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Agricultural Matters.

SOME MISTAKEN NOTIONS AND PRACTICES OF PLANT BREEDING.

The majority of people are prone to look upon plant breeding as simply the technical operation of crossing or hybridizing plants. A man might spend his lifetime hybridizing plants and never be a plant breeder. He might spend years in attempting to find out whether the male or the female parent impresses its characters the more forcefully upon the offspring, and yet never ameliorate a single plant. If so inclined, he could dissipate his energies in trying to discover whether or not the majority of the issue of a cross show the effect of the blending of the unlike parental qualities in the first generation. Questions concerning such phenomena as these are interesting to the student of nature and might be of some value to the plant breeder providing that the laws governing procreation could be ascertained. All that scientists can say on the question at this date is that we can no more predict what the characters of the offspring of a sexual union of two plants will be than we can predict how many leaves a given oak tree will bear next year. We can make a guess and that is all.

I would like to impress upon the reader the fact that crossing plants is the smallest and most unimportant part of all the labors of a plant breeder. Selection is of far greater importance, and requires the exercise of a much higher grade of intelligence than the mere technical act of pollinating a flower. It is true that crossing is a very potent plant variant, and, coupled with intelligent selection, it may accomplish wonders in transforming the vegetable kingdom. There are at least two other plant variants, however, each of which is probably just as powerful as crossing. These are soil and climate. The plant breeder must plan to compel the soil and the climate to help him. If he does not so plan, they will probably hinder him to such an extent that he will make no progress.

The climate of Kansas, on the whole, is favorable to the production of a high percentage of protein in corn and wheat. Some seasons, even in Kansas, are very detrimental to the production of cereals rich in protein. The agricultural plant breeder must discover, if possible, the relation existing between climate and the composition of his crops. He must plan to prevent the bad seasons from deteriorating his seed wheat and seed corn. How can he do this? A very simple method is to keep on hand enough seed of each year's crop to plant two crops. If the protein is reduced by an unfavorable season, the breeder can discard the poor grain of that season and fall back to the best crop of a previous year for his seed. This will insure an ever progressive movement in the improvement of the type. It has been observed by chemists that protein in both wheat and corn is extremely variable. According to Professor Church in "Food Grains of India," page 94, there may be 3 or 4 per cent more protein in some grains than in others of a single head of wheat. What the breeder needs to do at first is to discover how to separate these richer grains from the poorer. I believe that specific gravity will be found of service in solving this problem. It is well known that the "hard" spring wheats of the Dakotas generally test 62 to 66 pounds per bushel. These are also the richest American wheats in protein. The next important step after the discovery of the proper method for the selection of the seed will be to "fix" the protein in a type so that it will not vary as it does to-day. This will require years of patient, untiring effort. To do this successfully the breeder will have to steadfastly refuse to follow the common practice of changing seed every time a bad season gives a poor crop.

During the summer of 1898, the writer made a trip across the great wheat belt of central Kansas for the investigation of alfalfa, wild grasses, and wheat culture. Eighteen representative farmers were interviewed to find out if their wheat "runs out." Records were made of the answers which these farmers gave to the following questions:

(1) How many years have you grown a variety of wheat without getting new seed from other parties?

(2) Have you found a variety grown for several years to run out if seed is selected and graded every year?

(3) Do you believe that any variety will run out whether pains are taken each year in selecting and grading the seed or not?

To the first question, one person answered two or three years; two said four; three said four or five; one answered five; one, five to six; one, five to seven; one, seven; one, seven to eight; one, eight; three, ten; one, twelve to thirteen; one, eighteen; and one said twenty years. To the second question, six persons answered "I have not;" two said "Yes;" two answered "I don't know;" one answered "A good wheat

will not run out;" one said "Do not select and grade;" one said "It runs out, but we do not select and grade enough;" one said "I do not give it time;" one said "Have not noticed it run out;" one said "Have not had it long enough;" and one said "Turkey does not."

To the third question, nine persons answered "Yes;" seven said "No;" one said "I doubt if it will;" and one said "Not if exchanged from within a radius of fifty miles."

From these answers it will be seen that the majority of the persons interviewed practice changing their seed wheat at intervals of less than ten years. I have no doubt but that there are good reasons for this state of affairs; and yet it should not be so. No variety should "wear out" by being planted on the same soil for any number of years. It ought, on the contrary, to become better adapted to the soil the longer it is grown upon the same ground. I think the cause of all this change of varieties is unfavorable climatic conditions. A poor season follows a series of good years, and the farmer, having sold off all the good wheat of the previous crops, is either compelled to sow a very inferior quality of seed or import seed from more favored localities. No doubt it is better to import than to sow a poor quality, and yet each importation is the cause of a double loss to the farmer; for the new variety must become adapted to its environment by a residence of two or three years before it can do its best, and all the good qualities of the old variety are sacrificed with its exit from cultivation. The only rational way to prevent this loss is for the farmer to save over enough seed from each crop to sow twice the area farmed in wheat. When a bad year comes, the old variety can then be obtained by sowing old seed.

GEO. L. CLOTHIER.

Good Roads.

Editor Kansas Farmer:—This is a subject I have been thinking about for some time, and wondering why somebody has not said something about it before now; but, seeing nobody has ventured to do so, I thought I would just start the ball to rolling, hoping that someone else will give it a kick and send it on and on, till we see something accomplished by its rolling. I don't see why we can't have good roads here in Kansas as well as anywhere else. We have the material to make them if we would only utilize it. There is no one that appreciates good roads more than does the farmer, because he uses them as much or more than any other class of people, unless it is the doctor, and I know he wouldn't kick if he had better roads to travel. How often do we hear exclamations like these: "What bad roads!" "Aren't the roads terrible!" "What awful roads!" etc. I think we have had experience enough in that line in the last five or six weeks to put us to thinking if anything would. We can't go to town or anywhere till it gets to be a "ground-hog case," then we hitch up and drag through, the mud rolling up over the wheels and making great furrows in the roads. Then when the spring rains come the water runs down the hills in those furrows and washes out great ditches in the middle of the roads. Then there is just about enough road work done to patch them up, just to be repeated again next year. Why, we can't go to church on Sunday without being afraid of getting stuck in the mud or pulling a single tree in two, or something else of the kind. "Well," you say, "how are we going to help it; what is the remedy?" There are two ways of remedying it. One is, to double our road work and then grade up a piece of road and haul stone and macadamize it; then that piece will be done and will never have to be done again. If each district could macadamize a piece each year, even if it was not very much, in a few years we would have our worst places fixed, and every piece of road we macadamized would be that much less road to patch the next year, and we would have that much more time to macadamize another new piece.

Another remedy is to do it by taxation, which I think is the better way, for then the rich would have the biggest share of the burden to bear and the town people would have a better chance to help us in the matter. The work could be done in the winter, after the farm work was all done and out of the way. And that would give something for the poor farmer to do besides eating up what he has made the previous year. You may say our taxes are high enough now. True enough, it does seem hard to raise money sometimes to pay our taxes, but I don't believe we would feel it much more to have a little more added, especially when we would receive so much benefit from it. Besides it could be so arranged that all that wanted to could work out their own taxes. How nice it would be when we wanted to go to town if we could glide over a solid road, no matter what time of year it was. Then it would increase the valuation of our farms to a great ex-

tent. We would all be worth more and enjoy life better. I don't want to be understood that I am in favor of macadamizing all of the roads. No, we could not do that; but just the main roads leading to town, say 5 or 6 miles each way. JOHN ROGERS. Ozawkie, Kans.

For a Farmers' Packinghouse.

Editor Kansas Farmer:—For the sixteen years that I have read the Kansas Farmer I feel under obligations to the editorial and contributing force for the wise and practical counsel they have permitted its readers to enjoy. Kansas, with her peculiarities of climate and soil, her promises that she faithfully fulfills, and her promises and pledges that she so coquettishly and unhesitatingly violates and breaks, seems almost human. But since she has left girlhood and entered more staid womanhood our affinity for her seems more praiseworthy, yet we have to permit to her special privileges, using uncommon and unique measures, which the Kansas Farmer has given. These seem to be necessities of farm and ranch life if we attempt respectable success. I do not wish to be cynical, peevish, nor to unjustly murmur, because we read that "they murmured and were destroyed by the destroyer," but, like native Kansans, I want to possess alike patience and wonderful contentment under conditions both hard and pleasing. Artemus Ward once said to the conductor, while riding on a slow-going train in the South: "I expect you would let me make a suggestion if I do it in a friendly way." The conductor, with his Southern pride and dignity of office, said, with a full volume of voice: "What is it, sir?" Artemus said: "Let us take off the cow-catcher in front for there is no danger of running into a cow, and put it on behind, because some old cow may come in and bite us." Now, in a friendly way, I wish to suggest that the breeders, feeders, and shippers tributary to Kansas City start a large packinghouse, with cold storage and all of the auxiliaries that belong to the Armour plant, officered with honest and true men (we have them), not politicians nor office-seekers, but statesmen and philanthropists, yes, and good business men, all distinctly understanding that if they turn to do wrong the wish of the stockholders is that the fate of Ananias and Sapphira may deter them, or their place will speedily be made vacant. Our observations tell us that packers become wealthy. They, with railroad and insurance presidents and attorneys and millionaire politicians, are the lords of the land. They enjoy both wealth and popularity, which is laudable if rightly attained. But is it right the way it is conducted and the share we get? Who gets the lion's share? I will not accuse them, but state the surroundings and let you judge of the facts. We know that to-day they may be very keen to buy, but if we go in to-morrow with more stock they will act like they were mad, and perhaps some of them not come out at all and others not until late. Meat and lard are higher now than a year ago, but we are getting less for our hogs. When corn is high and hogs are low, people flood the market; then follow light receipts with much better prices. A great many, to save the market when the gang are going in, would like to have the stock slaughtered and the products held to save the market and to realize a profit. They tell me beef ought to be killed several months before it is eaten to be at its best. Pork, if rightly cured, becomes more valuable with age. It is generally believed, since the Miles-Eagan set-to, that we cannot place entire confidence in what we are buying. We like to feel positive of what we eat. Our consul in Germany tells us that German lard is selling for 20 cents a pound and live hogs 15 cents, and Armour's lard for 10 cents. Why the difference? It certainly is not because the Armour lard is more pure that it should sell for one-half the price. I have met people from the South who had bought the pure brands of lard, and when they came to use them readily discerned the well-known taste and smell of cottonseed oil. They told me they bought no more. Our market has been destroyed with a good many good purchasers by conjured-up substances that have the appearance but do not fill the requirements of the genuine article. This is true especially of butter, lard, honey, sirup, and jellies. For an illustration: For the last ten years, when I have been in Kansas City, I haven't eaten any butter or sirup, because before that it was impossible to find the genuine article in any of the eating houses near the Stock Exchange. I have had men say to me: "You can't tell the difference." I may not be able to tell the difference between deodorized poison and white earth, but I do not want either. We are told that blind people and mice that like butter soon quit using oleo where it is substituted for butter. I have, too, because I believe it is a duty we owe to ourselves to eat and drink that which we know will do us some good, and a sin to try to humbug our stomachs. With forty years

Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad-faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments' time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 46, Quincy, Ill., for their catalogue, which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers, etc.



of experience, I find that a very essential organ in man or beast, which ought not and will not be abused without protest. By a very simple test, we know that the natural temperature of the human system will not melt oleo, neither will it rot or undergo slow combustion like butter. Some would not care whether it digested or not if it only helped the cattle market. Now, in fact, it injures the cattle market by taking away from the cow her natural trade or occupation of butter-making. Let us have good, pure, wholesome food, whether we become like that on which we live or not. Let us build right. Now, I will put in \$50 in this great plant. Eighty thousand of such subscriptions will give us \$4,000,000. It would sometimes save us that in a short time. Dwight, Kans. C. H. TITUS.

Johnson Grass.

Editor Kansas Farmer:—I have noticed several inquiries in the past year about Johnson grass, and have been watching to see the answers to these inquiries. But as none have appeared, I will try to give my eight years' experience of this devil in the shape of grass. Johnson grass, as I know him, is a very sly, meek fellow in the start. Sow the seed and it will not start till hot weather comes, and then he lingers along like young cane, which he very closely resembles, until about a foot in height. The only sure way to distinguish it from cane at this stage of the plant is by pulling it up. The roots of young cane are like small strings and of a reddish color, the plant coming up quite easily. But Johnson grass is hard to pull and is very apt to break off at the crown, or near the ground, and when it does pull up the roots are very white and have shoots putting out from the main plant from one to three inches long and the size of a lead pencil or larger and sharp-pointed like a rooster's spur. After it gets a foot in height and the weather gets hot, then it simply jumps and attains a height from six to twelve feet, owing to the kind of soil, with stalks like large cane pipe-stems. It produces a heavy crop of seed resembling flax seed. If cut before maturing it will sprout from the stubble like cane, but grows much faster and in good soil will make three to four crops a season, seeding each time. Meantime the roots are not idle. The shoots spoken of turn to long flat roots that look like calamus roots, with joints an inch apart with an eye at every joint, that when broken by the plow start a new plant. These roots soon fill the ground like asparagus roots, but grow much deeper. I have found full-grown roots at the depth of 28 inches. I have found nothing that will kill it but freezing. Salt has no effect on it so far as I have tried, and I have given it some heavy saltings. It kills down as far as frost goes, but being so deep in the ground, it soon comes up. Have fenced it in and pastured heavily with both cattle and horses at the same time, and it soon apparently kills out, but put in the plow and you will find Mr. Johnson simply taking a lay-off. The roots are there by the millions and ready for business. Now this grass never appears above ground till very late in the season, after all other grasses, and the first light frost kills it, being as tender as young cane. It spreads very fast, both from seed and roots, and nothing is known that will kill the roots but freezing. A pint of seed sown on an adjoining farm some years ago has now about taken that farm and has spread to several others, some of them being badly planted with it. I have worked with this grass trying to subdue it and watching for a redeeming feature for years and find not one. All it is fit for is to ruin a farm and make the owner swear. The seedmen that will advertise and sell this seed to the farmers—see advertisements in seed catalogues—should be prosecuted for damages. Some States have laws against the introduction and sowing of this grass, and Kansas should be one. J. C. WEATHERS. Howard, Kans.

This definite answer from experience will be appreciated by the many inquirers who have written to the Kansas Farmer. But the persistence, vigor and productiveness of this grass are qualities which would be highly prized if possessed by a first-class for-

age plant. The Garton brothers, of England, secured a wild and worthless oat from India. It had the advantages of vigor and a naked seed. They crossed it with other varieties of oats, and secured a new naked oat with naked seeds, great vigor and productiveness and the desirable qualities of domestic oats. Is there not here a hint that possibly the seed breeder may proceed similarly with Johnson grass, crossing it with some valuable forage plant in such way as to secure its vigor, persistence and productiveness, together with feeding value equal to that of blue-stem?

WEEKLY WEATHER-CROP BULLETIN.

Weekly Weather-Crop Bulletin of the Kansas Weather Service, for week ending April 10, 1899, prepared by T. B. Jennings, Section Director:

GENERAL CONDITIONS.

Cold and cloudy. A wet week in the eastern half of State, not so wet in western. Season very backward.

RESULTS.

EASTERN DIVISION.

No farm work done yet in the northern half, and but little in the southern. Corn-planting and oats-sowing have progressed to some extent in the southern counties, and in Cherokee the oats have begun to come up. Much wheat has been winter-killed, but to what extent has not yet developed. Peaches are generally reported killed, but apples and plums safe yet. Timothy meadows and blue grass are starting. Some red clover was frozen out.

Allen county.—Hardly any farm work done yet; everything a month backward.

Atchison.—Cold, cloudy, muddy week; no farming attempted yet; wheat much injured.

Chase.—Cold, backward spring; alfalfa late, oats barely sprouted, wheat making but little growth; apples, cherries, and plums good; peaches all killed; grapes fine condition.

Chautauqua.—Too cold for vegetation; a little corn is planted, corn ground is mostly plowed; no signs of leaves or fruit buds; no grass; wheat very backward and making but little growth; some late pieces being plowed for oats and corn.

Cherokee.—Too wet for work; oats mostly sown, some coming up; wheat badly damaged, much will be plowed; potato seed scarce and high.

Coffey.—Cold, wet, cloudy spring and two snows this week; very little plowing done, oats sowed, or corn planted yet; wheat damaged in low, wet places.

Crawford.—Cold and wet; very little oats sown yet, but what is sown is sprouting; wheat badly winter-killed, much will be plowed up; clover injured; timothy meadows in excellent condition; peaches killed; apples and the hardier fruits generally all right yet.

Doniphan.—Very cold and cloudy; not a furrow turned; wheat mostly winter-killed.

Elk.—A very cold, backward spring; considerable corn planted; no sign of grass yet in pastures.

Franklin.—Too cold to start vegetation; some corn listed on favorable ground, but practically no spring work has been done yet.

Greenwood.—Season very backward; no corn planted.

Jefferson.—Ground wet and cold; no farming done; feed getting scarce and stock thin; wheat fair except on high grounds, where it is frozen out of the ground in places; clover frozen same way.

Johnson.—Prospects for wheat improving; no farm work done yet, too wet to plow.

Labette.—Wheat is getting worse, the continued cold is too much for it and it is dying out; early-sown oats rotted some in the ground.

Lyon.—Too cool and wet for most farm work.

Marshall.—No farm work, ground too wet and cold; wheat believed to be seriously injured, but impossible to say what damage is sustained yet.

Miami.—Vegetation has not started yet; ground too wet and cold for farm work.

Montgomery.—A cold, cloudy, moist week; plowing and planting delayed, yet much corn has been planted.

Morris.—Four inches of snow on the 3d; a cold, cloudy, damp week; no farming done yet; wheat looks badly, half of it believed to have been winter-killed.

Nemaha.—No farming done yet; three snows this week; unfavorable weather lately has lowered the prospects for wheat; much anxiety about spring grain, as the season is so far advanced.

Neosho.—But few oats have been sown; corn-planting has hardly begun, too cold and wet; wheat is looking better since the last snow; cold, wet, cloudy week; pastures and orchards not turning green yet.

Osage.—Very little plowing yet, ground too wet; in some fields last year's corn not yet gathered; outlook for wheat is poor.

Pottawatomie.—Wheat generally in good condition; very little seeding done yet; but few oats will be sown, too late; ground too wet to work; cold, cloudy week.

Riley.—Cold, cloudy week; wheat looking fairly well in southern part, badly damaged in northern; very little farming done yet.

Shawnee.—Very little farm work done, ground too wet; early-sown wheat looks fair, late-sown badly damaged, some fields killed out entirely; stock doing well but feed getting scarce; alfalfa starting well; clover badly winter-killed, though last year's seeding is in good condition.

Woodson.—Plowing progressing slowly; too wet for much work.

Wyandotte.—No farming done yet, except some plowing and potato-planting in the Kaw bottoms; no correct estimate of damage to wheat can be made yet.

MIDDLE DIVISION.

Early-sown wheat and wheat in corn-stalk fields is in good condition, but the late-sown and that on upland has been damaged, too early yet to tell to what extent. Oats-sowing and corn-planting have begun in the southern counties, and, where ground was not too wet, farther north. Grass is starting in the western counties. Peaches are generally reported killed and apples safe.

Barber.—Wheat badly winter-killed, acreage planted, small; farming operations just

beginning; some corn listed in; a few oats sown; prospect for fruits of all kinds fair, apricots opening bloom, gooseberries in leaf; grass pastures not yet started; cattle still on feed and doing well.

Barton.—Wheat growing slowly; weather favorable this week; corn-planting has begun; farmers busy sowing barley, much of it is being sown on the ground where the wheat was frozen out.

Butler.—Spring very backward; vegetation has made no start; nearly all of the oats are in but none up; a part of early-sown wheat good, but average stand of wheat very poor, though the ground is in fine condition; no corn planted yet; grass beginning to start in some places; fruit believed to be badly damaged.

Cloud.—Wheat in southern part damaged some, in northern part practically ruined; no oats sown; too cold for growth, too wet for farming.

Cowley.—Oats all sown and early-sown coming up; grass starting slowly; corn-planting beginning, ground is in good condition; wheat and the fruit crop in doubt yet.

Dickinson.—Cool, cloudy and muddy; no growth; season three weeks late.

Edwards.—Wheat believed to be much damaged, but a few warm days will tell; oats and barley nearly all sown in northwestern part, but little sown in central; spring very backward.

Ellsworth.—Much of the wheat dead and they are plowing some fields up; much of the balance left is a poor stand while some is fair.

Harper.—Spring work retarded by cold weather; some oats sown; no corn planted yet; wheat improving; pastures very backward.

McPherson.—Wheat damaged considerably; very few oats sown; just beginning to plant potatoes; farming retarded by cold weather.

Marion.—Frosts, rain and snow this week have retarded wheat, but the actual damage to the wheat is guess-work; some oats have been sown; but little plowing done yet.

Mitchell.—No farming operations yet.

Ottawa.—Ground too wet to work; farming at a standstill; some oats sown and only small patches of potatoes planted; wheat somewhat improved.

Phillips.—Fall wheat and rye in good condition and starting to grow nicely; scarcely any oats sown yet; a few potatoes planted; everything backward; cold, cloudy week.

Pratt.—Too cold for vegetation; some

fair, but only a small crop sown owing to late threshing and early freezing.

Hamilton.—Winter wheat in fair condition, acreage small; some barley and alfalfa sown; some of the fruit was injured, but believed there will be considerable still.

Haskell.—Cold, windy week; very little spring grain sown; ground in fine condition for work when weather moderates.

Kearney.—Good growing weather for wheat.

Ness.—Much of the wheat and rye was winter-killed, but the acreage sown was small, owing to early freezing; not much spring work done yet.

Norton.—Cold and disagreeable; but little farm work done yet; amount of damage to winter wheat undetermined; very little spring wheat will be sown.

Scott.—Vegetation is backward; not possible to tell yet what damage was done to wheat; ground is in good condition for spring work.

Sheridan.—Condition of winter wheat improving; spring very backward and but little spring grain sown yet; ground in fine condition; promise of a few peaches; apples and plums all right.

Thomas.—Winter wheat not growing much, hard to tell what proportion is hurt; spring grain-sowing progressing; farm work being pushed; ground in fine condition.

Trego.—Frost just out of the ground and farming begun; some oats drilled; cattle and live stock in fair condition; much wheat dead.

Wallace.—Cattle all right; farming progressing slowly.

April Notes.

This is the month for planting.

Get the corn planted as soon as possible now.

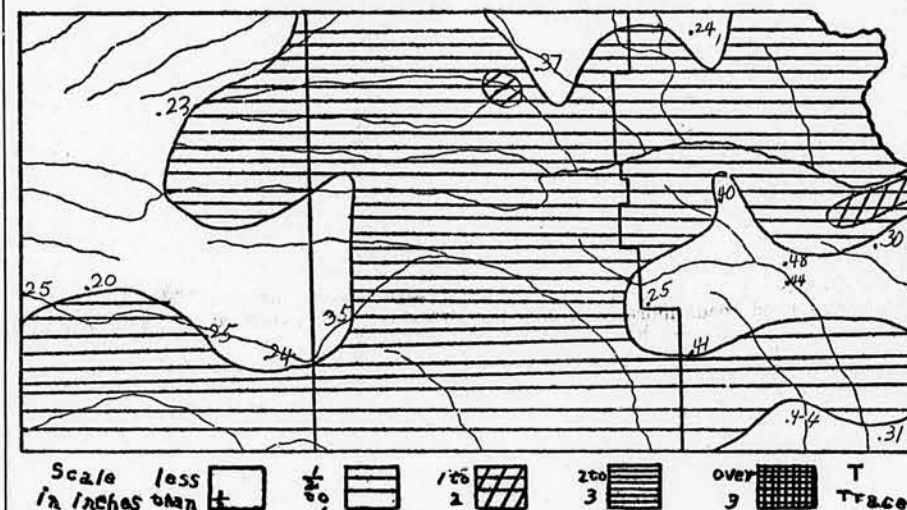
Plant plenty of what can be used in the family.

Be sure the soil is in a good tilth before planting.

Do not be in too big a hurry to turn the stock out.

You can grow what you eat cheaper than you can buy.

A ten-day period is as long as a growing



ACTUAL RAINFALL FOR WEEK ENDING APRIL 8, 1899.

corn planted and some barley and oats sown.

Reno.—Some oats sown; wheat killed out in spots, many fields look fair; prospects for most of the fruits very poor; peach buds killed and trees thought to be damaged; mulched strawberries look well.

