Continued on page 88.

members of the craft at large. After a general principle is established, there are minor details numerous enough and interesting enough to attract every one who has any liking for nature's work.

The effects of the various common fertilizers upon the various crops in various soils offers problems sufficiently difficult to please the most exacting. The changes effected by cultivation offer other attractions; almost every acre in our land produces some wild flower worthy of notice. Many of our Kansas wild flowers are suited to grace any collection and some of them at least take kindly to cultivation.

The various branches of experimental horticulture are the surest means of enlisting the interest and attention of the young people in agricultural science in general and horticulture in particular.

The possibilities of the mustard-seed furnished the Great Teacher a text for a sermon, and the wonders of the germination of seeds serves now to start our boys and girls to wondering, to thinking, and the educational process is well begun. The differences in the germination of the kernel of corn and the bean may lead to the whole realm of research in natural science. A close acquaintance with the life history of a single species of tree, from acorn to oak sapling, for example, means that the observer has learned to learn, a thing that many never achieve.

A few buds well-set open all the old, unanswered questions of the reciprocal relations of stocks and scions. A knowledge of fruit varieties is a continual satisfaction and pleasure, and a branch which no man ever yet completed.

The language of the flowers is fascinating beyond comparison and one of which every one has at least learned the A, B, C.

A general knowledge of these most beautiful of nature's creations can not but make for good in every life. A special, thorough knowledge of even a few flowers will give almost endless pleasure and furnish an abundance of good bright thoughts to replace every sordid thought and care.

You may well cleave to our long-tried sure things to exchange for the almighty dollar, but no less surely may you find rest and recreation in some branch of experimental horticulture.

Trading Fruit for Money.

PROF. F. A. WAUGH, HORTICULTURALIST, MASSACHUSETTS AGRICULTURAL COLLEGE, AMHURST, MASS.

The missionaries to the heathen draw remarkably small salaries. I am told that their chief compensation is in the satisfaction they feel at the results of their labors. Even a horse-jockey gets some fun out of his business. He enjoys driving a good horse. There is an exhilaration about it which is worth more to him than the money he wins. Of all lines of work in the world, however, there is not any one, as you and I believe, which yields more downright honest satisfaction than fruit-growing. There is no line of work yet discovered that can make a man better contented with himself. There is so much more joy and satisfaction in it that it makes common labor seem like drudgery.

And yet the fact remains that you and I and Judge Wellhouse are not growing fruit for the fun of it.

Fruit-growing is one of the most healthful occupations in the world. The outdoor life with its moderate exercise is good for a man, or for a woman either. A fruit diet tends to longevity. Look at the old war-horses of this society. Suppose they had been brought up on a diet of fat pork, jonny-cake, black coffee, tobacco and red whiskey, how many of them do you think would be here to-day? My friend Lazenby here can tell you all about the advantages of a fruit diet and can give you a hundred pages of the most villainous statistics to prove it.

And yet the fact remains that you and I and Judge Wellhouse are not growing fruit for our health.

No, we are chiefly in it for money. We do not mind the healthful features and we frequently pat ourselves on the

back for the good we do, but for the most part we are growing apples, plums, and peaches for the sake of the almighty dollar. It seems sordid and unpatriotic to say so; but we have to do it to support our families.

In this pursuit of an honest livelihood we have found that a knowledge of fruits and fruit-growing is not by itself enough. The best fruit-growers are sometimes unsuccessful in marketing their products at a profit. It requires a good deal of special knowledge nowadays to get fruit into the market to the best advantage. In order to realize the high-prices while incurring the least expense one must study long and hard.

This art and science of fruit-marketing have grown up quite recently. Just the other day, in trying to get the historical view of this subject, I went over all the books and magazines published in America fifty years ago. I consulted all the early volumes of the proceedings of the American Pomological Society. I read Hovey's Magazine. I went through Downing's Horticulturist. I dug up the early volumes of the Country Gentleman. Yet, while in all these there was abundant discussion of new varieties of fruits, there was absolutely not one line on fruit-marketing. There was not even one word about apple-barrels, about peach-crates, about grape-baskets, nor anywhere even a column of misleading city quotations furnished to the country papers by the city commissionmen.

Yet I have attended some of the largest horticultural meetings in the last two or three years where fruit-marketing has been enthusiastically discussed by the best men in America and where the business of growing fruit has been almost entirely disregarded.

A moment ago I spoke of fruit-marketing as an art and a science. It is both. It is an art because man learns it by experience. It is a science because the whole business is underlaid by principles as fundamental and immutable as the foundation principles of psychology or electrical engineering.

As a general suggestion, which I consider of some importance, it might be said that the science of fruit-marketing—that is its fundamental principles—need to be carefully studied by practical fruitmen. Commonly these men acquire experience rapidly enough. It is hardly possible to ship a dozen crates of peaches or to peddle out half a bushel of plums without getting a fine return in experience. Very often experience is about all there is to it. But very few fruit-growers have thought widely and carefully regarding the underlying principles.

Even a casual look at the fruit-marketing business as it has grown up in this country in the last decade will show that the development has been strongly one-sided. All the energy of fruit-growers and shippers seems to have gone in one direction. This has been in the direction of the production and sale of large quantities and few varieties. The competition has been constantly narrowed. One variety after another has been rejected as unprofitable or as unsatisfactory to the fruit-handlers. Moreover every effort has been made to make the business uniform in other particulars, as in the size and marking of barrels and other packages. While this effort for uniformity is a good and proper thing within bounds, it presents the very objectionable feature already mentioned, i. e. that it throws the business all into one channel, thus constantly narrowing competition.

What we want now is a larger field, not a smaller one. We need to find new avenues into which to direct our business, new ways of doing things, new markets, new customers, new ideas all around. Indeed I feel sure that the next great movement in our American fruit trade will be characterized by diversification quite as plainly as our last great movement has been toward uniformity.

These two principles, unification and diversification, everywhere and always exert their complementary influence on every line of business. Sometimes

SEEDS FIELD, GARDEN, FLOWER EVERYTHING FOR THE FARMER OR GARDENER.

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Buy your seed of the farmer. Sun- and wind-dried, upland-grown. Early Learning, Cattle King (Yellow), Mammoth White Dent, Farmers Interest (White). We can ship in the ear, car-tully or at 4; or shelled, in sacks. Write to us for our New Catalogue and Samples. We grow our seed-corn on our own farm.

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IS NOW READY. Write for free copy. Alfalfa, English Blue-grass, Hungarian, Brome-grass, Cane, Millets, Kafir-corn, Dwarf Essex Rape, Macaroni Wheat, Russian Speltz (Emmer), and other field and grass seeds our speciality. Full line of tree seeds. Address

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You are to be the judge. If you are not perfectly satisfied, the fence can be returned at our expense. Write to-day for our FREE FENCE BOOK and study fence construction. 25 styles of fence illustrated, a fence for every requirement of the farmer. We pay freight on 40 rods or more. Your name and address on a postal card will bring the book and WHOLESALE PRICES. Write today.

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one prevails and sometimes the other. Neither one, however, can finally displace the other. However much we may be attached to the one, we must never forget that the other is still entitled to a hearing.

This seems to me to be one of the most promising opportunities for every fruit-grower to increase the profitability of his business. While he ought not to be any less of a specialist he still ought to seek something out of the main line. There are a good many things that are more profitable at the present time than growing quantities of low grade Ben Davis apples and selling them off the trees to the first buyer who comes along.

Indeed there are many other fruits besides the apple which can be grown at a profit. There is hardly one in fact which, on a certain scale, will not yield a greater profit than standard apples if grown and marketed in the right way. Within the last few years I have seen remarkable returns from quinces. I know of many instances where men have made a good thing out of plums. In certain localities, even peaches, with all their risks, have brought more money in a series of years than apples have. Understand me, I don't say that these unusual fruits will always pay better than apples; but they certainly do present an inviting opportunity to some men.

Even though our fruit-growing is still to be confined to apples, the diversification of varieties within limits can be made profitable in some cases. My observation in the apple-growing regions of North America leads me to believe that there is a strong tendency at present in the direction of growing more varieties. For years the advice has been constantly to grow fewer and fewer kinds, but we have reached the limit in this direction. Even in the great wholesale markets there is easy going for good apples of other varieties than Ben Davis and Baldwin. Then the constantly increasing number of fruit-growers who manage to reach special markets more or less directly have found ready sale for almost all good varieties. In fact the latest and most reliable reports which I have had from Kansas are to the effect that planters as a whole are confining themselves less closely to Ben Davis and Missouri Pippin, but are putting in more or less such sorts as York Imperial, Grimes and Jonathan.

There must come also a greater diversification in markets. During the last few years practically the whole of the movable apple-crop has been crowded into a dozen or fifteen large cities. New York has been the centre toward which all the great shipments of apples have been attracted. Boston, Buffalo, Chicago and St. Louis in only a less degree have been the recipients of all shippable apples for miles around. Of course to a certain extent these cities have acted merely as distributing points, the fruit being reshipped to many cities and villages for consumption. Nevertheless it has been proved that these markets have been overloaded in comparison with those of other smaller but more hospitable cities.

Even if it did not mean a comparative congestion of one market at the expense of another it would be poor business, on the face of it, to ship Kansas apples to New York, reship them to New Orleans and then to Baton Rouge, the way it is now constantly being done. We must find a more direct means of distributing the apple-crop. We must reach new markets. There are thousands of small cities and villages in almost every state of the Union, even in the apple-growing states, where good apples are a rarity and where they cost more than they do in New York and Chicago. I remember well that as long as I lived on the old farm in McPherson County we used to sell all the apples we could spare in the local market at prices commonly from 50 per cent. to 200 per cent. better than they could possibly have brought in Kansas City or London. Moreover the market would doubtless have taken

ten times as many had we been able to supply them. In fact I feel sure that there are hundreds of local markets right here in the Sunflower State which would pay a man a good living if he would develop them.

We need diversification also in the matter of packages. This matter has been discussed so much of late that it seems unnecessary to dwell on it here. There is a great deal of interest, however, particularly in the use of boxes for apples, and I ought to stop long enough to say that we have tested the matter quite to our satisfaction. For the last two years we have shipped apples in boxes with uniform satisfaction. Also they have brought more than the same fruit in barrels. Sometimes, indeed, they have brought twice as much. The box which we use is one made in New York. Its inside dimensions are 10 by 11 by 20 inches. This gives a capacity of 2,200 cubic inches or just 50 cubic inches more than a stroke bushel.

The ends are made of 3/4-inch stuff, top, bottom and sides of 1/2-inch stuff. These boxes cost 15.00 a hundred "knocked down." In our neighborhood where apple-barrels have frequently sold as high as 40 cents apiece, this year the box is almost as cheap as the barrel, even as regards first cost.

So diversification can be profitably introduced even into the wholesale business by finding new methods of marketing. A number of years ago a man in Clay Centre made the discovery that sending fruit on consignment to commission houses in Kansas City was unsatisfactory business. It was a great discovery. It was so great, in fact, that it reached around to all his neighbors. Other men in other parts of Kansas found it out; and I have been told by a man in Maryland and one in Quebec that even in those remote sections, shipping to commissionmen is not considered a perfectly sure way of getting rich. The difficulties and disappointments of this way of handling fruit have been so great, in fact, that men have made very great efforts to break away. Some of them have found other more or less satisfactory ways of selling fruit. Some of them reach their customers more directly. Two rather novel ideas in this line have recently appeared in the business of which I think I can speak without danger of finding the subject threadbare.

In the first case I was greatly struck by seeing in such magazines as Harper's Weekly, Scribners, etc., advertisements of apples for sale. Certain growers or packers therein offered favorite varieties direct to consumers. Any man who wanted a nice bushel-box of Rhode Island Greenings or Westfield Seeknofurther had only to remit \$3.00 and the box would be presently delivered by express. This strikes me as a pious idea—a real apple-pious idea. There is every reason why good apples should be advertised as much as breakfast foods. There is just as good a market for them and just as good a margin of profit in handling them. This is one way of reaching customers advantageously and without the intervention of the commissionman.

Another scheme which has been successfully tried by some fruit-growers in the Eastern States during the last two or three years has been that of consigning on joint account, as it is called. In this way of handling the business, a grower turns over his crop to a city dealer, preferably one who has adequate storage, receiving a stipulated amount of cash down. The apples are then sold as the markets justify and at the end of the season a settlement is made between consignor and consignee. According to custom at this settlement the amount originally paid the grower is deducted from the net proceeds and the balance is divided equally between the shipper and the seller. It will be seen that it requires some judgment to handle this method successfully and that it could not be used by everybody. Nevertheless it has proved highly satisfactory in certain cases of which I have personal knowledge.

Finally I must remind you that

while I have been preaching diversification, all the while I am far from saying that our present markets are over-supplied or that we can go no further on old lines. We have the European market still before us. Although Europe has taken approximately two and one-half million barrels, from us this year, considerably more than ever before, that trade has hardly begun. Out of these two and one-half million barrels all but about 370,000 have gone to England and Scotland. Germany has taken the other 370,000. This is not even a beginning for Germany. That country could easily use as many apples as England. Then we have France, Italy, Russia and all the other European countries still to invade. It is perfectly possible to put apples into every one of these countries at a profit; and the time will come before very many years when we will do it.

Even the home markets in the large cities, where I have complained of comparative congestion, have not by any means reached the limit of consumption. Every customer who now eats one apple could just as well eat two, and thousands of families who practically go without can be taught to use apples freely. Moreover they will be taught to do it. If Ben Davis apples (or still better, Jonathan, Grimes and Winesap) were advertised like Force and Shredded Wheat Biscuit, the whole State of Kansas could not grow fruit enough to supply the demand even if every farm in the State were planted clean out to the public highway.

The Geography and Architecture of the Louisiana Purchase Exposition in Its Relation to the Kansas Building and the Horticultural.

SECRETARY WM. H. BARNES, TOPEKA.

The objects of this paper are to familiarize you with the Kansas Building and the Horticultural Building, their appearance, location, and surroundings. It is not improper to liken the general location of the buildings to an immense landscape horseshoe, with toe pointing north, placing the eight main buildings in a double row across the toe. If we pass up to the left we arrive among the larger group of State buildings. If we pass up to the right we arrive at the Agricultural Building and, passing its 1,600 feet of length, and an open space of, say, 300 feet, we come to the Horticultural Building. The Kansas Building being near the upper end of the left limb, and the Horticultural Building being near the upper end of the right limb, causes these two buildings in which are our closer interests to be as widely separated as possible. It is uphill either way, as the main buildings are upon the lowest plane. The shortest cut between the Kansas and the Horticultural is directly from one limb of this horseshoe to the other, passing through what was unimproved woodland when I passed through it; but will be improved and made convenient by the time of opening. Take this for a bearing, that in a direct line west from the Kansas home you will find the Horticultural.

The distance must be over a half a mile and to go around must require about one and one-half miles of travel. The Kansas Building faces east upon a board avenue. There is also a broad avenue along the north side which intersects but does not cross the former. Opposite this intersection, facing west, is the Pennsylvania Building, north of that is the Ohio, Missouri, and some others; south of the Pennsylvania is the Arizona, and across the avenue north of the Kansas is the New York, a very long building facing east. Near it but farther west is the Oklahoma Building. The avenue on which the Kansas faces forks almost at that point and one fork runs on either side of the Iowa, which is thus south and east of the Kansas; the Connecticut is south of the Iowa, and across an avenue are the New Jersey, the Rhode Island, and several others.

The wide avenue on which the Kansas and many noble State buildings face, runs north, down grade, until stopped or headed off by a United States Gov-

WIRE FENCE at Wholesale. A 4-inch stock fence \$9 per rod. Send for price list and FREE catalogue of Wire Fence and full line of Fence Supplies. **W. H. MASON & CO., Box 62 Leesburg, Ohio.**

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HORSE SWEEP MILL
With Horse Power Attachment. Grinds corn with shocks, head buff, wheat, oats and all other grains. Self feeders. Covered 7 to 12. Light draft. Great Capacity. (Also make plan sweep and belt mill 10 sizes.) **W. H. P. Sawyer Co., South Bend, Ind.**

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C. R. Harper Mfg. Co., Box 108, Marshalltown, Iowa.

PAGE

CONUNDRUM.
What ought to be the difference between one yard and two yards? Page 18 of Garden Fence. **PAGE WOVEN WIRE FENCE CO., Adrian, Michigan.**

Build your own fence better & cheaper than market. This machine weaves the stay wires after the strands are stretched on posts to proper tension. Send for Catalogue. Prices on soft galvanized and Coiled Spring Wire on request.
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We manufacture all sizes and styles. It will pay you to investigate. Write for catalog and price list.
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THE OLD RELIABLE
ANTI-FRICTION FOUR-BURR
MOUL MILL No gearing, no friction. Thousands in use. 4-horse mill grinds 60 to 80 bushels per hour; 8-horse mill grinds 80 to 90 bushels per hour. We make full line of FEED MILLS, best sold, including famous Iowa Grinder No. 2 for \$12.50. Send for Catalogue. Made and sold by **IOWA GRINDER & STRAWER WORKS, WATERLOO, IOWA.**

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PORTABLE and drill any depth, by steam or horse power.
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THE AMERICAN WIND ENGINE.
The Greatest Pumping Wheel On Earth. Specially designed for Irrigators and Ranchmen. Hardened self oiling, ball and roller bearings; governors automatically.
Patented long-pump stroke. Also installers of a compressed air water system for hotels and private houses, giving country homes city water service. Write for circular.
AMERICAN WIND ENGINE COMPANY, Topeka, Kansas. Mention Kansas Farmer.

Go Below
for pure water. Use the National Well Drilling Machine, equipped with automatic well pumping device. For drilling for water, oil, gas or mineral. All sizes for all depths. Address
National Drill & Mfg. Co., DEPT. K Pullman Bldg. Chicago, Illinois

ernment building; Missouri's elegant and costly building being the last on the east side. Illinois was first assigned the location now occupied by Pennsylvania; but changed to a point near the center of the grounds. Distance seems to be little cared for excepting by tired limbs. The whole exhibition is on such a gigantic scale that he must have tireless pinions who can take it all in two weeks; better not go at all than to go thinking you will have "done it" and be at home in a week.

The Kansas Building will not strike you favorably at first look. It is too low or squatly for its location. Iowa and New York are so stately, Iowa is of especially ambitious height; and the towers and domes within sight cause Kansas to look low. But the Kansas Building is exceedingly handsome and very homelike. It is long north and south, with wide central entrance on the east, and on the north and south ends are very wide piazzas covered by equally large balconies above, making four large outside rooms, suiting Kansas' out-door, fresh-air ideas. Inside, the eastern or front vestibule has a vaulted blue ceiling, from which project 105 (one for each county) electric stars. Stairs on either hand take you to the upper floor—so you go up "to the stars" as you have surely come "through tribulation" to get there and will thus have a practical demonstration of our State motto.