Republic.—Wheat looks green in low places, early wheat believed to be all right yet, also that drilled in cornstalks.

Russell.—Grass and wheat starting; some wheat reported killed.

Saline.—Oats not all sown yet; wheat in very poor condition and prospects uncertain; cornstalk wheat in good condition; farming delayed by cold, wet weather.

Sedgwick.—Wheat is more damaged in sandy than heavier lands, though some of the latter is frozen out; will be more barley sown than oats; a large acreage of corn will go in.

Smith.—Much of the wheat was damaged during the winter, but believed to be not so badly damaged as it now looks; no planting or sowing has been done yet; spring backward.

Stafford.—Very few spring crops going in yet, too cold; plowing now for oats and barley, some seeding done; some wheat fields are damaged, and some fields are turning green.

Summer.—Wheat improving, some winter-killed; corn-planting will begin next week.

Washington.—No farm work done yet; some fields seem to be injured, but as nothing has started to grow it is impossible to tell just the condition it is in; oats will not be as largely sown as usual; peaches killed; apples all right yet.

WESTERN DIVISION.

Much of the winter wheat has been damaged, except where sown in the cornstalk fields. The ground is in fine condition for work, yet, owing to the cold, but little has been accomplished, spring grain-sowing is progressing in several of the counties. Alfalfa has come through the winter well. Fruits, except peaches, are considered safe.

Decatur.—Most of fall wheat was sown in stalk ground and is all right; spring wheat mostly sown; prospects favorable; spring very late.

Finney.—Grass just beginning to show green; alfalfa just starting; spring unusually backward; small acreage of oats and barley will be sown; fruit buds just beginning to swell.

Ford.—Wheat looks badly; native stock has come through the winter in good condition.

Gove.—Wheat damaged more than was thought; ground in fine condition for spring work.

Gray.—No grass yet; wheat prospects

crop should be without cultivation this month.

One of the best crops to sow for soiling is Kafir corn.

Spray the apple trees as soon as the blossoms begin to fall.

There is no advantage in planting in the mud, not even fruit trees.

Spray the grape vines as soon as the leaves begin to open out well.

Do not let up entirely with the grain ration to the dairy cows yet.

If conditions will admit, shear the sheep before turning in the pasture.

While early planting is an item, good condition of the soil is as important.

A good part of the main garden may be planted by the middle of this month.

If the soil is very dry at planting time, wetting will often help secure germination.

Plant plenty of potatoes, beans, cabbage, sorghum, and sweet corn to furnish a supply the year round.

By having the soil in good tilth when the planting is done, it will be easier work giving the first cultivation.

Some of the larger varieties of sweet corn make excellent crops to grow for summer feeding of the dairy cows.

If a little care is taken to destroy the first insects that appear, it will be much easier to prevent them from damaging the crops later on.

In a measure at least, thorough cultivation in good season can be made to take the place of fertilization by making plant food in the soil available.

Especially when the crops are planted in straight rows, the sharp steel rake is one of the very best implements with which to commence cultivation in the garden.

Arrange to shear the sheep as soon as the weather can be considered settled. There is no possible advantage in allowing the wool to remain on after the weather becomes sufficiently warm to admit of removing it.

N. J. SHEPHERD.

Eldon, Mo.

ARE YOU SORE AND STIFF

From hard work or outdoor exercise?

ST. JACOBS OIL

Will cure after a few applications, and make the muscles limber and strong.

Alfalfa.

Editor Kansas Farmer:—I want the best information to be had on the growing of alfalfa. I now have a farm of my own and wish to plant five acres this spring, and I particularly want to know if it is best to plant it in the orchard. I have read much about alfalfa enriching the soil; but my son has seen it growing in California, has handled it, cut it, cured and stacked it, and he says that the idea of enriching the soil by growing alfalfa on it is all bosh; that he has seen land where alfalfa had been grown for eight to ten years and the land had got so poor it would scarcely grow any crop at all, that is, of alfalfa. Now this does not convince me that he is right, because I have a suspicion the land might have been, so to speak, "alfalfa sick," and needed a change. I have a fine apple orchard on fine Kansas bottom land. The trees are large and fine. Nothing has been grown as a crop in the orchard except weeds. I have never had time to "read up" on alfalfa, because I was never before ready to touch it. Now I want knowledge and plenty of the best. Help me if you can.

Another point or problem I would like solved is, whether it is best to put alfalfa on the finest bottom land—low bottom—which will produce 75 bushels of corn per acre, or on good land—higher—which will produce 35 to 50 bushels of corn per acre.

Dunlap, Kans. D. P. NORTON.

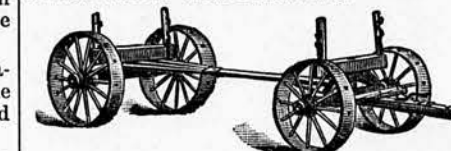
All authorities agree that alfalfa should never be sown in the orchard. Some years ago a statement came from a Western experiment station favoring alfalfa as an orchard crop. The editor of the Kansas Farmer immediately wrote the author of the statement asking for details of experience on which such statement was based. The inquiry was never answered, either by private letter or published report. Where alfalfa does well it usually monopolizes the soil on which it grows. The most notable exception to this occurs in the experience of Mr. D. H. Watson, of Kearney, Neb., who grows blue grass and alfalfa together successfully. (See page 50 of the current volume of the Kansas Farmer.)

The report of our correspondent's son of alfalfa impoverishing the land is the first of the kind that has come under the notice of the writer. It would be impossible to account for this peculiar observation without accurate information of all conditions affecting the case. In Kansas, and in general, reports agree as to the fertilizing power of alfalfa. Under fair conditions the crop improves from year to year.

As to whether it will pay Mr. Norton better to produce corn or alfalfa on his rich bottom land is a question of policy and of detail, to be considered in connection with all other plans of his farming. A corn crop of 75 bushels per acre is by no means to be despised. Corn is needed on every farm, and the writer is much inclined to the view that, since the 35-bushel crop will require nearly as much labor as the 75-bushel crop, and, since the labor on the alfalfa crop after the first year will be nearly proportioned to the yield, it will be better to sow the alfalfa on the higher land, reserving the 75-bushel land for corn.

Farm Wagon for Only \$19.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of \$19.95. The wagon is only 25 inches high, fitted with 24 and 30-inch wheels with 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

We can save you money, if you want most any paper or magazine, in connection with Kansas Farmer. Write for special club list.

The Stock Interest.

THOROUGHbred STOCK SALES.

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

APRIL 27—G. W. Gillick & Son, Powell Bros., and John McCoy, combination sale of Shorthorns, stock yards sale pavilion, Kansas City.

SHEEP MANAGEMENT.

At the first annual meeting of the Missouri Live Stock Breeders' Association, at St. Joseph, Mo., Peter Jansen, Nebraska's noted sheep feeder, delivered the following address on sheep feeding. He said, concerning fattening sheep for market:

"This industry was started in Nebraska about fifteen years ago, and from a few thousand head has assumed enormous proportions until last winter there were in the Nebraska feed yards nearly one million sheep and lambs.

"These sheep are brought from the breeding grounds of Colorado, New Mexico, Utah and Arizona, from the middle of October to the first of December, and here let me say to the beginner: Buy your sheep right, don't get excited, there will be plenty to go around, and the old proverb, that an article well bought is half sold, never was truer than in the sheep business.

"You should have your feed yards all ready, with water in each pen and sheds, or at least a good wind-break to the north.

"Don't place more than 500 in one pen, and 300 only is much better.

"No man should attempt to feed sheep without being prepared to dip them for scab, and the only safe way is to dip them not less than seven nor more than ten days apart.

"There are several very effective tobacco dips on the market, which, if used according to direction, will cure scab every time. The old-fashioned louse and sulphur dip is a dead sure thing, and probably the cheapest.

"I cannot enter upon a detailed discussion, but I wish to impress two or three important matters upon the unexperienced: Keep your dip at a temperature of not less than 110 all the time; use a thermometer to determine it; keep your sheep in the bath not less than two minutes by the watch, not by guessing.

"I commence feeding grain very slowly, starting with about half a pound of oats and shelled corn and gradually increasing the ration, so that in thirty days my sheep will eat 1½ pounds per head a day, divided into three feeds. It is my experience that self-feeders can only be used successfully where screenings are fed in place of corn. If beans and ground oat cake are cheap they make a very desirable addition to the grain ration.

"I feed roughness twice a day, mornings and evenings. Bright hay is the best, but early-cut millet, sorghum, Kaffir corn and cornfodder make a good substitute. I have fattened full-grown wethers on nothing but corn and bright wheat straw for roughness.

"One of the essential things in feeding sheep is regularity. Commence at the same hour and minute every day and at the same pen. Your sheep will get to know their meal time as well as you do yourself, and will be quiet until that time arrives. I never allow my men to vary even ten minutes.

"When a long feed is intended I would not increase the grain ration much over 1½ pounds per day until about the last thirty days, when I would feed all they will eat up clean three times a day. Have your grain troughs swept out after each feed and do not allow your water tanks to get foul. There is no cleaner or more particular animal than a sheep and I believe their meat is the most healthful of all and was designed by God Almighty especially for human food. I keep salt in my pens at all times, of course under cover.

"It is very important to always provide a dry bed for them to lie on.

"The sum and substance of successful sheep-feeding is regularity and common sense. The losses during a winter's feeding vary from 1 to 1½ per cent; the latter should be the maximum.

"By proper feeding and attention, much sickness and loss can be averted; but when once a sheep gets sick and ready to die I have found there is very little that can be done for it. When ready to ship, pick out the fattest and keep on doing so."

Alfalfa Pasture.

Editor Kansas Farmer:—I have a small field of alfalfa. I would like to pasture first crop if I can do it with safety. I want to turn fall and winter calves on it. At what height should alfalfa be when commencing to pasture? Can I leave them on it all the

time? What can I do to prevent bloating? What can be done after they bloat?

Mapleton, Kans. N. G. W.

Do not pasture too closely. Give the young alfalfa frequent rests, so that the young shoots which come up after the older have been eaten off, and which are so much relished by all animals, may have a chance to perform their part of the functions of plant growth. It is, therefore, well to divide the alfalfa into two fields, pasturing them alternately. Hon. J. B. McAfee, of Topeka, accomplishes much the same purpose by mowing half of the pasture when the alfalfa has attained a height of six or seven inches; and, after the mown part gets a good start so that the animals prefer it, he mows the other half, and so on throughout the season.

With the further precaution of turning in no more stock than the fields can support without unduly close cropping, alfalfa sown last spring may be pastured this season, and the calves may be turned in when the alfalfa is high enough to afford good grazing. But alfalfa is never safe pasture for ruminating animals. Some have found the risk not very great if the animals are turned in after a full feed and when the alfalfa is dry. Mr. D. H. Watson, of Kearney, Nebr., has found alfalfa and blue grass grown together safe as to bloat. Some allow the animals to graze for but a few minutes at a time. Alfalfa bloat is usually so severe when it occurs that the animal is dead before anything can be done. The trocar is the usual remedy. Some cases have been reported in which the animal was opened with a knife and the alfalfa removed.

Not a White Hair.

Editor Kansas Farmer:—A gentleman from McPherson called on us lately to see our Shorthorns. He was looking for a bull calf without a white hair. He did not find one here. He went further to continue his search. He remarked that if he "should take a bull calf with a white mark upon him, his neighbors would say he was not a pure Shorthorn," or words to that effect. I am in hopes the fool-killer will not soon appear in his neighborhood, for if he should, the slaughter would be terrible. The spirit has moved me to hunt up something I once wrote upon the subject, soon after the World's Columbian Exposition, in 1893. I have found it, and here it is:

"THE BATTLE OF THE COLORS.

"Editor Kansas Farmer:—In the Farmer of September 27, I gave an account of the winners of grand sweepstakes prizes for bulls in the beef breeds at the great Columbian Exposition, showing that the winners in three of the four classes were white and roan Shorthorn bulls, two of them from Canada, but I neglected to state that the great champion bull of all the beef breeds, Young Abbottsburn, was bred in Canada, and, of course, the Canadians claim his victory as virtually their own. While there was only one premium to be awarded in each class, the judges assigned relative rank to all competitors, and as no animal not of outstanding excellence would be a competitor, it will be interesting to note the color and breeding of all Shorthorns in the contest. In class for 3 years and over, third place was assigned to Robbins' Gay Monarch (Shorthorn), a roan, bred by W. S. Marr, of Scotland. His sire was William of Orange (red), grandsire Athabasca (white), great-grand sire Journalist (red and white). Gay Monarch's dam was a roan, granddam red and white, great-granddam a roan.

"In 2-year-old class, Messrs. Potts' Chancellor (Shorthorn), was given fourth place. Color, red. Bred by Potts & Son, of Illinois. His sire was red. Dam was imported Lavender 47th (red). She was by Chancellor (red), out of Lavender 12th (roan), she by Count Bickerstaff 2d (roan).

"In yearling class, third place was won by H. F. Brown's Shorthorn, Fifer. Color, red. Bred in Illinois. Sire and dam both red. Grandsire was 7th Baronet of Linwood (red), bred, presumably, by Col. Harris, whose herd is of all the standard colors. Her granddam was a roan.

"To sum up: The winners in grand sweepstakes prizes in beef breeds were one Hereford and one white and two roan Shorthorn bulls, the three Shorthorns all bred in Canada, where the roans predominate, and if one color is prized above another, it is the roan. Of the other three Shorthorn bulls that were placed by the judges, one was an imported Scotch-bred roan, with a near white and roan ancestry, and two American-bred reds, one of which was out of an imported cow with a near roan ancestry, and the other with a Linwood-bred grandsire and a roan granddam. When Greek meets Greek (or breed meets breed), then comes the tug of war. In this contest, the greatest ever fought on American soil, if the breeder of exclusively red Shorthorn cattle can find a single crumb of comfort, I fail to see it.

"A KANSAS BREEDER."

I hope the above will be a benefit to

some ignorant people in the vicinity of McPherson—and a few other localities, where missionary work is greatly needed.

Dunlap, Kans.

D. P. NORTON.

Shorthorn Oattle Preferred.

Editor Kansas Farmer:—There is a general difference of opinion regarding the best breed of cattle for the farmer, but having a great deal of experience in live stock, I would like to suggest the Shorthorn. Your readers will probably ask "why." For the reason that they are very good milk and butter animals, and so far as health is concerned, there is nothing better, and when it comes to the beef department they stand without a peer.

The Jersey is good, in my opinion, for the rich man who wants a cow to run in his lot or near the barn, just for the purpose of cream, and then, if he wants to make a little butter, all good and well, but when she is done with this, what is she good for?—a canner and a bad one at that.

A steer that is raised from a Jersey cow is worth practically nothing so far as general purposes are concerned, for a steer with Jersey blood is of very little account.

The Holsteins are good for the milkman who wants to ship his milk to the city, regardless of cream. As for quantity, they are very good milkers. But the steers raised from Holsteins are neglected by the feeder and are almost unsalable in any market for beef purposes. Although there is a certain class of people who will buy an inferior grade of anything, they must go at very much lower prices, and the prices range about \$1 per 100 pounds less on a Holstein than for a Shorthorn.

The Herefords we must acknowledge to be the best rustlers in our country, and, in my judgment, they are the best for the plains, and would recommend them for the plains rather than any other breed.

The Polled Angus comes in along with the Hereford, but for a general-purpose animal we must recommend the Shorthorn.

Some suggest a herd of native cows and grade them up with a pure-bred Shorthorn bull, but, to me, this is like retrograding rather than advancing. The result of such a cross has long since been established and it would be a great waste of time to go over this ground again, but by taking good pedigreed cows and breeding them to a bull descending from a well-established milking strain, you will confirm my opinion that feeding and dairy quality cows can be united in one breed to a most remarkable degree in the Shorthorn. In fact, in the Shorthorn you have a good animal for milking purposes, and, when done with that, the best animal for beef on the market. The calves, whether heifers or bulls, bring the highest market price, and for feeding steers, nothing excels the Shorthorn.

Chicago, Ill.

JEROME.

Mites on Fowls and Stock.

Entomologist Agricultural College, Manhattan, Kans.:—Many through this part of the country are badly tormented by chicken mites. They are not alone on the fowls, but horses, cattle and some other kinds of stock carry loads of them. Now, what will we do? We want something to paint our stock and various parts of our premises with, and what shall it be?

Courtland, Kans. A. B. WARNER.

Answer.—The mite you refer to is the common chicken mite, which often infests the nests of poultry, as well as those of swallows and pigeons about barns and other adjoining buildings. When present in large numbers they frequently spread to the horses and other animals confined in the infested buildings. These insects have the peculiar habit of abandoning their hosts during the daytime and seeking shelter in neighboring crevices and parts of the building. Thus in infested chicken houses we find the mites generally congregated in numbers about the roosts and walls. When stock is attacked, the mites are often found about the stalls.

To combat the insect, prevent the poultry from entering the barns. Destroy their nests, as well as those of the pigeons and other birds nesting about the building. The chicken house should be thoroughly sprayed with pure kerosene, being applied with a spray-pump or atomizer. In using the pure kerosene, be sure that the building is thoroughly aired before introducing a light.

If the building is a tight one, fumigation with sulphur is effective. To prevent any accident from fire, float the metal vessel containing the burning sulphur in a tub of water. After several hours fumigation, thoroughly air the building before occupation.

In instances where the cattle are badly infested, apply to the infested parts kerosene emulsion diluted nine times. This may be applied with a sponge or spray-pump, and should be thoroughly rubbed in by hand. I would also recommend an application of kerosene and lard, using about

"A Word to the Wise is Sufficient."

But some stubborn people wait until "down sick" before trying to ward off illness or cure it. The wise recognize in the word "Hood's" assurance of health.

For all blood troubles, scrofula, pimples, as well as diseases of the kidneys, liver and bowels, Hood's Sarsaparilla is the effective and faultless cure.

Poor Blood.—"The doctor said there were not seven drops of good blood in my body. Hood's Sarsaparilla built me up and made me strong and well." SUSIE E. BROWN, 16 Astor Hill, Lynn, Mass.

Dyspepsia.—"We all use Hood's Sarsaparilla. It cured my brother-in-law and myself of dyspepsia. I owe my life to it." M. H. KIRK, 607 Franklin St., Philadelphia.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills: the non-irritating and only cathartic to take with Hood's Sarsaparilla.

one part of the former to three parts of the latter. This should be applied when warm and well rubbed in either by hand or a rag. It would be well to spray the stalls with pure kerosene, the same caution being observed in the use of the kerosene as stated above.

PERCIVAL J. PARROTT.

Hood Farm as an Object Lesson.

Prof. Charles W. Burkett, of the New Hampshire Agricultural College at Durham, with a class of eleven young men, paid a visit to Hood Farm on Thursday for the purpose of looking over the famous Jerseys and Berkshires. The class receives instruction in judging dairy cattle, using score-cards on which the several points of the animals are marked. Prof. Burkett and his pupils were shown the great World's Fair winner, Merry Maiden, also Costa Rica, her dam, and other great cows, and their several points of excellence as types of the dairy cow were pointed out. Merry Maiden's Son was exhibited, as was also Brown Bessie's Son and the younger son of Merry Maiden, a robust aristocrat 3 months old. Some of the great individuals in the herd of Berkshires were also examined.

Prof. Burkett is a graduate of the Ohio State University, and was for nearly five years assistant professor of agriculture at that institution, being associated with Prof. Thomas F. Hunt, known the world over as a judge of dairy cattle. Speaking of the Hood Farm herd of Jerseys, Prof. Burkett said that not until he saw Merry Maiden and Merry Maiden's Son had he ever seen animals that he could mark perfect. On these two animals he could not see a single point that could be regarded as faulty. In indicating the points of excellence about the great young Jersey bull, Merry Maiden's Son, he called the attention of his class to the symmetrical head and neck, soft skin, strong backbone which shows the nervous temperament of the dairy animal, and entire absence of coarseness, and said: "He is especially superb in meeting the ideal dairy bull. I could not score off a point." Brown Bessie's Son he pronounced the best butter bull he ever saw.

The Professor said Costa Rica, Merry Maiden and Signal's Lily Flagg are undoubtedly America's three greatest cows. The herd as a whole shows that the very highest skill and judgment have been exercised in breeding, and while it contains so much famous blood, the danger from close inbreeding or line-breeding has been entirely avoided. "The great curse of the dairy business to-day," said he, "is poor dairy stock, and Mr. Hood is a benefactor to the farmer in breeding such animals as those I have seen to-day."

Regarding the Berkshires, Prof. Burkett was almost equally enthusiastic, saying that without any question Duke III. of Hood Farm and Longfellow of Hood Farm rank with the best boars in the country, while the sows he saw are thoroughly typical Berkshires. He believes swine breeding has reached its highest perfection in America, and he had no hesitation in saying that the Hood Farm herd rivals the most famous in the country.

The Professor, in expressing his appreciation of these fine animals, said the visit to Hood Farm was a rare pleasure to himself and would have a wonderful educating influence upon the young men in his charge.—Lowell Daily Courier, March 24, 1899.

We can save you money, if you want most any paper or magazine, in connection with Kansas Farmer. Write for special club list.

A House for Brood Sows.

Editor Kansas Farmer:—In our correspondence we are often asked to give our advice as to what kind of a hog house to build. I do not claim that the kind of a hog house which I am just now completing is the best, but it suits me the best. The size of my hog barn is 20 by 80 feet, with a 4-foot hallway through the center. For 20 feet of its length the height is 14 feet to the square, with a loft overhead to store straw for bedding. The remaining 60 feet is 7 feet to the square. This gives eight brood-sow pens on each side. Two of the pens are 6 by 8 feet. Six pens are 8 by 8 feet, with an outside pen 8 by 16 feet to each inside pen, and a door and a window to each pen, with a swinging door or gate over each trough next to the hallway. A door goes into each pen from the hallway. The whole building is on a good stone foundation, 20 inches above the level of the ground. The outside pens are filled to the top of the foundation with a clay gravel, which hardens and keeps pens drained of water. A good shingle roof covers the entire building. Inside I have—or intend to have—a feed cooker next to the pump room, and four bins each 8 by 8 feet, and 8 feet deep, to hold different kinds of feed. Some I know are opposed to a large hog house, and say, where so many sows and their litters are kept in the same building, if at any time anything happens to a pig and it squeals it will set all of the sows in an uproar, and by the time it is all quiet several pigs will have been trampled to death. To a certain extent this is true. With a large hog house on this plan, I know that I cannot raise as large a per cent of pigs to each sow, but I can raise them better, with about one-fourth the work. When there are sixteen small hog houses scattered about, and the mud is knee-deep, it is quite a job to feed and water the scattered sows—much greater than when the feed and water are all inside, and you can do the work dry-shod in a very short time. I have never cooked feed for my hogs, and am only going to cook it for my sows that are in pig, as it seems to me the same is better for pregnant sows than any other, as my sows in the latter part of the winter, just before time to farrow, are apt to become costive unless slopped. This I don't like. Will others who have had experience with cooked feed for pregnant sows tell us, in the Kansas Farmer, about this? I am sure such an article would interest all hog raisers.

I forgot to state that all of the sleepers used in my log house are of oak, 2 by 6, laid two feet apart, and the flooring is all oak, 1 by 6, for the entire floor, as pine sleepers and pine flooring will only last a few years. Would give the cost of the entire building but the returns are not all in.

M. F. T.

Bull Calves for Southern Trade.

The cattle raisers of Texas and the South have for many years met with heavy losses from Texas fever by purchasing pure-bred bulls old enough for service from Northern breeders. To avoid this loss, they find that by buying the male calves and raising them in the South the loss becomes insignificant. This question is receiving considerable attention at the present time from the progressive cattle raisers of Texas. As an illustration of this fact, the Kansas Farmer is in receipt of a communication from the well-known Shorthorn breeder, D. P. Norton, Dunlap, Kans., who recently sold two bull calves to Maj. Harry Landa, of New Braunfels, Texas, who writes of his experience with them to Mr. C. W. Martin, of Decatur, Texas, as follows: "Referring to your esteemed inquiry of September 15, 1898, I bought two young bulls from D. P. Norton, Dunlap, Kans., which were the finest little fellows I ever saw. They were shipped to me when they were a little over 2 months old, and, in order to confer immunity from Texas fever, I raised them on the milk theory; that is, as soon as they arrived they were sent to one of our local dairymen, who fed them skim-milk until they were 5 months old, when I turned them loose on a meadow with a lot of other young bulls. Inasmuch as it is necessary to stint them as much as possible during the first summer, they have not developed as fully or as rapidly as home-bred cattle. This, however, was done purposely. Just as soon as we have a little cool weather I intend to push them forward on full feed and have them ready for service next spring. I am very well pleased with the bulls and they are not for sale. They are blocky little fellows and show their breeding. I find that Mr. Norton is one of the most conscientious shippers I ever saw; in fact, he seems to be a very painstaking man and gave considerable attention to the matter of freight and express rates and saved me \$10 on the last calf purchased. Taking it all in all, I am better pleased with his cattle than any I received last year, although I made numerous shipments. I

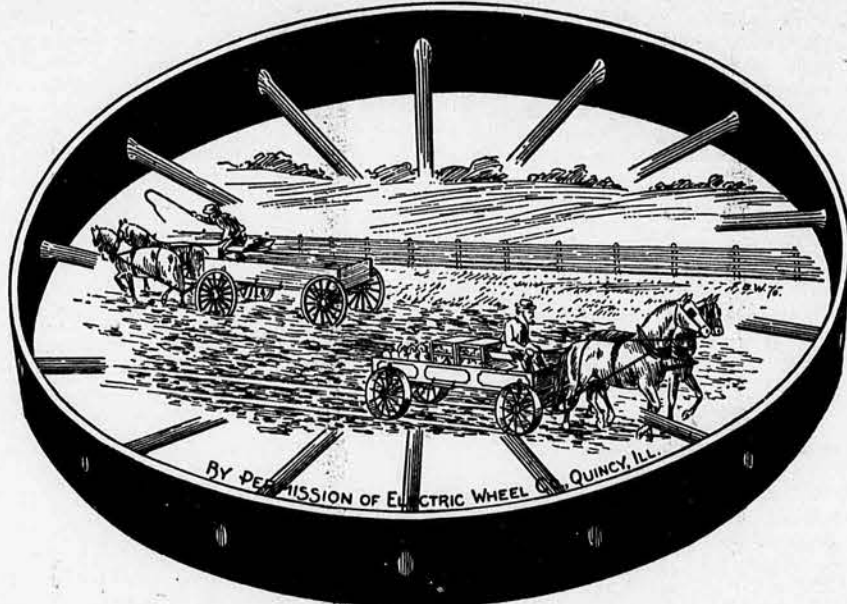
am spending considerable money and time experimenting in acclimating Northern cattle and have been very successful this year, losing only one head, although I lost a barn full of my finest stock by fire. I have no cattle for sale at the present time."

A Big Saving.

All those of our readers who are interested in any movement looking toward improvement of the public highway, will find food for reflection in what follows in this article.

It is estimated that the public roads of the United States aggregate 1,000,000 miles in length. The somewhat conservative estimates of Gen. Roy Stone, of the United States Department of Agriculture, places the total wagon transportation at approximately 500,000,000 tons. The average distance of haul is placed at eight miles, and the average cost of transporting one ton that distance is assumed to be \$2. This makes the total yearly cost of wagon freighting a round billion or dollars. All this is assuming that the roads of the country are in their present unimproved condition. Should the roads be put in first-class condition, and brought to something like the state of perfection in which we find them in foreign countries, it is claimed by those who are in a position to know that this same ton of freight—grain, hay or other farm product, as the case might be—could be transported the same distance at a cost of only 80 cents. On this basis, the enormous saving of \$600,000,000 a year in wagon transportation would result from perfect highways in every section of the country.

A better idea of the magnitude of this great saving may be drawn from the fact that the total annual value of all our farm products is something like \$3,000,000,000, and that the saving above referred to would



equal one-fifth, or 20 per cent. of that amount. The tax returns of the entire country show that we are spending \$2,000,000 a year for the maintenance of public highways. This means just the keeping of roads open and passable and does not include any permanent improvement. The maintenance and improvement of public highways, therefore, becomes a serious problem and one which should engage the attention of every thinking individual who is obliged to employ them in the conduct of his business.

A long step in the right direction, because it means permanent improvement, would be the general introduction of the modern broad-tired wagon wheels. This matter is appreciated to that extent that in some sections of the country the farmer who uses such wheels on his wagon has his highway tax greatly reduced in consideration of the fact. Broad tires do not cut up and rut the highway, but rather firm it, and frequent passing over the same ground has the same effect as passing a heavy roller over the surface. This effect is shown in part by the accompanying illustration, which shows a wagon equipped with the broad-tired Electric Steel Wheels made by the Electric Wheel Co., of Quincy, Ill. Much more of value along this line may be gleaned from their book, "Farm Savings." They will take pleasure in mailing you a copy upon request.

The service of the Nickel Plate Road to New York City and Boston is a demonstrated success. The demands of the traveling public are met by providing three peerless fast express trains in each direction daily. These trains are composed of modern first-class day coaches, elegant vestibuled sleeping cars between Chicago, New York and Boston, and unexcelled dining cars. Solid through trains between Chicago and New York have uniform colored porters in charge of day coaches, whose services are placed at the disposal of passengers. If you want to travel comfortably, economically and safely, see that your ticket is routed via the Nickel Plate Road.

THE TREASURE STATE.

BY WM. KENYON.

As Montana is a new State in point of settlement and organization, and its multitude of advantages but little known among the millions who occupy the Eastern States and who seldom reach out for reliable information of this boundless West, the story of the Treasure State will be of interest.

It is said that Montana is new, but a few years since it was a Territory; but a few years since it burgeoned from the wild conditions of the frontier to the more civilized occupation of mine and agricultural development. And it is true; but in those few years cities have been built, counties settled, great mines developed, the largest mineral reduction plants in the world established, along the banks of stream and river and on the bench lands semi-arid districts made to blossom and put forth a wealth of product under the beneficent influences of abundant irrigation, and hill-side and prairie covered with the fattest cattle and the most woolly sheep. The progress of civilization has come with leaps and bounds, and now, instead of picturesque gulch that inspired the poet's fancy, there is nestled a busy city; yet, of course, the picturesque scenery is all here, and, as the shadows of night are cast by the towering mountains, the scintillating shafts of arc and incandescent lights illumine the attractive scene, sharply outlining magnificent structures, displaying the handsome interior of business houses whose multitudinous shelves are laden with everything that need and cultured fancy can desire, so that now, after these few years, amid the rush of the teeming streets, the whir of the electric car, the hoarse whistle of the factory, smelter and mine, and in the glare of electrical brilliancy, one is led to sweep



one instant's misgiving about either herself or the prospective little one.

This matchless "Prescription" will give her exactly the kind of healthy vitality she needs and at the time she needs it most. It will give elastic endurance to the entire delicate organism involved in motherhood. It will make the coming of baby absolutely free from danger and nearly free from pain.

It will insure the baby's start in life by imparting, through its influence upon the mother, that sturdy infantile vigor which gladdens a mother's heart. It is the only medicine which can be implicitly relied upon for this purpose; and the only remedy expressly designed by an educated, experienced physician to give perfect health and strength to the delicate, special organism of women.

Mr. Joseph Ramsey, of Williams, Colleton Co., S. C., writes: "I have been using your medicines for some time and am happy to say that they have done all that you claim for them. I think they have no equal in the world. I would advise all women while in a delicate state to use Dr. Pierce's Favorite Prescription. It shortens the time of birth and makes the labor easier. My wife is the mother of five children and she suffered almost death in the birth of them until this last one; the time of birth was short, and labor easy, from the use of Dr. Pierce's Favorite Prescription."

Dr. Pierce's Common Sense Medical Adviser used to sell for \$1.50, now it is free. It tells all about the home-treatment of ordinary diseases. Several chapters are devoted to the diseases of women. For a paper-covered copy send 21 one-cent stamps, to cover cost of mailing only, to the World's Dispensary Medical Association, Buffalo, N. Y.: Cloth binding, 31 stamps. "Favorite Prescription" can be obtained in any good medicine store.

of Milk River; in 1846 Alexander Culbertson built Fort Benton, and on the 2d of July, 1860, the steamboat Chippewa reached that point and established it as the head of navigation of the Missouri. During this period civilizing influences had been reaching out in other directions, Father DeSmet having built St. Mary's Mission at what is now Stevensville, Ravalli County. To Father DeSmet must be given the credit of having planted the first wheat field, of sowing the seed of agricultural industry that has so wonderfully multiplied and filled the land with plenty. In 1845 the same energetic frontiersman built the St. Ignatius Mission, founding a school for both girls and boys. So, with this short rehearsal, we have history of the laying of the corner-stone of the institutions of religion, education, agriculture and commerce, and with this period is treasured in the archives of frontier memory the unwritten history of many a hero.

From this period until very recent years the State made very slow progress along the paths of civilization and development. For years the great prairies and mountain fastnesses were the haunts of roving bands of Indians, an occasional hunter and trapper making surreptitious incursions into the country, tempted to brave the dangers by the abundant game that occupied the territory from the Missouri to the mountains. The area of arable lands is greater than that of New York, Pennsylvania, Massachusetts, Connecticut, Rhode Island, New Hampshire, New Jersey, Delaware, and Maryland, all combined. Also larger than New York and the six New England States combined. The State is bounded on the east by the Dakotas, on the south by Wyoming and the Yellowstone National Park, on the west by Idaho, and on the north by the provinces of Alberta and Assiniboia, Canada.

LAY OF THE LAND.

The portion of the State embraced in the counties of Valley, Dawson, Custer, Yellowstone, Fergus, Choteau, and the greater part of Cascade and Teton is a gentle undulating prairie, except in those parts of the counties lying near the foothills of the mountains, where the surface is more hilly, being cut by the numerous streams that find their rise in the mountain gulches and the draws from the deep river and creek beds. A portion of Teton County is mountainous and the southern part of Cascade County lies in the Belt range, but as these are rich in deposits of silver, copper, gold, and other metals, their presence is not objected to. The other counties of the State are mountainous, though there are in all of them broad valleys and basins that afford thousands of square miles of fertile soil and opportunities for the agri-

MONTANA DISCOVERED.

But while Montana is new, as has been said, yet its period of discovery dates back to 1742, when Sieur de la Verandrye and his sons camped at the foot of the towering mountains of the Rockies and gathered inspiration from the sunlit flush of the snow-capped peaks and received vigor from the virgin breezes of the cleft and pass. But from that date to within the memory of the living, the great territory and all its stored and hidden treasure was in the possession of France or Spain and little heed was paid to the gems it held. In 1803 the great Napoleon was short of money and he bargained the rich territory, together with much more, to the United States for something over twenty-seven and a quarter million dollars, parting with a magnificent birthright for a mere mess of pottage. The first exploration of the country, made after it became a possession of the United States, was by a party under Captains Merriwether, Lewis and Clark, sent out in 1804 by President Jefferson. In 1805 this party traveled what is now the State of Montana, east and west, and the next year returned over the same route, making a cursory examination and giving to the public the first information of definite character regarding what was destined to be the richest of the sisterhood of States.

SETTLED.

Following this superficial knowledge of the country, Emanuel Liza, in 1809, established a trading post on the Yellowstone. Then, in 1835, the steamboat Assiniboin came up the Missouri to Fort Buford and ascended the Yellowstone some sixty miles. In 1827 the American Fur Company established a post on the Missouri at the mouth

culturist and stock raiser that are not equaled in any other State in the Union. While the counties first mentioned have but little timber, these mountainous counties possess an abundance and great variety of timber, an item that fully compensates for the more restricted agricultural acreage. The main range of Rocky Mountains runs northwest and southeast through the State, and from their snow-capped peaks and riven sides flow the thousands of streams that make it the best watered State of the Western country. The general elevation of this range at the crest is not over 6,500 feet, but her lofty peaks reach heavenward from 9,000 to 11,500 feet, an altitude at which the snows of all centuries have accumulated, and the daring climber may look down upon the clouds and the storm. Beside the main range, there are the Belt and Highwood ranges, the Coeur d'Alene, Bitter Root, Tobacco Root, Bear Paw, Crazy, Little Belt, Little Rockies, and the Big Snowy Mountains, all spurs of the main range with the exception of a couple of small isolated groups. The two largest or most important rivers of the State are the Missouri and Yellowstone, the former finding its source in the united waters of mountain streams in Madison, the most southerly county in the State, and there taking an erratic course north to the center of Choteau County, within thirty-three miles of the Canadian border, when it turns and runs almost directly east to the east boundary of the State, while the Yellowstone River has its source in the lake of its name in the National Park and runs through the State in a northeasterly direction to its confluence with the Missouri at Fort Buford, just across the eastern border of the State, in North Dakota, and fifty miles south of Canada. These rivers are navigable for hundreds of miles, and during the earlier period of the State's development, before the advent of the trans-continental lines that now afford the most ample means of transportation, they took a prominent part in the commerce and business of the State. The Columbia River and its thousands of tributaries traverse the western part of the State and a loop of the Kootenay, hundreds of miles in length, runs through the northwestern part of the State. Added to these are dozens of rivers of more or less importance and thousands of smaller streams, all contributing a proportionate share to the agricultural abilities of the State. While Montana is not a State of lakes, still it has some of the most beautiful inland gems, the most prominent of which is the Flathead Lake in the northwestern quarter of the State. This lake is 27 miles in length and has an average width of 12 miles. It is surrounded by mountainous timber lands and rich mineral districts, is navigable, together with its river outlet of the same name, and plays a prominent part in the commerce of that section. Montana is artistic and grand in its scenic attractions, incomparably rich in the mineral deposits of the mountains that give its grandeur of beauty, and the rich soil of every hill, valley, and dale is abundantly prolific.

CLIMATE.

And to all these lavish gifts from the liberal hand of nature, the most healthful and exhilarating climate and the abundance of purest water must be added, and with these numbers of thermal springs which are impregnated with many healing properties. There are no fogs, no malaria in Montana, and contagious and infectious diseases are rare, and when manifested prove to have come from the infection of less favored States, but here yield readily to professional treatment. The winter season is not one of continued cold. The frigid breezes of Canada, when directed over the State, will send the thermometer down as low as 20 degrees below, and in some parts to over 51 degrees below, but these cold periods are not frequent, and are of short duration, as the prevailing winds of winter are the soft Chinook or Pacific winds that dissipate the snow and bring the balmy atmosphere and tinge of autumn, and the degree of cold mentioned is not felt as severely as is 10 degrees below in Kansas. Except upon the plains of the extreme eastern border of the State, the blizzard is unknown, and the cyclone and tornado are not experienced. Great herds of cattle and flocks of sheep feed throughout the winter on every bench and prairie, and are given neither shelter nor attention. The nourishing properties that remain in the grass and sustain the stock during the winter months is due to the fact that before the grass is ripened the Chinook winds cure it, turning it into standing hay instead of having the frost drive the nutriment into the roots, leaving dead and substanceless grass. This, together with the salubrity of the climate, is the secret of the success of Montana stock ranges. Except in the midst of the mountain ranges and at a considerable altitude, the snowfall is light, seldom covering the surface at a single precipitation to a

depth of more than a few inches. The winters of Montana are capricious, but they are sunlit, warm, and pleasant, and the occasional cold snap but adds vigor to prevailing energies. The spring, the summer, and the fall are all enjoyable seasons, and, though in midsummer, when the sun is overhead, the temperature rises to an uncomfortable point, as the sun dips below the mountains the cool air of the Rockies displaces the heated atmosphere of the day, leaving the evening and night refreshing and delightfully restful. Montana does not aspire to be a health resort. Its people are contented to live and die here, and when they go to other States that claim especial climatic advantages they invariably return, more than satisfied to remain. This is the land of sunshine, where the sun shines a hundred days in every year and the other days are but dimly clouded. In summer and winter the atmosphere is dry and clear and unequalled for its vigorous healthfulness. Consumption never develops, and, when brought here in its incipency, can be invariably cured.

LANDS AND IRRIGATION.

Though there are acres in the State that are classed as arid, yet there are thousands of square miles that receive an abundant precipitation of moisture, these lands lying particularly in Cascade, Gallatin, Missoula, Flathead, and Ravalli, but in all the counties bordering the mountains the lowlands of the foothills receive sufficient rain. The other agricultural lands of the State, with the exception of low river bottom lands, whose subsoil is moistened continually with the water of the river, require irrigation, but when placed under water produce with wonderful and unfailing abundance. As an inducement to the reclamation and settlement of these lands, Congress, in 1894, passed the Carey desert land act, giving the State title to one million acres of arid lands, title to be passed when the State should reclaim the lands. In 1895 the State legislature formally accepted the offer of the General Government and the following session of the legislature passed an arid land act, creating an irrigation commission and providing means for securing funds for the reclamation of the entire acreage offered. This commission has made commendable progress. Until within the past three or four years irrigation has been confined to diverting water from the rivers and lesser streams over the contiguous bottom lands, but now there are a number of irrigating canals that water considerable districts of the higher lands, notable among which are the Minnesota & Iron Land Improvement Company's canal in the vicinity of Billings; the Crown Butte, with water taken out of Sun River, west of Great Falls; the Dearborn Canal, in Lewis and Clark County, one of the first canals of any importance in the State; the Cascade Land Company's canal, north of Great Falls; the Miles City Canal, in the neighborhood of the city of that name; the Manhattan Canal, in the Gallatin Valley; the West Gallatin Canal, also in Gallatin County; the Bitter Root Canal, in Ravalli County, and the Conrad Brothers' canal, in Teton County, a new project upon which work is being pushed. When this canal is completed it will place 50,000 acres in condition for cultivation. During past years there has been very little land fenced, but of late years the farmers have been enclosing their holdings. The foothills and high ranges, however, are yet and always will remain open and free for the stock of every farmer and rancher to range upon.

PRODUCTS OF THE FARM.

The products of the farm are the same as those of the Middle States, but the yield, especially in the cereals, is much more abundant. Grasses grow luxuriantly and the yield of hay from irrigated lands is enormous. The more common crops are wheat, oats, barley, rye, and buckwheat. Flax is a sure and abundant crop, but there is little home demand for it, and, as the market is so distant, little attention has been given to its culture. This will not become an important product of the farm until a linseed mill is established to consume the product. There is an exceptional opening for the profitable investment of capital in a Montana linseed mill. Vegetable and root crops are abundant and smaller fruits are grown in the greatest abundance. In Missoula, Flathead, and Ravalli counties fruit growing is nearing the front rank of importance, the apples, plums, peaches, cherries, strawberries, and other fruits of these districts being noted for their excellence of flavor and preservative qualities. A special advantage to all the agricultural interests of Montana is that the home demand for farm products of every nature far exceeds the supply, insuring a cash market and high prices. As the greater part of the population of the State will be for all time occupied in mining and attendant industries, the condition of the market for agricultural products as noted will always remain. There are sev-

eral ways in which the intending settler may obtain lands. First, by locating on public lands in the districts mentioned where irrigation is not necessary. Second, by locating on public lands that require irrigation, but so located that water appropriation may be made and the water diverted without incurring too great an investment. Third, by locating and acquiring title to lands that will be irrigated under the State arid land commission act. Fourth, by leasing or purchasing lands that are embraced in private canal systems. Fifth, by purchasing improved lands carrying water rights. A brief synopsis of the laws governing the location of lands may be of interest to the investigator of Montana's agricultural advantages, and is as follows:

MAY HOMESTEAD.

A homestead may be secured by any person who is the head of a family or who has arrived at the age of 21 years and is a citizen of the United States, or has filed his declaration of intention to become such, and who is not the proprietor of more than 160 acres of land in any State or Territory, and he is entitled to one-quarter section—160 acres—or less quantity. He must make affidavit that he is entitled to the privileges of the homestead act and that the entry is made for his exclusive use and benefit and for actual settlement and cultivation, and he must pay the legal fee and that part of the commissions required, as follows: Fee for 160 acres \$10, commission \$4 to \$12; fee for 80 acres \$5, commission \$2 to \$6. Within six months from date of settlement he must take up his residence upon the land and reside thereupon and cultivate the same for five years continuously. At the expiration of this period, or within two years thereafter, proof of residence and cultivation must be established by four witnesses. Final proof cannot be made until the expiration of five years from date of settlement, and must be made in seven years. The government recognizes no sale of a homestead claim. After the expiration of fourteen months from date of entry the law allows the homesteader to secure title to the tract if so desired by paying for it in cash and making proof of settlement, residence, and cultivation for that period. The law allows only one homestead privilege to any one person, but under act of March 2, 1889, section 2 provides in certain cases, when the first homestead was necessarily abandoned, that a second homestead may be made. An unmarried woman of age can take the benefit of the homestead law. If she marries before she has acquired the title and continues her residence on her claim she can proceed to prove up at the proper time. All the sons and daughters of a family who are of age are entitled to take up land under the United States land laws. A soldier who has served over ninety days in the army can obtain 160 acres under the same rules as any other citizen, only they make the reduction of the number of days they have served in the army or navy, but such time must not exceed four years. His widow can take advantage of the above. In case of the death of the soldier, his widow, if unmarried, or in case of her death or marriage, then his minor orphan children, by a guardian duly appointed and officially credited at the Department of the Interior, shall be entitled to all the benefits given to soldiers under the homestead laws. Under the desert land act, any citizen of the United States, or persons who have declared their intentions to become such, and who are also residents of the State or Territory in which the land sought is situated, may file a declaration under oath with the register and receiver of the land districts in which any desert land is situated, that he intends to reclaim a tract of desert land not exceeding 320 acres by conducting water upon the same within four years. At the time of filing this declaration a fee of 25 cents for each acre of land proposed to be so reclaimed must be paid. At the time of making the declaration the land taken up under this act must be particularly described, if surveyed, or, if unsurveyed, must be described as nearly as possible. The party shall also file a map of said land, which shall be sufficient to show said land, showing the mode of contemplated irrigation, which shall be sufficient to thoroughly irrigate and reclaim said land, and prepare it to raise ordinary agricultural crops, and shall also show the source of the water to be used for irrigation and reclamation. At any time within four years, upon making satisfactory proof to the register and receiver of the reclamation of said land, and the expenditure thereon for improvements of \$1 an acre each year for three years, and proof of the cultivation of one-eighth of the land, and upon the payment of the additional sum of \$1 per acre, a patent shall be issued. A claimant must also file with the register during each of said three years proof by the affidavits of two or more creditable witnesses that he has made such expenditures. He may, how-



ever, prove up earlier, whenever he can make the required proof of reclamation, cultivation, and expenditure to the aggregate extent of \$3 per acre. All lands, exclusive of timber and mineral lands, which will not without irrigation produce some crop are deemed desert lands. Residence on the land is not required. Under the timber and stone act any citizen of the United States, or one who has declared his intention, can acquire not to exceed 160 acres, which must be chiefly valuable for timber or stone, containing no valuable deposits of gold or silver, copper, coal or cinnabar. Applicant is required to file sworn statement with the register and receiver that he has made no prior application, to designate the tract required by legal subdivisions, setting forth its character as above, and that it is for applicant's own use and benefit. Such application will be published sixty days, when the applicant files further proof of the character of the land, paying \$2.50 per acre therefor. Married women can purchase in Montana. The United States land offices are located at Miles City, Custer County; Lewiston, Fergus County; Bozeman, Gallatin County; Helena, Lewis and Clark County; Missoula, Missoula County, and Kalispell, Flathead County. The homestead affidavit can be made before the clerk of the district court at any county seat, or before the United States Commissioner in the State, and the trip to the land office be saved.

FUEL.

The fuel supply of Montana is abundant. Within her borders there are over twelve million acres of timber land, not counting the disconnected tracts and those of commercial value in the mountains and mineral districts, nature having appreciated the necessity in all mining operations of an abundance of heavy timber. This industry uses immense quantities of timber every year. The coal measures of the State are the most extensive in the West, beds of an excellent quality of bituminous coal having been developed in nineteen counties of the State. In several of the counties, notably Cascade, Carbon, Park, and Gallatin, some very extensive mines have been developed, their present daily output aggregating many thousand tons. As an indication of the magnitude of the coal bed, it is estimated that in the fields of San Coulee, in Cascade County, there are six million tons to the square mile, and as the coal area of the State embraces thousands upon thousands of square miles, it is apparent that nature provided the State with fuel for all ages to come. In Missoula there has been found a bed of coal 35 feet thick, and at Columbia Falls, Flathead County, it is said to be 50 feet thick. What a body of coal! It is wonderful!

MINING PRODUCTS.