Entering the building you find a spacious central hall with passage left and right to the piazzas. On this floor are, beside this general hall, a parlor for ladies, with nursery, retiring room, and toilet; a gentlemen's parlor, smoking room and toilet, a postoffice, a baggage room, rooms for the supervisor's family, the matron, and the commissioners. On the upper floor is a gallery surrounding an oval opening of large size, and surrounded by eleven bath-, toilet-, and bed-rooms. The central hall and gallery are lighted from above by lantern (upper side) lights. The building is ornamented inside and out and has numerous flag-staffs as have all others. It is homelike. You can have your mail come there; you can rest there; or meet there friends by appointment or accident; you can check your grip or overcoat; get a drink of ice water; register your name and look over the register for friends. I advise every Kansan to register there at earliest moment possible and add his St. Louis lodgings address, and it would be a convenience if the date of proposed departure were added. If you are in St. Louis, going to the grounds, and desire to go to the Kansas Building first, take a trolley car that will drop you at the Oakland Avenue gate—at present the Chateau Avenue line. If you desire to go to the Horticultural Building first, take Clayton trolley to gate on Skinner road. Horticultural is between Agricultural and the live-stock exhibit—all at the west side, Philippines being still farther west. The Horticultural pavilion is too gigantic to be described in words that will enlighten you. The main or central building covers four acres, all for fruit. An east wing, almost entirely of glass, is twenty steps lower, and at the head of these steps is a wide platform for spectators, where they can overlook the entire display of flowering and ornamental plants. The west wing is also down twenty steps and of similar size, but I understand will be given up largely to horticultural mechanics, the latest inventions and helps. The main building covering, as remarked, four acres, is surrounded by a wide inner gallery for promenade and spectators. Kansas has secured for its horticultural display about 1,800 feet of space. Kansas, as the center of the Union, and a successful, rustling, vigorous chunk of the Louisiana Purchase, should be prominent. Kansas as a neighbor and supporter of Missouri should do all she can to show that this is no longer the great American desert, but the fruit-garden of the continent.

Statements of the length of thread in a silkworm's cocoon vary from a few hundred yards to eleven miles. Mr. L. O. Howard has found the lengths to range from 880 to 1,120 yards.



Horticulture.

Rabbit-trap.

EDITOR KANSAS FARMER:—In your issue of January 14, is an article by Geo. A. Blair, of Mulvane, in which he states that he uses Wellhouse rabbit traps. I would like to ask what they are like. Are they home-made or can one buy them ready-made? My method of protecting young trees is to take a bunch of old newspapers and a ball of twine and wrap them with paper. A person can wrap all the young trees in an ordinary orchard in from one to three hours; of course this plan would not be suited to large orchards.

Elk County. GEO. W. SMITH.

For the benefit of our correspondent we republish the following, which appeared in the January 31, 1901, KANSAS FARMER:

"The Wellhouse trap is a box made of 6-inch fencing, old boards preferred. It is 22 inches long. The front end is closed only by a wire door, which is hung from the top and opens inward. A cleat across the bottom prevents the door from opening outward. In setting the trap the door is fastened open by a fence-wire, which is attached loosely along the under side of the top board of the trap. This trigger wire is bent downwards near the rear end of the trap and formed into a loop or a figure 8, so that as the rabbit crowds into the rear end of the box he is sure to push against this wire and thus move it backwards, releasing the door, which falls and makes him a prisoner.

The cottontail is generally looking for some dark hole in which to hide as a protection from enemies and cold, and this trap easily suits his mind. About three of these traps are used to the acre. They are not bated in any way. They may be placed in rows with the open ends in one direction in one row and in the opposite direction in the next row, so that when the boy goes to get the rabbits he can see into one row while going one way and into the next row while returning.

For jack rabbits, greyhounds and the gun are perhaps the best remedy.

Better Than a Rabbit-trap.

EDITOR KANSAS FARMER:—I have a treatment for rabbits that will beat forty rabbit-traps. Take equal parts of sulfur and wood-ashes and mix by putting through a sieve. Then stir in buttermilk till of the consistency of paste, or about as thick as whitewash. With a small brush wash the tree-trunks as high as you can reach, the higher the better. It is also a good protection against the borers. Wash the trees the first of November, and if well done it will last a year. This is worth more than all the rabbit-traps Mr. Wellhouse ever made.

Reno County. D. BRUMITT.

Remedy for Cabbage-worms.

EDITOR KANSAS FARMER:—There have been many inquiries for a remedy for cabbage-worms. When the miller or moth appears, sprinkle flour over the heads of cabbage in the evening when the dew is falling. Repeat if it rains soon, or when millers appear again. They usually appear three or four times. We have tried this for many years and it has never failed. Do not use shorts; it will rot the cabbage.

Saline County. HOUSEKEEPER.

Trees and Plants.

On another page will be found the advertisement of the Phoenix Nursery Company, 1274 Park St., Bloomington, Illinois. This nursery is now in its 52d year of existence, and has been for over 27 years under the same proprietorship and management, and we can assure all our read-

HANCOCK DISC PLOWS

THE PLOW EVERYBODY IS TALKING ABOUT

Genuine Hancock
Disc Sulky and Gang

Lightest Draft Plow in the World

Changes the Old Method of Plowing as the Twine Binder Did the Old Method of Harvesting.

We dare not tell you half the facts. We want you to see it in the field. Sent on trial. Not one cent in advance. We guarantee to do fifty per cent more work with the same team and do it better than any other Disc or Mould-Board Plow on earth. Will plow hard, dry ground where no other plow will work. We furnish hundreds of letters from farmers that it will plow almost anything either wet or dry. We want you to see it in the field, and will pay you to hold an exhibition where we have no agents. We are exclusive manufacturers for two-thirds of the United States of the Genuine Hancock Disc Plow, the only plow branded or advertised as "Hancock." Beware of cheap imitations that look like our plow but which lack the essential features (covered by our patents) that make the Hancock Disc Plow the wonder of the age and the ONLY SUCCESSFUL DISC PLOW ON EARTH. "Imitation is the sincerest flattery," but do not be deceived by imitations. See that the name "HANCOCK" is on the plow. Write now and get ready for Spring work. Circulars and hundreds of testimonials from prominent farmers furnished on application. We do not ask you to take our word for it.

HANCOCK DISC PLOW CO., Exclusive Manufacturers, 114 Langdon St., ALTON, ILL.

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Seeds that give perfect satisfaction in every State and Territory of the U. S., and Foreign countries must be THE BEST. That's our record for last year, a hard year on crops and a year which tried the quality of seeds to the limit.

OUR CATALOGUE IS FREE—SEND FOR IT.

The illustration shows a prize ear of corn, Kansas State Fair, 1903. 13 inches long; 18 rows and 1080 grains, raised from Zimmerman's seed. See Catalog.

ZIMMERMAN SEED CO., 804 W. 12th St., Topeka, Kan.

ers who may send to this company for trees and plants that they will be treated honorably and fairly in all dealings they may have with them. The fact that this company has been in existence so long is a guarantee that their stock has given satisfaction. During all these years they have sent out millions of trees and plants to all parts of the country. There are thousands upon thousands of orchards and gardens over the country bearing fruit from the trees and plants sent out by this company. There are also endless numbers of lawns and parks which trees from this company are beautifying today, and which speak for themselves as to the quality and class of trees and plants sent out by the Phoenix company. Please mention this paper when writing them.

On Trial.

One of the most frequent arguments that retail dealers have been using against mail-order houses is that the purchaser can not see what he buys from them. It must be conceded that this argument has some merit in certain cases, but is entirely overcome by many mail-order houses in various lines who are selling their goods on trial. But this method of doing business can only be adopted by houses who give good value to their customers so that very little, or none of the goods are returned. No house can or will do this unless they have perfect confidence in their goods.

A recent addition to the ranks of those doing business by this method is the Advance Fence Co., of 2937 Old Street, Peoria, Ill. They are pioneers in the mail-order business in woven wire fence, and have been doing a large and rapidly increasing business for quite a number of years. Their offer is to sell their fence to farmers on 30 days' trial. If at the end of 30 days the purchaser is not perfectly satisfied, he has the privilege of returning the fence at the manufacturer's expense, and the full amount of money paid will be refunded to him. This offer must certainly be of interest to anyone who is at all to be interested in woven wire fence. This company pays freight on orders for 40 rods or more to any railroad station in the United States.

One of the distinctive features about Advance Fence is its continuous stay wire. The stay wires are not cut at the top or bottom as in other woven fences, or as some fences which have the stay wire cut at each intersection with the horizontal strands. In Advance Fence the stay wire is continuous, that is, it is first twisted into the top selvage (which is a two-strand cable), for one foot; then it runs down across the fence and is tightly wound twice around each of the horizontal strands, and then it is twisted for one foot into the bottom selvage (also a two-strand cable), after which it again runs upward across the horizontal strands and is wound around them as before described. Thus the stay wire keeps running up and down across the fence continuously which leaves no cut ends to become unfastened. Another feature is the way the horizontal strands are drawn out of line by the stay wires being wound around them, thus forming a

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slight kink or bend which effectively prevents the slipping of stay wires and also provides amply for expansion and contraction caused by change in temperature.

Those parched, dry, arid plains of Montana, Colorado, Arizona, Idaho and other dry lands respond quickly and give a big yield when planted to Salzer's speltz, Hanna barley macaroni wheat, 60-day early oats, billion dollar grass and Bromus Inermis. The above seem to flourish and laugh at droughts and arid soils. JUST SEND 10c IN STAMPS and this notice to John A. Salzer Seed Co., La Crosse, Wis., for their big catalogue, and farm-seed samples. F. P.

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Grange Department.

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

Conducted by E. W. Westgate, Manhattan, to whom all correspondence for this department should be addressed. Papers from Kansas Granges are especially solicited.

National Grange.

Master..... Aaron Jones, South Bend, Ind.
Lecturer..... N. J. Bachelder, Concord, N. H.
Secretary..... C. M. Freeman, Tippecanoe City, Ohio

Kansas State Grange.

Master..... E. W. Westgate, Manhattan
Overseer..... J. C. Lovett, Bucyrus
Lecturer..... Ole Hibner, Olathe
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Assistant Steward..... W. H. Coultis, Richland
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Some of the Reasons Why Farmers Should Join the Grange.

The past and present Lecturer of the National Grange has suggested that the aid or help that has most fully met the needs of the farming population in solving the problems of life and adding to the success and pleasures and happiness of life on the farm is the helpful influence of a good grange—for the following reasons:

1. Because it is inexpensive.
2. Because it has stood the test for thirty-six years, and has never been found wanting in any respect.
3. Because it is the oldest, best and most prosperous fraternal farmers' organization in existence, and the only one that is National in its extent. It is founded on the principles of right and justice to all men, and is entirely free from partisan politics and party entanglements.
4. Because its social features, in a large measure, tend to break up the monotony of farm life, especially for the wife and mother, and greatly add to the happiness of all the other members of the family.
5. Because it develops a feeling of fraternity and good will among farmers and gives them greater confidence in themselves and in each other.
6. Because it is a school of thought and mental development for the boys and girls as well as for the older members, giving to all culture and refinement for the home, and the experiences that are essential to success in public life.
7. Because it develops a higher manhood and womanhood among its members.
8. Because it is officered by those engaged in agricultural who know from experience the needs of farmers, and are sincere in their desire to aid them in every possible way.
9. Because it is the duty of farmers to cooperate with one another, if they would successfully meet the influence of organization in every direction, and secure for wife and home a fair share of what the harvest yields.
10. Because of its cooperative features in life and fire insurance it has saved millions of dollars to farmers, in cooperative creameries, butter and cheese factories and in many other cooperative enterprises, enabling farmers to reap the same pecuniary benefits which accrue to other classes from associated efforts.
11. Because it has exerted greater influence in securing State and National legislation in the interest of agriculture than any other agency in the country.
12. Because it has secured National legislation in the Oleomargarine law, the establishment of the Interstate Commission, the establishment of rural free mail delivery, and State legislation in every State in the interest of the farming population.
13. Because it enables farmers to unite their efforts to secure the enactment of such non-partisan legislation as will protect the varied interests of agriculture and give greater prosperity to the farming population.
14. Because its educational features

tend to broaden the mind of the farmer and lead him to study and investigate questions which relate not only to the farm and farm life, but to affairs of State and Nation as well.—Aaron Jones, Master National Grange.

Brother John P. Lyons, Master of Burlingame Grange No. 330, reports as follows: "We were organized April 6, 1903, with 22 members; we now have 70 in good standing; lost one member only, by dimit. We have 17 more candidates awaiting initiation. We have good attendance at every meeting, with nothing to retard our progress from the first. We have bought and paid for a new organ and have all regalia necessary for grange work. We have just elected officers for the new year. We are all proud of the work done by Burlington Grange No. 330, in the first nine months."

A correspondent expresses the wish that open grange meetings might be held more frequently and that notice of such might be given in the KANSAS FARMER. All meetings of farmers in Kansas should be announced in the KANSAS FARMER. Such announcements cost nothing and are a means of promoting the interest of the meetings.

Let those who report grange news strive to report something that will help other granges, and be a credit to their own.—Obadiah Gardner.

Continued agitation of the needs of legislation to put out of business the few men, who through questionable methods, seek to manipulate the rights and to "deliver" the many, will surely result favorably, for it is backed by justice and right. The lesson should be plainly taught that an intelligent people are not so much in need of self-assumed leaders as they are of good and dutiful servants.—George B. Horton.

It may not be out of place in this connection to make brief recommendations along the line of lecture and editorial work suggested by our experience and observations. There should be some medium of communication between the State and subordinate lecturers, by quarterly or monthly publications, as has already been adopted by several States. The expense for such bulletins is light, compared with the good accomplished when judiciously and loyally edited. This is the most effective means known of awakening an interest and arousing enthusiasm among subordinate lecturers, considering the expense involved.—N. J. Bachelder.

The grange has no systems to crush; it has nothing to overthrow; it purposes to build up, to develop, to broaden the minds, and direct to the greatest good of the world the talent of its members.—W. N. Giles.

There are some things in life so precious that money will not procure them for us. We are all actuated by some motive in becoming members of an organization like the grange, and it may not be unprofitable for us to examine ourselves and see what we expect to receive from the order, and what we expect to give to the order in return. Are we imbued with a desire to help others to a higher plane, or do we belong, that we may save a few paltry dollars on insurance? It is a laudable object to save money, whether by belonging to the grange or in any other honest way, but do not let us make that the sole object of our lives.—George A. Fuller.

A novel watch in Zurich is in the form of a ball which moves imperceptibly down an inclined plane without rolling. There is no spring, the sliding giving motion to the hands, and the trip from top to bottom of the inclined surface, a distance of sixteen inches, requires twenty-four hours. The ball is then lifted again to the top.

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THE OLD HOMESTEADS.

Historic Monuments to the Thrift of Our Ancestors.

It is as natural for us to love the trees, the meadows, the old homesteads, as it is to want food and drink. Our ancestors built well when they erected those old mansions, the walls of which are in many cases as firm and good to-day as they were one hundred and fifty years ago. Our ancestors lived more simple lives than we do at the present day. They lived closer to nature. They lived in the sunshine and out of doors. As a rule they ate simple foods and easily digested them. To-day the American people eat fast, eat unwholesome foods and are shut up in dark and close offices, shops and illy ventilated rooms. Nature provides us with all we need for life if we only can take advantage of the good air, sunshine and eat good fruits and vegetables. Nature also provides the remedy for ill-health and stomach troubles in its roots, herbs and barks. Some forty years ago Dr. R. V. Pierce, now chief of staff to the Invalid's Hotel and Surgical Institute, at Buffalo, N. Y., found that certain herbs, roots and barks, when made into a concentrated extract, helped in the assimilation of the food and purified the blood. This "Golden Medical Discovery" of Dr. Pierce makes pure rich blood. Every bottle bears the stamp of public approval. The reason many patent medicines fail in curing disease and eradicating poisons from the blood is because they contain large quantities of alcohol. Dr. R. V. Pierce never believed in the use of alcohol for a medicinal tonic, as he found it shrunk up the red blood corpuscles, and although it might give temporary benefit, it did no lasting good. Any one can easily prove that Dr. Pierce's Golden Medical Discovery contains no alcohol by simple distillation. Therefore do not permit the dealer to persuade you that he makes something better, or knows of something "just as good," for it is almost certain to contain alcohol or narcotics, and will not do you the lasting good which the "Discovery" of Dr. Pierce is sure to do. Thousands of people have given their testimony as to its merits, and lack of space only permits us to publish a few of the many letters received every day from those who have tested its merits. The reason they speak so highly of it is because it supplies the needed strength to the body to throw off a cold—to prevent catarrh, pneumonia or consumption. By its nourishing qualities the body is filled with renewed vitality and for the weakened system as a remedy for those recovering from sickness it is the safest tonic one can take.

"I would be ungrateful indeed," writes Mrs. J. M. Kizzlar, of Murfreesboro, Ark., "should I not do all I could to assist you in your great effort to relieve the suffering. Nothing would give me more pleasure than to be the means of helping some poor suffering woman to find relief, as I have done. Words fail to express my gratitude to you and to the Faculty of your Institute for the relief from the great suffering I so long endured. I consider my cure almost miraculous. Six years ago my health began to fail. I took many different kinds of patent

medicine, was treated by two or three different physicians but steadily grew worse. Had almost given up in despair, when I decided to try Dr. Pierce's medicines, as a last resort. I learned that he invited all the sick and suffering to consult him, so thought I would write and place my case in his hands. He kindly answered my letter advising a course of his medicines. I sent for Dr. Pierce's book, the 'Common Sense Medical Adviser,' read it carefully, and followed his advice as faithfully as I could. My disease was so complicated I had but little hope. I was suffering from inflammation and congestion of stomach and liver, piles, ulceration of womb, also prolapsus, congestion and irritation of the ovaries. At the time I commenced treatment with Dr. Pierce, I was greatly emaciated, complexion pale and sallow, eyes lifeless, and sick and tired all over. Would have weak spells so I could hardly move hand or foot. All the nourishment I could take was a little milk and cracker—even then I would suffer untold agony. Did not dare take a drink of cold water. Had a dreadful headache all the time; back ached so I could not rest day nor night; pain in side under shoulder-blade and in back of neck; had a ringing or roaring in ears; night-sweats, chilly sensations and hot flashes, also palpitation of heart, and menstrual derangement. Hands and feet were cold and felt numb or 'asleep.' By the time I had taken one bottle each of 'Golden Medical Discovery' and 'Favorite Prescription,' I felt some better; my head and stomach did not pain me so much, and, as I persisted in the treatment, one by one my aches and pains disappeared. Now I can eat anything I want and can do the housework for a family of six. I now enjoy better health than for several years past."

"When first I commenced taking your remedies," writes Mr. E. F. Cingmars, of 533 Penn Avenue, Minneapolis, Minn., "I had been for four months under treatment of a well-known specialist in this city for catarrh and stomach trouble, rapidly getting worse. Got so bad that I could not eat anything that did not distress me terribly and I was obliged to quit taking the doctor's treatment entirely. I was greatly reduced in flesh. As a last resort I wrote to you and stated my case, and after receiving your instructions I followed them closely. After taking five bottles of Dr. Pierce's Golden Medical Discovery and one vial of his 'Pleasant Pellets' I commenced to improve, and decided to continue the medicines and observe your instructions regarding hygienic treatment. It is now nearly six months since I commenced your treatment and I can say that I am well and never felt better in my life. Am very grateful to you for what your medicine has done for me."