Attention was first attracted to the minerals of Montana through the discovery of gold made in what is now Deer Lodge County by a Red River half-breed named Finley, in 1852. The creek upon which the precious metal was discovered was named Gold Creek, and bears that name now. Six years later other gold discoveries were made in the same neighborhood by the Granville-Stuart party. In 1862 the Stuart-Anderson party developed Placer claim, near the present location of the town Pioneer. The rich returns of their mines were incentives to further prospective discovery and the development of the mines of Montana. Following the opening of the pioneer placer claims came the discovery of rich ground at Bannock, Alder, Ophir, Last Chance—now the location of the city of Helena, where some sixty million dollars of the precious metal was washed out—Confederate, Pilgrim Bar, Silver Bow, Bear, Elk, Cave, Lincoln, Cedar Creek, and several hundred other places, all of which produced lavishly of the coveted metal and in the course of a few years added hundreds of millions of dollars to the gold supply of the world. During this period of placer mining, discoveries of other metals that are abundant in the mineral districts were made, but there was little development of the deposits until the advent of transportation facilities. Allen and Arnold are credited with reducing the first gold quartz in Montana

in a mill erected at Bannock, Beaverhead County, in 1862-63. It was home-made, the lumber and iron being obtained from dismantled wagons that had been brought across the plains. It had six stamps of 400 pounds each and a shaft was sunk on what is now the Parrot mine, and during the fall of the same year a furnace was established. The wealth of copper deposits at Butte was first recognized officially by the United States Commissioner of Mines and Statistics, Raymond, in his report of 1870. From this date to the present time the development of copper deposits has been rapid and at this writing the State contains not only the richest copper mines in the world, but also the largest and most modern reduction plants, employing thousands of men and turning out millions of dollars worth of refined copper annually.

INVITING FIELD.

Montana presents an inviting field for everybody of whatever calling who has the energy and the earnestness to successfully take advantage of the multiplicity of resources to which attention has been briefly called. Montana was romantic in its history, it is industrially great in its present, and yet her manifold resources have scarcely been touched. This is the story of the Treasure State.

Gossip About Stock.

At the sale of H. W. Elliott's Aberdeen-Angus cattle at the Kansas City stock yards sale pavilion, last Thursday, the 60 head made a general average of \$199.41. Twenty-one bulls averaged \$187.38, and 30 heifers averaged \$205.89. This was the first big sale of this breed in Kansas City since 1885.

R. S. Cook, Wichita, Kans., reports that the arriving litters of Poland-China pigs are very large and well marked. He also notes the fact that he has a few choice King Hadley males ready for service, which he desires to sell. Also a few extra choice gilts, bred to that great breeder, Banner Boy 2d.

D. Trott, proprietor of the Ash Grove Herd of Poland-China and Duroc-Jersey swine, Abilene, Kans., sends very encouraging reports about the brisk business of recent sales, and he is especially pleased at the satisfactory letters he is receiving from his customers, who order pigs by mail, and notes the fact that he can still fill orders in satisfactory manner.

J. H. Sayles & Son, of Norcat, write cheerfully of their section of the State, and incidentally mention that while they have lost a good many early pigs, they have 30 sows bred for April and May and have also 30 fall gilts to breed for fall litters to as fine Poland-China boars as live. Poland-Chinas are not likely to fail in northwest Kansas under these circumstances.

The demand for catalogues of the joint sale of Shorthorns, to be held at Kansas City, Mo., on April 27, by Messrs. Glick, McCoy and Powell, has been very large and indicates a lively interest by the breeders when such representative cattle are offered. It is certainly a splendid chance to get good breeding and good individuals. The Shorthorn breeders now realize that their favorites are on the up-grade and fancier prices will soon prevail when the business warms up more.

It requires a whole page of the Kansas Farmer this week to tell the story and make the last call to the Sunny Slope sale of Herefords, to be held at Kansas City, Mo., on Tuesday, April 18, 1899. Mr. Stannard, the present owner, has catalogued 50 bulls and 50 females that are exceedingly desirable from a breeder's standpoint. Get familiar with your catalogue and note what a grand array of white-faces Mr. Stannard puts up as his first public offering from the consolidated Sunrise and Sunny Slope herds.

The public sale of registered Shorthorn cattle, as announced by the Gifford Brothers, of Milford, Kas., took place last Tuesday at Manhattan, Kans. When the well-known auctioneer, Col. S. A. Sawyer, opened the sale at 2 o'clock p. m., about 300 prospective buyers and onlookers were in attendance from Kansas and Nebraska. While the prices realized were not sensational ones, yet enough was had to demonstrate that there is money in well-bred "reds and roans." The Messrs. Gifford were pleased at the result and stated that the sale was an educational one rather than a money-maker. During the early 80's a section of



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country embracing several counties along and contiguous to the Blue River Valley was noted for its extra good beef cattle, and the Giffords are ambitious to have it so once more. The buyers were mainly Kansans, though a few of the offerings went to Nebraska. Sixteen of the older bulls averaged \$101, and six younger ones, calves, brought an average of \$53.20. The 11 females averaged \$82.27. The cattle had not been fitted up to the usual sale-day condition, yet the prices brought indicates that the farmer is on the way for better beef cattle, as he seems willing to pay \$100 for a good bull rather than \$50 for an ordinary animal.

If the reader be interested in registered Herefords or is in quest of good cattle, he will find, if he takes a day off and visits Messrs. Scott & March, at Belton, Cass County, Missouri, that 105 head, consisting of 43 serviceable bulls and 62 heifers, have been selected and catalogued for the coming public sale that will be held on Monday, April 24, 1899. The foundation animals were mainly imported ones and since importation crossed with Lord Wilton. The Grove 3d and Anxiety 4th representatives. This, again, has been commingled with the blood of Dictator, Imp. Chesterfield, and Fortune. Thus the reader will have gained a glimpse of the breeding of the offerings. It may not be amiss to state that several of those catalogued to go into the sale are the get of Hesiod 29 66304, the undefeated bull in the principal State fair show rings during 1896 and 1897. The prospective buyer can surely find one to suit him among the 43 head that will be sold. There are far too many to be individualized in a stock gossip note, but the reader can rest assured that the bulls are larger and more growthy than those that went from the farm last year. To illustrate this feature, the bull Frisco (Vol. XXI), lot 79, a son of Hesiod 29th, on April 4, the day that he was 12 months old, weighed 965 pounds. The facts are that the offering, collectively, has had better care, hence the animals are better grown out. Sixty-two heifers, 33 of which the Messrs. Scott & March say in their catalogue announcement are bred and they have every reason to believe are safe in calf. There are ten of them bred to Imp. Victor 76070, 10 to Imp. Roderic 80155, 4 to Hesiod 29th 66304, 2 to Monitor 58276, and 7 to Tribune 78558. If the reader will consult the tabulated pedigrees of the above bulls and consider the commingling of Anxiety 4th blood in these heifers, the writer is of the opinion that the verdict can not be otherwise than that these females are a very desirable lot. The 30 yearling heifers are the tops selected out of 80 head. Both 2-year-olds and yearlings, like the bulls, are larger, age for age, than were those sold last year, the 2-year-olds averaging 200 pounds heavier. This is easily accounted for, as better care and treatment have been given them. A very commendable feature concerning the cattle bred here is that the reports from those that have bought during the past three years are very satisfactory, the cattle having done well in the hands of their new masters. For further information consult the announcement elsewhere in this issue and write for a copy of the sale catalogue.

Health for 10 cents. Cascarets make the bowels and kidneys act naturally, destroy microbes, cure headache, biliousness and constipation. All druggists.

\$28.85. \$28.85.

The Union Pacific has made the greatly reduced rate of \$28.85 to Portland and other Puget Sound points; also to Helena and Montana points, Salt Lake City and Utah points.

For tickets and full information call on F. A. Lewis, City Ticket Agent, or J. C. Fulton, Depot Agent, Topeka.



DON'T SET HENS The Same Old Way.

THE NAT'L HEN INCUBATOR beats the old plan 3 to 1. 100-Egg Hatcher \$2. Cheap in price but a mighty money maker. Send for cat'g telling how to get one free. Agents wanted.

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SAVE YOUR FRUIT

By spraying with the "Numan" Improved (pat.) Fruit Tree Sprayer. Has proven the best. Wears longer, works easier and has more uses. Twelve years a success. 240,000 in use. Regular price \$5. First purchaser in each district where we have no agency gets reduced price, \$3 (pump all complete with charges prepaid), if he will agree to advertise it amongst his neighbors. Full satisfaction guaranteed or money refunded. Order at once. Our "Valuable Spraying Receipts" and circulars are free. Act to-day.

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Prof. Weltmer's wonderful method of healing is without question the most important discovery of modern times. By this method he is relieving the sick and suffering all over this land. It makes no difference what your disease may be, nor of how long standing, there is a positive and permanent cure in the "Weltmer Method." It cures when all else fails, and it is not too late even at the eleventh hour. Hundreds gladly testify to his wonderful ability. Mrs. J. C. Sutton, of Big Springs, Tex., suffered ten years with constipation, general debility and a complication of other ailments. She tried all remedies without relief. Was permanently cured in one week by this great healer. Charles F. Strohm, President Nevada (Mo.) Water Works Co., had a cystic tumor on his neck for three years. He tried fifteen doctors, all of whom pronounced his case incurable. Prof. Weltmer permanently cured him in a few days. Prof. Weltmer also possesses the remarkable ability to cure people at a distance, and performs cures by this method that are simply astounding. No medicines or appliances whatever are used. This is the only method of treatment that will restore lost vitality and kindred ailments. A copy of the Magnetic Journal, a forty-page illustrated magazine, giving a list of the most miraculous cures on record, will be sent free to any sufferer.

TEACHES HIS ART TO OTHERS. Prof. Weltmer teaches his wonderful art to others, and it is the grandest and best paying profession of the age. Many of his students are making \$10 to \$50 per day. Taught by mail or personal instructions. Address, Prof. S. A. Weltmer, Nevada, Mo., The American School of Magnetic Healing.

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THE STRAY LIST.

FOR WEEK ENDING APRIL 6, 1899.

Reno County—W. S. Yeager, Clerk.

PONY—Taken up by A. I. Swen in Valley tp. (P. O. Burton), February 25, 1898, one bay pony mare, weight 750 pounds, diamond on left shoulder: valued at \$15.

Pottawatomie County—A. P. Scritchfield, Clerk.

STEER—Taken up by F. Eisenbeis in Clear Creek tp. (P. O. Blaine), March 2, 1899, one roan steer, four feet high, piece cut out under both ears, and "J" branded on left hip: valued at \$15.

FOR WEEK ENDING APRIL 13, 1899.

Lyon County—H. E. Peach, Clerk.

MARE—Taken up by E. E. Williams in Americus tp. (P. O. Emporia), one light bay mare, white left hind foot, white in forehead.



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Overstock; must be cleared out.
'98 Models \$9 to \$16.
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MONTREAL,
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Yellow Jerseys, per bu.\$1.00
Yellow Nansemonds, per bu. 1.00
Red Nansemonds, per bu. 1.10
Southern Queen, per bu. 1.10
Vineless, best of all, per bu. 1.25

ONION SETS.

Yellow Bottom Onion Sets, per bu.\$2.25
Red Bottom Onion Sets, per bu. 2.25
No charge for package or drayage. Ten cents extra on each order for less than one bushel.

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The Home Circle.

THE HOUSEHOLD.

Sometimes in dreams I see
The houses of the Lord, not built with
hands:
Each mansion that in God's own city
stands,
Empty and waiting,
Lifts up its everlasting doors for me.

And some of these are celled
With flaming swords, as for some hero's
home;
And some for weary souls that long did
roam
Are soft becushioned,
And some are set in green and lilled field.

But fairest of them all
Are those great houses whereout laugh-
ing eyes
From nursery windows look, and sounds
arise
Of little voices
Holding within eternal festival;

And flying glimpses gleam
Of nut-brown locks, of golden curly head,
Of innocent floweret faces, hands out-
spread
In joyous welcome,
And little feet that dance across my dream;

And rounded rosy limbs
Through cloudy curtains glance and dis-
appear;
And tiny songs, and prattle sweet to
hear,
And lovely laughter,
Ring softly out, and baby mirth o'erbrims.

And there at last I know
The barren woman shall keep house some
day,
A joyful mother of children; and shall
say
Sobbing with gladness,
"Past all my hopes, why hast Thou blessed
me so?" —Pall Mall Gazette.

THE RIGHT-OF-WAY.

The president of the Great Southwestern Railway Company tapped impatiently on the table. The other members of the board kept a constrained silence, and the second vice president, in charge of extension, gazed longingly at a plebeian sign of "beer" across the street and seven stories below. It was at him the president was directing his remarks.

"It is ridiculous," he said, "that we should be blocked by the obstinacy of one man in our endeavor to build this branch line. A casual observer would certainly suppose that the executive department of the company had sufficient brains to overcome such an obstacle as this. The situation is simple enough. Here is our road and here are the mountains in which the new strikes have been made. To develop them machinery must be hauled in and ore hauled out. That means a branch line. One man owns all the land—mesa and foothills—between the railroad and the mines. We must cross his ranch, but he declines to sell a right-of-way. He is a pioneer and is bull-headed. He says the country was getting along without railroads when he came there, and that it can get along without them still. We must overcome his objections—but how? We offer to pay him well for all damage done, and he replies by suggesting that our grading outfit bring along one flat-car of coffins. He is certainly a contrary individual. Have I stated the case correctly?"

"You have," said the second vice president, removing his gaze from the sign below to the map on the table, "with one exception. Colonel Snortally is not an individual; he is a community, and more; he is a corporation, because he owns forty thousand acres of land; he is a political party, because he employs more cow-punchers than you can ordinarily get together at a country dance; he is a law-giver, because of his wealth and the taxes he pays; he is a law-enforcer so far as he sees fit, because he can shoot straight and has men with him who can do likewise; he is a society, because his daughter, whom I have had the pleasure of meeting, is the most beautiful young woman in the Territory. What can a poor, ordinary railroad company do against such a combination? We cannot condemn until we can get a right-of-way from the board of supervisors, and he is the county government."

The president mopped his brow. His gaze wandered across the street and down seven stories to a sign. He arose and picked up his silk hat.

"All right," he said. "We must get across that ranch some way."

A cloud of dust was coming down the road. Theophilus Smith carefully watched it for a moment, and then turned Bucyrus among the boulders by the roadside. Bucyrus was his mule. Just ahead of the dust cloud appeared a frantic horse, tearing wildly down the road toward him. Now and then he could catch glimpses of a swaying buckboard and a young woman clinging to the seat. Theophilus, who was a careful young man, put his brier-wood pipe in the inside pocket of his jacket, drew his sombrero down tightly upon his head, and then disinterestedly watched the approaching runaway. As the dust cloud and its

contents passed, Bucyrus wheeled, and then, too, went flying down the road. Through sand and over boulders they went, horse, buckboard, mule and dust.

"Excuse me, miss," said Theophilus, as he came alongside and reached for the bit of the running horse; "pleasant day, is it not?"

He gripped the bridle hard, pulled sideways and backward, and Bucyrus cheerfully sat down to the occasion and slid. There was more dust, and then they stopped.

Theophilus rubbed some of the dirt from his eyes and raised his sombrero to the girl in the buckboard. She looked at him with wide open blue eyes.

"I am very sorry," he said, politely, "to stop you so rudely merely to ask you a question, but will you kindly pardon me and inform me where Colonel Snortally lives?"

The young woman's lip quivered, and, instead of replying, she burst into tears. Then, recovering from her embarrassment and fright, she drew a deep breath and smiled faintly, and, as the color came back to her cheeks, she answered:

"I am the Colonel's daughter, and I will gladly show you the way home."

Theophilus spoke a few words to the still restless horse, handed the reins up to the young woman, and led Bucyrus to the rear of the buckboard, to which he tied him.

"I suppose," said the Colonel's daughter, as they started up the road, "that I should thank you for saving my life and my father's best buckboard. Really, I thank you very much. If you will stop at the house for dinner I will try and show my gratitude with some tortillas and frijoles of my own cooking."

"The debt of gratitude is on my side and not yours," Theophilus answered. "I am in search of work as a cowboy, and I cannot but hope that your acquaintance is an auspicious omen."

"Cowboys don't talk like that," she said, a little sharply, eyeing him in surprise. "You're not fitted for a range man, anyway. Cattlemen don't ride mules. Papa says there is only one animal more ridiculous, stupid and idiotic than a mule, and that is the man who rides one."

"But your father doesn't know Bucyrus," "Nor his owner," she rejoined, laughing.

They stopped in front of a long, low adobe ranch house, with deep-set windows and doors. Ivy circled the windows and climbed to the eaves. A few firs, some tall blue gums and a dozen palms stood in the front yard. The house was set far back, and the veranda that surrounded it was half hidden in the green of the orange trees. A stream from the mountains ran through the orchard in the rear, its course marked by a line of cottonwoods and willows that broke the monotony of the otherwise treeless mesa. On the other side of the creek, and at some distance from the house, were the corrals and stables of the ranch.

The young woman stepped lightly to the ground. "I will call papa," she said.

A few minutes later a tall man, heavy set, with a face like the full moon in harvest time, his scanty locks somewhat grizzled with the first snowfall of the winter of life, came swinging down the walk with great strides.

"How air ye!" he shouted before reaching the gate. "Glory tells me ye ketched that son of Satan thar jest in time. I'm mighty glad to meet ye." He seized Theophilus' hand and Theophilus tried to look pleased.

"Jack," shouted Colonel Snortally. A dusty comboy with a sombrero on the back of his head sauntered around the corner of the house. "Take that hoss out beyond thar 'n' shoot him. Come in, Mister—er—"

"Smith."

"Dinner'll be ready by'n by. Whar'd that beast come from?" he added, pointing at Bucyrus.

"He's my mule," answered Theophilus. "You don't say so! S'posed you knowed better'n that. Mules hain't no place on this ranch. Can't you find a greaser to give him to?"

"Bucyrus is no common mule," said his owner, calmly; "he knows more than any horse you ever saw. And he can run, too." This last remark amused the Colonel so mightily that he sat down on the porch step and laughed heartily. A mule that could run! "I never yet clapped eyes on a mule that could ketch a yearling calf in a fair race. Must be a slow kentry you grow'd up in, young man." The Colonel wiped his eyes and chuckled.

"Well, if I stay," said the defender of mules, determinedly, "I'll show you one mule that can run."

"Stay! Of course ye'll stay if ye want-er," said Colonel Snortally, cordially. "Ye kin hev your pick of jobs, an ef you must make a holy show of that mule we'll provide the necessary accessories."

Theophilus stayed. He was handy with the lariat, rode a horse like a native and a mule a great deal better. He evidently

understood all the marks and deeps of the bovine character and very shortly won that for himself which he could not for his mule—the Colonel's respect. When Bucyrus would head off a skillful stamper Colonel Snortally would grumble something about "fools rushin' in," and when he would dodge a belligerent steer he would growl something about a "fool for luck." On the subject of mules the Colonel and Theophilus continued to disagree. They argued the question morning, noon and night. The Colonel pointed out the bad qualities of the mule; Theophilus grew eloquent over the animal's virtues. Glory smiled, but took no part in the discussion which resulted in the famous race at Crag's Corner—a race that is still memorable throughout all of the Poncho Basin country.

The Colonel brought out a long-legged mustang that he had purchased across the border the year before. This mustang was a sad deceiver and had lightened the pockets of many a cowboy who had backed a home animal against the imported stock. A light-weight Mexican rode him. A few minutes later Bucyrus ambled forth, wearing that surprised look of a mule when he is but half awakened from a sweet dream of peace with plenty of barley hay in it. Judge Arkansas West officiated as starter and judge. All the inhabitants of the Basin were on hand to see the race, and even old man Johnson stopped his sheep-shearing and came from over the range with all hands to enjoy the holiday.

At the start the mustang ran away from Bucyrus, and at the quarter there was room enough for a threshing machine between them. The crowd laughed and cheered, and the Colonel issued a general invitation for free drinks for all present after the race, for the Colonel was very fond of his own opinion. For some reason Glory did not smile. But when the animals reached the half there was a change. Bucyrus seemed to remember that he was neither asleep nor working for the government. He began to run. At the last quarter there was silence, for the crowd was holding its breath. While the mustang and Bucyrus were coming down the homestretch the Colonel's countenance was interesting, and when Bucyrus passed under the wire something more than an ear ahead the Colonel arose and made his way through the silence to Crag's Palace of Delight and faintly asked for a stimulant.

That night Theophilus showed a woful lack of good taste. He ostentatiously reviewed the merits of the mule family and of Bucyrus in particular. The Colonel sat in fiery silence and chewed the cud of bitter reflection, but finally, when Theophilus wound up by declaring that Bucyrus could outrun the Overland Limited from Crag's Corner to the mountain-road crossing, a distance of a little over a mile, Colonel Snortally arose in his wrath and swore.

"I'll bet ye anything ye want that yer wall-eyed apology fer a hoss can't do anything of the kind," he said.

"Will you bet my pick of any hundred unimproved acres of your ranch against Bucyrus that he can't?" quietly asked Theophilus.

"Sartinly," said the Colonel, who, deep down in his heart had a liking for Bucyrus.

"All right," said Theophilus; "if you say so, we will settle it to-morrow—going west." The Colonel said so, and went to bed.

By the light of the stars that night a man rode hurriedly down to Crag's Corner, the nearest railroad station, and before dawn rode as hurriedly back to the ranch again.

The next day was another day of excitement in the Basin. The rumor of the novel race sped swiftly. That is why Ike Williams heard, way up in Rocky Gulch, that Colonel Snortally had bet his forty-thousand-acre ranch against a herd of mules that a certain swift animal of that kind could not beat the Overland Limited in a ten-mile race.

The wagon road ran for miles along the railroad track, so Bucyrus was not handicapped. The race was an even one up to the last fifty yards, when Bucyrus, by a tremendous spurt, shot ahead and passed the crossing with twenty-five feet of daylight between himself and the engine. But there are wisecracks in the Basin who shake their heads when telling of that wonderful race, and hint that the engineer was half asleep.

Colonel Snortally was a good loser, and he cheerfully invited Theophilus out the next day to choose his hundred acres. He was not the less cheerful because Theophilus the night before had made him a present of Bucyrus. Theophilus proved an amazing chooser. He took a narrow strip of land running from the corner up to Warder's Canyon, at the foot of the mountains. To the Colonel's jesting about his choice, he said something about it making a good race track.

About a week later Theophilus was enjoying one evening a quiet after-dinner

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smoke on the veranda. He was at peace with the world, when Colonel Snortally came up the walk. The Colonel's face was like the sun shining red through a thunder-cloud. He was too much agitated to speak for a minute, but when he did begin to talk his words were to the point. From his expression one might gather that he was perturbed by the fact that Theophilus had sold a certain hundred acres of land as a right of way to the Great Southwestern Railway Company. Colonel Snortally finished by declaring his intention of removing from the scene a stranger who had taken him in, and therewith drew his revolver.

There was a rustle of a dress, a low cry, and Glory was sobbing with her face on Theophilus' shoulder.

"Don't do it, Colonel, unless you feel compelled to," said Theophilus, rising with one arm about Glory, "and unless you want to make Glory a widow. We were married two days ago."

Colonel Snortally's face grew white and the revolver slipped from his grasp. Glory was the dearest of all to him.

The president of the Great Southwestern Railway Company looked across the street and down seven stories to a certain plebeian sign. Then he arose and picked up his cane and silk hat.

"Well," he said, "we won after all. That was cleverly done—cleverly done."

"Yes," said the second vice president; "but the attacking force lost heavily. For the young man from my office who engineered the deal has married the Colonel's daughter, made peace with the Colonel, and at the last report was laying out a town at the terminus of our projected branch and selling corner lots."—Argonaut.

Information Concerning Hawaii.

Editor Kansas Farmer:—I herewith send you an extract from the letter of a cousin in Honolulu. It explains itself and may prove more valuable than anything I might write.

I have been experiencing bright ideas all winter and have been upon the point of giving you the benefit of them frequently. One subject naturally recurring as often as a snow storm made its appearance, is "the building of fires," but as March is "going out like a lamb" I am tempted to again postpone any advice or caution which, under some circumstances, might be of value.

I am wondering if "Englishwoman" has solved the mystery of "Phoebe Parmelee's" age. I am in a dilemma as to whether I ought to betray the editor or the informant who made me out a "middle-aged matron." My own inclination—a woman's—is to be twenty-one years old indefinitely. P. P. Rock Creek, Kans., March 31, 1899.

EXTRACT FROM HAWAIIAN LETTER.

"Our political notoriety for the last five years has so thoroughly advertised the islands that many are coming in here and are being disappointed. They have thought we were a new country and it needed annexation to open up affairs or revolutionize conditions here, which is not the case. Free Masons, the Knights of Pythias, the Young Men's Christian Association, the Public Lands Department, the Department of Public Industry, and the Chambers of Commerce, as also the Hawaiian Gazette Co., and many private individuals are sending out authorized statements as to the overcrowded conditions here. The field is fully occupied. The first

steamer after annexation took place brought seventy people here seeking positions, and one-half the number were obliged to return after being here one week, thoroughly convinced they had made a mistake in coming at all. Others are constantly coming, and to-day there are people of all grades of intelligence and education tramping the streets of Honolulu in vain search for something to do. If any of my friends have a thought to come out here in the hope of bettering their condition, I would say don't, unless you have something very definite to come to. Our public lands are all taken up, so far as they are surveyed. What is left is of the poorer sort and is high bush-land. Our territory is small. Our conditions are well established. All lines of business are well entered upon. I am told we have eighty lawyers in this town of only thirty thousand. No more jobs at hand for ministers. Medicine is well applied. Our proximity to California enables us to get all the mechanics we need for any unusual undertaking if we do not have sufficient supply immediately at hand. School teachers' positions are all appointed. Bookkeepers and clerks find no opportunity. In short, I know of no encouragement to any who are seeking positions in Hawaii. And yet it is probably true here, as elsewhere in old established countries, that occasionally a desirable opening does come to the right man."

The Young Folks.

WHEN THE OLD TOYS WERE YOUNG.

How sad it is when toys grow old and worn!
Pushed back upon the shelf they lie forlorn.

Among themselves they often talk and say:
"Oh, dear, what pleasant games we used to play!"

"And do you recollect that day we went
Out on the porch?—the day the sheep got bent?"

"And then that plaster cat, it was so gay!
It squeaked and grinned in such a lively way."

"Poor thing! poor thing! how little then it
knew
That very soon it would be broken, too!"

And so the old toys talk, and all the while
The new toys, listening, at each other smile.

Some day, unless they break, they'll find,
no doubt,
How sad it is for toys to be worn out.

—Katharine Fyle, in St. Nicholas.

A Prince of India.

American interest in India has been stimulated by the appointment of an American girl's husband as Viceroy of Victoria's Indian empire. In the Century Magazine Mr. R. D. Mackenzie describes his personal experiences "At the Court of an Indian Prince"—Sir Zadick Mohammed Khan Abassie, G. C. S. I., Nawab of Bahawalpur. The enormous extent of the empire over which Lord Curzon rules is illustrated by this account of one of its petty divisions, for his highness, the Nawab, is the great man of a strip of territory only about three hundred by one hundred miles in size, which forms one of the minor states of Rajputana. Yet his wealth is enormous and his surroundings magnificent.

The Nawab is a man about 36 years old, six feet tall and well proportioned; he has dark and prominent features, long black curly hair, beard cut close, and very long drooping mustaches, curling into a ring at the ends. He is extremely sensitive, has a strong will and constitution of iron, and is intensely suspicious and jealous, the natural result of his position.

Except on special occasions, the Nawab dresses in white muslin trousers, very wide and baggy, silk or cloth coat and waistcoat and silk-and-gold turban. His pockets are numerous, and their contents surprising. It is a common thing for him to wear two or three watches, and very beautiful ones they are. This does not astonish one so much as the fact that he possesses no less than 1,700 watches of all descriptions, and is constantly purchasing others. He has also some remarkably fine jewels. His crown weighs nine pounds, and is a mass of diamonds set in silver, with a row of very large pear-shaped pearls as pendants around the base. He has a sword, the jeweled scabbard and hilt of which are valued at \$500,000. He wears some extraordinary rubies and uncut emeralds attached to chains of rubies and pearls that he wears as a necklace. He has also a set of fifteen uncut rubies as large as the largest of the emeralds. They are historic gems, with the names of the Mogul emperors engraved upon them. They are very irregular in shape, and measure fully one and a half inches in diameter.

He is never without a pocketful of gold mohurs and rupees. A gold mohur is a coin that is not in circulation as money,

but it is a custom among native princes to present these coins to friends, and to receive them as presents, on certain ceremonial occasions. It is of pure gold, and varies in size and value from 20 to 50 rupees. A rupee is a silver coin about the size of a 50-cent piece, but according to the present rate of exchange, is worth only about 25 cents.

The Nawab leads a very active but whimsical life. His greatest passion is hunting, consisting of shooting, pig-sticking and hawking. He is an excellent shot, especially if the game is moving rapidly, and I should be afraid to say how many wild boars he has killed, pig-sticking being a sport not generally indulged in by Mohammedans. He, like most Indian princes, has killed his tiger. He is equally skilled in telling a story, and his English, though slow and measured, is very good. From the time he was 5 years old he was under an English tutor, appointed by the British government.

At the death of his father, the former Nawab, the whole state passed into the hands of the British government until the young Nawab, coming of age, was placed on the throne and given full powers to govern his 600,000 subjects, together with several crores of rupees, which had accumulated in the treasury under the administration of the English. (A crore is 10,000,000 rupees, or 100 lacs, a lac being 100,000 rupees).

It is only natural that the young Prince, once in possession of his great wealth, should desire to spend it, and the result was that four new palaces were built at the capital of the state, Bahawalpur, and at an old town, about thirty miles distant, called Ahmedpur, the former residence of the Nawabs of Bahawalpur since 1727. Two of these palaces were built in the style that I have already described.

The Nawab has a body-guard of 400 mounted men, nearly all from Baluchistan, a wild, dirty, and most picturesque set, and the best and the most reckless riders I have ever seen. He maintains only one squadron of cavalry and half a regiment of infantry, but has 2,000 domestic servants, and 300 shikarees, or hunters, distributed over the whole state, whose duty it is to send news to the Nawab when game is found in their locality and to keep poachers from trespassing. He has also a stable of 150 Arab, English and Australian horses, and two large river steamers are held in readiness for six months at a time on the Sutlej, which forms the northern boundary of his state for a distance of about two hundred miles.

The Nawab's present income is about fifteen lacs of rupees a year. He is an absolute monarch, holding the power of signing life or death sentences on criminals. The administration of state affairs is in the hands of his prime minister and other officials, but no measures can be enacted without the Nawab's written signature.

Told Out of Court.

Jim Webster was being tried for bribing a colored witness, Sam Johnsing, to testify falsely, relates the Detroit Free Press. "You say the defendant offered you \$50 to testify in his behalf?" asked the lawyer of Sam.

"Yes, sah."

"Now, repeat what he said, using his exact words."

"He said he would gib me \$50 if I—"

"He didn't speak in the third person, did he?"

"No, sah; he tuck good care dat dar were no third person 'round; dar was only two—us two."

"I know that; but he spoke to you in the first person, didn't he?"

"I was de fus' pusson myself, sah."

"You don't understand me. When he was talking to you, did he say, 'I will pay you \$50?'"

"No, sah; he didn't say nothin' 'bout you payin' me \$50. Your name was't mentioned, 'ceptin' he told me ef eber I got into a scrape you was de best lawyer in San Antonio to fool de jedge and de jury—in fac', you was de best in town to cover up reskelity."

For a brief, breathless moment the trial was suspended.

Why He Complained

Fate, with wonted levity, had thrown the sour and taciturn man into the company of the talkative citizen in the railway car.

"That was quite an exciting game of football, wasn't it?" said the latter, as he shoved a newspaper into the inside pocket of his fur-trimmed overcoat.

"I never read about football," was the solemn reply. "Such things are mere vanity. How true it is," he added almost tearfully, "that this world is but a fleeting show!"

"Of course. That's one way of looking at it. I've felt that way about it myself. We all feel that way sometimes. But let

me ask you something. Are you putting in your money and hustling around to make this world any better?"

"What's the use?"

"Well, you'll excuse me for questioning you. But you referred to the world as a fleeting show. I'm a theatrical manager, and I'm interested in anything in the show line. Now, I notice that you ain't in any hurry to get out of this world, are you?"

"No; I can't truly say that I am. The instinct of self-destruction—"

"That's all right. You didn't pay anything to get into this fleeting show, did you?"

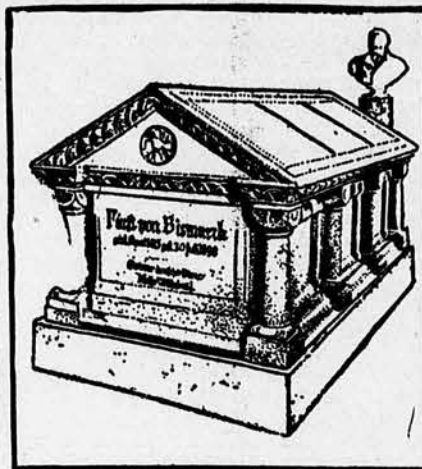
"Certainly not."

"There you are. That's the old, old story right in a nut-shell. I never in my life saw a dead-head who wasn't a kicker."

Bismarck's Best Monument.

With the single exception of "Bismarck's Autobiography," the greatest success ever achieved by any publication in Germany was a pamphlet by Professor Quidde, entitled "Caligula." This pamphlet had, however, from a publisher's point of view, everything in its favor. Its very title savored of the sensational, and the German reading public knew beforehand that "Caligula" was in reality a comparison of the insane Roman Emperor with the present Kaiser.

Put on sale at the extremely low price of



By Courtesy of Harper & Brothers.

10 cents, it took the pamphlet eighteen months to sell 500,000 copies.

To know how far, comparatively speaking, the sale of Bismarck exceeds that of "Caligula," it is only necessary to know that 318,000 copies of the former had been ordered before the book was published. The fact, too, that the price of the Iron Chancellor's autobiography was 20 marks, or nearly fifty times the cost of "Caligula," makes the comparison all the more striking. When a German parts with 20 marks he wants a run for his money, and also must know all there is to know about a book before he buys it. It is self-evident, then, that the German people have accepted Bismarck's story as the only true and adequate expression of the Iron Chancellor and his influence on European history. It is interesting also to note its reception in other countries. The rights in the United States were secured by Harper & Brothers, and the book throughout America is considered the most valuable contribution to European history that has been made for many a day. In England it has also had a sale commensurate with its importance. Another fact of especial interest about this book is that although it was published on November 29, it has already appeared in five different languages. France did not express much approbation over the autobiography of Prince Bismarck. It contained too many references to Sedan, to Gravelotte, and to the siege of Paris for her tender sensibilities. Russian sensibilities have proved still more tender, and the imperial press censor has refused Russian booksellers permission to place the work on sale. There are many subjects which Bismarck treats with a plain-spokenness that is most painful to the delicately organized ear of the Russian; for instance, Bismarck speaks of the murder of Czar Paul; the



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Russians speak of it always as a "sudden demise." On the 24th of last month the work appeared in an Italian translation, and, it is said, is having a very fair sale in Rome, Florence and Naples.

It is indeed unfortunate that the Iron Chancellor did not live to enjoy the success of his book. It is a sure sign that throughout his misfortunes, throughout the bitter years of his old age, his people still believed in him. It is to Bismarck's credit that his autobiography is neither pettish nor pessimistic, and it is safe to say that the best monument to his memory will be half a million copies of his book in as many German homes, and as many more copies scattered throughout the world. A man who has such a monument need care but little what marble mausoleums are raised above his ashes, or in what sarcophagus he sleeps. Our illustration shows the sarcophagus of Prince Bismarck, which lately arrived at Friedrichsruh, and which has been placed in the newly built mausoleum. It is made of pink marble from the designs of Herr Schurbach, of Hanover, and is in the strictly Roman style. Its dimensions are 10 feet long, 5 broad, and 51 3/4 inches high.

For Spring Fever.

One of the most popular simples for "spring war" formerly was hop tea—a pungent but by no means unpalatable drink. One cupful just before going to bed was said to both insure good sleep and rouse the liver to action—so clearing the clogged system—the "treatment" to be continued a month or six weeks. A trial of this remedy is decidedly convincing. To make, to one "good pinch" (one-third of a cupful) of loose hops add one pint of cold water; steep in a granite saucepan fifteen minutes; strain.—March Woman's Home Companion.

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KANSAS FARMER

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E. B. COWGILL, Editor.
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Politicians are lining up with great alacrity in opposition to trusts. When assessments for the next campaign become important, they may be able to point out to custodians of trust campaign appropriations the value of the popularity they gained by "catering to a passing public passion."

"Back from the War" is the title of an elegant picture in life colors just published by the McCormick Harvester Company. It represents the return of the son from the war with Spain. He has on his full army trappings and comes to the harvest field, where his father, radiant with joy, gets off the McCormick harvester to meet and welcome him. The picture is both touching and pleasing and has so much realism about it that the scene seems to be an actual one.

The wheat markets on both sides of the big water have expended considerable effort in trying to adjust prices to the uncertainties incident to the cold storms of March and the opening days of April. "Operators" are ready to land with both feet on either side of the speculative contest. It is now conceded that the crop of 1898 will have to provide for at least thirteen months. People began eating this crop a good deal earlier than usual; and the late season this spring will delay the date of beginning to eat the crop of 1899. To this must be added the fact that there was carried over, from the crop of 1897, a remarkably small "remainder."

J. B. Armstrong, of Shenandoah, Iowa, evidently finds this a good year for seed corn business. He writes *Kansas Farmer* as follows: "I have already sent out to the people over ten thousand bushels of Early Yellow Rose corn. This will indicate to you the favor it has amongst the farming community of all the Western world. Your State of Kansas is taking a fair amount and it would seem that the real rush of trade is not yet here. I have yet 10,000 bushels on hand; have twenty-five men at work assorting, and picking and sending it off, and yet the orders come. I shall not forget your valuable paper in my future advertising list. I assure you I have heard from it very often."

Fruit Not All Killed.

Editor *Kansas Farmer*:—My recent examinations in the orchard show that the choicest varieties of Russian apricots, among which is the Superb, are not all killed. There will be a good show of blossoms and fruit, if other injuries do not overtake them. Our Kieffer and other varieties of hardy pear, plum, cherry and apple are in good shape. There is no hope for the peach crop and some of the Japanese plums this year.
A. H. GRIESEA.
Lawrence, Kans., April 8, 1899.

A Hedge Question.

Editor *Kansas Farmer*:—When hedge is from five to twenty feet inside of the line of the road, can the overseer compel me to cut the hedge, or have it cut? It seems to me it would be an injustice. It is my crop. This has reference to the case in Jackson County, where the law has been adopted.
Alta Vista, Kas. C. R. MASTERS.

As the case is here stated, our correspondent need not cut his hedge. Should the

road overseer enter upon the premises to cut it, contrary to the order of the owner of the land, he would be a trespasser.

HUMUS IN THE SOIL.

The frequency with which inquiries are received at the *Kansas Farmer* office about artificial and other fertilizers and the growing number of suggestions of declining fertility of farms, indicate either that the commercial fertilizer man is abroad in Kansas, or that some of our soils are, more frequently than formerly, failing to respond with bumper crops. In the far Eastern States declining fertility has been found to result in many cases from depletion of potash, phosphoric acid, and nitrogen in the soil, and it has been assumed, by fertilizer agents at least, and acquiesced in without much investigation by many farmers, that sterility of Kansas soils has resulted, or may result, from depletion of these three essential mineral constituents. These matters were discussed in a paper prepared by the editor for farmers' institutes, and are now given a wider hearing by publication in the *Kansas Farmer*.

In a recent paper by Mr. R. W. Clothier, of the Kansas Experiment Station, the question of fertility of Kansas soils was examined with care. A few of his results will be introduced here, as they serve to throw light on the question of the fertility of Kansas soils, preparatory to an examination of the question as to why, in some sections of the State at least, complaints of poor crops are becoming more frequent. From a series of forty-nine analyses of soil selected from different parts of the United States, it was found that the first eight inches of the soil contained on an average, potash, 16,317 pounds; nitrogen, 3,053 pounds; and phosphoric acid, 4,219 pounds per acre. The second eight inches of soil contained an average of 6,843 pounds of potash, 4,069 pounds of nitrogen, and 1,816 pounds of phosphoric acid per acre. In order to make these figures available for comparison with some other investigations, Mr. Clothier calculated from them the quantity of these fertilizing elements in the first foot of average soil and found that an acre of such soil contains 19,738 pounds of potash, 5,087 pounds of nitrogen, and 5,123 pounds of phosphoric acid. From the small number of analyses of Kansas soils available, it was found that the first foot of Kansas soil contains, per acre, 13,695 pounds of potash, 3,762 pounds of phosphoric acid, and 6,660 pounds of nitrogen. The element of fertility in which soils are frequently found deficient, namely, nitrogen, is seen by comparison to be found in great abundance in Kansas soils, and, while our average in the other two chief mineral elements of fertility is not high, no Kansas soil, so far analyzed, has been found especially poor in these elements. It will, therefore, be necessary to look for some other cause of declining fertility, where this condition is observed, than to the exhaustion of either or all of the three elements which form the stock in trade of the commercial fertilizer man.

If you should cross the "Great Divide," the lofty chain of mountains which separate the waters which reach into the Atlantic from those which flow into the Pacific Ocean, and should pass down among the mountains of the western slope to the place where the Eagle River enters the Grand, there may be pointed out to you a bed of rocks which you will be told came there by a modern eruption of molten materials from some fiery furnace beneath the earth's crust. The deep canyons through which the rivers of that region flow are walled with rocks whose barren layers support but scanty vegetation. But the stratified formation of these rocks and the fossil shells and other relics they contain show clearly that they were laid down under water. The storms and tempests of the ages since they emerged from the sea, the freezing and thawing of thousands of years, have cleft these rocks and crumbled the edges of the crevices into sand and dust; the seeds of plants have found lodgment, and, out of the rocks, there is growing here and there a shrub, or, perhaps, a pine tree, subsisting scantily on the rock dust and the remains of plants of other days. But there, occupying some acres of the narrow valley of the Eagle and projecting a few feet above the valley, lies this bed of lava, looking hard and impenetrable as iron and as incapable of supporting vegetation as if it were a few millions of tons of Bessemer steel. The bare granite of the peaks of the great Snowy Range, even where these peaks project above timber line and thrust their bald heads into the clouds, looks less barren than the lava bed. And yet from such unpropitious beginning nature produced all fertility, if scientists are right.

The fertile soil is one of the ultimate results of nature's work upon a beginning of bare rocks. Possibly we might go further back and consider the condition when "The earth was without form, and void, and

darkness was on the face of the deep," but the task which nature had before her when she began making fertility from bare rocks is sufficiently appalling. When it was finished, and man came to have dominion, he found the soil composed chiefly of the substances of broken down rocks; but there was mingled with these, products of decay of vegetable matter. However well proportioned may be the mineral constituents of the soil, and however finely divided may be the particles, without the decayed and decaying organic matter the soil is poor. Witness the sand bank or the clay bank or the mortar-like mixture of sand and clay. When decaying vegetable matter in the soil has reached a certain state, further decay proceeds very slowly. In this state it is known to chemists as humus. Grass lands, especially those protected from fire, and forest lands wherein the leaves decay on the ground, become rich in humus. If a soil is otherwise well provided with elements of fertility in available form, the presence of a liberal percentage of humus assures its productiveness. Without humus it is barren.

When vegetable matter is allowed to decay the processes are much the same as in the case of combustion, except that the water is driven off much less rapidly and less completely, and the union of the carbon with the oxygen is at a much slower rate. In order for this decay to proceed under conditions to enrich the soil it is necessary that considerable moisture be retained. It is not necessary here to discuss the relations of microscopic organisms to this decay, but it remains only to say that the chemical name for the result is humus. Plants do not take humus into their structure as plant food, but every particle of humus is, when moist, at all times during warm weather, giving off carbonic acid and may be said to be surrounded by a limited atmosphere of that gas. Carbonic acid is taken into plants and there decomposed; the oxygen is set free and transpired by the leaves, and the carbon, which, with the elements of water constitutes the greater part of all vegetable substances—except the often preponderating proportion which is composed of water uncombined—is built into the cellular structure of the plant. The fine roots of a plant easily permeate a moist soil in which humus is abundant. These appropriate carbonic acid, leaving the process of decay free to reproduce it. A peculiarity of humus was long since brought out by the chemist Liebig, who found that, if the carbonic acid be not removed from humus, it acts as a preservative and retards the process of decay. Plant growth, therefore, facilitates the formative process of the production of humus and tends to the exhaustion of the material of which it is composed. It is this humus which gives the brown or black color to soil and which relieves it of the tendency to become mortar-like on settling after saturation with water. A pretty good index to the richness of a soil is its color, and, as every farmer knows, in general, the darker the better. Translated into slightly different terms, it may be stated that the darker color is an indication of abundance of humus. I do not mean to say that all dark soils are good soils, or that all black soils have plenty of humus, or are more desirable than some of the gray soils, but in general the black or brown soil is a good soil.

One of the greatest difficulties with which we have to contend in Kansas, as well as elsewhere, is the rapidity with which the soil loses its moisture after rain. Agricultural writers, and especially writers on horticultural subjects, have properly laid considerable stress on the importance of stirring the surface of the soil soon after a rain, in order to prevent the loss of the moisture through excessive evaporation. They have shown that if the soil be allowed to settle into a compact mass as of mortar the water is speedily conveyed to the surface and thence carried away by the sun and wind. It has been noted by farmers in the semiarid region that a soil of buffalo sod is much less subject to drying out during the first season of its cultivation than during subsequent seasons. This doubtless results from the fact that the vegetable matter mingled with the soil at this time prevents the settling of the surface and retains the open condition of the surface soil, and this tends to the prevention of excessive evaporation.

When civilized man took possession of the farming lands they were as rich as nature had made them. Uncivilized man cultivated little, was careful to avoid destroying, but lived upon the gratuitous gifts of nature. He robbed his neighbors but he never robbed the soil. The prairie lands were rich with the decayed and decaying grass and grass roots of hundreds, doubtless thousands, of years. The forest lands were covered with leaf mold of untold time in accumulation. The civilized pioneer—unless we allow that the cowboy of the plains was civilized—was a waster of fertility. He demanded grain crops, and his

cultivated areas were made to produce grain crop after grain crop, with little care as to whether the soil were rich or poor for those who should come after him. The pioneer farmer rarely returned any decaying vegetable matter or any kind of fertilizer to his fields. If he were a wheat farmer he planted wheat after wheat, and raised crop after crop until he finally complained that the land no longer produced as it once did. It was hard, dried out badly, the grain was of poor quality, and the yield was light. In times past this pioneer sold out and went pioneering again, while not unlikely some German bought the land, and got rich from its cultivation. How did the purchaser of the pioneer's worn-out farm proceed? If the weather was dry when he undertook to plow his field, he broke his harness or his singletrees or his doubletree or his plow. If the weather was wet, the land turned over like putty and dried in hard lumps. But that man managed to plow that land some way and to turn under all the manure and trash that could be obtained. He pulverized the clods while they were fresh. The amount of work he bestowed upon ten acres made the neighbors shake their heads. Whatever he sowed there was grass seed or clover seed planted in that field that very season. Where that Dutchman got so much manure is yet a mystery, but he put on the grass a top dressing of manure after harvest. If so much as a calf got into that field there was an excited German talking in several kinds of language to everybody on the place and pouring his maledictions upon the calf in particular with a good share for the boy who "tied that calf loose and shut the gate wide open."

Perhaps two crops of hay were taken from the field—and they were crops—and then it was manured again and plowed. Corn? Yes, corn followed the clover. Did he get a crop? Does any farmer doubt it? How did the corn stand the July drought? The soil was loose; did not incline to go to mortar; the corn kept green; but, if that German was up with the times, he ran a fine-toothed cultivator through those corn rows after every rain that came until it was matured beyond danger from drought. Did that German husk his corn and sell it, leaving the stalks to dry up and blow away, and, in the spring, burn what the winds had left? Did he? Every stalk was cut and shocked and afterwards fed on the place, and all of the manure was hauled out to the orchard or the fields. The cattle liked the fodder and did well on it, and, somehow, that German managed to have an income. The land went speedily into grass again, very likely into clover. After the grass was well set this time it may have been pastured, but not very closely. But it furnished an enormous amount of feed and was profitable.

Thus in a few years was fertility restored where it had been wasted; a living, and money besides, was made where losses had become chronic.