"Nine or ten years ago my health became very poor, and in 1892 was so far gone that good doctors pronounced my case the worst they had ever treated," writes Mr. Harvey Phipps, of Florence, Ala. "I had acute stomach trouble, liver complaint, catarrh, and was so nervous I could not sleep. I finally took Doctor Pierce's Golden Medical Discovery and Dr. Pierce's Pleasant Pellets, and in a few days noticed a decided improvement. When I had used three bottles of the 'Discovery' I was a new man; could eat mince pie for supper, go to bed at 7 P. M. and sleep until 7 A. M.

Dr. Pierce's Common Sense Medical Adviser, sent on receipt of stamps to pay for mailing only. Send 21 one-cent stamps for book in paper covers, or 31 stamps for cloth-bound volume. Address, Dr. R. V. Pierce, Buffalo, N. Y.

season and considerable moisture, for which reason it is not well suited to Kansas conditions." Teosinte is a native of Mexico and is thought by some botanists to be the origin of our native Indian corn. It does not produce an ear as does corn, but produces seed in the leaf axil on slender pointed spikes. In the United States the plant seldom flowers except in the extreme Southern States, and never produces seed except in southern Florida, or near the Gulf coast. It is considered a valuable forage plant in the Southern States and under favorable conditions produces immense crops of fodder.

Last season was especially favorable to the growing of this crop. At this station teosinte was tried along side of several of the other forage plants, but did not give especially favorable results. We cut two crops of fodder, but the total yield was not above that produced by cane or Kafir-corn. The trial was made on rather poor upland soil. For this character of land I should prefer cane or Kafir-corn to teosinte. On very rich bottom-land, which is supplied with abundance of moisture, doubtless teosinte would be a profitable forage crop.

I can not inform you as to where you can secure the best seed, the seed is practically all imported. Doubtless some of the Southern seed-companies would be more apt to have first-grade seed than the seed-companies farther north.

A. M. TENEYCK.

Soy-beans.

I would like you to tell me, through the KANSAS FARMER, the best way to grow soy-beans, and which are the best adapted for this locality, the early or late varieties. I live in Ellsworth County, Kans. I have never seen this crop raised, and I should like to know how far apart the rows should be planted, and how thick in the row.

ARTHUR BROWN.

Ellsworth County.

Your letter to the KANSAS FARMER has been referred to me. After a 14-year's trial made at this station, the results indicate that the Early Yellow soy-bean is best adapted for growing in this State. Last season we planted some twenty-seven varieties and the Early Yellow sort was one of the best yielders. This variety of beans ripens in about ninety days after planting. The varieties which gave the best yields last season were the following:

	Yield per acre. bu.
U. S. No. 1299, a yellow variety secured from the U. S. Dept. of Agriculture.....	15.8
Ito San, a yellow variety.....	15.7
U. S. No. 1308, a yellow variety.....	15.1
Early Yellow Soy.....	14.8
U. S. No. 1313, a green bean.....	14.8
U. S. No. 1302, a green bean.....	14.5
Early Brown Soy-bean.....	13.7

All of these varieties were planted June 15 and matured fully. Perhaps the earliest of those named is the Ito San, almost identical in appearance with the Early Yellow variety. For planting in Ellsworth County, I do not think you will find a better variety than the Early Yellow, and seed of this variety is now common in the State.

The favorite method of planting is to use the grain drill, stopping up part of the cups so as to plant two drill rows thirty to thirty-two inches apart, dropping the beans about two inches apart in the row. The drill corn-planter may also be used, but the objection to its use is that the corn-planter puts the rows too far apart to secure the largest yields. At this station a very good crop was grown last season by planting with the lister. The ground was double listed, the beans being planted on the ridge at the second listing. It is necessary to list shallow the last time if the planting is done in this way, because if the beans are placed in a deep listed furrow, part of the pods which form low down on the stem will be covered up during the cultivation and the beans will be hard to harvest. The same difficulty is experienced in planting with the lister as with the drill corn-planter in that the rows are too far apart to give the largest yield. Where the beans are planted with the grain drill or drill corn-planter, the ground should be well prepared, giving a fine mellow soil as a seed-bed.

Soy-beans should not be planted too early, because they will not grow well until the ground becomes warm. Usually about the last of May is considered the proper time. The crop is usually cultivated much the same as corn. Avoid the use of large shovels and do not cultivate too deep, but kill the weeds and keep a mellow soil mulch to conserve the soil moisture.

Soy-beans will follow almost any crop well, but it is preferable to plow the land early in spring so that the soil will have a chance to settle and accumulate moisture so as to be in a good condition of tilth when the beans are planted. At this station a very fair crop was grown last season by sowing broadcast. In a dry season, however, this method would not prove successful and it would not do to plant the beans this way on weedy land. Where beans are planted in rows, about two or three pecks of seed are required per acre. When sown broadcast about one and one-half bushels per acre will be required. The usual method of harvesting when the beans are planted in rows is to use the bean-harvester, several makes of which are sold by the machine-dealers in this State. When the beans are planted broadcast they may be harvested with the bean-harvester using a windrower or buncher attachment. At this station the beans are placed in small piles immediately after cutting, and allowed to become thoroughly dry, when they are thrashed from the field. We use the ordinary separator, taking out the concaves and part of the cylinder teeth, but the use of the regular bean-thresher is to be preferred because the beans are split and cracked badly when thrashed with the separator, even in spite of the precautions taken. At this station we have not thus far found soy-beans to be a very profitable crop, because of the small yields secured, but the yield is not the only thing to consider in growing this crop. The soy-bean is one of the annual legumes and takes its nitrogen directly from the air, storing it up in the roots as well as in the seed, in case the required bacteria are present in the soil. Thus the crop tends to enrich the land and make it more fertile in the production of other crops. In some instances it has been necessary to inoculate the soil with the soy-bean bacteria before the crop could be made to thrive successfully. If you have not grown soy-beans on the farm and if none have been grown in your locality, it may be advisable for you to secure soil from some old soy-bean field which is known to be inoculated with soy-bean bacteria. Spread this soil thinly in some of the rows when you plant the beans and note the results.

A. M. TENEYCK.

Pencilaria.

Have you ever grown pencilaria at the station? If so, what do you think of it as a fodder-crop for this part of Kansas as compared with Kafir-corn and sorghum? E. L. PITZER, Pratt County.

We have grown pencilaria at this station; in fact, made a trial of it last year, in comparison with cane and Kafir-corn as a fodder crop. At this station on the upland soil, which is not very fertile, pencilaria is not so productive as cane or Kafir-corn. On rich bottom-land, doubtless it will produce greater crops, as has been demonstrated in other States. Also it is a more Southern crop than cane and Kafir-corn, and will likely produce better in Pratt County in comparison with cane and Kafir-corn than it does at this station. It is my judgment, however, that you will not find it superior to the standard fodder-crops. It is a slow-growing crop in the early part of the season, and the seed is not apt to start well; it requires richer land than cane or Kafir-corn, and more care and cultivation in order to produce a profitable crop.

As to the feeding-value of the fodder, no comparative trials have been made at this station. Since pencilaria makes no seed when cut to make the best feed, it might be less nutritious, on the whole, than cane or Kafir-corn, which produces seed as well as fodder. I believe, however, that you

should try pencilaria in a small way in order to satisfy yourself as to the merits of the crop. In purchasing the seed, purchase Pearl millet-seed instead of pencilaria, they are the same although many seed-companies sell under separate names, charging ten times as much per pound for the pencilaria-seed as for the Pearl millet-seed. The plant is really the old cat-tail millet which has been grown throughout the South for half a century.

A. M. TENEYCK.

Cow Stanchions.

I am going to make some cow stanchions of two heavy 1 by 6's each for the top and bottom part. The cows are large-grade Shorthorns.

1. Is it uncomfortable for a cow to sleep in a stanchion?
2. Will the two 1 by 6's, laid on the ground, hurt the cow's neck when she is lying down?
3. How much space should be allowed each cow? I thought three feet about right, but have been told that even two and a half was too much.
4. Should the top of the stanchions slant backward toward the cow? If so, why, and how much?
5. Is three feet about the proper distance from the bottom of the stanchions back to the edge of the manure-trough?

JOHN FROST, Marshall County.

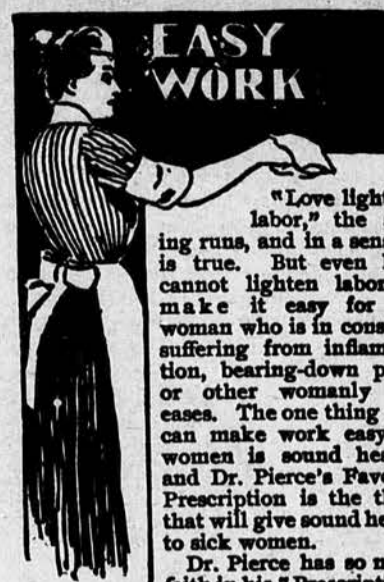
1. Without doubt the rigid stanchion is rather an uncomfortable place for a cow to rest. The rigid stanchion may be used simply to tie the cow for feeding and milking, but cattle will doubtless rest much more comfortably in an open shed where they can have freedom of movement than they will lying with their heads fastened in a rigid stanchion. The rigid stanchion is also especially uncomfortable for a cow during fly-time. The swinging stanchion, which permits the yoke to turn and move a little back and forth, is to be preferred to the rigid stanchion, when cows are left in the stable over night.

2. The one by six inch boards, which you propose to use to make the base of the stanchions, will not be high enough to injure the cow's neck when she is lying down. A good arrangement, however, would be to place a cap or piece of rounded molding on the top of the six-inch boards.
3. Three feet is none too much space to allow for one cow, especially the large grade Shorthorns which you desire to stable; in fact, I should be inclined to give a little more rather than a little less than three feet. At this station we use the Bidwell stall and each cow is given three and one-half feet of space.

4. It is not necessary that the top of the stanchion slant backward toward the cow. Sometimes stanchions are made in this way, the object being to cause the cow to step back when she raises her head in order that the platform may be kept clean. Also the plan allows the cow to step forward when she lies down, by which she is enabled to lie upon the clean part of the platform. Where slanting stanchions are made, the usual slope is about 15° to 20°, or the stanchion will make an angle with the floor of about one-fifth or one-fourth of a right angle.

5. The width of the stanchion from the bottom of the stanchion back to the manure-gutter should vary according to the size of the animals which you desire to stanchion. In the Bidwell stalls at the college farm, the distance from the bottom of the manger to the edge of the gutter is five feet four inches. With the large cows which you desire to stanchion, I think a five feet width of platform would not be too great.

6. The manure-gutter should be about 18 inches wide at the top, and 4 to 6 inches deep. The sides of the gutter may be made sloping so that the bottom may be about 12 inches



"Love lightens labor," the saying runs, and in a sense it is true. But even love cannot lighten labor or make it easy for the woman who is in constant suffering from inflammation, bearing-down pains or other womanly diseases. The one thing that can make work easy for women is sound health, and Dr. Pierce's Favorite Prescription is the thing that will give sound health to sick women.

Dr. Pierce has so much faith in his "Prescription" that he offers to pay \$500 in legal money of the United States for any case of Leucorrhoea, Female Weakness, Prolapsus, or Falling of Womb which he cannot cure. All he asks is a fair and reasonable trial of his means of cure.

"I suffered from female weakness for five months," writes Miss Belle Hedrick, of Nye, Putnam Co., W. Va. "I was treated by a good physician but he never seemed to do me any good. I wrote to Dr. R. V. Pierce for advice, which I received, telling me to take his 'Favorite Prescription' and 'Golden Medical Discovery.' When I had used the medicines a month, my health was much improved. It has continued to improve until now I can work at almost all kinds of housework. I had scarcely any appetite, but it is all right now. Have gained several pounds in weight. Dr. Pierce's medicines have done wonderfully well here. I would advise all who suffer from chronic diseases to write to Dr. Pierce."

"Favorite Prescription" makes weak women strong, sick women well.

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wide. Some prefer to make the gutters even deeper than the figures given, giving the bottom of the gutter a slight incline so that it will be about 2 inches less depth at the rear side. There should be three or four feet of space for a walk outside of the manure-gutter, this walk to be raised as high as the platform upon which the cows stand.

A. M. TENEYCK.

Cow-peas and Corn for Ensilage.

Can you give me any more information in regard to sowing cow-peas with corn for silage? How many peas to the acre, and should the corn be drilled as thick as for the grain? Will cow-peas reach the right stage for silaging at the same time as corn or should they be sown later? Would it be a good plan to sow cow-peas in all corn at the second or third cultivation and pasture when corn is shocked? What variety should be planted in order to harvest with a corn-binder? I have been reading your articles in the KANSAS FARMER in regard to silos, and I fed a bunch of cattle last winter from the silo and liked it very much, but believe that the ration could be balanced cheaper than by mill-stuff.

Shawnee County. E. W. ADAMS.

Judging from the experiments at this station, the only successful way to grow cow-peas and corn together for ensilage is to plant the cow-peas and corn together in drill-rows, three to three and one-half feet apart, rather late in the season, say early in June or late in May, after the ground has become thoroughly warm, so that the cow-peas will start and grow rapidly. Last season we planted cow-peas and corn in this way during the last part of June. The ground was double-listed, the seed being planted on the ridges at the second listing. The cow-peas and corn were mixed together in equal parts. We used a sixteen-cell plate, rim drop, and the cell had been somewhat enlarged by filling out the ends. This dropped the seeds so that by actual count after the plants had come up, the cornstalks averaged about two feet apart in the row and the cow-

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peas about six inches apart in the row. The combination made an excellent crop, the peas made a rank growth and the cornstalks supported the cow-peas in good shape. The crop was cut with the corn-binder, about September 20, and put in the silo. The actual yield was eight and one-half tons of green fodder per acre. By separating the pea-vines from the corn-fodder in a few bundles I found that the fodder consisted of 20 per cent of cow-pea fodder and 80 per cent of corn-fodder. We use the Whippoorwill variety of cow-peas and the Silvermine corn, which is a medium early variety. When the corn was cut, the corn was in the advanced milk stage, just right to make excellent silage, while the cow-peas were quite full of pods and the pods were filled with green peas, but none of the peas had begun to ripen. I consider that the stage of maturity at cutting, of both of the plants was just about right to make the best quality of silage or dry fodder.

I believe that the crop should be planted a little thicker, say the cornstalks twelve to eighteen inches apart in the row and cow-peas three to four inches apart or less. The planting may be done with the lister in the manner mentioned above, provided a special plate be made for dropping the seed; or if the ground is well prepared a drill-planter may do the work, or perhaps a grain-drill could be very successfully used by stopping up a part of the seed-cups.

Experiments were tried in planting cow-peas in the corn-rows after the corn had come up; this resulted in failure, because it was found necessary during cultivation to cover up the cow-peas to a large extent in order to kill the weeds. Also it would appear from our experiment that corn and cow-peas planted together at the same date mature about alike so that they will be ready to cut for fodder at the same date. When the cow-peas were planted early in the season, about the proper time for corn-planting, the peas started very slowly, the corn got in advance of the peas, many of the plants were covered by cultivation and others died out so that the crop was a failure. When the cow-peas and corn were seeded together broadcast, the growth of the cow-peas was very slight because of the shading by the corn.

Cow-peas may be sown in the corn at the last cultivation as suggested, and if the balance of the season is not too dry they will make considerable growth so as to make cover-crop and perhaps furnish some pasture after the fodder has been cut or in the early part of the fall before the hard frost comes, the crop may be pastured by sheep. Such a method of planting will not furnish any amount of fodder, however, because of the shading of the ground by a good corn-crop. And because of the drying of the soil, which comes from the feeding of the corn-roots, only a meagre growth of the cow-peas results. This was the actual result of the experiment tried at this station last season.

Perhaps the Whippoorwill variety is as good a sort as any to plant in Kansas. The Clay and Iron varieties are later and make a larger growth of fodder, but do not produce as large a

growth of pods and peas as does the Whippoorwill. The earliest maturing cow-peas grown at this station last season, which variety was also a good producer of seed but not a very rank vine-grower, is called the "New Era." If the object is to produce seed, this is one of the best varieties to plant in Kansas. A. M. TENEYCK.

English Blue-grass for Orchards, and for Worn-out Land.

Have you experimented any in sowing English blue-grass in orchards? Will it pay to sow English blue-grass in a worn-out pasture, and then disk it? Can I get a stand?

D. W. McALISTER.

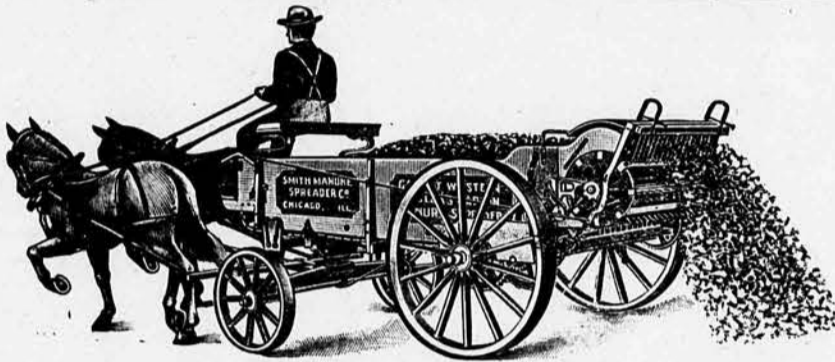
Washington County.

We have made no experiment at this station of sowing English blue-grass in the orchard? I do not think it will be found to be well adapted to this use. I should rather recommend

tive grasses. These will make a renewed growth and if the cattle are kept off the pasture for a season and a little well-rotted manure spread over the field, the pasture will doubtless recover and furnish good feed another season. I would disk the pasture early next spring as soon as the ground is in good condition, and follow with the harrow, the disk is apt to leave the sod too loose or too much cut up, so that the harrow is necessary in order to give a good surface mulch. A. M. TENEYCK.

Some Questions.

1. At what temperature should cream be to quickly obtain butter?
2. Is there any experiment station that issues a bulletin on the quince and its culture? The KANSAS FARMER of October 8, last year, said, through Farm Notes, "Put coal ashes around the quince bush." For what purpose? I've seen that recommended periodically



Judicious Spreading of Manure.

Probably no branch of farm work is of as much importance to the progressive farmer of to-day, as the distribution of manure in such a way as to derive the most benefit, consequently his attention has turned to the more adequate way, that of spreading by machinery. Several of the manufacturers of farm implements have put manure-spreaders on the market in the last few years, and among these we feel that one that has come near to reaching the height of perfection is the Great Western English Apron Spreader shown in the above cut. There are many strong points in favor of this machine, any one of which might serve to put it in a class by itself. Principal of these would seem to be the endless apron, which admits of reloading without the trouble of stopping to crank it back and of hauling about doubt the amount of manure that can be handled by a half-apron machine.