Some one will undoubtedly raise the question of the possibility of getting so much manure. I shall not argue that question, but will turn from the above mentioned imaginary German to the actual experience of a real flesh-and-blood, bone-and-sinew Teuton whose operations came under my own observation, and will illustrate a method of procedure where timothy and red clover are almost strangers. In the early days of Rice County, just after the choice claims had all been taken, a countryman of Bismarck and King William arrived from Pennsylvania. It was Hobson's choice for him, so he set his stake on one of a group of sand dunes near the Arkansas River. He was thereafter dubbed the "Sand-hill Dutchman," and that he would starve out was early predicted. That was in 1872, and I guess he is there yet, and not starved, either. He plowed some of that drifting sand. His furrows were run east and west. The sandy soil was less sandy below than at the surface and contained a fair proportion of vegetable matter. Someway the "Sand-hill Dutchman" got a stand of corn on that land and surprised everybody by securing a fair crop. He let no stalks waste, and he saved considerable prairie hay which—since there was no market for it—was given lavishly to his horses and cows. He didn't have to move his prairie stables in order to get away from the manure the next spring. That crazy Dutchman planted sorghum on some of his sandy land. He got a lot of feed from the sorghum and fed it. There was a surprising quantity of roots left in the soil to decay from that sorghum crop. Nobody ever saw that Dutchman bring a load of corn to town. But he brought butter. He didn't want to move away from his sand hills and he didn't have to. His sand hills changed to rich black soil and on this he planted his orchard. After the dawn of the day of alfalfa he sowed alfalfa, not in the orchard, but as a producer of feed and manure. If he ever plows up that alfalfa what a place he will have for an orchard.

What had he done? He had developed

humus in his soil by so handling it as to make the best use of all the vegetable matter the soil produced.

It has been shown that Kansas soils are rich in the mineral elements of fertility. Of some of the mineral elements in which soils in some places are deficient, Kansas soils have enough in the top foot for a thousand years. Our greatest deficiency is in decomposing vegetable matter. This not only supplies materials essential to plant growth, but it also serves as a retentive reservoir of elements washed into it from the air and as a receptive reservoir for moisture and a conservator of the moisture held by other soil particles. If by taking thought we shall increase our store of humus in our soils, we shall be fortified against evils whose presence is becoming felt more severely year by year, not the least of which is the increasing effect of drought. A small orchard may be manured and its vegetable mold thus maintained. For a large orchard there is probably no other practicable method than to grow clover, grow crab-grass, grow cow peas, grow something that will produce vegetable matter that may be gotten into the soil, covered in the soil if possible and made to rot there.

It required ages of time for the processes of nature to produce fertile soil from the barren rocks. They had first to be broken down and reduced to fine particles; then inferior kinds of vegetation grew scantily; and their decay improved the conditions for their successors. Finally, by successive decays of organic matter, fertility resulted. By imitating the processes by which nature made fertility man may maintain it. Even by his wastefulness he cannot reduce his fields to the barrenness of the primitive rocks. But, if he allow nature's fertility to be dissipated he need not be discouraged, for nature is kind to her friends and will again restore fertility while yielding a harvest to the farmer who will recognize and co-operate with her methods.

The materials under every acre in Kansas consist of substances in better condition to become fertile than the lava beds at the mouth of Eagle River. The farmer, the orchardist, the gardener, has but to direct the processes of nature in his fields, but to imitate her methods of creating fertility, to escape the threatened exhaustion of his lands and to capture and retain in great part the moisture of which June, July, and August always, and other months often, rob him.

I have here tried to indicate what needs to be done rather than how to proceed to conserve fertility. In general, it may be stated that this may be accomplished by the use of only such products of the soil as have little or no value for anything else. Decaying organic matter must be secured in perennial supply in the soil. As orchards grow older and fruit crops heavier increase of vegetable mold must be secured or the trees will take an occasional rest. As their vigor declines these rests will become more frequent. Civilized man should improve his soil as he improves his cattle, his houses, his barns. We have questioned our soils as to their chemical constituents and have, in Kansas, received satisfactory replies. We must inquire as to their mechanical condition, their ability to maintain the loamy character favorable to plant growth, their ability to receive, to store, and to hold moisture, carbonic acid, nitrogen, phosphorous, potash, and have them ready for vegetation when vegetation needs them. In every part of Kansas there falls upon every acre, every year, water enough to produce a great crop. Our soils protect this moisture remarkably well from evaporation, considering their mineral constitution. They will protect it with quadrupled efficiency if we so control growth and decay in the soil as to double the percentage of humus. It is within our power to do this.

The role of the prophet is an easy one if he does not have to face the failure to come to pass. But let us indulge a little in pre-vision.

The plant breeder is at work for the advancement of agriculture. He will never stop, but will continue to progress. He may not produce strawberries as big as apples and proportionately good; but he will not have to more than double the progress of the last forty years to do this. He may not produce apples as big as pumpkins and as much better than the Jonathan as the Jonathan is better than the Ben Davis; but I am not going to prophesy against even this. He has developed or found varieties of the Southern cow pea which thrive and ripen in Nebraska. I am not going to say that he will breed the pineapple of Florida and Cuba until it will ripen in a Kansas season and become as common as cabbage in our market gar-

dens, but are you, Mr. President, willing to wager a thousand dollars against this being seen and enjoyed by children of to-day?

There are parts of the world where sterility has taken the place of once fertile and productive fields. There are other portions where the intelligent care of man has improved upon pristine nature. Shall the fields, and orchards, and gardens of Kansas be the home of improved plants which shall have their immense drafts upon fertility supplied with ever-increasing abundance and constancy of moisture, of carbonic acid, of nitrogenous plant food, of available phosphorous and potash in a soil congenial to the production of maximum luxuriance? Then shall we have seen an advancement of agriculture.

Silkworms.

A correspondent at Neodesha, Kans., inquires about silkworms and silkworm eggs.

An attempt was made, several years ago, to transplant the exotic silk industry to the plains of Kansas. Indeed, more than one effort has been made and some money expended upon each. But the principal effort here referred to was that to which the legislature was induced to appropriate money from the public treasury to establish a silk station, at which should be exemplified the practicability of producing silkworms and silk and the methods of reeling the delicate fiber. Eggs were produced and supplied to Kansas women and children, and it was represented that, on account of the superior healthfulness of silkworm eggs here produced, they could be sold at high prices in the silk-producing regions of the old world. At the same time that Kansas was promoting the silkworm industry, the United States Department of Agriculture was also running a silk establishment, at which it bought the cocoons produced in Kansas and elsewhere, besides producing some of its own. The tedious hand-reeling was replaced at Washington by elaborate steam-driven apparatus. When the writer visited the Government establishment, a lot of young women were musing around with dead worms and getting the bright silk to wind upon reels. They were receiving, as nearly as is now remembered, \$1.50 per day and were reeling something like 50 cents worth of silk. After paying all expenses the Government was not losing to exceed \$3.50 or \$5 per day on the output of each of these young women.

But in Kansas it was thoroughly established that the worms would eat Osage orange leaves and do well on them. They also liked our Russian mulberry leaves. Kansas silk was of beautiful texture and valuable. Kansas women and girls could measurably overcome their antipathy to handling worms and some even became attached to these tame worms.

The Kansas silk station had a machine and a crank at the handle, whereby it was made plain to the naked eye how the beautiful silk, whether of the white or the yellow variety, could be reeled off from the dead producer of it by the aid of a little warm water and other persuasives.

But the Kansas silk station is now no more. So far as the writer's information goes, no Kansas woman ever desired more than one season's experience with this kind of entomology. The reason was not that she had grown rich on account of her first season's work and therefore too proud to continue in the stock business. On the contrary, she found that, notwithstanding the munificent protection afforded by the American tariff, she was competing with peasant women and children in old-world countries, who toil during long hours for a few cents a day. However high the protection might be, the remuneration afforded by the silk industry in Kansas made it the poorest-paid occupation that one could engage in. The chicken and egg business was a bonanza compared with worms and silk, and was far less confining and uncertain. The berry business, the butter business, market gardening, pig raising, calf raising, school teaching, plain sewing, writing for the newspapers, setting type, or even preaching, suits the American woman better than silkworms after she has once tried them, and any of them pays better than silk. From the little the writer has witnessed of the worm business, he is doubtful as to which he would select if obliged to choose between raising striped cats for their fur or worms for their silk. That the advantage of profit would be on the side of the fur business there is no room for doubt.

The editor regrets that, after giving so much encouraging information about the silk business, he is not able to direct inquirers to any American establishment from which a stock of silkworm eggs can be obtained. But they can be obtained from Italy, from China, from Japan, and from other portions of the world where woman's worth is esteemed slightly and her opportunities are circumscribed.

Ute Reservation Opened to Settlers.

The opening of the Southern Ute Indian Reservation, which has been awaited with impatience for many months, has at last been accomplished, as announced by the President's proclamation of April 4. This area of arable lands, fifteen by sixty miles in size, located on either side of the Denver & Rio Grande Railroad, south and east of Durango, cannot fail to attract a large and desirable class of settlers. The Ute Indians are entitled, under the law of 1895, to 374 allotments out of the entire tract. All the remainder of the area, about 636,000 acres, will be subject to entry under the desert, homestead, timber, and townsite laws, and the laws governing the disposal of coal, mineral, stone, and timber lands, and many of the Indian allotments will be leased by intelligent white men at reasonable rates. The lands embrace both valley and mesa or uplands, but the supply of water for irrigation is many times greater than will be called for. The soils are the semiadobe, sandy loam and red—the former being peculiarly adapted for the growth of grain and grasses, while the soils last named are excellent for the growth of vegetables, alfalfa and fruit trees. Owing to the percentage of gypsum in the bottom lands, yields of clover are reported as high as three and one-half tons to the acre.

Aside from the agricultural future of this great area of virgin soil, the stock industry gives promise of great growth. The plateaus afford range for tens of thousands of cattle, horses and sheep, while tributary mining camps supply an abundant market noted for good prices.

The Denver & Rio Grande Railroad is the only line reaching the Ute Indian Reservation. It traverses for sixty miles the most desirable portions of the lands subject to entry. Persons interested should write to S. K. Hooper, General Passenger Agent of that line, at Denver, Colorado.

Coming Shorthorn Sale.

Mr. J. F. Finley, who began breeding choicely-bred Shorthorn cattle in Illinois shortly after the close of the war of 1861, and subsequently in 1876 founded his herd, now known as the Crystal Springs Herd, at his present home, adjoining the little city of Breckenridge, situated in Caldwell County, Missouri, on the line of the Hannibal & St. Joseph railroad, announces elsewhere in this issue that he will offer at public sale, at the farm, on Tuesday, April 25, twenty-two bulls and thirteen heifers without reserve or by-bid. All interested in good Shorthorns will doubtless call to mind the very successful sale held by Mr. Finley about one year ago. It was one of the very few most successful sales held in the State in 1898, and the offerings that will go into the coming sale are equal individually and collectively to those sold last year. About four-fifths of both the bulls and heifers are the sons and daughters of his chief herd bull, Chief Violet 4th 111034, got by Scottish Chief 89317, and out of Rosedale Violet 2d (Vol. 34), she by Chief Justice 73256. He is, therefore, a straight-bred Cruickshank and individually of the deep-fleshed, up-to-date beef type. His get are invariably similar in their individual merits, possessing that mellowness and quality indicating feeding qualities now demanded by all experienced beef cattle breeders and feeders. His get, too, have deep, furry under-coats and are cherry red in color. There are several of the bulls that are good enough to head the best of herds, while the heifers promise nicely balanced, deep-fleshed females at maturity. The dams of the offerings are specially selected females belonging to such standard families as the Rose of Sharon, Goodness, Princess, Young Phyllis, Acombs and Bracelets. A few of the offerings are out of Scotch-topped cows. For further particulars consult the announcement and write for a free copy of the sale catalogue.

W. P. BRUSH.

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The wholesale and retail grocer, R. H. Williams, of Kansas City, Mo., advertises this week to sell a large bill of staple groceries exactly for \$5. This is a most taking offer. It is made in good faith by a responsible house and shrewd buyers among our readers can not afford to overlook such a liberal proposition. Read the offer.

A \$5 Genuine Meerschaum or French Briar Pipe for 15 Cents.

This is no lottery, gift enterprise or scheme of any kind, but a square proposition and a chance for every pipe smoker to get a splendid pipe for a mere song. Send 2-cent stamp for particulars. B. F. Kirtland, The Pipe Man, Trude Building, Chicago.

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Center, Mo., Jan. 2, '99.

The Lawrence-Williams Co., Cleveland, O.: Enclosed find clipping from the American Druggist, which you will please fill and mail to us. I have been handling "Gombault's Caustic Balsam" for three years and it gives the best results of any liniment sold by us.—Center Drug House, T. W. Clark, Prop.

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1 Box Best Grade Ball Blueing	.10	.03
1 Jar Calumet Preserves, Extra Fine	.30	.12

This order boxed weighs about 100 pounds. \$7.80 \$5.00 Freight 100 miles about 30c, 200 miles about 55c, and so on. Offer holds good till June 1. Any item in this bill can be returned at our expense if not satisfactory. Send P. O. or Ex. Order or Bank Draft. (Mention this paper.)

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Horticulture.

STRAWBERRIES—VARIETIES, CULTIVATION AND MARKETING.

Paper by H. E. Goodell, of Tecumseh, read before Shawnee County Horticultural Society, April, 1899.

After a winter like this, during which the strawberry has been cozily tucked in under its blanket of straw and snow unharmed, while other fruit has been killed, it seems to me, considering its superior qualities and the unsurpassed market right at hand, that the strawberry offers better inducements to the horticulturists of this county than any fruit I know of.

VARIETIES.

I know of no better plan than to take six or eight well established varieties on probation, thereby ascertaining the kind suited to your taste and soil, leaving the high-priced, untried sorts to be tested by parties having good bank accounts—a number of whom I am addressing this afternoon, no doubt. I don't know that there is need of mentioning varieties, as perhaps all of you are acquainted with the standard sorts. Of those that I have tried and not "found wanting," I might mention, however, Warfield, Captain Jack, Windsor Chief, Parker Earle, Gandy, Burbach, and Robinson. Having chosen your varieties, study their needs—as success depends much on treatment received at your hands.

CULTIVATION.

I have found in my limited experience that there are a great many methods of raising strawberries, and have paid very dearly for practicing some of them. It is my purpose in this paper to simply offer some suggestions to those starting or those who anticipate starting in the berry business.

Any soil that will grow corn and potatoes, will produce good strawberries. The better the ground the better the berry. All understand, I suppose, that land having a hard subsoil should be subsoiled, even for corn, and for strawberries this should be done six months before time for setting plants. But with the most of our land this is unnecessary. Ground where Irish or sweet potatoes have been grown the year previous (provided the weeds have been kept out) will be in good condition for strawberries. After plowing, harrowing, and boarding down, the next thing in order is selection of plants. This is a very important part. The plants that friends and neighbors so kindly give us are generally very expensive in the end. It is just as important to have strong, thrifty plants as it is to have a strong, thrifty pig or calf to get good results. Good strawberry plants can only be obtained from plants that have never borne fruit. In other words, your plants to set this spring must be obtained from a bed that was set last spring, or one that is in its prime. I dwell on this a little because a great many fail right at this point. They set "any old plant," and do some work, and never know why they failed. "But," says the would-be horticulturist, "it would cost \$20 or \$25 per acre just for plants." Yes, I consider that I have \$50 cash invested in every acre of strawberries set properly, cultivated through the summer, mulched in the fall ready for spring.

Having ground prepared and plants selected, next comes marking off. I use a common three-rowed marker, 3½ feet apart; plants 12 to 18 inches in the row, taking from 7,000 to 8,000 plants to the acre. Now comes the ordeal of setting. I much prefer the spade method. Place the spade in the mark, give a forward and backward turn, withdraw the spade, helper spreading roots of the plant fan shape, setting the crown exactly level with the surface, insert the spade about three inches from plant, remove spade and firm with foot. A good man and boy can plant half an acre a day. Avoid dry, windy days if possible. If very dry, it will pay to water, always working the dry dirt over the wet as soon as possible. A perfect strawberry is 85 per cent water. The important thing to be kept in view, then, is plenty of moisture. Any method you may have at hand that will accomplish this and that does not injure your plant, will be all right.

The berry patch should be kept clean of weeds, but I am not an advocate of the mowing machine as an implement for that purpose. Always cultivate as soon after rain as you can with some kind of fine-tooth cultivator. I want to warn you against the danger of letting plants set too thick. Right here is the secret of success. If you adopt the half-matted row system, which is conceded to be the best general-purpose system, the row should be kept down to 15 inches, and plants should not be allowed to set nearer than 3 or 4 inches of each other. "But you said a little while ago the plants to set this spring should be dug from beds set last spring." Yes, I say so now; from bed set expressly for that

purpose. Said bed can be set in rows 4 feet apart. Let them make all the plants they will. All not needed can be let fruit. It is just as reasonable to expect your horse to be a first-class driver on Sunday, after having plowed hard all week, as to expect a full crop of good fruit from plants that have exhausted themselves in producing a lot of superfluous plants.

MARKETING.

This is a vital question to the grower. The situation here is peculiar to itself, as we only produce 50 per cent of what we consume in this county during our picking season. This induces shipments in car lots. Our commission men, not being in business for their health, encourage these shipments; consequently the market becomes glutted and we all suffer because of it. The remedy is to increase our acreage enough to supply our reliable commission men sufficient berries to meet all demands of our market, allowing them to handle the same, and making it an object for them to handle our berries. If they are not selling our berries, they will be selling the other fellow's. Thus we have them equally interested with us in finding a market for what surplus we may have.

We often make a mistake in urging our merchant to overstock himself, as he is compelled to cut them loose at any kind of a price. Then his customers expect to buy right along at this unreasonably low price, and if the market recovers in a day, many people will put off buying, waiting for them to drop, and they usually drop for the above stated reasons, and we are all losers thereby. I see no remedy but thorough organization and co-operation of our berry growers, and having the home-grown strawberries of such quality as to create a public sentiment in their favor.

Strawberry Pedigree.

Editor Kansas Farmer:—With your permission, the writer would add a few points on pedigree, in part replying to the editor's remarks, in the Farmer of March 23.

How would you keep a record of the chance seedling strawberry, or even a variety produced by planting seed of Crescent, Windsor Chief, or Warfield? These being pistillate, or imperfect sorts, what does the seed planter know of the male parentage of the new sort?

To illustrate your idea of strawberry pedigree, you refer to the Gorton Brothers, of Newton-le-Willows, England, as having controlled and kept records of wheat and oats for twenty generations, which is doubtless true. But what do their records have to do with strawberry pedigree? Then, if pedigree is feasible, why do not Gorton Brothers apply the term "pedigree" to their wheat and oats? I would suggest that it is because the term does not apply to the vegetable creation.

Luther Burbank's plant breeding has been known to the writer for several years. He is doing valuable service along some lines of fruit and flower production; but, in the line of berries, he has not added anything of value to the commercial berry growing. His strawberry-raspberry cross is a failure, and his raspberry-blackberry cross is a novelty of no value whatever to the fruit grower. Some of his plum crosses and quinces, recently introduced, are good productions. Yet Mr. Burbank does not apply the term "pedigree" to any of his fruits. So, I contend that we have no strawberry pedigree or other plant stock in this country.

The writer has the catalogue of the strawberry pedigree man, in which he quotes prices of fifty-six or more varieties, all of which are chance seedlings or those introduced by professional seedling propagators. The introducers of seedlings never introduced them as being pedigree plants, but they recommended them as being valuable new seedlings. So, as stated in my paper in the Kansas Farmer of March 23d, the pedigree berry man knows nothing of the parentage of his plants. He simply calls them pedigree plants and they go out as such to lovers of pedigree novelty.

Again, in the matter of seedling propagation, the seeds planted may have been pollenized from several unknown sorts, by insects or honey bees. So what does the planter know about the fatherhood of a new seedling? If a man could sit and watch a plant day and night when it is blooming, or pollenize the blossom with a camel's-hair brush or other fine brush, then, after distributing the pollen dust of some well-known sort, after which take the seeds of the berries, after fruit is ripe, and plant them, then he would have a variety with characteristics like the parents, a new creation whose fatherhood and motherhood the planter would know to a certainty. Then, after several generations of breeding, the term "pedigree" might be applied. Even then it would not be feasible, as the term "pedigree" belongs to living, breathing, moving creatures, having flesh and blood. Lawrence, Kans. B. F. SMITH.

KANSAS EXPERIENCE IN ORCHARDING.

From "The Kansas Apple."

P. M. Howard, Clyde, Cloud County: I have lived in Kansas twenty-six years; have an apple orchard of 450 trees. For market purposes I prefer Ben Davis, Winesap, Missouri Pippin, Rawle's Janet and Jonathan; and for family orchard, Ben Davis, Winesap, Early Harvest, Maiden's Blush, Jonathan and Wealthy. Would prefer a deep loam soil, clay subsoil, if not too close to the top, and almost level. I prefer two-year-old, low-head trees with no forks, planted in furrows. I cultivate my orchard to corn planted east and west as long as I can, using the plow and cultivator shallow; and cease cropping when the trees so shade the crop that there is no profit; I grow clover or weeds in a bearing orchard, and mow and leave on the ground for a mulch. Wind-breaks are essential; I would make them of Osage orange planted in rows 2 by 4 or 2 by 6 feet. For rabbits I wrap the trees with corn stalks, and for borers I mulch and keep the trees growing. I prune my trees when planted; I think it beneficial. I never thin the fruit on the trees. I fertilize my orchard with anything of a coarse nature that is not easily disturbed; I would advise its use on all soils, unless very rich, deep clay soil; in such soil perhaps clean cultivation would be all that is necessary. I would add that my observations and experiences have taught me that the people of Kansas have lost millions of dollars from and through lack of knowing what we should have known. I think that the State Horticultural Society is doing a great and good work with limited appropriations. I have never seen any one yet who read the reports from the horticultural department but what was in full sympathy with your labors, but wondered why more reports were not sent out. I think our legislators should be more wise; consequently, more liberal in their appropriations for the work and distribution of the same, not only to the farmers, but to people in towns and cities; their needs are in proportion as great as the farmers'.

As to the fruit business: On the southeast quarter of section 26, township 4, range 1, is one of the best orchards I know of in Republic County (not the largest). It consists of about 450 apple trees, also peaches, cherries, pears and grapes. Myself, little girls and wife planted it. I wish to tell you how every one of the different fruits have abundantly paid for labor and all cost, and left their owners a fair profit. The soil of this successful orchard is a black loam, upland prairie, clay subsoil, loam eighteen inches to two feet deep, previously cultivated in corn and potatoes, plowed, not listed. Lay of land: Two slight ridges: a wide draw; slope east and west. Trees more vigorous and bear as well in draw as on upland. Varieties: Ben Davis, Missouri Pippin, Jonathan, Winesap, Rawle's Janet, Maiden's Blush—mostly the first four. Planting: Distance, thirty by thirty feet, furrowed out with a fourteen-inch plow, running two furrows across each way. Cleaned out all loose dirt to make room for all roots to spread without turning up. The little girls held the trees, tops leaning to the southwest about five degrees. I covered the roots well, tramped firmly, and filled with loose earth. Leave furrows so as to hold water on upper side of tree. After all trees were out I gave each one a slight mulch of sorghum refuse. Cultivation: Crop always corn; rows running east and west. Rows far enough from trees so horses or single-trees would not touch them. Cultivate shallow, with one horse, and light plow with very short single-tree. Pruned some. All limbs where cut off were painted. Cut close and smooth; wounds healed readily. Tried to prune so that air and sun would go through and not against the trees. Pinch off all water or tender sprouts.

To protect from rabbits and borers I stand corn stalks running clear up to branches around body; tie at top and bottom; keep trees low, a little heavier on southwest side. I believe with thorough cultivation and stalk protection we would hear of less borers. All mulch was kept away from bodies of trees. I believe it all nonsense not to prune, but it should be done while trees are young. My observation has been all my life that a well-balanced tree is longer lived, has more bushels of fruit, of better quality, smoother limbs and trunks. So I would say if you do not intend to protect the bodies of your young trees and prune do not buy or plant them; it does not do to sow oats, wheat, rye, millet or any grain crops in your orchard. It is an easy way to keep weeds down and a sure way to kill your orchard. It does not pay to pasture even with calves; chickens are at all times beneficial; hogs after your orchard has matured so the trees can resist the hog, when he rubs against them, which the hog is sure to do, and perhaps he will pull some of the lower limbs. I have never sprayed, but firmly believe it profitable. Next year I expect to plant out a new

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orchard and cultivate along the line of the one I have told about, with such help as I can get from the horticultural department.