The combined hood and endgate serves the dual purpose of keeping the manure from beater while loading, and acts as a hood or shield while in motion, and is changed from gate to hood by means of the lever which throws the machine in operation, without leaving seat. The beater will not carry over hard chunks or bunches of manure until they are thoroughly torn to pieces or pulverized. In fact, every detail for spreading all kinds of manure, lime, wood ashes, plaster, and commercial fertilizer, has reached a surprising degree of completeness in this machine. It also spreads straw, chaff, sawdust, etc., for mulching strawberry plantations, etc. The reader will get much good from the large illustrated catalogue which the Smith Manure Spreader Company will gladly mail on request. See advertisement in another column.

orchard-grass or Bromus inermis for this use, but would rather prefer to keep the orchard cultivated if the purpose is growing fruit. The plan followed at this station is to cultivate the orchard during the early part of the season and seed some cover-crop, such as oats or cow-peas, along in August; this is allowed to remain during the winter and serves to catch the snow and protect the ground from severe freezing. Early in the spring the ground is double-disked and the disking is continued at intervals during the summer.

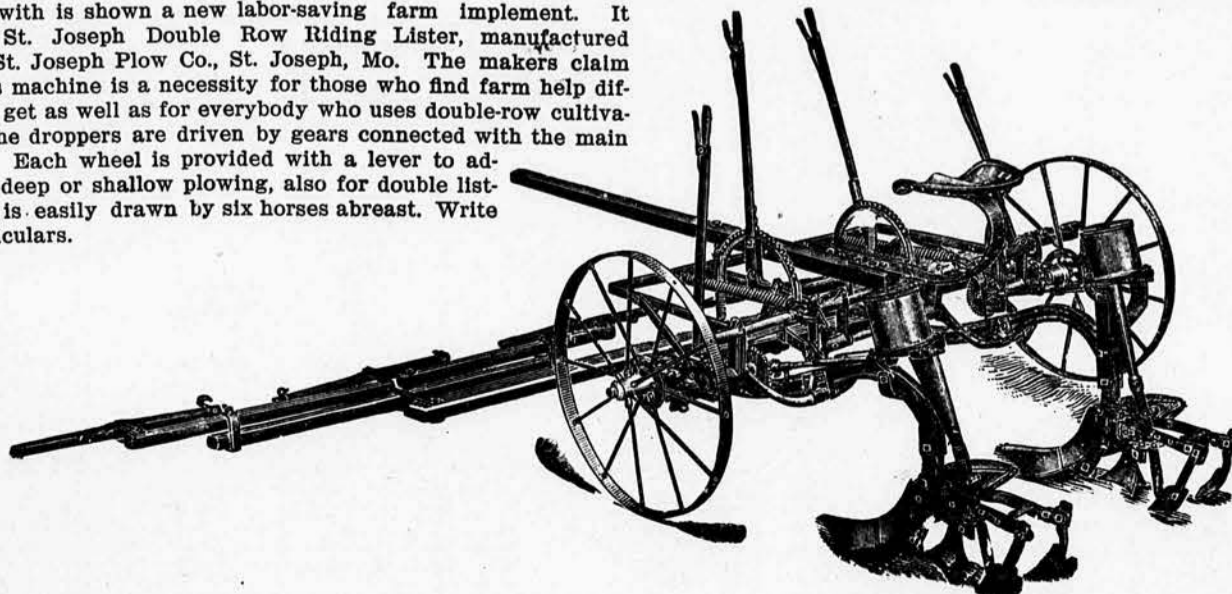
It will be a good thing for you to give the old pasture a good disking, and a little seed of English blue-grass and Bromus inermis scattered over the bare places will not do any harm and doubtless some of the grass will take root and grow. I prefer the Bromus inermis for this purpose, rather than the English blue-grass. The greatest good will come, however, from the effect which the disking has on the na-

for 30 years. Why are so few quinces raised? Do they require a salty soil?

3. The method by which prairie and alfalfa hay is measured in the stack in Hamilton County is this: Add the width to the over and divide by 4. (One-fourth of the sum of the width plus the over equals one side of a square of the stack.) Multiply the 1/4 of the sum by itself. This product equals the number of square feet at the end. Multiply the number of square feet by the length and the number of cubic feet in the stack is obtained, which divide by 422, the cubic feet in a ton, or the cube of 7 1/2. This gives the number of tons in the stack. I would inquire why, in the method given by Mr. Diesem, the width should be subtracted from the over? Why should the remainder be divided by 2? Why multiply the quotient by the width and length?

4. Will the Norway spruce grow in Kansas? Where can young trees be obtained? B. A. MONROE.

Herewith is shown a new labor-saving farm implement. It is the St. Joseph Double Row Riding Lister, manufactured by the St. Joseph Plow Co., St. Joseph, Mo. The makers claim that this machine is a necessity for those who find farm help difficult to get as well as for everybody who uses double-row cultivators. The droppers are driven by gears connected with the main wheels. Each wheel is provided with a lever to adjust for deep or shallow plowing, also for double listing. It is easily drawn by six horses abreast. Write for particulars.

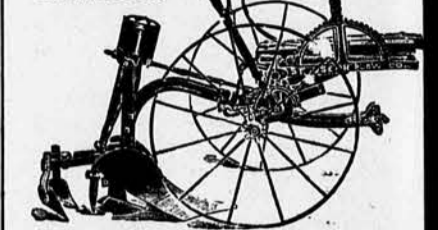


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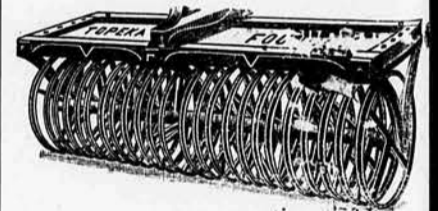
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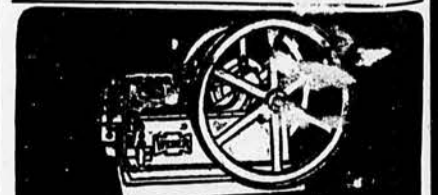


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In the Dairy.

Just Common Cows.

EDITOR KANSAS FARMER:—Mr. M. E. King, of Labette County, according to an article in the KANSAS FARMER of January 7, thinks that the majority of the farmers of Kansas are a lot of fools, because they don't sell out all their dual-purpose cows and buy special-purpose ones like his. Now, I am going to tell Mr. King what eight years of ordinary native cows, with ordinary care, have done for me in the last twelve months. My cows commenced to come fresh on September 13, 1902, and all eight head were fresh by November 2. They ran on heat for 33 days during September and October; they were then put up on fed fodder night and morning, and on fodder at noon, till grass came the following spring. They were not used any time except in a warm bed closed on three sides, to go into what they wished. Now for results: There were eight cows, but as one was only a small 2-year-old heifer with first calf, and as I used milk in the house for a family of six persons, I think it but fair to count only seven cows. From September 1, 1902, to September 1, 1903, I sold to the creamery 1,735 pounds butter-fat, or an average for seven cows 248 pounds per cow, which brought \$8.83, or almost \$55.50 per head for the year, and with very ordinary care. Now I would like to know if Mr. King's special-purpose cows were given the same care as the above cows, how much butterfat would be the average over the assessor's return. I think it much. My experience with special-purpose cows is that they are a deception and a snare that the average

farmer should steer clear of, and I have had them off and on for nine years. And now the calves. One year ago I sold some 1-year-old steers from those cows for \$24.00 per head to a neighbor. He roughed them through last winter and sold them off the grass this summer when they weighed around 1,050 pounds, and those steers never got any grain except a little I fed them the first five months, as they were skim-milk calves.

Any time in the last five years I could pick up such cows as I now have for between \$35.00 and \$40.00 per head. In fact, I could buy them now for much less than that. Then why should a man keep cows when calves are almost a total loss as far as the steers go? I do believe if Mr. King had good native cows and took as good care of them as he must take of his delicate special-purpose ones, he would get just as much and perhaps more butter-fat and a good calf that it would be both pleasant and profitable to keep and feed. Mr. King may say, "Why don't you house your cows and reap the benefit?" Well, in the first place I have not the barn to house them in; and in the second place if I did house them I would have to employ help to look after them and I doubt greatly if the extra income would pay for the bother and trouble of doing so. But the main obstacle is, I have no help but myself, and must do the best I can.

Now, I hope Mr. King and all other like-minded men will think twice before they slander such a good friend to the farmers of Kansas as the dual-purpose cow, for she has helped lift the mortgage off many a farm, and always paid me for her keep, and that is more than I can say for the special-purpose cows I have owned. True, I may not have had the best strain of that breed. Neither have I the best dual-purpose cows; far from it. There is one thing in favor of the special-purpose cow, I never knew of any of them to die of milk-fever.

ARTHUR A. PATTERSON, Ellsworth County.

How to Secure Dual-Purpose Cows.

EDITOR KANSAS FARMER:—I have been reading the articles on dual-purpose cows, published recently in the KANSAS FARMER, and thinking possibly everybody is now through, will offer a few suggestions.

It seems strange that some people can see nothing but strictly beef- and dairy-breeds. They seem to think it impossible for a cow to raise a good calf and still be a heavy milker.

Mr. King says if we want beef get beef-breeds; if we want milk and butter get dairy-breeds. This is all right as far as it goes. Take the men on the range; all they want is a cow that will raise a calf. All the dairyman wants is the milk, but the farmer on an 80- or 160-acre farm wants and must have beef, milk and butter. Therefore he must look to the dual-purpose cow.

Now what is a dual-purpose cow? And how can we get her? Mr. King and Mr. Holderman would say: "Anything not a beef- or dairy-cow."

The farmer in this section, and perhaps all over the State, will start with a few scrub cows, head the herd the first year with a Hereford; next year a Shorthorn; possibly the next an Angus, and the next year, just anything so the cows will give milk. This is where Kansas gets her fine milch cows.

What I call a dual-purpose, or "farmer's cow," is one that will weigh 1,400 pounds and give five gallons of milk a day, with a butter record of a pound a day the year through. Now, how will we get them? We may get a few by such haphazard breeding, but not many. There are breeds that fill this place, viz: Red Polled and Brown Swiss.

In Red Polled, we find such cows as Beauty 5th, giving 7,000 pounds of milk a year; Mayflower 2d, with a milk record of over 10,000; Flora 2d, with a record of over 7,000 pounds.

In Brown Swiss, we find Brienzi, giving 81 pounds of milk a day for three days, at the Chicago show in 1891, which made over 3 1/2 pounds of butter

a day; and Beinwyl, a cow weighing 1,850 pounds, with a butter record of over 500 pounds a year.

I could name a score of others; these are dual-purpose, or farmer's cattle.

How will we get them? Get an animal of one of those breeds to head your herd and breed straight on that line; and in a few years you will have a herd that will not only please you, but your pocketbook as well.

In conclusion will say, give the range men their beef breeds, the dairymen the Jerseys, but let the farmer have the dual-purpose cattle. J. W. COOL, Cherokee County.

The Dual-purpose Cow.

EDITOR KANSAS FARMER:—Now we have all agreed that there is a general purpose cow, for how could Kansas ever become the great State she is without her? It was she that furnished the early pioneers a good share of their living. It is she that furnishes the milk, the cream, the butter, the cheese, and little Bennie says, "ice-cream, custard, and lots of things." The dairy cow may have come to Kansas tied behind the moving wagon, the beef cow in the cars, but the farmer's cows came in droves. Beef being cheap this year the farmers have been killing their own beef, largely, and get much better meat,—why should not farmers go back to the more independent way of living, thus getting a better article at less cost than when buying it? The farmers ought to be the most independent, happy, and contented people on the globe; if they are not, why not? The Jersey may be the city cow, the Angus may be best for beef on high-priced land, the Hereford for the range, but the farmer's cow, the cow for the millions, must be the dual-purpose cow. Now, kind friends, let the man with his Red Polls alone.

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He may not keep them long. Besides they will not interfere much with the Herefords, and some of the Herefordmen may get tired of keeping the "farmer's cow" to raise some of their show Herefords on. Can they become so nice, fat and sleek, without milk? The farmer's cow, if of the improved kind and rightly managed, always makes a little money for her owner. So let the children have their cup of nice new milk, their custards, and ice-cream, and at least "take a look at this fair land" of ours and see if it is not more pleasant than "wandering around for years in the wilderness"—of beef. Osage County. A FARMER.

How's This!

We offer One Hundred Dollars Reward for any case of Catarrh that can not be cured by Hall's Catarrh Cure. F. J. CHENEY & CO., Props., Toledo, O. We, the undersigned, have known F. J. Cheney for the last fifteen years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by their firm. West & Truax, Wholesale Druggists, Toledo, O. Walding, Kinnan & Marvin, Wholesale Druggists, Toledo, O. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price, 75c per bottle. Sold by all Druggists. Testimonials free. Hall's Family Pills are the best.

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PATRONS' PRIZE CONTEST. In order to offer an inducement to our patrons to solicit their neighbors to ship to us, we are going to hold a PATRONS' CONTEST, ENDING MARCH 31, 1904. To the patron sending us the largest number of new shippers, we will give the following prizes, according to number of patrons secured: First prize, Steel Range, value \$40.00. Second prize, High Grade Sewing Machine, value 35.00. Third prize, Gentleman's Watch, value 20.00. Fourth prize, Double Barrel Shot Gun, value 18.00. Fifth prize, 4 Bottle Babcock Tester, or Nickel Plated Carpet Sweeper, value 5.00. Sixth prize, 2 Bottle Babcock Tester, or Connecticut Meat Chopper with stuffing attachment, value 4.00. Any patron who fails to secure one of the above prizes will receive 50 cents in cash for each new patron secured. This contest will close with the end of business March 31, 1904. Ship us a can of cream and make yourself eligible to participate in this contest. Write us for full particulars, including entry blanks, illustrated description of prizes, etc. If you have no separator, send for a catalogue and description of the best separator that is made, the famous, easy-running Empire machine. BLUE VALLEY CREAMERY CO. ST. JOSEPH, MISSOURI. Pioneers in High Prices for Butter-fat.

No Gears in Sight! That's another fine point about THE ONLY UP-TO-DATE SEPARATOR MADE. The gears are very simple—and all entirely enclosed. Sharples Tubular Separators Are absolutely safe. A child can play safely about or on one running at full speed. All other separators are different. You should inspect the Tubular. Ask us for a catalog about them. JOHN DEERE PLOW CO., KANSAS CITY, MO. DENVER, COLO. Cream Separator Department.

Miscellany.

First Annual Meeting American Breeders' Association, St. Louis, Mo., December 29 and 30, 1903.

Officers: President, Hon. James Wilson, Secretary of Agriculture, Washington, D. C.; vice-president, Hon. L. H. Kerrick, Bloomington, Illinois; secretary, Prof. W. M. Hays, St. Anthony Park, Minnesota; treasurer, Prof. Oscar Erf, Manhattan, Kansas; chairman, plant station, Dr. H. J. Webber, United States Department of Agriculture, Washington, D. C.; secretary, plant section, Prof. N. E. Nansen, Brookings, South Dakota; chairman, animal section, Hon. John Dryden, Minister of Agriculture, Ottawa, Canada; secretary, animal section, Prof. F. B. Mumford, Columbia, Missouri.

The council is made up of the seven officers, excepting the president. Address, W. M. Hays, Secretary, St. Anthony Park, Minnesota.

Membership fees: Annual, \$1; life, \$20; patron, \$1,000; outside North America, annual, \$2.

A new organization called the American Breeders' Association was formed at St. Louis, December 29 and 30, 1903.

ers than plant-breeders in attendance.

The recent great discoveries in heredity, such as Mendel's law, and the practical results of such breeders as Luther Burbank of California, have made possible this movement for a general organization. Scientific investigators who are studying heredity are hereafter assured of a most appreciative hearing for any really valuable discoveries, and of support for important investigations. Luther Burbank of California was given the signal honor of being the only man elected as honorary member.

This organization had its origin in the American Association of Agriculture Colleges and Experiment Stations. At the New Haven meeting of that Association, in November, 1900, a committee was appointed to consider the advisability of forming an association of plant and animal-breeders. This committee was made up of the following named gentlemen:

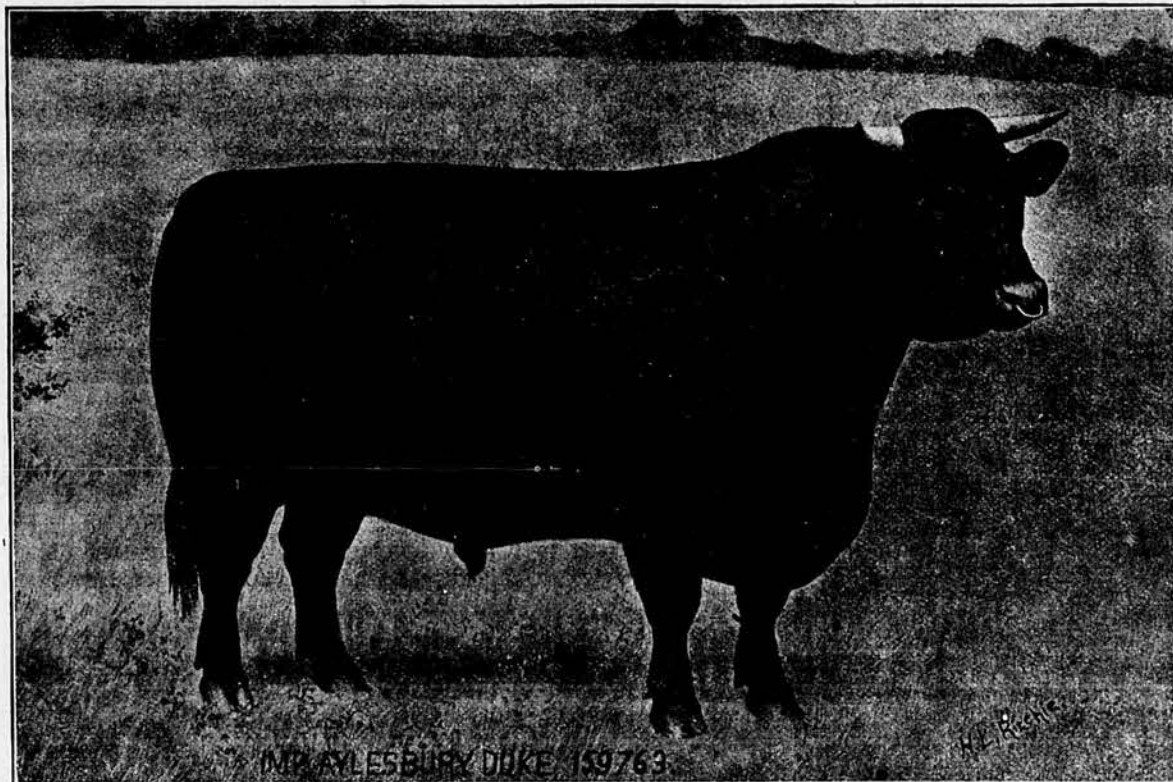
Prof. W. M. Hays, of the University of Minnesota, chairman; Director L. H. Bailey, of Cornell University; Prof. T. F. Hunt, formerly of Ohio University, now of Cornell University; Dean C. F. Curtis, of Iowa Agricultural College, and Dr. H. J. Webber, of the United States Department of Agriculture. Owing to the fact that the plant-

to promote the improvement of plants and animals by the development of expert methods of breeding."

The annual membership consists of persons, societies and institutions interested in the objects of the association and paying the prescribed annual fee. There are also life members who pay a fee of \$20, patrons who give \$1,000 or more, and honorary members. The names of the patrons are to be retained on the lists of patrons as long as the association lasts. Any person who shall have done notable service in advancing the objects of the association, may be elected an honorary member by the council, but no more than two honorary members may be elected in any one year, and there shall be no more than ten honorary members. Honorary members, life members and patrons are exempt from annual dues.

A membership committee of which Mr. Eugene Funk, of Bloomington, Ill., is chairman, is being selected. There is to be one or more members of this committee for each State. The council passes on all applications for membership.

An excellent annual report is to be published, also a directory of all members, giving the specialty of each. Thus will be provided a long needed



Aylesbury Duke, the subject of our illustration, is a Missie bull, belonging to the famous Shorthorn family of that name, bred by W. S. Marr, of Aberdenshire, Scotland. Aylesbury Duke is a particularly handsome dark red bull at the head of the Silver Creek Shorthorns, owned by J. F. Stodder, of Burden, Cowley County, Kansas. He is a bull that carries, in ordinary breeding condition, 2,300 pounds. He is so close to the ground and is so compactly built that one wonders that so much good beef is there. He has demonstrated himself to be a very prepotent sire, and a number of his get, both bulls and heifers, are to be sold at Wichita, February 3, 1904.

It includes both animal-breeders and plant-breeders, also scientists who are interested in the study of heredity in plants and animals.

The constitution of the new association provides for a council of seven, made up of all the above officers, except the president. Dr. H. J. Webber was made chairman and Prof. W. M. Hays, secretary and general executive officer of the council. The council has started plans for a large membership.

Already a sufficient number of annual and life memberships has been assured to warrant the announcement that an annual report will be published containing the papers and discussions, also a directory of animal- and plant-breeders, and of biologists. Numerous far-reaching enterprises are already being projected. The meeting had a remarkable tow-days' program. Dr. David Starr Jordan and other leaders in attendance upon the meeting of the Association for the Advancement of Science, with which the new organization met, are quoted as predicting great results from this new organization. Secretary of Agriculture James Wilson sent a telegram the first day of the meeting heartily commending the movement. There were present more plant-breeders than animal-breeders, but it is predicted by the animal-breeders present that next year there will be many more animal-breed-

ers than plant-breeders in attendance. The recent great discoveries in heredity, such as Mendel's law, and the practical results of such breeders as Luther Burbank of California, have made possible this movement for a general organization. Scientific investigators who are studying heredity are hereafter assured of a most appreciative hearing for any really valuable discoveries, and of support for important investigations. Luther Burbank of California was given the signal honor of being the only man elected as honorary member. This organization had its origin in the American Association of Agriculture Colleges and Experiment Stations. At the New Haven meeting of that Association, in November, 1900, a committee was appointed to consider the advisability of forming an association of plant and animal-breeders. This committee was made up of the following named gentlemen:

The name earlier advertised as "American Plant- and Animal-breeders' Association" was changed, after full discussions, so as to read simply American Breeders' Association. As the scope and extensive field opened to this association were developed during the meeting, the members became more and more convinced that this name was wisely chosen. Plant-breeding is making such wonderful advances, that very soon even live-stock breeders will not think of the word breeding as applying merely to domestic animals.

The purpose of this new association is stated by the constitution, to be, "To study the laws of breeding and

directory of breeders of animals, breeders of plants and scientists especially interested in the various objects of this association, also of societies and institutions interested in the improvement of plant and animal life. The directory will be published at actual cost and, if possible to pay for it out of the modest fees, or if money can otherwise be secured, it will be incorporated with the annual report and thus be supplied to every member without further cost. It is hoped that the membership committee will be able to complete its work so that the last proofs of the directory may be read by June 1, 1904.

The membership committee expects to invite many breeders, scientists, associations and institutions to become life members and patrons. The monies received from life membership fees and from patrons is solely for investment, only the income being available for the current expenses of the association. Persons desiring to become members should apply to the secretary, W. M. Hays, St. Anthony Park, Minnesota, or to Mr. Eugene Funk, chairman membership committee, Bloomington, Illinois, for blanks for the desired kind of membership.

The constitution provides for an annual meeting and such other meetings as the council may decide upon. Sufficient funds are already assured so that the council has ordered the secre-

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tary, with the assistance of the secretary of the plant section, and the secretary of the animal section, to publish the first annual report. Since this publication should not be long delayed, it is very desirable that persons, associations, educational institutions, libraries and other organizations should at once apply for application membership blanks, that their names may appear in this first directory.

The constitution provides for sub-committees to be appointed by the council and to report to the council. The subjects for a number of these committees have been suggested, but formal action has not yet been taken in regard to them. The constitution provides that the council may act without being in session, questions being submitted by mail from the secretary's office, and they may hold meetings when occasion demands.

REPORT BY THE ORGANIZATION COMMITTEE.

The chairman of the organization committee in his opening address said: "The cost of making a possible annual increase of 10 or more per cent in the billions of dollars' worth of American animal and plant-products, or a total of hundreds of millions of dollars' worth of added annual income with but little added expense, is a large undertaking; but a billion dollars' worth of added wealth wrested from the soil every decade is a magnificent goal. No less of an incentive, at least to scientists, is the possible solution of the laws of development in plants, in the lower animals and in man. The promoters of this proposed plant and animal-breeders' association believe that the practical breeders and the biological scientists have much in common and that they can be, mutually, very helpful.

"The correspondence incident to the preparation for this meeting, has shown that the State experiment stations, the United States Department of Agriculture, the laboratories in our great universities, and private breeders of animals and plants are ready to here join hands. This meeting should mark a new pulsation in the living beings which man uses with which to draw from the earth his sustenance and much of his pleasure. This association will touch the interests of that strong body of men who breed animals, that more quiet but no less useful class who improve plants, and will greatly aid all producers in plant and animal products as well as all consumers of these commodities. Whether it proves cohesive and useful, depends upon having a good plan and upon the members who compose the organization.

"The Hon. James Wilson, Secretary of Agriculture, who is doing such a large service to breeding by his liberal policy in giving support to the plan of organizing breeding research in heredity, suggested the American Association of Agricultural Colleges and Experiment Stations as the best organization under which to promote the proposed plant and animal-breeders' association. Under his strong leadership, the official and general public are taking seriously the proposition that we build up a science, a technique and an industry of breeding plants and animals, which shall add to the world's other modern improvements, greatly improved forms of plant and animal life."

ADDRESSES AND DISCUSSIONS.

Upon motion of the organization committee, Dean Charles F. Curtis, of Iowa Agricultural College, was chosen chairman of the temporary organization. Prof. W. M. Hays, of the Minnesota College of Agriculture, was chosen temporary secretary. The convention then amended the constitution and by-laws, suggested by the organization committee, and adopted them in the form outlined above. The remainder of the two-days' session was devoted to addresses, papers, and discussions, as briefly outlined below. The council met in the evening of December 30, and, after perfecting an organization by electing Dr. H. J. Webber chairman, began the active work of the association.

PLANT AND ANIMAL INTRODUCTION.

David G. Fairchild, United States Department of Agriculture.

The stores of material of cultivated and wild types of animals and plants which is scattered over the globe is immense, and while heretofore zoologists and botanists have been busy getting dried plants and preserved skins for our museums, the time has come when they should get living material which will have a bearing upon the welfare of the human race.

The Department of Agriculture, through its agricultural exploration work, has made a beginning and has already over ten thousand importations of which it has careful records. This work has been materially assisted by the private beneficence of Mr. B. Lathrop, of Chicago, who has given years of his effort and many thousands of dollars to put the Secretary of Agriculture in touch with all parts of the globe. Our plant-breeders are benefited greatly by these new importations, and a number of species and varieties of plants have entered widely into commercial use, and the increased annual values from this source is already enormous. Dr. Fairchild made numerous suggestions as to further needed investigations in foreign countries, looking to the importation of plants and animals. He gave a new and much broader view of the subject of animal introduction than had ever before been publicly considered. Some foreign species should be imported for use in crossing our domestic species and thus produce new animal hybrids, as is now being widely and successfully done in plant-improvement.

COMMERCIAL CORN-BREEDING.

Mr. J. D. Funk, Bloomington, Ill.

Commercially the corn-breeder must have one aim and only one, that is utility. The acre is the farmer's unit. There are three ways to increase his profits per acre: improvement of fertility, improvement of culture, and improvement of productiveness of seed. The commercial breeder of corn must increase the number of shelled bushels of grain per acre, and also increase the feeding value of the bushel. On farms aggregating 25,000 acres in area, Mr. Funk and his partners breed a number of varieties of corn. They have twenty or thirty isolated, small fields, or corn nurseries. On each are planted the seeds from fifty or sixty numbered ears of a certain variety, each ear being planted in a given row, which is also numbered. Before tasselling, all plants that are seemingly barren of an ear are detasselled, and weak or objectionable rows are entirely detasselled and thrown out. Each row is husked separately and the corn weighed. By this means is secured the yield per plant of the progeny of each mother-plant. From each of the eight or ten rows giving the highest rate of production, thus showing their mother ears to have had the highest breeding-power, are saved several of the best ears for mothers of rows in the next year's nursery. From these same best rows, seed is also saved for larger plots, the yield for which the next year are also recorded. The yields of the mother-plants, their centner yields in nursery rows, and the yields of the field-plots, become performance records of the strain of corn as the individual track-record and the record of numerous of his progeny, become the performance records of the trotting-horse.

BREEDING EXPERIMENTS WITH DOMESTIC ANIMALS.

Dean Charles F. Curtis, Iowa Agricultural College.

Experiments in progress or contemplated at the Iowa Experiment Station were outlined. An attempt is being made to procure sheep suited to use on the Western ranches. Galloway and Shorthorn cattle are being crossed to produce "blue-gray" hybrids. Professor Curtis and his associates are famous winners of prizes at fat-stock shows, and he naturally looks for some of his results along that line. He has been conducting these experiments for a number of years and presumably will

(Continued on page 96.)

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FOR SALE—S. C. B. Leghorn cockerels. Write your wants. Adam Andrew, Girard, Kans.
FOR SALE—S. L. Wyandotte cockerels, \$1 and \$1.50 each. Frances Howey, R. 1, Topeka, Kans.
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Coming Poultry Shows.

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February 1-3, Manhattan, Geo. C. Wheeler, secretary; C. H. Rhodes, judge.
February 4-10, Manhattan, Kansas State Agricultural College Poultry Institute, Prof. Geo. U. Wheeler, superintendent; C. H. Rhodes, instructor.
December 7-12, Newton, R. R. Hobbie, secretary; F. W. Hitchcock, judge.

The Early Chicks.

EDITOR KANSAS FARMER:—This is the beginning of a very important year in this history of the territory embraced within the circulation of your valuable paper, and I hope that your readers are going to take advantage of it. The World's Fair of 1904 is almost upon us, the celebration of the Louisiana Purchase. There will be hundreds and hundreds of thousands of visitors in attendance at St. Louis during the event, and they will need to be fed. There is going to be a tremendous demand for chickens and eggs, and the farmers tributary to the territory adjacent to St. Louis must furnish the bulk of the supply. What proportion of this vast amount of eatables are you planning to furnish, dear reader? Frying chickens and fresh eggs are going to bring a good price, and you may depend upon it that they are going to be in demand and can be sold at a price considerably above what you have usually been getting.

It is high time that you were arranging to have the chicks coming on. Are your hens sitting? I fancy I can hear many of you say, "No," for I feel sure that sitting hens are a scarce article the country over. Then how are you going to get them hatched? is the question, and the answer comes in the same breath: with an incubator. I trust that all readers of the FARMER have had the pleasure of seeing an incubator at work. But perhaps you have not. Years ago, when I first began the poultry-business, incubators were scarce and very crude affairs at that. The inventor had an elephant on his hands in that respect. I well remember my first one, a machine sceduled to hold 200 eggs. With fear and much curiosity I placed the first 200 eggs in the thing, and waited patiently for three weeks, for at the end of that time I confidently expected to have a large flock of chicks, but when the time rolled around I had a tray full of well-cooked eggs, for the machine proved to be a misnomer as a hatcher. The copper tank containing the water held some twenty-one gallons; and when filled and brought up to the boiling point, the temperature got to going up at such a rapid rate that there was no stopping it, and the machine having no regulator, there was no other alternative than to let the eggs become hard boiled.

By the time that the eggs in the center of the egg-try were at the proper temperature, those in the outer rows were as yet cold, and by the time the outer ones were at the proper heat, those in the center were cooked. Hence I made very poor headway with that machine, and although I finally succeeded in getting some chicks out, by omitting those from the center of the machine, I got enough of it and traded it for a pen of Barred Plymouth Rocks, and they soon died of the roup, and thus the matter ended. I bought other machines and some of them did very well, but not until a more recent date have I succeeded in getting a machine that I called trustworthy.

I have paid all the way from \$12 to \$40 for machines, and the less reliable of the lot were the higher-priced ones, and I can say with truth that the idea that a machine has to cost a certain sum before it is to be depended upon is a mistake, for the best and most reliable machine I have come across so far is one that I paid \$11 for, and it holds just 120 eggs. When I set this machine I am pretty sure of getting all the way from 95 to 110 chicks from the eggs placed in it, depending, of course, on the freshness and general quality of the eggs. A neighbor of ours became enterprising and con-

cluded to go into the poultry-business. This was in December, 1902. She came to me for advise in regard to the proper machine to buy and the size, and some other matters. I took pleasure in advising her, and I persuaded her to get the same size and make of an incubator as my own, which she did. She set her machine for the first time early in January, 1903, and her first hatch was 95 chicks from 98 fertile eggs. She raised to broiler size 92 of those chicks and they brought her about \$40, a neat little sum as a beginner. She kept that machine going right along, not allowing it to cool off, until in June, and during that time she hatched out between 600 and 700 chicks. Thus you see what can be done by one woman, and a beginner in the business at that. Far too many farmers imagine that they need machines of large capacity to do any business, when that is a mistake, as this instance proves. A machine of small capacity hatches better, as a general thing. The machine that I am now using takes up very little room; and when placed in my dining room, which, by the way, is not very large, it is out of the way and is handy for me.

Do not understand by this that I have to sit up with the machine of nights. I see it early in the morning, when I fill the lamp and trim the wick, turn and air the eggs, and the job is finished. I repeat this in the evening, most generally after the milking is done, the chickens fed and shut up for the night, and other work over. The filling of the lamp, trimming of the wick, and airing and turning of the eggs requires not to exceed five minutes of time, and is over before one would hardly think about it.

The time required for allowing the eggs to remain out of the machine varies from five to thirty minutes, owing, of course, to the advanced condition of the chicks in the eggs.

Cooling the eggs expands and contracts the shell, and this, with the turning process, furnishes the embryo chick the only exercise it needs, and we should see to it that this is attended to regularly. The more we exercise the eggs the stronger the chicks will be, and the stronger they are the more chance for them to hatch and reach maturity.

If you are a breeder of Leghorns what are you to do for early chicks? For it is claimed that this breed is a non-sitting one. If you desire a hatch of early chicks and your hens refuse to sit, how are you to manage it so that you will have them? This is a question of vital importance, and you should consider it now, while it is yet early, and not put the matter off until the time is here for setting your eggs, and no hens are wanting to sit. With the incubator you hatch out a brood all of the same age and size, and if they are pure-bred, all of the same color. With the hen you must drag along, setting a hen now and another one later on, and chicks coming off now and then, only a few of the same age, and the whole thing is mixed up. We must pay more attention to the incubator, for a good, reliable, trusty one in the hands of any farmer's wife is a veritable gold mine. The incubator is no longer an experiment, but a reality, and there are good ones on the market. It took me quite a while to find one that suited me, but it is all plain sailing now with the one I have, and it costs so little that any farmer can afford to own one of them.

One lady in Kansas wrote me not long ago that last year she borrowed the money to buy one of these machines, and after erecting a \$65 brooder-house, with many other expenses during the year, she came out at the end of the year with \$50 in the bank, and there are hundreds of other women who have done equally as well, even better.

I could recite many instances of this character, but people are certainly waking up to the importance of the many advantages of the incubator over the hen as a hatcher. Get a breed of hens that do not sit, and keep them at work shelling out eggs and put these into the incubator and turn them into chicks to feed the throngs at the

CHICKENS Sound and Strong easy to Raise... \$80 A MONTH SALARY And all expenses to introduce our Guaranteed Poultry and Remedies.

NATURAL HEN INCUBATOR A 200 Egg Hatcher Costs But \$2. It's Cheap and Good, and assures success to everybody.

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red Plymouth Rocks, White Plymouth Rocks, Buff Cochins Partridge...

H. DUFF, Larned, Kans.

SALE---Cockerels and Pullets

Famous Winter-Laying Barred Rocks. Skinner's Prize-Winning Cochins. Won at Missouri State, Kansas City, Fort...

World's Fair that is soon to be here. The incubator breeds no lice or mites, never leaves the nest, nor breaks its eggs, and sits just when and where you want it to.

This matter of an incubator is an important one, and one that should be seen to now, so that you may make your purchase early and have the machine on hand for immediate use when needed.

FRED H. PETTS. Warsaw, Missouri.

A Cure for Roup.

EDITOR KANSAS FARMER:—I notice you have frequent inquiries for a roup remedy. The simplest and most effective remedy we ever tried is simply smoking the fowls with gas tar.

J. W. KRAFT. Saline County.

Black Hamburg Poultry.

EDITOR KANSAS FARMER:—Can any of your readers tell me where I can get pure-blooded Black Hamburg poultry?

ARTHUR CHILD. Dickinson County.

Poultry Show.

EDITOR KANSAS FARMER:—I would like to call your attention to the coming poultry-show at the Kansas Agricultural College.

No entry-fee will be charged. Judge Rhodes will score the birds and sign score cards. The show will be held the first three days of February and provision will be made to care for all birds sent here.

G. C. WHEELER. Everest, Kans., Jan. 11, 1904.

EDITOR KANSAS FARMER:—Will some one, through the KANSAS FARMER, give plans and cost of an up-to-date poultry-house that will accommodate 100 chickens?

SUBSCRIBER. Brown County.

Successful Incubation.

That incubators have reached the point where there seems to be little room left for improvement is apparent from some of the remarkable hatches produced by



the best modern machines. In the last few years, probably no other line of manufacturing has shown greater advancement.

competition in the making and sale of incubators, but the honest and reliable house, with a machine capable of making its own way, will eventually take the lead.

A feature of the Des Moines Incubator Company worthy of note is that they are not alone manufacturers, but are in the poultry business on a grand scale themselves.

The Harper Forge Offer.

Farmers as a rule are not helpless in matters of repairing. But it must be confessed that as a general thing there is a sad lack of tools on the farm for this purpose.

Our readers interested in reliable power for work about the farm, dairy and shop should note the advertisement of the Temple Pump Co., Chicago, who offer on favorable terms a two-cylinder engine claimed to be without a peer.

Our Cook Book Offer.



The White House Cook Book, 590 pages, comprehensive treatise on carving. All kinds of cooking and baking. Everything from soup to nuts.

When writing advertisers, please mention this paper.

HAVING EXPENDED MILLIONS OF DOLLARS On Track and New Equipment THE B. & O. S.-W. HAS..... A Perfect Track, The Short Line to Cincinnati, Through Cars to Louisville, Observation Parlor Cars, Dining Cars, Meals a la Carte.