D. S. Haines, Edwardsville, Wyandotte County: Has been in Kansas twenty-six years; has 3,000 apple trees from two to twenty-five years old. Commercial varieties, Ben Davis, Missouri Pippin, Jonathan and Willow Twig; and for family use, Early Harvest, Red Astrachan, Maiden's Blush, Jonathan, Grimes' Golden Pippin, Rawle's Janet, Celestia and Winesap. Has tried and discarded Bellflower, Pennock, Baldwin, McAfee's Nonesuch and others for barrenness. Best location, hill-top, sandy loam with clay subsoil—any slope will do. Plants either in fall or spring, two-year-old thrifty trees, fifteen by thirty feet apart, a little deeper than they stood in the nursery. Grows corn, potatoes, cabbage, etc., well cultivated, among the trees, but not to crowd them, for five or six years. Uses a spading harrow where no crop is grown. After six years sows to clover. Needs no wind-breaks in his section. Traps and shoots rabbits. Takes borers out with knife. Prunes very little; cuts out dead or broken limbs, as they are no good, and take up room. Never has thinned apples on the trees, but believes it would be all right. Sees no difference in fruitfulness if trees are in blocks of a kind or mixed up. Would use barn-yard litter, but not close to the trees; believes in it on all soils. Does not pasture, and thinks it would not pay. Is troubled with borers, tent caterpillars, leaf rollers, leaf crumplers, and codling moths. Never sprays. Picks in sacks. Packs in orchard, in twelve-peck barrels well pressed. Uses table for sorting and makes Nos. 1, 2 and 3 grades. Marks name and variety and own name on barrel head. Sells his best in car lots at wholesale, the culls to peddlers. Generally markets at Kansas City. Has tried distant markets and made it pay. Never dried any. Stores for winter in barrels in cold store; not always satisfactory; thinks the cold storage business not yet fully understood; says Ben Davis and Jonathan keep best. Sometimes repacks, at a loss of one-tenth to one-sixth. Does not irrigate. Prices have ranged from \$2 to \$5 per barrel. Paid last year \$1 per day to men who could do a good day's work.

Forest Tree Seedlings for Sale.

Ash, Maple, Elm, Box Elder and Japan Catalpa, ranging in size from four to eighteen inches. ROBERT W. FURNAS, Brownville, Neb.

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For other small fruits apply for prices. Rooted Houghton Seedling Gooseberries, \$4 per thousand.

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Apple, Peach, New Grapes, Cherry, and a full line of Fruit Trees, Grape Vines, Small Fruit Plants, Evergreens, Roses, at low prices. Address J. F. CECIL, Nurseryman, North Topeka, Kans.

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One Kansas customer says: "Your C. Y. Dent Corn is two weeks earlier than, and will make ten bushels per acre more than our native corn alongside." Twenty-six best kinds. Catalogue, two samples and proof free. J. C. SUFFERN, Seed Grower, Voorhies, Ill.

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My stock of old and the cream of the new Strawberries for 1899 is first-class. Also Raspberries, Blackberries, Gooseberries and Pear Trees. Send for price list. B. F. SMITH, Box 6, Lawrence, Kans.

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produces these results surely, every time, everywhere. It makes the dairy business pay. Isn't that what you want?

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In the Dairy.

Conducted by D. H. OTIS, Assistant in Dairying, Kansas Experiment Station, Manhattan, Kans., to whom all correspondence with this department should be addressed.

WHAT IS THE MATTER WITH THE KANSAS CHEESE-MAKER?

Paper by Henry Van Leenwen, read before Kansas State Dairy Association, November 17, 1898.

In response to this question, I feel like saying, "He's all right." But if I did, I know I would have a fight on hand, for our secretary gently insinuated in his letter to me that we were all wrong and wanted me to admit it, and not only that, but tell where we are wrong, and how to remedy it. He insinuated that our cheese was no good, and we could not get a good, well-cured cheese made in Kansas, but found it necessary to ship in from other States to fill the home demand.

Friends, I deserve your sympathy while I am before you telling you of our faults. We have them, I will admit. We have difficulties to contend with in the manufacture of a first-class cheese in this State.

One thing I am sure of, and that is, we are not strict enough in receiving milk at the creamery or cheese factory. The creameries can receive milk that is a little "off" and still make a good article of butter. We must have a strictly fine-flavored milk to make good cheese.

Our patrons are new in the production and care of milk and have many difficulties to contend with, as hot nights, weeds, stagnant water, etc. And as operators, I am afraid we do not persistently keep educating our patrons in the production and care of milk.

Too many of us think we understand our business when we can make a good article of butter or cheese. But our patrons must be able to produce their milk at a profit and to furnish it in such a condition that we can manufacture it into a first-class article of butter or cheese; hence we should understand breeding, feeding, and the proper care of milk, and then do our best to educate our patrons.

We have a hot climate, and if we have poor milk to commence with we shall have trouble in producing a cheese that will stand up at all. This is one of the complaints against Kansas cheese. We must use care at the weigh-can in the selection of milk.

Then our curing-rooms are not what they should be. We should have a temperature of 60° to 70°, and the relative humidity or per cent of saturation of the room should be 80 to 90 per cent. Now, we come far from these conditions. We have seen the temperature as high as 90° and the air very dry.

Our local trade demands a soft, mild cheese, hence we make them, and if our trade happens to be a little slow, these cheeses held in our curing-rooms soon go "off" in flavor and will not give satisfaction. But we make them because we have a good local demand for them.

Perhaps you ask, "Why don't you make such a cheese as the New York or Crawford cheese, hold them and furnish a fine, well-cured cheese?" Will say it requires extra good milk, properly constructed curing-rooms, extra skill, and longer time to have money invested, and our local dealers will only pay us Western prices, anyway.

My local trade this season has not given the cheese time to cure. If they want them new, they give them satisfaction, and cause no complaint, I see no reason why we should not make and sell them, although I will admit the cheese does not show up to the best advantage sold in this way. I try only to make what soft, mild cheese my local trade demands. I also make a cheese that will compare favorably with the firm Eastern cheese. This I make on the Cheddar system. I have never had any of these cheeses placed on a cheese market and sold on their merits but once. A year ago last July,

my sales were slow and I could not dispose of my cheese to local trade. I shipped some to Chicago on commission, to three different firms. They reported the cheese of fine quality and got me New York top prices. But, even if we receive top prices, I think we cannot afford to make cheese in our Kansas factories to ship east at the present time. I think that is one of the reasons why more cheese is not made in Kansas.

But, as I said before, our local trade seems to be very easily overstocked during the summer, and then if we are found with an overstock of cured, soft, full-cream cheese on hand to hold in our curing-rooms, or if we ship east we lose every time. To properly fit up for caring for cheese at such times as these requires quite an outlay.

I think at present we can make and dispose of butter to better advantage if our local trade does not consume our whole product. Kansas cheese has a very poor reputation, and we will have to work up a trade for it. But I think we are gradually overcoming the objection to Kansas cheese.

We can make good cheese in Kansas. But we must have first-class cheese-makers who will study our conditions. They must have a first-class article of milk—far above that received by the average Kansas creamery, and also have a properly constructed factory.

Another trouble we have is an insufficient quantity of milk produced near enough to the factory so we can get it as early in the morning as we should have it during the hot weather. To make a fine article of cheese, the milk when it arrives at the factory should be free from taints and not contain over two-tenths of 1 per cent of acid. To get milk in this condition it must be thoroughly aired and cooled and arrive at the factory early. The creameries can commence operations as soon as sufficient milk arrives to start the separator, and can receive milk hauled a longer distance, and later in the morning.

With good cheese-makers, good factories, and a sufficient quantity of good milk produced near the factory, we will increase the amount of cheese made in Kansas and improve the quality.

I realize that this convention is composed mostly of butter-makers, so will not occupy any more of your valuable time.

Suggestions for Dairy Programs.

Paper by Henry Wallace, read before Nebraska Dairymen's Association, Fremont, December 21, 1898.

Managers of our dairy conventions have made a great mistake in not putting forward the butter-maker and business manager of the creamery instead of the commission merchant and supply man. These gentlemen are nice fellows, smart, shrewd, and we cannot do without them. They will be on hand anyhow wherever creamery outfits are required or there is a large amount of first-class butter for sale. What we, in Iowa, need, and what I suspect you need, is to put forward as we never have done before the man who actually makes the butter, and especially the man who furnishes the raw material from which the butter is made. He has been an almost unknown factor in our dairy meetings, and unless we reform in the matter the entire business will have grief. The butter-maker and creamery manager have, it seems to me, failed in recognizing the importance of having the largest supply of raw material, or, in other words, milk. This is the prime condition of success in any manufacturing establishment; without it, the business must be unprofitable. The farmer must furnish the raw material, and if he is to furnish it in paying quantities, he must have the counsel, the encouragement, the help of the creameryman. Their interests are so closely identified that one cannot suffer without entailing suffering upon the other. As an illustration, the State of Iowa shipped out of the State on railroad lines 6,088,744 pounds less butter in 1898 than in 1897, and we are to-day a million dollars the poorer. The farmers are a good deal more than that, for the reason that the smaller the amount of raw material manufactured, the greater the cost of manufacture, which does not come out of the pocket of the creameryman in the first place, but out of the pocket of the farmer; and when he is out of pocket he ceases to become a patron, and then the creamery suffers. From the advance sheets of the Iowa dairy commissioner, we find that where a creamery uses 1,250,000 pounds of milk per year the cost of manufacturing is about 3 cents; where it uses 3,500,000 pounds, the cost is reduced to about 1½ cents. The farmer receives, therefore, in the small creamery 1½ cents less for his butter, and the creameryman loses in like proportion from the failure to get the full use of his plant. The important thing, therefore, is for every creamery to double its supply of raw material, or, in other words, the milk; and this can be done only by his becoming a teacher and helper of the farmer who fur-

nishes him milk. Some of these patrons are well up in the business; others are beginners who know little or nothing about the kind of cow they should select, how they should breed to improve stock, and how they should feed to increase the quantity of milk from a given amount of food.

Variation in Cow Weights.

At the beginning of each month, for the past two months, the Agricultural College dairy herd has been weighed for three consecutive days and the weight of each animal determined by averaging the results of the three days' weighing. During the first weigh period the herd did not have access to water until after they were weighed, but during the second period they were allowed to run to the watering-trough in the yard before weighing. To one unaccustomed to fluctuations in animal weights, the following results may appear astonishing:

Cows Giving Milk.—The average weight of thirteen head was 1,048 and 1,065 pounds, respectively, for the first and second weigh periods. During the first period the minimum variation of any one individual was 4 pounds and the maximum variation 65 pounds, with an average for the lot of 12 pounds. During the second period, where the herd had access to water, the minimum variation was 5 pounds and the maximum 90 pounds, but during this period certain individuals gained at the same time that others lost, so that the average variation for the lot was only 5 pounds, the same as the minimum variation of any one individual. In both periods the greatest variation took place with animals that weighed 900 to 950 pounds.

Dry Cows.—The average weight of twelve head was 1,118 and 1,125 pounds, respectively, for the first and second weigh periods. During the first period the minimum variation of any single individual was 7 pounds, and the maximum variation 32 pounds, with an average variation of 7 pounds. During the second period the minimum variation was 4 pounds and the maximum was 40 pounds, with an average for the lot of 5 pounds. In the first period the greatest variation was with a 960-pound cow and in the second with a 1,300-pound cow.

Young Stock.—This lot consisted of five head, whose weights ranged from 400 to 600 pounds. During the first weigh period the minimum variation was 7 and the maximum 39 pounds, with an average for the lot of 23 pounds. During the second period the minimum variation was 13 pounds and the maximum 24 pounds, but the variations among the individuals so balanced each other that the average variation for the lot was only 2 pounds.

Calves.—The variation in four calves weighing from 85 to 165 pounds was from 2 to 5 pounds, the average for the lot for both periods being about 2½ pounds. The greatest variation, however, was with the smallest calf.

Bull.—This pure-blood Guernsey had an average weight in the first period of 1,342 pounds, with a difference between his highest and lowest weight of 42 pounds. In the second weigh period his average weight was 1,355 pounds, with a variation of 19 pounds.

The above notes show that a considerable variation may take place in consecutive daily weights of the same animal without any apparent cause. When a person is particular about getting an accurate weight of an animal it should be done by averaging at least three daily weighings.

D. H. O.

"To Err is Human."

People like to talk about attractive things in advertising. In a company recently the proverb above quoted, and which appeared at the head of one of a well-constructed series of advertisements of Hood's Sarsaparilla, was so much discussed that we doubt if any one there will ever forget the source whence it came. Messrs. Hood & Co. are using these proverb advertisements on a very broad scale, and they are attracting discussion and favorable comment everywhere.

The Virtues of

A Good Cream Separator.

(Just What a Farmer Wants.)

Stillwater, Pa., 1898.

"We have the De Laval 'Humming Bird' cream separator and I am satisfied that it is one of the best investments that a farmer can make. First we gave it a test and we gained one pound on every six pounds of butter, and we got a much better quality of butter. The washing of crocks and cans and all this extra work is done away with, and we have the warm skim-milk to feed to calves and pigs, on which they do so much better, and it takes only from ten to fifteen minutes to churn. It seems a small chore now to churn. I would not do without a machine for what it cost for a great deal. I am well satisfied it is just what a farmer wants, and with the extra butter and time and labor and expense it saves it will easily pay for itself in one year."

HARVEY R. ASH.

(Perfectly Simple in Operation.)

Warrensburg, Mo., Jan. 19, 1899.

"We have now used the De Laval 'Humming Bird' three years and have not missed a single milking in that time. Last year we made 1,800 pounds of butter. The machine is simply perfect and perfectly simple in operation. Our little girl ten years old can operate it, take it apart and clean it and put it together again."

MRS. EZRA ROOP.

(A Very Durable Machine.)

Leeds, Mass., 1898.

"We have used the 'Alpha-Baby' No. 3 for over four years with the best of results; in fact, we could not get along without it, as it saves so much labor. We can make more butter and of a finer quality than in any other way. It is a great saver of ice also, as there is only a very little required to keep the cream at an even temperature. It is a very durable machine. We have had no expense whatever except for oil and bowl rings. Can see no reason why it will not last us a lifetime."

JAMES CLAPP & SON.

(“Alpha-Baby” Superiority.)

White Pigeon, Mich., Dec. 19, 1898.

"I am using an 'Alpha-Baby' No. 2 and take pleasure in writing of its excellent qualities. I was using a Cooley Creamer, but consented to try a 'Baby' last fall. The first week I made 5 pounds more butter than I had the week before with the creamer, and the butter was of better quality, finer grain, nicer flavor and could be kept longer without getting strong. We find a good market for separator butter the year round at from 22 to 25 cents per pound. I had tried other makes of separators, but never found anything which possessed the same merit as the 'Alpha-Baby.' It runs easier, skims cleaner, at different temperatures, and can be washed in no time. If a farmer has ten cows well taken care of and a separator he will find this to be the most profitable branch of his business."

JOS. S. GORTNER.

Send for New 1899 Catalogue.

THE DE LAVAL SEPARATOR CO.

Randolph & Canal Sts., CHICAGO. 74 Cortlandt Street, NEW YORK.

TRY THIS PUZZLE

Here is a puzzle picture of a man who is looking around for his wife. He cannot see her yet she is there in full view, standing near him. Can you find the missing woman? If so, make a mark on the picture with pen or pencil, showing just where she is concealed, clip this out, return to us with only 10 cents to pay for sample of our charming magazines and we will send you a special prize send you free.

Beautiful Simulation Diamond Ring illustrated here; it is size of a 1 Kt. Diamond, in pretty rolled gold plate ring and will delight you or send your money back. Send strip of paper showing size around finger. Send 10 cents over to HARTZ & GRAY, Box 407, New York, N.Y.



WHAT THE PRESIDENT SAYS

ABOUT

THE IMPROVED U. S. SEPARATOR.

BRATTLEBORO, VT., Feb. 27th, 1899.

It gives me pleasure to say that the dairy machinery bought of your company two years ago, including a No. 5 Improved U. S. Separator and a Pony Power, is working well and giving entire satisfaction.

The Improved U. S. Separator is doing all and even more than was claimed by your agent. The separation is perfect, it runs easily, without noise or friction, and it is easy to manage and care for. Of all the separators placed upon the market, there is none that excels the Improved U. S. in my opinion.

G. W. PIERCE, President Vt. Dairymen's Ass'n.

Write for our latest Illustrated Catalogues.

VERMONT FARM MACHINE COMPANY,

Bellows Falls, Vt.

BREEDERS' DIRECTORY.

Cards will be inserted in the Breeders' Directory as follows: Four line card one year, \$16.00; six lines, \$23.00; ten lines, \$30.00; each additional line \$3.00. A copy of the paper will be sent to the advertiser during the continuance of the card.

HORSES.

PROSPECT FARM—CLYDESDALE STALLIONS, SHORT-HORN CATTLE, and POLAND-CHINA HOGS. Write for prices of finest animals in Kansas. H. W. McAfee, Topeka, Kas.

CATTLE.

HEREFORDS—My females are top selections, out of the best herds of this country. Entire herd of about 30 head of females for sale. Ill health cause for selling. Lord Spencer, Vol. 19, 84318, very best son of Beau Donald 8896, at the head of herd.

F. H. PUGH, Maple Grove, Jasper Co., Mo.

ENGLISH RED POLLED CATTLE—PURE-BRED. Young stock for sale. Your orders solicited. Address L. K. Haseltine, Dorchester, Green Co., Mo. Mention this paper when writing.

CENTRAL KANSAS STOCK FARM—F. W. ROSS, Alden, Rice Co., Kas., breeds pure-bred Short horns, Poland-Chinas and Barred Plymouth Rocks. Stock for sale.

SCOTCH SHORTHORN CATTLE—Cows, heifers and young bulls for sale. Herd headed by Imperial Knight 119669 and Duke of Walnut Grove 127010. Inspection invited. JOHN MCCOY, Sabetha, Kans.

H. R. LITTLE, Hope, Dickinson county, Kans., breeder of Shorthorn cattle. Herd numbers 100 head.

FOR SALE: TWENTY-FIVE SHORTHORN BULLS OF SERVICEABLE AGE.

NORWOOD SHORT-HORNS—V. R. Ellis, Gardner, Kas. Rose of Sharons, Lady Elizabeths and Young Marys. Richest breeding and individual merit. Young bulls by Godwin 115676 (head of Linwood herd). Sir Charming 4th now in service.

SWINE.

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

M. H. ALBERTY, CHEROKEE, KANS., DUROC-Jerseys and Pig Teeth Clippers.

DUROC-JERSEY HOGS—Registered Stock. Send stamp for 64-page catalogue, illustrated. Prices and history. J. M. STONEBRAKER, Panola, Ill.

J. U. HOWE, Wichita, Kans., Maple Avenue Herd of J. pure-bred Duroc-Jersey hogs. Choice stock for sale. Reasonable prices. Personal inspection and correspondence invited.

KAW VALLEY HERD OF POLAND-CHINAS—1899 pigs from the following prize-winning boars: Perfect 1 Know, Chief 1 Am, Gem's U. S. Chief and Dick Walnwright. M. F. Tatman, Rossville, Kans.

KANSAS HERD OF POLAND-CHINA SWINE—Has eight yearling sows. They have had pigs and bred to U. S. Tecumseh (20368), he by old black U. S. Also some fine boars by U. S. Tecumseh ready for service; and one Tecumseh-bred boar. Address P. P. Maguire, Haven, Kans.

Silver Spring Herd Poland-China Hogs. Headed by HADLEY'S MODEL T. Bred sows, gilts and boars of choicest breeding for sale. Address WALTER ROSWURM, Council Grove, Kas.

V. B. HOWEY, TOPEKA, KAS. Breeder and shipper of thoroughbred Poland-China and Large English Berkshire swine and Silver-Laced Wyandotte chickens.

CRESCENT HERD POLAND-CHINAS. Boars and gilts for sale. S. W. HILL, Hutchinson, Kas.

VERDIGRIS VALLEY HERD—Large-Boned Poland-Chinas.

Three hundred head, six good spring boars, good bone, large and growthy, very cheap. Six June boars, very heavy bone and fancy, four of them will make herd-heads. Twenty yearling sows and spring gilts, bred, good ones, at from \$12 to \$15. One hundred and fifty of the finest fall pigs we ever produced. For sale cheaper than you ever bought as good pigs before. WAIT & EAST, Altoona, Wilson Co., Kans.

D. L. BUTTON, North Topeka, Kas., breeder of Improved Chester Whites. Stock for sale. Farm 2 miles northwest of Reform School.

DIVERDALE HERD of Chester White swine and Light Brahma poultry. J. T. LAWTON, BURRTON, KAS., proprietor. All stock guaranteed. I can also ship from Topeka, my former place.

Standard Herd of Poland-Chinas

Has some fine sows, 1 year old this fall, sired by Tecumseh Chief (he by Chief Tecumseh 2d), and are bred to Look Over Me (he by Look Me Over); also, an extra lot of Spring gilts, bred the same, and some good Spring Males of the same breeding. Come and see, or write and get prices. Wm. Maguire, HAVEN, KAS.

H. W. CHENEY, North Topeka, Kas. **POLAND-CHINAS**

of the fashionable prize-winning Chief I Know strain. Cheney's Chief I Know at head of herd. Pigs for sale. Prices low.

CAP-A-PIE HERD OF Poland-Chinas Geo. W. Falk, Richmond, Mo.,

is still doing business at the old stand, where, for the past fifteen years, he has been breeding and selling a class of hogs that have been winners at the leading State fairs, and have been topping the markets in Chicago and Kansas City—the end of all hogdom. Has constantly on hand boars large enough for service and sows bred and unborn. Write for prices, which are always reasonable.

T. A. HUBBARD, Rome, Kansas, Breeder of **POLAND-CHINAS** and **LARGE ENGLISH BERKSHIRES**. Two hundred head. All ages. 85 boars and 45 sows ready for buyers.

SWINE.

THE SEDGWICK NURSERY CO., Sedgwick, Harvey Co., Kas.,

—Breeders of—

Short-horn Cattle and Poland-China Swine Of the Best Strains.

Stock for sale. Correspondence and inspection invited.

Wamego Herd Imp. Chester Whites and Poland-Chinas.

Mated for best results. Also Barred Plymouth Rock chickens and eggs for sale. Correspondence or inspection invited. Mention FARMER. C. J. HUGGINS, Proprietor, Wamego, Kas.

BARGAINS.

We have a few very fine Poland-China Boars ready for service that we will sell you so cheap you cannot afford to buy a scrub. Sired by Knox All Wilkes and Highland Chief. Some fancy fall boar pigs by same sires. DIETRICH & SPALDING, Richmond, Kans.

SUNNYSIDE HERD POLAND-CHINAS BRED FROM LARGE-BONED, BROAD-BACKED, LOW-DOWN, MATURED STOCK.

Sanders, Short Stop, Corwin, Black Bess, Black U. S. and Tecumseh Blood. Choice Young Stock for sale. M. L. SOMERS, Altoona, Kans.

Mains' Herd of Poland-Chinas. Chief Tecumseh 2d, Kieyer's Model, U. S. Model, Moorish Maid and Chief I Know strains. A selected lot of bred sows and young stock for sale at very reasonable prices. Over thirty years in the business. Stock equal to any. Satisfaction given. JAMES MAINS, Oskaloosa, Jefferson Co., Kas.

RIDGEVIEW FARM HERD OF BERKSHIRES Young boars and gilts bred in the purple for sale at prices that would astonish the natives. We keep nothing but the best. Get our prices and be convinced. MANWARING BROS., Lawrence, Kans.

BLUE MOUND HERD BERKSHIRE SWINE. Herd boars, Victor Hugo 41799 (sire imp.), Barkis 30040 (weight 900 lbs.), Prince Jr. 17th, from World's Fair winner. Choice pigs from five different strains. Also bred Shropshire sheep, M. B. turkeys and B. P. Rock chickens. Write. Allen Thomas, Blue Mound, Linn Co., Kas.

M. C. VANSELL, Muscotah, Atchison, County, Kansas, Breeder of Pure-bred Poland-China Swine and Short-horn Cattle of the most desirable strains. For Ready Sale Thirty Poland-China Bred Sows.

One and two years old, bred for fall farrow; very choice; price low if ordered soon; must make room for 170 pigs now on hand. Come and see or write.