GRAND BOOK FREE DR. McLELLAND, the celebrated specialist in DISEASES of MEN, explains his methods, tells how seminal weakness, sexual debility, stricture and gleet, blood poison and loathsome skin diseases can be cured at home at small expense.

VARICOCELE A Safe, Painless, Permanent Cure GUARANTEED. 30 years' experience. No money accepted until patient is well.

RUPTURE CURED IN 10 DAYS By a Scientific and Never-failing Process. No knife, no pain, absolutely no danger.

LADIES My Regulator never fails. Box FREE. DR. F. M. MAY, Box 81, Bloomington, Ill.

Farm Engines and How to Run Them.

THE YOUNG ENGINEER'S GUIDE. By Stephenson, Maggard & Cody, Expert Engineers. Fully illustrated with about seventy-five beautiful woodcuts.



engineer as to how to set up and operate his engine and boiler, followed by questions and answers to what should be done in every conceivable difficulty that may arise, covering such subjects as scale in the boiler, economical firing, sparks, pressure, low water and danger of explosions.

Now is the time to take advantage of our Blocks of Two. Read our offer on the first page.

First Annual Meeting American Breeders' Association, St. Louis, Mo.,

(Continued from page 93.)

have some illustrations of his work in the live-stock exhibit at the World's Fair next autumn. Dean Curtis is chairman of a sub-committee, appointed by the American Association of Agricultural Colleges and Experiment Stations, to have charge of an exhibit of methods of instruction and experimentation in animal-feeding and in animal- and plant-breeding in a pavilion the exposition authorities are erecting for that purpose. This committee, consisting of Dean C. F. Curtis, Dean H. J. Waters, and Prof. W. M. Hays, met during the week and plans are being matured for an exhibit along these lines by the agricultural colleges and experiment stations. The new breeders' association may assist in this exhibit.

NEW GERMAN BOOK ON BREEDING.

Professor C. Fruwirth, of the Agricultural College of Hohelm, Germany, presented to the association a new book, printed in the German language, in which he outlines the general subject of plant-breeding, either for college classes or to be used as a manual

proach in economic or artistic value the desired hybrid.

TEACHING THREMMATOLOGY.

Dean E. Davenport, University of Illinois.

Dean Davenport, in a paper sent to the meeting, suggested the term "Thremmatology," which is recognized in the dictionaries, for general use to designate the whole subject of evolution under the influence of man. Simplifying the name of the association to that of Breeders' Association may make it less necessary to give this longer word general adoption. Dean Davenport said that he found the subject a most difficult one to reduce to pedagogic form. The theories of evolution are not only many, but apparently in vital respects diametrically opposite. Dean Davenport urged that we be very conservative about adopting theories, but that the work of delving for facts be pushed forward vigorously, as the need of proper theories in animal- and plant-breeding is great.

INVESTIGATIONS INTO THE HEREDITY OF SPORTING VARIETIES.

Prof. Hugo de Vries, who has gained world-wide recognition on account of his studies of radical or marked varia-

and animal-breeders that the breeding should be done as nearly as practicable under the general conditions for which the variety or breed is to be commercially used. He urges the breeding on the ranches of hardy, rustling types which will mature early and grow large under the more severe conditions of the ranch.

PLANT-BREEDING AS A FACTOR IN CONTROLLING PLANT DISEASES.

Mr. W. A. Orton, United States Department of Agriculture. Read by Dr. Webber.

Hybrid watermelons resistant to the dreaded watermelon wilt have been obtained. Sutton of England, has produced potatoes resistant to the disease called "Phytophthora." Millard produced disease-resistant grapes, and Nilsson has produced a vetch resistant to Peronospora. The United States Department of Agriculture has developed strains of cotton resistant to the cotton-wilt. The best of these, the Rivers' Sea Island varieties, produce full crops of cotton of high quality on the worst wilt-infected land. This department has also originated the iron cow-pea, which is entirely resistant to the cow-pea wilt, and also to root-knot caused by nematodes. Other new hy-

sociated with bringing the new products into general use. Inventors create new values, and creative breeders who add to the transmitting efficiency of plants and animals are in that they too often do not see for themselves reasonable remuneration. Our patent laws promote mechanical invention, but other must be used to promote breeding difficulties and especially the long required in most important lines of animal- and plant-breeding, place the exploitation of this work outside methods employed in the promotion of large, modern industrial, transportation, and merchandising concerns. promoter tersely answers the man who has large plans for commercial breeding and the merchandising in bred animals, seeds, and plants. "Your plan would not strike investors because it is a long-time proposition. They demand quick returns." You need a large number in the business creating new values along economic and artistic lines in animals and plants and still larger numbers who multiply these new varieties and breeds as foundation stocks for the commercial growers of animals and plants. The public, who are the final beneficiaries of these new values should pay bills, or rather they should render a reasonable share of the large value they thus receive nearly free. The public generally gets between 90 and 100 per cent of the benefits of new inventions and of new plant- and animal- creations.

New methods need to be worked out to give better rewards to those who create new values, and growers of pedigreed stock and growers of pedigreed plants, so that they may get a larger share and that the more profitable business may induce many more to enter these fascinating vocations.

The Minnesota Experiment Station during the past six or eight years worked out a plan of distributing varieties, originated a dozen years ago which has proven much better than the gift-package system used by some other varieties. For example, "Minnesota No. 169 Wheat," which was originated from a single wheat-plant in 1892, after passing through the breeding nursery and field-plot tests for years, increased to fifteen hundred bushels and sold in 1902 to fifteen hundred farmers, at \$1.50 per bushel. It was double the price of ordinary wheat, and established a high price for the seed of this variety. In 1903, the four hundred seed cooperators, including seed firms, who received in larger quantities at the same price sold for seed or planted probably ten or twenty thousand bushels of this new variety. There is now little with the experiment station, or known to exist in the granaries and seed houses of the State between fifty and one hundred thousand bushels of this variety suitable for seed in 1904. The facts that this variety has won the many trials at the Minnesota and other experiment stations during eight years, and on hundreds of farms in the State in 1902, averaged 18 per cent better in yield and as good in quality as the common field and stem wheats, nearly universally grown through the State, are serving as a performance pedigree, giving the holder of this seed something like 50 per cent profit per bushel. This margin of profit is sufficient to induce holders to learn about the new wheat, and to advertise it in the country and agricultural press of the State. These advertisements, in turn, aid by inducing editors to write editorials, all adding to the publicity and the demand for the new variety.

The statistical methods in plant-breeding now being widely adopted give courage that measures instead mere artistic inspection can be widely adopted even in the breeding of meat-producing animals. Some data was given as to how statistical methods can be used in producing breeds of hogs with higher fecundity, resistant to hog-cholera, etc. Suggestions were made outlining several methods of testing cows three days in each month, as to secure the amount of food consumed and the amount of their product, that the net returns from each



IAMS' ALGERIAN (52673).

Black Percheron, 2 years old, weight 1980 pounds. A sensational, fast-moving "wide-as-a-wagon drafter, a sparkling black diamond, imported and owned by Frank Iams, St. Poul, Neb. The ribbon-grabber at 1903 Nebraska Fair.

by breeders, using illustrations from animal-breeding.

CORN-BREEDING IN THE UNITED STATES DEPARTMENT OF AGRICULTURE.

Mr. C. P. Hartley, of the United States Department of Agriculture.

Mr. Hartley gave a record of numerous valuable experiments in corn-breeding made by the plant-breeding laboratory of the United States Department of Agriculture.

EXPERIMENTS IN CORN-BREEDING.

Dr. Cyril G. Hopkins, University of Illinois.

This paper which was not presented in person, gives a record of Dr. Hopkins' widely known experiments in breeding corn for increased percentages of protein, oil, starch, etc.

BREEDING FROM TAME VS. WILD SPECIES.

Mr. H. W. Groff, Sincoc, Ontario.

Returning to primitive types for material to use in plant-hybridizing has generally resulted in a large crop of unsuitable plants which might be called breeder's "weeds." Most progress is made when the hybridizer keeps as far as possible from the wild species. In hybridizing it is generally better to choose species for mating, both of which, as nearly as may be, ap-

proach in economic or artistic value the desired hybrid. Professor de Vries believes that these inconstant varieties should be studied for scientific results and even used in the production of commercial varieties. Our prospects in ameliorating our cultivated races largely depend on our knowledge of the laws of inheritance and variability. The most variable types afford the best chances for studying these laws. Among these the sporting varieties are the most useful.

BREEDING FOR AND ON THE RANCH.

Dean John H. Shepperd, North Dakota Agricultural College.

Custom has been heretofore to breed the males needed for the Western ranch herds in the agricultural regions east of the short-grass country. Under this plan, the assumption is, that animals bred to suit the climate, food, soils, methods of stabling, etc., of the States on the Mississippi River, will best serve the purposes of the ranchmen and farmers in the semi-arid country in the west side of the great plains region and the elevated valleys of the mountain regions. Professor Shepperd recognizes the general belief of plant-

brid cow-peas have been obtained, also resistant to both of these diseases and of better yield and quality.

It has been found practicable to breed for resistance and at the same time increase the value of the other desirable qualities of the variety. Mr. Orton emphasizes the selection of individuals and particularly for the resistance of their "blood" to disease as shown by the disease resistance of a large number of the progeny of individual mother plants. Hybridization should be resorted to when selection fails to accomplish the purpose. In using hybridizing as a means we sometimes have the added difficulty of fixing the types. There is no likelihood that the fungi causing disease will change their habits and become parasitic on the resistant strains.

BREEDING SOY-BEANS.

Prof. H. F. Roberts, Kansas Experiment Station.

A brief report was sent in of two years' work in breeding soy-beans.

DISTRIBUTING VALUABLE NEW VARIETIES AND BREEDS.

W. M. Hays, Minnesota Experiment Station.

The creation of new values in animals and plants is most intimately as-

al cow in high-priced breeding where performance pedigrees specially desired, may be known. It seems no more impossible to breed the diseases of injurious insects to make them more effective than some of our insect enemies. It is to breed yeasts so as to alter the flavor of beers, or to alter the smallpox infection so as to select the less virile vaccine.

In one case, "Minn. No. 13 Corn," Minnesota Experiment Station carried the matter of statistical methods and while the yield was increased and the corn made earlier, so carry it nearly fifty miles further west along the north zone of the corn belt, its appearance was not enough attended to, making it unattractive in the seed stores, and easily distributed widely than it has been had more of the seeds of modern artistic corn-judging adopted. But ordinarily the fault of breeders has been to pay attention mainly to external appearance and not sufficiently after the intrinsic qualities. The unit of value to be attained is the net returns per acre and not, i. e., the value of the product less the cost, all things considered. This paper is given here, more in full, because time did not permit of its being read, and upon request.

OBSERVATIONS OF HEREDITY IN WHEAT.

Charles E. Saunders, of the Canadian Experiment Stations, produced a number of new hybrid wheats at the experimental station at Ottawa, Canada.

WHEAT-BREEDING IN CANADA, ITS OBJECTS AND RESULTS.

William Saunders, Director of the Dominion Experimental Farms, Ottawa, Canada.

William Saunders is a veteran wheat-breeder, having begun wheat-breeding in 1899 and having bred raspberries and other crops at a still earlier date. He has shown that Preston, Stanley, and other noted Canadian wheats, bred by him, have been widely distributed throughout the entire Dominion. Present wheat has recently been tested as to milling and baking qualities by experts and by experts in the Northwest of Minneapolis. These men have stated that this wheat is practically as good in quality as Red Fife, known in the Northwest as hard spring wheat. The fact recently brought out, together with the fact that this variety has been in the lead in yield per acre in the experimental stations in Canada, makes it a very high yielder in the experimental station plat tests of some of the best wheat fully warrants the statement in this one wheat Dr. Saunders has made many times over paid his country the large expenses heretofore incurred in the management of a system of experimental farms distributed throughout the dominion, which were organized under his leadership. Dr. Saunders early undertook the task of finding or finding earlier maturing varieties of wheat with which to extend the wheat area to the northward at vast expanse of rich prairie northwest of Winnipeg, equal in soil to several States. He already has nearly a week earlier in ripening and excelling in yield and quality. The association most cordially greeted Saunders.

ING HARDY FRUITS IN THE NORTHWEST.

N. E. Hansen, South Dakota Agricultural College.

Professor Hansen spoke from notes, giving a very brief statement of his experiments at Brookings, South Dakota, with fruits and vegetables. He mentioned his experiments in hybridizing the sand-cherry with other related species, hybridizing tame wild strawberries, hybridizing peaches and peaches so as to secure new forms and numerous other lines. The writer has recently visited Professor Hansen's breeding nurseries, where are growing a quarter of a million seedling plants, most of which are of his own production, and is glad to corroborate a statement recently made, that Professor Hansen is among breeders of horticultural plants in the State experiment stations

of America. Professor Hansen announced the production of graft hybrids, a new and wonderful evidence of the plasticity or adaptability of living substance.

BEAN-BREEDING.

Prof. B. A. Emerson, University of Nebraska.

Professor Emerson started out first to study the theoretical problems connected with breeding garden-beans and string-beans. Later he became interested in the actual production of improved varieties, and reports substantial progress. He has found it difficult to hybridize beans in the open field, but has succeeded by planting them in greenhouses where he prevents the air from becoming too dry and hot during the flowering period. He found, however, that since insects cross pollenate about 10 per cent of the beans in his fields, he can use these busy friends to make his hybrids without the expense of planting in greenhouses or hand pollinating.

INHERITANCE OF THE EFFECTS OF TRAINING.

Dr. C. B. Davenport, University of Chicago.

Dr. Davenport reported investigations designed to test Redfield's theory that aged animals which have for a long time been strenuously under a certain environment are more likely to

ing all words or phrases which apply to the sample in hand, using one sheet for each variety. These words are then drawn off on the typewriting machine, making a connected statement of the description of the variety.

The other class of blank forms mentioned by Mr. Scofield is the score cards on which are placed those qualities needed in comparing the value of one plant with another, one animal with another, or one breed with another. The score card differs from the description form, chiefly in that its subject matter is a record of performance of the individual or group under test or experiment.

Mr. Scofield recommends the loose leaf or card system for most records, using books as permanent keys to plots and systems.

PLANT-BREEDING IN THE UNITED STATES DEPARTMENT OF AGRICULTURE.

Dr. H. J. Webber, in Charge of the Plant-breeding Laboratory of the United States Department of Agriculture,

Gave interesting verbal accounts of the work of himself and his associates in breeding numerous species of field crops and of horticultural crops. His noted work with the orange in Florida from which rather valuable new varieties are already appearing, was given in some detail and illustrated by nu-

a concentrated saline solution without the presence of the male of the species, the progeny developing normally nearly to maturity, but then being rapidly distanced by the young produced by the normal sexual method. Here the absence of forwarded characters was not apparent until the period was reached needing the qualities peculiar to the male parent. These pulsating movements of inherent forces, now latent, now active, will be of interest in connection with the theories of Dr. Cook.

APPLICATION OF THE THEORY OF EVOLUTION TO BREEDING.

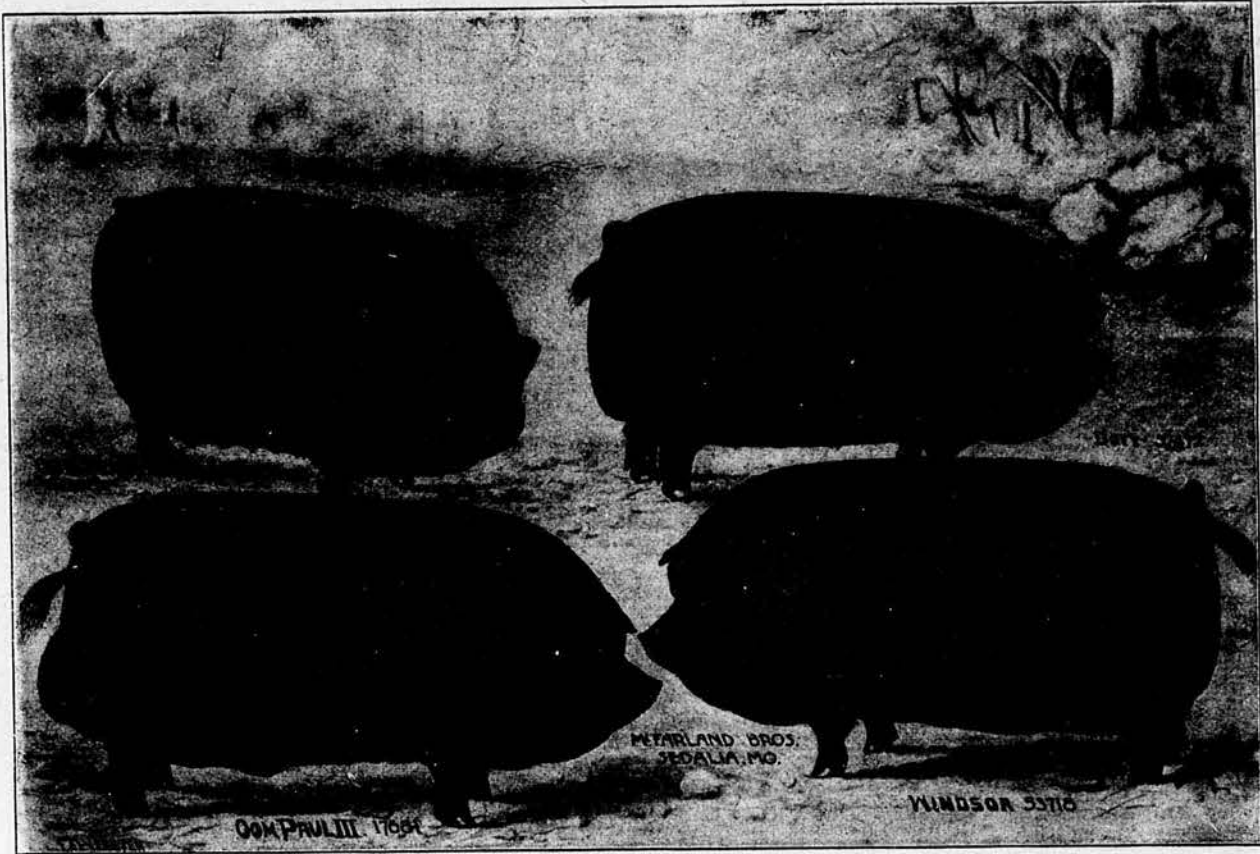
Dr. O. F. Cook, United States Department of Agriculture.

Read by title only, but reports of the proposed trend of his discussions are most interesting.

RELATION OF LIFE HISTORY STUDIES TO BREEDING.

Dr. W. T. Swingle, United States Department of Agriculture.

Read only by title. Will deal with the study of a species wherever found in the world, the possibility of its introduction into other regions, its improvement and its use, and the Government's relation to the fullest utilization of the species. Dr. Swingle has applied his theories to two species, and bulletins soon to be issued have en-



A group of prize-winning Duroc-Jerseys owned by McFarland Bros., Sedalia, Mo.

produce young, strong in the qualities developed by the training to which the parent was long subjected. Dr. Davenport tabulated the pedigree records of 300 cows. He found that the mother of the prize-winners are on the average about two hundred days older than those of the non-prize-winners. This is not a large difference, but would seem to be slightly significant.

Dr. Davenport also read a paper on "Color Inheritance in Mice." The reviewer has no copy of this paper, but it will appear in full in the publication known as "Science."

DESCRIPTION, FORMS, AND SCORE-CARDS AS HELPS TO BREEDERS.

Carl S. Scofield, United States Department of Agriculture.

Mr. Scofield discussed principally two kinds of blank forms. The one is designated to assist in minutely and accurately describing a variety or breed so that it can be distinguished from other distinct types. In this kind of blank form many things are placed which are not necessarily indications of intrinsic value, but are used simply as means for identification and classification. Mr. Scofield showed a card designed for describing wheats. On this sheet of paper were all the words and phrases describing all the observable characters of plant, head, chaff, and grain. In making descriptions a blue pencil is used on the sheet, mark-

ing numerous photographs. His work in producing new varieties of cotton, longer and more uniform length of staple and superior in yields was mentioned. This work has been widely published and Dr. Webber did not deem it necessary to write the matter out in detail. He showed the large scope this plant-breeding work is assuming under Secretary Wilson's administration.

INFLUENCE OF SIZE OF PARENT ON BIRTH WEIGHT.

Prof. F. B. Mumford, of Missouri Experiment Station.

Professor Mumford gave an account of his experiments carried on during several years past, showing that the sire has comparatively little influence on the birth weight of the progeny. His paper was given from notes and the reviewer is not able to give an extended statement. His discovery that the male influence does not operate as to size and some other characteristics until after the animal is born is believed to have wide significance. Even a more general fact may be here arrived at, viz.: that some characteristics are transmissible forward to develop at a later period in the life of the progeny. The sexual characteristics may be taken as examples. A most remarkable coincidence occurred by a member of the zoological section of the general association reporting the fecundation of sea urchins by means of

abled him to work out a general scheme of dealing with the species.

GRAPE-BREEDING.

Prof. S. A. Beach, New York Experimental Station.

Professor Beach gave in detail his methods and results in experiments in grape-breeding, which he has been conducting in the famous grape regions of western New York. The reviewer did not hear his paper nor the next following, which were given during a joint session of this association with the American Society for Horticulture, in which the two gentlemen are active workers.

SEED SELECTION ACCORDING TO SPECIFIC GRAVITY.

V. A. Clark, Geneva, N. Y.

A detailed discussion of experiments with seeds of wheat and other plants was given.

THEORETICAL STUDIES IN BREEDING.

Prof. W. J. Spillman, United States Department of Agriculture.

Professor Spillman also spoke extemporaneously, and the reviewer being absent from the room at that time, can only refer those interested to the complete papers which are to be published in the annual report of the association.

The association recognized its indebtedness to the American Association of Agricultural Colleges and Experiment Stations for having given

The Apiary.

Conducted by A. H. Duff, Larned, Kans., to whom all inquiries concerning this department should be addressed.

National Bee-keepers' Association.

Objects of the association: To promote and protect the interests of its members. To prevent the adulteration of honey. Annual membership fee, \$1.00. Send dues to treasurer. Officers: W. Z. Hutchinson, Flint, Mich., president; J. U. Harris, Grand Junction, Colo., vice-president; George W. K. Chicago, Ill., secretary; N. E. Platteville, Wis., general manager and treasurer.

Kansas State Bee-keepers' Association.

Officers: Dr. G. Bohrer, Lyons, Kans., president; E. W. Dunham, Topeka, Kans., vice-president; O. A. Keene, Topeka, Kans., secretary; J. J. Measer, Hutchinson, Kans., treasurer. Annual membership fee, \$1.00. Send dues to treasurer. Official organ, Kansas Farmer.

Organization of Kansas Bee-keepers.

Every bee-keeper of either large or small proportions will welcome the organization of the bee-keepers of this state, of which a full report of the annual meeting was given in the KANSAS FARMER of January 7. Any one who may be in the least interested in bees, and has not received a copy of this issue of the KANSAS FARMER, should send for one, and at once become a member of the association. The apiary department of the KANSAS FARMER is open at all times for the discussion of this important and interesting industry. Every member is invited to become a contributor to it, as this department belongs to the association. In this we do not mean to be understood that any one outside the association can not have a say in this department, for during the past eight years many interesting communications from bee-keepers, not only in this state but other States, have appeared in these columns. But from this time forth it is the desire to make it more interesting and it is the duty of the members of the association to help to make it so.

Now is a good time to discuss late winter and early spring is a critical time, and much depends upon the management of this time in securing a profitable crop of honey the following honey-harvest. Seasonable articles are always best, but any good article is acceptable at any time. Many small beekeepers have not thoroughly posted themselves in all the details in up-to-date bee-keeping, and to those who would rather seek than to give information, this department is the place to get it by asking questions.

The migration of birds is being studied in a new manner by German ornithologists. Hundreds of thousands of crows are being captured at Rossitten, in East Prussia, and, after being tagged with a number and the date, are again liberated. It is requested that when one of these birds is killed, the tag and the date and place of killing shall be forwarded for record.

Eighty Bushels Macaroni Wheat Per Acre.

Introduced by the U. S. Department of Agriculture. It is a tremendous cropper, yielding on good land eighty bushels per acre, and on dry, arid lands, such as are found in Montana, Idaho, the Dakotas, Colorado, etc., it will yield from 40 to 50 bushels. This wheat and speltz and Hanna barley and Bromus inermis and billion-dollar grass makes it possible to grow and fatten hogs and cattle wherever soil is found. JUST SEND 10c AND THIS NOTICE to the John A. Salzer Seed Co., La Crosse, Wis., and they will send you free a sample of this wheat and other farm seeds, together with their great catalogue, alone worth \$100.00 to any wide-awake farmer. F. P.

A Successful Veteran.

You might hardly feel like calling him a veteran if you should see him, because he stands straight, moves quickly and has a clear bright eye. But when a man has been hustling at the same business for more than forty years, if he isn't a veteran what is he? Then, too, he has succeeded, as you can readily see from the broad acres devoted to growing evergreens and other ornamental shade and forest trees, shrubbery, etc., for it is D. Hill, of Dundee, Ill., whom we are talking about. Mr. Hill has grown and shipped many millions of trees in his lifetime and has millions more coming along. His name is a household word all over this country and in many foreign countries. Write for his catalogue, "Millions of Trees," and mention this paper. Address as above.

In South Dakota

The Horn of Plenty has this year been turned upside down. For the sixth consecutive year South Dakota leads all other states in the production of the greatest wealth per capita. Corn, wheat, hay, oats, cattle and gold are some of the factors in the new wealth of 1903, amounting to \$146,450,000. A trip to South Dakota via the

Chicago, Milwaukee & St. Paul Railway

can be made quickly, comfortably and inexpensively. If you are interested write for a copy of the new book on South Dakota.

M. F. SMITH,
Commercol Agent,
245 Main St., Dallas.

G. L. COBB,
Southwestern Passenger Agent,
907 Main St., Kansas City.

P. S.—Between Kansas City and Chicago, the train of trains is The Southwest Limited of this line. Leaves Kansas City, Union Station, 5.55 p. m., Grand Avenue, 6.07 p. m. Arrives Chicago, Union Station, 8.55 a. m.

For Pain

Take a Dr. Miles' Anti-Pain Pill, and the Pain will disappear Like Magic.

Not by paralyzing the nerves and glands, like opium, morphine, cocaine, and other dangerous drugs, but by increasing the natural secretions.

This action is obtained as a result of modern discoveries in medicine, making it possible to relieve pain without bad after-effects.

You can safely depend upon Dr. Miles' Anti-Pain Pills to relieve and cure such pains as Neuralgia, Headache, Stomach-ache, Menstrual Pains, Rheumatism, Backache, Toothache, etc.

They will also, by their calming action on the nerves, almost instantly relieve such distressing feelings as Dizziness, Car-Sickness, Indigestion, Irritability, Sleeplessness, Nervousness, etc.

Not merely do they relieve, but they also absolutely cure, because by persevering in their use, you do away with the cause.

Dr. Miles' Anti-Pain Pills are guaranteed that first package will benefit, or your money back. Never sold in bulk.

"I am thankful for the good Dr. Miles' Anti-Pain Pills have and are doing me. Ever since the war I have had spells of severe throbbing headache, caused by catarrh, until six years ago, I began taking Anti-Pain Pills, the only remedy that ever gave me relief. Since then I have not had one hard attack, because I take a Pill and it overcomes the difficulty."—GEO. SAUNDERS, Greensburg, Ind.

FREE Write to us for Free Trial Package of Dr. Miles' Anti-Pain Pills, the New Scientific Remedy for Pain. Also Symptom Blank. Our Specialist will diagnose your case, tell you what is wrong, and how to right it. Free. DR. MILES' MEDICAL CO., LABORATORIES, ELKHART, IND.

HOMESEEKERS' RATES

VIA

UNION PACIFIC

On the first and third Tuesdays of each month, viz., February 2d and 16th, March 1st and 15th, and April 5th and 19th, round-trip tickets, twenty-one days limit, at rate of one fare plus \$2; also special one-way colonist tickets will be sold to Arkansas, Louisiana, Indian Territory, Oklahoma and Texas and to western Kansas and eastern Colorado points.

Full information cheerfully furnished on application to

J. C. FULTON, Depot Agent.

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Experience, earnestness, and a general, practical knowledge of the business, are my principal reasons for soliciting your patronage. Write before fixing dates. 452 Sheildley Bldg, Kansas City, Mo.

DUROC-JERSEY SWINE.

D. M. TROTT ABILENE, KAS., famous Duroc-Jerseys, Poland-Chinas.

COUNTY SEAT HERD DUROC-JERSEY SWINE, Geo. Briggs & Son, Clay Center, Neb.

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

DUROC-JERSEYS—Large boned and long bodied kind. A lot of fine gilts and fall pigs for sale.

DUROC-JERSEY SWINE CHOICE PIGS FOR SALE. ADDRESS G. W. BAILEY, BEATTIE, KANSAS.

MAPLE AVENUE HERD DUROC-JERSEYS J. U. HOWE, Wichita, Kansas.

C. H. SEARLE DUROC-JERSEY HOGS Edgar, Neb. B. P. Rock Fowls.

Duck Creek Herd of Duroc-Jersey Swine 200 head to choose from. Write us your wants.

FAIRVIEW HERD DUROC-JERSEYS For sale—A few May and June males at private treaty.

DUROC-JERSEYS. Duroc-Jerseys for sale. Choice 1903 pigs, both sexes.

DUROC-JERSEY SWINE Prize-winning strains. For Sale—Two boars and a number of choice gilts, bred or open.

RECORDED DUROC-JERSEYS Choice lot of fall pigs, out of large, prolific sows, for sale.

A FEW DUROC-JERSEYS LEFT March and April pigs, both sexes. Forty early fall pigs by Price 17790.

Rockdale Herd of Duroc-Jersey Swine. I have at present 40 head of bred gilts I am pricing at \$20 and \$25 to close them out.

SOLOMON VALLEY HERD Duroc - Jersey Swine. Young stock of both sexes always for sale.

Osage Valley Herd DUROC-JERSEYS 35 gilts and sows ready to breed, 8 choice boars, good color, strong bone, broad backs with fine hams.

Rose Hill Herd DUROC - JERSEY HOGS. I have some choice gilts bred to State Fair prize boars.

PEARL HERD DUROC-JERSEYS FOR SALE—A fine lot of spring Duroc-Jersey boars, best breeding, a good growthy lot, heavy bone and good color.

Pettis County Herd of Duroids Having won fourteen first prizes out of sixteen entries at the Missouri State Fair in August, 1903, we now offer the produce of this great herd for sale.

Duroc - Jerseys See our handsome heavy-boned daughters of Red Duke 2d 18663, and Bred to Gold Dust 2d 20401

BUCHANAN STOCK FARM, Sedalia, Mo.

VITA A three months' course of VITA SYSTEM is guaranteed to cure (or MONEY REFUNDED) any disease peculiar to women except those requiring surgical interference.

POLAND-CHINA SWINE.

FOR SALE Poland-China Hogs, Holstein & Friesian Cattle; either sex. Best strains represented.

CLEAR CREEK HERD of POLAND-CHINAS For Sale—A choice lot of spring boars ready for service.

Dietrich & Spaulding, Richmond, Kas Have a Keep On and two U. S. Perfection spring boars for sale.

For Sale---Poland - China Gilts Of Chief Tecumseh, Black U. S., Missouri's Black Chief and Wilkes blood, bred to a Keep On-Sunshine boar.

Kansas Herd of Poland-Chinas I now offer for sale, Proud Kansas, he by U. S. Perfection, by a son of Mischief Maker and a son of Ideal Sunshine.

Pecan Herd of Poland-Chinas Attend our Bred Sow Sale on February 11th, at the new sale pavilion.

Elmdale Herd of High-Class POLAND - CHINAS Shawnee Chief 28602 head of herd. Three choice fall boars for sale; also spring pigs of both sexes.

SHADY BROOK STOCK FARM POLAND-CHINAS I keep constantly on hand all sizes and ages of high-class Poland-China pigs.

F. C. SWEIRCINSKY'S BRED SOW SALE Of Tecumseh and Lamplighter cross of Poland-Chinas at Belleville, Kas., February 15, 1904.

HIGHLAND FARM HERD OF PEDIGREED POLAND - CHINAS Fourteen boars weighing from 150 to 250 pounds. They are large, with good finish, good heads and fancy ears.

ROME PARK POLAND-CHINAS and BERKSHIRES. I have about twenty boars ready for use and twenty-five sows bred, and some unbred, and a large number of good pigs, both breeds.

G. E. FULLER'S Bred Sow Sale. Sunshine and Perfection. The great cross. Sale at Washington, Kansas, January 27, 1904.

Elm Grove Stock Farm. UP-TO-DATE Poland-Chinas Woodbury 72951 and Perfection's Profit, a choice son of G's P. Perfection, Grand Champion at Iowa and Illinois State Fairs in 1903.

F. A. DAWLEY, Rural Route 1, Waldo, Kansas

POLAND-CHINA Herd and Show Boars. For immediate sale I have two very attractive April boars suitable for herd-headers or the show ring.

POLAND-CHINA SWINE.

Mains' Herd of Poland-Chinas Up-to-date breeding. Will sell one Chief Perfection 2d herd-boar. After Dec. 1 will sell a few herd-sows and a fine lot of fall pigs.

CLEARING-OUT SALE OF POLAND-CHINAS. Pigs 3 months old, either sex. Five Dollars each if taken soon. Weight 40 pounds.

WAMEGO HERD Poland-Chinas With Dee Expansion 31211 at head of herd; he was sired by Expansion 26239, his dam is Nodine Queen 2d 75787, a grand individual and sire of large and markings.

Glenwood POLAND-CHINAS. Choice strains of Poland-China blood, with Glenwood Chief Faultless 27815 at head. We have the length, size, bone, and quality to suit the critics.

BERKSHIRE SWINE. Large English Berkshires Pigs of both sex sired by first prize boar at Topeka fair; also a prize winning boar, and 2-year-old herd boar, Highclere Improver 58627.

SPRINGBROOK BERKSHIRES THE BIG KIND. A few young gilts sired by the prize-winning Black Robin Hood and from Royal Empress, Duchess and Silver Lips sows.

EAST LYNN Champion Berkshires Our herd won the Kansas State Prize at the American Royal Show at Kansas City in 1902. ONLY THE BEST.

KNOLLWOOD FARM HERD BLUE BLOODED BRED ... ROAD BACKED BERKSHIRES ... A Fancy Lot of Spring Pigs.

East Reno Berkshire Herd Best Blood in the Land. Herd Boars—Baron Beauty Jr. 72642, and Black Robin Hood 2d 73523.

WILLOWDALE Berkshires SPECIAL OFFER. I have 100 head of spring boars, sired by the greatest boars of the breed.

G. G. Council, Williamsville, Ill.

TAMWORTH SWINE. REGISTERED Tamworth Hogs Parties who expect to buy Tamworth spring male pigs must do so within a few days.

C. W. Freelove, Clyde, Kansas.

CHESTER WHITE SWINE.

PLEASANT VALLEY HERD OF CHESTER WHITE SWINE. Choice lot of young stock of either sex for sale.

THE CRESCENT HERD THE WORLD'S BEST SWINE. We are shipping the best pigs we ever raised. Every one a dandy.

HEREFORD CATTLE. Weston Stamp Herd HEREFORD CATTLE REGISTERED... 4th females with Ambercromble 85007 at head.

VERMILLION HEREFORD CO., VERMILLION, KANSAS. Boatman 56011 and Lord Albert 181557 head of herd Choice young stock of both sexes for sale.

SOLDIER CREEK HERDS OF Herefords, Shorthorns, Polled Shorthorns Service Bulls—HEREFORDS—Columbus 17th 91364, Elvina's Archibald 75998, Jack Hayes 2d 119781.

SUNFLOWER Registered Herefords 200 Head in Herd. Herd Bulls now in use are sons of Don Carlos 33734.

STEELE BROS., BELVOIR, DOUGLAS CO., KANS., BREEDERS OF SELECT HEREFORD CATTLE

SCOTT & MARCH, BREEDERS OF HEREFORD CATTLE BELTON, MO. Young Stock For Sale. Inspection or Correspondence Invited.

BULLS in Service: HESIOD 29th, Imp. RODERICK, GILTEDGE—son of Dale and Expansion. A car-load of Heifers bred to our best bulls, and a car-load of choice Bulls, 18 to 24 months old at private treaty

BREEDERS OF HEREFORD CATTLE BELTON, MO.

D. P. NORTON'S SHORTHORNS. DUNLAP, MORRIS CO., KANS. Breeder of Pure-bred SHORTHORN CATTLE. Herd bull, Imported British Lion 133692. Young stock for sale.

RIVERSIDE SHORTHORNS and POLAND-CHINAS Brave Knight, a choice son of Gallant Knight, at head of herd. A few extra good bulls by him for sale.

W. M. WALES, Osborne, Kans.

HORSES.

Percheron Horses

HENRY AVERY & SON, WAKEFIELD, KANSAS.

Registered Stallions For Sale

15 HEAD AT SPECIAL PRICES CONSISTING OF
Five Percherons, 2 to 5 years old—all black but one, and that a black-grey; two black yearling Percherons; four Shires, 8 to 7 years old; three trotting-bred horses, 8- and 4-year-olds; one registered saddle stallion. All but two at prices from \$200 to \$1,000 each. Come at once for bargains.
SNYDER BROS., WINFIELD, KANSAS.

ROBISON'S PERCHERONS AND SHORTHORNS

Percheron Herd headed by Casino (45463) 27830. Prize-winner National Show of France 1901. Winner of first prize at Missouri and Kansas State Fairs 1902. Shorthorn herd headed by Airdrie Viscount, a son of the great Lavender Viscount, champion of America in 1900 and 1901. Stock for sale. Address
J. W. & J. C. ROBISON, TOWANDA, KANS.

M. L. Ayres' Percherons

21 Horses in Our September Importation.

Including five big wide-as-a-wagon Belgians. A grand total of 100 horses to select from. No better place to buy good stallions in America. A long string of 8-, 4-, and 5-year olds, all in the 2,000-lb. class. Good style, fine action, best of legs, feet and eyes. Lots of big, fine, home-bred young horses. Come and see them. Write when you can come.

M. L. Ayres, Shenandoah, Iowa.



Percheron and French Draft Horses.

We guarantee to show more bone, size and quality than any other firm in the United States. Samson, (Percheron 27238 and French Draft 8866) at head of stud. His present weight is 2,464 pounds. We can suit any man who wants first-class, up-to-date, stallions or mares.
Local and long distance phones.

PINE RIDGE STOCK FARM,

L. M. HARTLEY, Salem, Iowa.

LAFAYETTE STOCK FARM

LaFayette, Indiana.



Western Branch, Sedalia, Mo.

Largest Importers in America of the German Coach, Percheron and Belgian Stallions. Our last importation of 100 head arrived July 10, making three importations in 1903. We have won more prizes in 1902 and 1903 than all others combined. We have won every championship prize in coaches and drafters shown for.

Notwithstanding the fact that we have the prize-winners of America, we will sell as low as others that have inferior quality. We keep on hand a large number at our branch at Sedalia, Mo., and can suit any Western buyer there. We give a gilt edge guarantee on every horse that we sell and make terms to suit the buyer.

J. CROUCH & SON, Props., Lafayette, Ind.

AMERICA'S LEADING HORSE IMPORTERS



A Record of Superiority Never Approached.

At the International Live Stock Exposition 1903, one of our 2,200 pound stallions won first prize and championship. One of our sensational acting Coach stallions won first prize and championship. Four Percherons won first in collection. Our stallions entered into competition ten times and five times won first prize; none of our competitors in all these contests won more than one first prize.
At the Great Annual Show at France, held at Evreux, June 1903, our stallions won first, second, third and fourth prizes in every Percheron stallion class; also won first as best collection.
At the Show of the Societe Hippique Percheronne de France held at Nogent-le-Rotrou, June 1903, our stallions won every first prize, over forty prizes in all. Two groups were made up of our exhibit on which we won first and second.
At the American Royal, 1903, our Percheron stallions won every first prize. One of our Percherons won championship. Five of our Percheron won first as best collection. Our French Coach stallions were equally successful, winning every first prize.
At the Iowa State Fair our Percheron stallions won three first prizes and first in collections.

At the Minnesota State Fair our French Coach stallions won every possible first prize and grand sweepstakes. At the Ohio State Fair our stallions won fourteen first prizes out of a possible fifteen.
At the Indiana State Fair our Percherons won three first prizes.
At the Kansas State Fair our Percheron and French Coach stallions won every first prize, including grand sweepstakes. Our last importation and the fourth for us in 1903, arrived in Columbus, Tuesday, Dec. 8. During the year we have imported from France four times as many Percheron and French Coach stallions as have been brought over by any body else. Ours are the very best, we import more of them, sell more of them and therefore can furnish our customers a better horse for the money than can be bought elsewhere.
If your neighborhood is in need of a good stallion, let us hear from you.

McLAUGHLIN BROTHERS,

St. Paul, Minnesota.

COLUMBUS, OHIO.

Kansas City, Missouri.

HORSES.

IAMS' HORSES

Well, well! Cheer up! Get Busy—Iams' peaches and cream are ripe. They were sensational "show horses" at the Nebraska State Fair. (He had a snap.) Had a whole barn full of prize winners there. Iams won first on four-year-old Percheron in class of thirty-two (an easy victory). Also championship sweepstakes Percheron stallion ever all, and many more prizes. All the principal prizes in Percherons, Belgians, and Coaches. Iams kept his great 5100-lb. show pair and the best stallion in every class out of the Nebraska show-yard and were not shown for prizes. None of the special train of 100 stallions received August 23, 1903, were shown at Nebraska State Fair, and among these he had the first and second prize four-year-old Percheron at largest French horse show at Chartres, and many Percheron winners at leading "horse shows," as well as winners at leading "horse shows" of Belgium and Germany. At Iams'

SWEEPSTAKES STUD

Visitors thronged his barn at Nebraska State Fair and said: Hello Tom! Say, Iams has the best horse show I ever saw. Yes; see those four 2000-lb. two-year olds. Iams is a hot advertiser, but he has horses better than he advertises. Hello Mr. I'm Zeke. Say, this is the best string of stallions I ever saw; they are sure peaches and cream. See those six 2200-lb. three-year olds—all alike, too. They are all wool and a yard wide, the "wide-as-a-wagon" sort.
"Mother, this is Iams' great show of horses. His horses are all black and big ton fellows. He always has the best. Semantha, here in Iams' show herd. Everybody wants to see his horses. We came from California to see Iams' 5100-lb. pair of stallions. That's them, here in the greatest pair in the U. S. Yes, and worth going 2,000 miles to see. Hello Louie, here in Iams' 2400-lb. sweepstakes Percheron stallion ever all "Dec!" I don't wonder at his competitors wanting this horse barred out of the show-ring. He is a sure winner and a big story window. Yes, Kitty, Iams has more registered draft and coach stallions than any man in the U. S., and all good ones. Georgio, dear, they are lovely; they can look into the second story window. Yes, Georgio, dear, buy your next stallion of Iams. His horses are much better than the one you paid those Ohio men \$4,000 for, and Iams only asks \$1,000 and \$1,500 for "toppers." Iams has

147--BLACK PERCHERONS, BELGIANS AND COACHERS--147

90 per cent blacks; 50 per cent ton horses—Iams speaks the languages, buys direct from breeders, pays no buyer, salesman or interpreters. Has no three to ten men as partners to share profits with. His twenty-two years successful business makes him a safe man to do business with. Iams guarantees to sell you a better stallion at \$1,000 to \$1,400 than are being sold to stock companies for \$2,500 to \$4,000 by slick salesmen, or pay your fare and \$25 per day for trouble to see them, you the judge. Iams pays horses' freight and buyers' fare, gives 50 per cent breeding guarantee. Write for eye opener and catalogue. References: St. Paul Bank, First State Bank, and City National Bank.

FRANK IAMS, ST. PAUL, NEBRASKA.

60 IMPORTED Belgian, English Shire and Percheron STALLIONS



We won all first and sweepstakes on Shires and first and sweepstakes on Belgians at the last Nebraska State Fair. We were also big winners on Percherons in the 3-year-old and 4-year-old classes. All we ask is that we have the chance to show you our horses and quote you our prices before you buy. Our horses are thoroughly acclimated and not hog fat. Our guarantee is the best and most liberal given. We will take your note at 6 per cent interest on 1 and 2 years' time, so that your horse has a chance to prove himself before you pay for him. If we don't show you the best horses, we'll give you money on the most liberal terms, we will pay your railroad fare for coming to see us. Long Island phone No. 840. Call us up at our expense. Office in Lincoln hotel. Barn at 9th and B street.

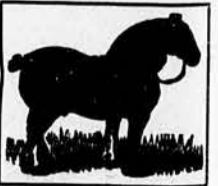
WATSON, WOODS BROS. & KELLEY COMPANY, LINCOLN, NEBRASKA.

LINCOLN IMPORTING HORSE CO., - A. L. SULLIVAN, Manager.



Our recent importation is doing elegant; gaining some flesh and becoming acclimated to this Western country. We can show the largest number of stallions of any concern in all the West, consisting of Percherons, English Shires, Belgians, German Coaches, etc.; over fifty to select from and all grand individuals. We are quoting low prices with the best of guarantees.

SHIRES! SHIRES! HEFNER HAS 10 Shire and Hackney Horses



On hand of last year's importation which he will sell on the following terms

One-half cash or bankable paper due in one year, with interest. Other half due when horse has earned it. You settle for one-half the horse only; the other half must run until the horse earns it. Just the terms you want. I mean to dispose of these horses at once to make room for October importation and I know the wide-awake buyers will be promptly on hand, as these horses are sure to suit. They are heavy-boned, massive, shapely horses, with two good ends and a good middle. Best of feet and action. These are 1,800- to 1,950-pound horses, each and every one fully guaranteed a sure foal-getter. Remember, you take no possible chances when you deal with Hefner. My terms should convince you that my horses are certainly right in every particular. I know they will suit you. These are 20 per cent better than "Top-Notchers," and just the sort "peddlers" are selling at \$3,000 to stock companies. Form your own stock company and come buy one of these grand Shires for your own use. I know my horses are the genuine, honest, reliable sort and cannot fail to please you and give the most satisfactory results; hence these unheard of terms. Write for information. Do so immediately, as these horses will soon go on these terms and prices.

O. O. HEFNER, Nebraska City, Nebraska.

THIRD ANNUAL GRAND FOUR DAYS COMBINATION SALE

Wichita, Kansas, February 2, 3, 4 and 5, 1904.

Percheron Horses, Hereford Cattle, Shorthorn Cattle, Poland-China Hogs



PERCHERON HORSES

February 2, 1904,

Fifty Percheron Stallions and Mares. Also a few Shires and Trotters.

Consigned by J. W. & J. C. Robison, Towanda, Kansas; Avery & Son, Wakefield, Kansas; Snyder Bros., Winfield, Kansas; Charles L. Covell, Wellington, Kansas.

SHORTHORN CATTLE

February 3, 1904,

Fifty Thoroughbred Shorthorn Bulls and Heifers.

Consigned by J. W. & J. C. Robison, Towanda, Kansas; J. F. Stodder, Burden, Kansas; T. K. Tomson & Sons, Dover, Kansas; Harrington Bros., Clearwater, Kansas.



HEREFORD CATTLE

February 4, 1904,

Fifty Thoroughbred Hereford Bulls and Heifers.

Consigned by Robt. H. Hazlett, Eldorado, Kansas; W. L. Bass, Eldorado, Kansas; J. Condel, Eldorado, Kansas.

POLAND-CHINA HOGS

February 5, 1904,

Eighty Thoroughbred Poland-China Hogs.

Consigned by Snyder Bros., Winfield, Kansas; Elm Beach Farm, Wichita, Kansas; H. E. Lunt, Burden, Kansas; and other prominent breeders.



Sale held under cover, beginning at 12:30 p. m. each day, at Riverside Sale Barn, Diver's Stock Yards, West Douglas Ave., Wichita, Kansas. Apply to any of the consignors for catalogue of day's sale wanted. REDUCED RATES ON ALL RAILROADS ENTERING WICHITA.

.... For Further Information Address

Col. R. E. Edmonson,
Col. J. W. Sparks,
Col. R. L. Harriman,
Col. W. M. Arnold,
Auctioneers.

J. C. ROBISON, Mgr., Towanda, Kans.

FOUR DAYS CIRCUIT SALES OF REGISTERED DUROC-JERSEY BROOD SOWS.

Tuesday, Feb. 2.

In Sale Pavilion at Humboldt, Neb., I will sell

34—Choice Brood Sows and Gilts—34

the best of my herd, mostly the get of

VAN'S HERO 7487,

and safe in pig to Valley Chief 15211, Red Chief I Be 15981, St. Patrick 2d 23811 and Grey 23813. Breeders from a distance stop at Park Hotel. Catalogue ready. Address

W.M. BRANDOW, Humboldt, Neb.

Wednesday, Feb. 3.

At my farm, 7 miles southeast of Frankfort, Kans., I will sell

40—Sows and Gilts—40

Consisting of 22 spring gilts, 10 spring yearlings, 7 fall yearlings, and

BESSIE H.

The sweepstakes sow at the Nebraska State Fair last fall. Most of the offering is closely related to this sow and bred to Eclipse, son of Improver 2d, first prize and sweepstakes boar at Lincoln and Kansas City this year. Free transportation and entertainment for parties from a distance. Write for catalogue at once.

JOHN O. HUNT, Marysville, Kans.

Thursday, Feb. 4.

I will sell at my farm, 4 miles south of Beattie, Kans.,

40—Brood Sows and Gilts—40

Consisting of 3 aged sows, 7 fall yearlings, and 30 spring gilts. Many of these are sired by

ST. PAUL 10745,

A son of Lady Paul, a litter sister of Oom Paul, and daughter of Jumbo Red. The offering will be bred to this boar and Field Marshall Jr. 21097. Catalogue for the asking. Free transportation from Frankfort or Beattie and entertainment.

C. E. PRATT, Frankfort, Kans.

Friday, Feb. 5.

At my farm, one-half south of Fairview, Kans., I will sell

50—Sows and Gilts, Bred—50

These are the tops of my herd, all fine cherry colored, and bred to

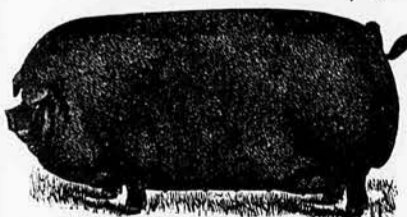
ONWARD, BEN BUTLER, and SHAMROCK,

three of the best boars, from a pork-producing standpoint, in Kansas. Entertainment and free transportation to and from farm. Write for catalogue at once.

J. B. DAVIS, Fairview, Kans.

Breeders and others interested in Duroc-Jerseys should attend this Circuit of Sales, as it will include the tops from Four of the Best Herds in Northeast Kansas and Southeast Nebraska. Write for Catalogue at once.

PUBLIC SALE OF Duroc-Jersey Bred Sows



At the J. B. Davis Farm, Fairview, Brown Co., Kans.

At 1 p. m.,

Friday, Feb'y 5, 1904

I will offer for sale 40 head of Duroc sows, eligible to record, and bred to recorded Red boars. All are healthy and thrifty. Also 2 high-grade Red Polled bull calves about 11 months old, good thrifty fellows.

Terms: 6 months time at 8 per cent per annum from date of sale on sums of \$20 and over. Good security or late bank reference required; 2 per cent discount for cash. Sums less than \$20 cash without discount. Free lunch at noon.

Cols. T. C. Callahan, C. H. Marion, Eli Zimmerman, Auctioneers. C. D. Graham, Clerk.

J. B. DAVIS.

PUBLIC SALE OF 40 Head Standard-bred Trotting Horses

Thoroughbred Runners and Saddle Horses,

At Mt. Vernon Stock Farm, on February 18th, 1904.

In our New Sale Pavilion, regardless of weather.

In this sale we will undoubtedly sell some of the highest classed Standard Bred horses that will be offered at public auction in America this year. Their breeding can't be questioned; their quality is unsurpassed, being smooth, close made, strong boned, high acting sort, with such blood lines as the Wilkes' and Mambrinos coursing through their veins, claiming near kinship to John R. Gentry, Kanka Kee, Fanny V. E. M. R., and Edgar Ripple, can their blood lines be questioned? Our runners are by the noted Per Blaze by Imp. St. Blaze Adamant Dick Whittington.

In this grand offering we will sell our stallion show team, Larned Boy and S. W. S., also Eva Hoover, by Myron McHenry, record 2:15. MILAN BOY, out of the great brood mare, Pawnee Queen. Milan Boy's sire is that noted sire, Looking Forward, one of the greatest horses in the West. In fact we expect to make an offering that will be a credit to ourselves and a profit and joy to our purchasers.

Our past record is: We sold last year 32 horses for \$16,460.00, our yearlings alone averaging \$474.00. We hope to break the record this year by selling better horses. Illustrated catalogues will be ready about Feb. 1. Send for one and mention Kansas Farmer.

S. S. SPANGLER, Milan, Mo.

Grand Combination Sales

New Sale Pavilion, Ottawa, Kansas.

Wednesday, February 10th, 1904,

SHORTHORNS

60 BULLS AND FEMALES

From the herds of E. S. Kirkpatrick & Son, Welleville; N. Manrose, Ottawa; C. S. Nevlus, Chiles; C. F. Wolf & Son, Ottawa.

Thursday, February 11th, 1904,

POLAND-CHINAS

60 BRED SOWS AND GILTS

From the herds of Dietrich & Spaulding, Richmond; J. R. Killough & Son, Ottawa; C. S. Nevlus, Chiles; J. N. Woods, Ottawa.

Remember the dates and come. Catalogues and other information may be had of
DR. O. O. WOLF, Ottawa, Kans.
J. R. KILLOUGH, Ottawa, Kans.

POLAND-CHINA BROOD SOW SALE

At Osborne, Kansas, February 2, 1904.

The consignment will consist of FIFTY TOP SOWS AND GILTS from the herd of F. A. Dawley, Waldo, Kans. They are strictly up-to-date in breeding, and as this will be my introductory sale I mean to put in the best. There will be sows by Perfect I Know 19172, Corrector 26466, Perfection's Likeness 28537, Eclipse Model 27737, a worthy grandson of Missouri's Black Chief, B. B. Model 29590, by Unique 22466 and Anderson's Model 43611, Sunshine Success 71667 A., by Ideal Sunshine, and several others of up-to-date breeding.

Most of the consignment will be bred to my phenomenal herd boar, WOODBURY 72051 A., by King Perfection 50017 A., and out of a Winning Sunshine dam, second dam by Chief Tecumseh 3d. Woodbury is of the type that people are clamoring for to-day—broad, arched back, without a wrinkle, glossy coat, great heart girth, very low heavy hams, and unusually large flinty bone. He is pronounced by "field men" to be one of the best boars in the State. There will be a couple of his gilts in the sale. Watch for them. The younger gilts will mostly be bred to Perfection's Profit, Woodbury's chief assistant, by G's Perfection 77181 A., the sweepstaker of Iowa and Illinois State Fairs in 1903. A few will be bred to Sunflower Perfection, a worthy son of Perfection's Likeness 28537, Highroller, a show-pig by Woodbury, out of an Eclipse Model dam, and Queen's Best by Top Liner 62233 A., half brother to Corrector, out of a perfect I Know dam.

No Postponement on Account of Weather, as Sale Will be Held Under Cover

Every animal fully guaranteed. . . Send bids to either auctioneer or field men, in my care. . . For Catalogues address

Col. Lafe Burger,
Col. J. M. Clark,
Auctioneers.

F. A. DAWLEY, Waldo, Kansas.

W. F. GARRETT'S MODEL SALE

At Concordia, Kans., Feb. 6, 1904. Sale will Commence at 10:30 a. m.

50 Royally-Bred Duroc-Jersey Bred Sows and Gilts 50

5 Tried Brood Sows that are the equal of those found in any herd in the country.

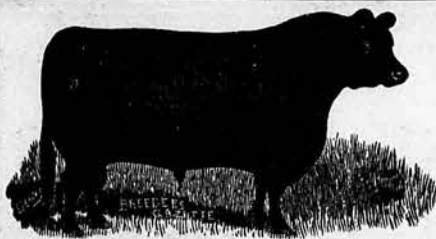
40 Spring Gilts representing the best blood and individuality of the best herds in the West.

5 Fall Yearlings such as are seen but a few time in a man's short career.

A Special Attraction is ETHEL, the 750-pound sow; other good ones will also be sold. consequently it will pay you to attend this sale. Write and get my catalogue, then come to the sale. Bids sent to either of my auctioneers at Concordia, Kansas, will receive prompt treatment.

W. F. GARRETT, Portis, Kansas.

Col. F. F. Luther and Col. G. V. Valandingham, Auctioneers.



COMBINATION SALE!

At Kansas City, Mo., Fine Stock Sale Pavilion, February 17, 1904.

45-Head High-Class Aberdeen-Angus Cattle---45

From Some of the Representative Pioneer Herds of the Country.

EVERYBODY From a Good Farmer To a Fancy Breeder... HAS BUSINESS THERE

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