THE WILKES QUALITY HERD OF POLAND-CHINA SWINE. Thos. Symms, Prop., Hutchinson, Kas.

Herd boars, Darkness Quality and Reno Wilkes. For ready sale 45 very choice pigs out of Bessie Wilkes, Beauty Sedona, Chief I Know, Standard Wilkes, Ideal Black U. S. and Chief Tecumseh 2d sows. Farm one mile west of Hutchinson, near Star Salt works.

F. L. and C. E. OARD, Proprietors, HEDGEWOOD HERD OF POLAND-CHINAS VASSAR, KANSAS.

Popular Blood. Individual Merit. Brood sows of the most popular strains and individual merit. The best that money can buy and experience can breed. Farm one and one-half miles south and half mile east of Vassar, Kas., on Missouri Pacific railroad.

R. S. COOK, Wichita, Kans., BREEDER OF..... **POLAND-CHINA SWINE.**

The Prize-Winning Herd of the Great West. Seven prizes at the World's Fair; eleven firsts at the Kansas District Fair, 1893; twelve firsts at Kansas State Fair, 1894; ten firsts and seven seconds at Kansas State Fair, 1895. The home of the greatest breeding and prize-winning boars in the West, such as Banner Boy 28441, Black Joe 28603, World Beater and King bred, well-marked pigs by these noted sires and out of thirty-five extra large, richly-bred sows. Inspection or correspondence invited.

POULTRY.

ROSE POULTRY FARM—J. M. & C. M. Rose, Elm Dale, Kans., breeders of Light Brahmas, Yard 92½ cockerels; females 92 to 94½. B. P. Rocks, yard 92½ cockerels; females 90 to 92½. W. C. B. Polish, No. 1, 93½ cockerel; hen 93 and 94. S. C. B. Leghorn, yard No. 1, 93½ cockerel; first prize at Sedgwick, Cottonwood Falls '98, and Topeka '99; females 92½ to 94. Yard No. 2, headed by cock 94½ as a cockerel last year; pullets 92½ to 94. No more stock for sale. Eggs \$1.50 per sitting of fifteen.

GEO. W. COOPER, BREEDER OF THE LORDLY Black Langshan, 323 Lake street, Topeka, Kans. I won at our last State poultry show, January 9-14, with 107 Langshan competition, first on cock, first on cockerel, first on pen, first first for pullets, first second for hen, third on pullet, third on hen, and had the highest scoring pen of chickens in show room. I have with me the best Langshans in the West. Eggs \$2 per sitting. Write me for prices on stock. Correspondence a pleasure. (Mention Kansas Farmer when you write.)

EGGS FOR HATCHING Royal Blue Barred Plymouth Rocks, White Plymouth Rocks, Partridge Cochins, Buff Cochins, White Wyandottes, White Wyandottes, Black Langshans, Silver Wyandottes, Silver Spangled Hamburgs, Black Javas, White Guineas, Pearl Guineas and Pekin Ducks. Pairs, trios and breeding pens. Prices low, considering quality. Circular free. A. H. DUFF, Larned, Kans.

POULTRY.

EGGS FOR HATCHING From high-scoring breeding yards of B. P. Rocks, W. Wyandottes and R. C. Brown Leghorns at low prices. A few good cockerels for sale. P. C. Bowen & Son, Cherryvale, Kans.

D. A. WISE, BREEDER OF BLACK LANGSHANS AND PEKIN DUCKS— TOPEKA, KANSAS. Eggs in season, \$1.50 per sitting. Residence and yards south of Highland Park.

Silver Wyandottes. We are selling eggs from our prize-winners scored by Shellabarger & Savage, \$2 for 15; \$3.50 for 30. White P. Rock eggs, \$1 for 15. R. F. MEEK, Hutchinson, Kans.

Partridge Cochins and White Leghorns at Hutchinson show took sweepstakes in Asiatic and Mediterranean classes (silver cup and silver teapot); Shellabarger judges. Eggs, \$2 and \$1 per 15. Write for descriptive circular. Address, J. W. Cook or Carrie A. Cook, Hutchinson, Kans.

CANFIELD'S WHITE PLYMOUTH ROCKS WON first pen, first cock, first cockerel and first hen at the Kansas State Poultry Show, 1899, besides the grand sweepstakes for best ten birds in the American class. Eggs, \$2 for 15, \$5 for 45. M. L. Canfield, Belleville, Kans.

GOLDEN WYANDOTTES AND GOLDEN SE-BRIGHT BANTAMS. Prize-winners at State Show, Topeka, January, 1899. Eggs, \$2 for 15; 30 for \$3.50. Eggs after June 1, \$1 for 15. L. V. MARKS & CO., 501 Jackson, Street, Topeka, Kans.

FOR SALE—Bronze turkeys, Barred Plymouth Rocks, Black Langshans and Embden geese. None but good stock shipped. Write for what you want. Mrs. James D. Dyer, Hoffman, Mo. Shipping point, Warrensburg.

FRENCH POULTRY YARDS— FLORENCE, KANS. Houdans, \$1 per sitting of 15. E. FIRMIN, Proprietor.

BLACK LANGSHANS— PURE AND FINE. Eggs, \$1.50 for 15, or \$2 for 25. J. C. WITAM, Cherryvale, Kans.

ORCHARD PARK POULTRY YARDS—Barred P. Rocks exclusively. Prize-winning strain. Pronounced by the judge the finest he had ever seen. Eggs \$1.50 per 15. Cash with order. MRS. J. R. WHITNEY, 1411 Massachusetts street, Lawrence, Kans. (Mention Kansas Farmer.)

WHITE WYANDOTTES Have no equal as an all-purpose fowl. I have high-scoring birds and eggs from first prize-winners for sale. Prices reasonable. Address Jeff. Payne, Hutchinson, Kans.

MAMMOTH BRONZE TURKEYS A ...SPECIALTY... Eggs for sale at 25 cents each. C. H. CLARK, Delphos, Kans.

CHOICE BREEDING COCKS AND COCK-ERELS. Fifteen White P. Rocks, 15 Silver Wyandottes, 20 Brown Leghorns, 10 Light Brahmas, 10 S. S. Hamburgs, 10 Black Langshans, 5 Black Javas, 12 Pekin ducks. All strictly first-class. Some are scored by Hewes and others. A. H. DUFF, Larned, Kans.

BARRED PLYMOUTH ROCKS. B. R. Lock's Barred Plymouth Rocks are still in it. Twice in succession my birds have won all of the prizes where shown. Write me for prices on stock. Eggs \$1 to \$2 per 15. Catalogue free for writing. E. R. LOCK, Hutchinson, Kans.

BARRED PLYMOUTH ROCKS From Prize-Winning Strains. Eggs now for sale; sitting of 15, \$2. For further information address J. P. JOHNSON, Junction City, Kans.

THIS SPACE WAS WON AS A PREMIUM By the Best Pen of Buff Cochins at the Kansas State Show, 1899. Eggs, \$2.50 to \$5 per sitting. Write for circular. Chas. Steinberger, North Topeka, Kans.

H. T. FORBES L. C. FORBES.Breeders of....

THOROUGHbred BUFF COCHINS Eggs and stock from prize-winners at Kansas State Poultry Show, January, 1899. Write for description and prices. Address H. T. & L. C. FORBES, Topeka, Kans.

EGGS FOR HATCHING. FOURTEEN YARDS. Buff Cochins, B. P. Rocks, W. P. Rocks, Black Langshans, White Wyandottes, Rose and Sing-Comb Brown Leghorns, Imperial Pekin Ducks and Mammoth Bronze Turkeys. Eggs \$2 to \$5 per sitting. Circular giving matings and prices for 2-cent stamp. Guide to Poultry Culture and Catalogue of Poultry Supplies, 10 cents.

EXCELSIOR FARM, C. B. Tuttle, Prop., Topeka, Kansas.

PRIZE-WINNING LIGHT BRAHMA CHICKENS ...EXCLUSIVELY... Our record for 1898-99: Won 5 out of 6 first premiums at State show in Topeka, including sweepstakes, in January, 1899. Won 6 out of 7 first premiums, including sweepstakes in Asiatic class at Sedgwick (Kansas) show in December, 1898. Won 6 out of 6 first premiums, including sweepstakes, at Butler County show, held in Eldorado, December, 1898. Eggs \$1 to \$3 per sitting. Also breeders of Red Polled cattle. Address CHAS. FOSTER & SON, Eldorado, Kans.

ROCKS WHITE and BLUE BARRED Five Pens—Three Barred, Two White. One pen headed by E. B. Thompson Ringlet cockerel; one by a grand Lash cockerel; one by a bird of the Conger strain. My White Rocks are from Madison Square Garden winners—large, pure white birds. Eggs, \$1 for 15, \$2 for 30, \$3 for 50, \$5 for 100. White Guinea eggs same. Write for descriptive circular and prices. Printed recipe for making and using Liquid Lice Killer, 25 cents. Address T. E. LEFTWICH, Larned, Kans.

RIVERSIDE STOCK FARM. Percheron and Roadster Horses and Shetland Ponies; also one Denmark Saddle Stallion; also Shorthorn Cattle. Stock of each class for sale. Also a car-load of young Shorthorn bulls for sale. Pedigrees guaranteed. Address O. L. THISLER, Chapman, Kas.

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MARKET REPORTS.

Kansas City Live Stock.

Kansas City, April 10.—Cattle—Receipts since Saturday, 4,111; calves, 36; shipped Saturday, 601 cattle; no calves. The market was weak to 10c lower. The following are representative sales:

DRESSED BEEF AND SHIPPING STEERS.

No.	Ave. Price.	No.	Ave. Price.
42.....	1,398 \$5.10	17.....	1,445 \$4.80
39.....	1,807 4.67½	20.....	1,300 4.65
31.....	1,281 4.50	21.....	1,238 4.41
6.....	1,045 4.15	2.....	1,020 4.00

WESTERN STEERS.

No.	Ave. Price.	No.	Ave. Price.
104.....	1,264 4.65	46 Ind.....	1,081 \$1.50
118.....	1,168 4.40	40.....	1,114 4.35
30.....	1,030 4.25	50.....	1,076 4.20
3.....	943 4.00	3.....	1,130 3.60

NATIVE HEIFERS.

No.	Ave. Price.	No.	Ave. Price.
3.....	870 4.25	3.....	803 \$4.20
11.....	901 4.15	1.....	873 4.15
2.....	810 4.00	8.....	637 3.90
6.....	701 3.75	1.....	863 3.65

NATIVE COWS.

No.	Ave. Price.	No.	Ave. Price.
3.....	1,233 \$4.20	4.....	1,090 \$4.05
24.....	949 3.90	4.....	1,035 3.75
17.....	1,004 3.70	3.....	1,123 3.40
3.....	1,120 3.40	1.....	1,160 2.25

NATIVE FEEDERS.

No.	Ave. Price.	No.	Ave. Price.
67.....	1,023 4.45	10.....	1,081 \$4.45
9.....	952 4.40	1.....	1,120 4.35
5.....	1,017 4.30	1.....	1,090 4.20
23.....	1,136 4.20	1.....	1,110 4.10

NATIVE STOCKERS.

No.	Ave. Price.	No.	Ave. Price.
24.....	428 5.25	30.....	693 5.10
14.....	748 4.85	11.....	830 4.80
3.....	810 4.40	2.....	705 4.41
2.....	615 4.00	1.....	750 3.51

Hogs—Receipts since Saturday, 5,986; shipped Saturday, 726. The market was steady to strong. The following are representative sales:

68.....	276 \$3.82½	76.....	276 \$3.82½	74.....	262 3.80
64.....	305 3.77½	154.....	274 3.77½	61.....	288 3.77½
134.....	275 3.75	63.....	232 3.75	82.....	237 3.75
73.....	261 3.72½	77.....	267 3.72½	67.....	222 3.72½
61.....	235 3.70	65.....	233 3.70	35.....	245 3.70
69.....	255 3.70	70.....	257 3.70	62.....	225 3.70
76.....	205 3.65	64.....	230 3.65	59.....	214 3.65
76.....	204 3.65	85.....	202 3.65	77.....	222 3.65
61.....	239 3.62½	62.....	197 3.62½	85.....	219 3.62½
82.....	222 3.62½	81.....	200 3.62½	15.....	203 3.60
11.....	201 3.60	45.....	198 3.60	92.....	203 3.60
52.....	230 3.60	16.....	166 3.57½	86.....	177 3.57½
104.....	163 3.55	28.....	218 3.55	52.....	227 3.55
23.....	140 3.50	57.....	205 3.50	8.....	187 3.50
18.....	150 3.47½	14.....	132 3.47½	20.....	189 3.47½
14.....	114 3.42½	78.....	137 3.40	122.....	141 3.37½
15.....	134 3.35	17.....	121 3.30	17.....	122 3.35
20.....	112 3.10	45.....	81 3.60	11.....	92 2.75

Sheep—Receipts since Saturday, 5,012; shipped Saturday, 571. The market was weak to 10c lower. The following are representative sales:

220 Col. lbs.	84 \$5.50	128 N. M. lbs.	71 \$5.21
522 N. M. lbs.	67 5.30	265 N. M. lbs.	71 5.20
233 W. yrl.	88 4.90	13 sheep.	82 4.60
238 W. ew.	95 4.35	10 culls.	93 3.50

St. Louis Live Stock.

St. Louis, April 10.—Cattle—Receipts 3,003; market slow for natives and shade lower for Texans shipping steers, 4.50@4.75; light steers to dressed beef grades, 4.00 5.25; stockers and feeders, 3.25@4.75; cows and heifers, 2.50@4.75; fancy heifers, 4.25; Texas steers, 3.25@5.00; cows and heifers, 2.25@3.75.

Hogs—Receipts, 6,000; market steady; pigs and lights, 3.60@3.81; packers, 3.55@3.85; butchers, 3.80@3.95.

Sheep—Receipts, 1,500; market strong. natives, 3.50@5.00; lambs, 4.50@5.75.

Chicago Live Stock.

Chicago, April 10.—Cattle—Receipts, 21,701; market mostly 10c lower; beefs, 4.00@5.75; cows and heifers, 2.00@4.75; Texas steers, 3.75@5.00; stockers and feeders, 3.50@5.00.

Hogs—Receipts, 29,000; market strong; mixed and butchers, 3.65@3.90; good heavy, 3.80@3.95; rough heavy, 3.60@3.70; light, 3.60@3.85.

Sheep—Receipts, 16,000; market steady; sheep, 3.50@5.00; lambs, 4.00@5.81.

Chicago Grain and Provisions.

	April 10.	Opened	High'st	Low'st	Closing
Wht.—May....	70½	71½	70½	71½	71½
July.....	70½	71½	70½	71½	71½
Sept.....	69	69½	69	69	69
Corn—May....	34	34½	33½	34½	34½
July.....	34½	35½	34½	35½	35½
Sept.....	35½	35½	35½	35½	35½
Oats—May....	26	26½	25½	26½	26½
July.....	25	25½	24½	25½	25½
Sept.....	23½	23½	23½	23½	23½
Pork—May....	9 10	9 22½	9 15	9 21	9 21
July.....	9 30	9 31	9 25	9 32½	9 32½
Lard—May....	5 27½	5 27½	5 27½	5 27½	5 27½
July.....	5 40	5 40	5 37½	5 40	5 40
Sept.....	5 50	5 52½	5 50	5 52½	5 52½
Ribs—May....	4 72½	4 75	4 72½	4 72½	4 72½
July.....	4 87½	4 87½	4 75	4 87½	4 87½
Sept.....	4 97½	5 00	4 97½	5 00	5 00

Kansas City Grain.

Kansas City, April 10.—Wheat—Receipts here to-day were 80 cars; a week ago, 120 cars; a year ago, 117 cars. Sales by sample on track: Hard, No. 2, 64@65½c; No. 3 hard, 63½c; No. 4 hard, 56½@60½c; rejected hard, 56½@60c. Soft, No. 2 red, nominally 70c; No. 3 red, 75c; No. 4 red, 57c. Spring, No. 2, 61c; No. 3 spring, 56½@61½c.

Corn—Receipts here to-day were 61 cars; a week ago, 57 cars; a year ago, 62 cars. Sales by sample on track: Mixed, No. 2, 32@33c; No. 3 mixed, 32½@33c; No. 4 mixed, nominally 32c; no grade, nominally 31c. White, No. 2, 33@33½c; No. 3 white, 33c; No. 4 white, nominally 32c.

Oats—Receipts here to-day were 4 cars; a week ago, 15 cars; a year ago, 12 cars. Sales by sample on track: Mixed, No. 2, nominally 28@28½c; No. 3 mixed, nominally 27@27½c; No. 4 mixed, nominally 26c. White, No. 2, 29½c; No. 3 white, 28½@29½c; No. 4 white, nominally 27½c.

Rye—No. 2, 51c; No. 3, nominally 50c; No. 4, nominally 49c.

Hay—Receipts here to-day were 31 cars; a week ago, 27 cars; a year ago, 58 cars. Quotations are: Choice prairie, \$7.50@8.00; No. 1, \$7.00@7.50. Timothy, choice, \$8.25@8.50. Clover, pure, \$6.75@7.50. Alfalfa, \$7.00@8.00.

Chicago Cash Grain.

Chicago, April 10.—Wheat—Cash, No. 2 red, 71@72c; No. 3 red, 67@71½c; No. 2 hard winter, 66@67c; No. 3 hard winter, 64@66c; No. 1 northern spring, 70@71c; No. 2 northern spring, 69@70½c; No. 3 northern spring, 64@66c.

Corn—Cash, No. 2, 34c; No. 3, 32c.
Oats—Cash, No. 2, 26½@27c; No. 3, 26½@26¾c.

St. Louis Cash Grain.

St. Louis, April 10.—Wheat—Cash, No. 2 red, elevator, 75c; track, 76c; No. 2 hard, 69c. Corn—Cash, No. 2, 33½c; track, 34@35c. Oats—Cash, No. 2, 28c; track, 28½@29c; No. 3 white, 30½@31c.

Kansas City Produce.

Kansas City, April 10.—Eggs—Strictly fresh, 11c per doz.

Butter—Extra fancy separator, 20c; firsts, 17c; seconds, 14c; dairy fancy, 15c; country roll, 12@14c; store packed, 10c; packing stock, 9c.

Poultry—Hens, 8c; springs, 10c; old roosters, 15c each; young roosters, 20c; ducks, 8c; geese, 6c; turkeys, hens, 10c; young toms, 9c; old toms, 9c; pigeons, 75c per doz.

Vegetables—Navy beans, \$1.35 per bu. Lima beans, 4½c per lb. Onions, red globe, 85c per bu.; white globe, \$1.00 per bu. Beets, home grown, 45c per bu. Turnips, home grown, 15@25c per bu. Lettuce, home grown, \$1.50 per bu. Pieplant, 50c per doz bunches. Parsnips, 65@75c per bu. Spinach, home grown, \$1.00@1.25 per bu.

Potatoes—Home grown, 60@65c per bu. Sweet potatoes, 50@60c per bu.

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Your \$1.00 will procure you information and give you instructions which will be worth \$1,000 to you, if you want a home.

The undersigned will, for a fee of \$5.00 per section, advise you where the best lands can now be had, and will prepare all the necessary legal papers, and attend to the securing of title here through the proper departments of the Government. Address

CHAS. P. SCRIVENER, Late State Compiling Draughtsman, AUSTIN, TEXAS.

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The Poultry Yard

Conducted by C. B. TUTTLE, Excelsior Farm, Topeka, Kans., to whom all inquiries should be addressed. We cordially invite our readers to consult us on any point pertaining to the poultry industry on which they may desire fuller information, especially as to the diseases and their symptoms which poultry is heir to, and thus assist in making this one of the most interesting and beneficial departments of the KANSAS FARMER. All replies through this column are free. In writing be as explicit as possible, and if in regard to diseases, give symptoms in full, treatment, if any, to date, manner of caring for the flock, etc. Full name and postoffice address must be given in each instance to secure recognition.

TO START A POULTRY FARM.

Australian Ideas That Are Practical in Any Section—Amount of Land Needed.

The first thing to be considered in starting a poultry farm is the site. This should be, if possible, on a nice slope; if the ground is level it should be drained.

The question of soil is an important one, and should be considered. Some people think "any kind of land will do." There is a little truth in this, but not the whole truth. Grass land is the best, provided there is sufficient drainage, so that it will not remain damp after rain. The best soils are gravel or sand; sand is the best, as it keeps clean longer. Sandy soil after every shower looks clean, through the rain washing the droppings into the sand. On clayey or sticky soils the droppings remain on the top and are damp for several days after rain. With stiff, clayey soil poultry culture is a difficult task; with sandy soil we are more likely to be successful, for after a fall of rain all impurities are carried off and the yard seldom becomes foul.

If the poultry breeder raises his stock on stiff, clayey soil he will be compelled to dig and turn over his yards every season; on the other hand, sandy soils will not require to be turned over so often. If the yards or pens have a good coating of grass and the rainfall be fair most of the droppings will be used up by the grass after rain has dissolved it and washed it down to the roots of the grass.

As to the amount of land needed, it is just that area that can be well taken care of, and no more. In beginning a poultry farm it is always best to own the land or make arrangements for a long lease. It is a mistake to rent a farm from month to month or quarter to quarter, for no person cares to erect buildings, pens, yards, etc., on the land that he might be asked to leave just when he had got everything into working order.

After securing the land, the first item is houses. These can be built neat without being costly, and should be erected in such a manner as to be comfortable and warm during the winter months.

The most important part of a poultry house is the floor; if this be not properly made, no matter how well the rest of the house is constructed, it cannot be suitable. A damp floor means a damp house. The floor should be raised fully ten inches above the yard or outside ground. A good plan, when the house is erected, is to fill the house inside with broken stones, gravel or cinders to a depth of five or six inches, then three or four inches of good stiff clay on top, well rammed down and sanded on top. Cement or asphalt makes a better and neater floor; still, the earth floor, made as I have said, of broken stones, etc., will suit just as well, besides being cheaper. All poultry houses should be perfectly rain-proof, so that the floor will always be dry; if not, the atmosphere of the house can never be pure and healthy.

The size of the houses will depend on the number of fowls the owner intends to keep. As a general rule, for a rooster and six hens of the larger breeds, six or seven feet square is ample; for the smaller breeds less will do. As to the aspect of the house, it is best to have it facing so that the sun can shine most of the day on the floor. It is easy to hang a screen or bagging if it requires shade at any time.

Nest boxes can be placed in one end of the house—not under the perches—and should be made a little secluded, as the hens like a quiet place to lay in. The boxes can be made out of any old soft wood cases. A kerosene case cut in halves will make two good nest boxes.

Cleanliness in the house means everything. The houses should be thoroughly cleaned at least once a week; two or three times a week, of course, would be better. Always remember that keeping your poultry house clean means perfect health for your fowls and a bigger profit at the end of the year. The houses should be lime-washed every spring; a little carbolic acid mixed in the wash is death to all lice and acts as a disinfectant.

In all poultry houses it is necessary to have one large door for the exit of the fowls. The positions of both these will depend greatly on how the house is situated. It is best to have the door where the inmates will not be unduly exposed to cold

or draft, for if put on the windy or cold side of the building it will be hardly possible to keep the fowls comfortable. For example, in some districts the west or northeast winds are most troublesome, and it is nearly impossible to maintain the comfort of the fowls if the doorway faces these troublesome winds. It is a good plan to have an open weather or scratching shed built adjoining the covering or protecting the doorway.

The yards or runs, if possible, should be grass plots, but, of course, many may not be able to provide such; in that case they will have to supply the grass in the shape of green food by feeding their fowls with lettuce, cabbage leaves, turnip tops, etc. For real comfort and less care nothing can beat a good clean grass run. As to space absolutely necessary to keep fowls in good health, nearly all poultrymen agree that it requires ten square feet of run for each bird of moderate size, and about half as much again for the larger breeds.

The best material for inclosing a run or yard is wire netting, two-inch mesh, three feet wide, with three-foot palings at bottom, or boards laid longitudinally from post to post; the post for the fence to be about eight feet long, and not less than four inches in diameter if square, and six or eight inches if in the round. If the posts are not placed more than nine or ten feet apart the netting will keep in better order and look neater, besides lasting longer.

A good plan, where the owner has the room, is to make two medium-sized yards out of one fairly large yard, and run the fowls in one while the other has a rest; in this way you get more out of the space than if you allowed the rows to run all over it. It is wonderful how quick a run that has been eaten down short will recover and produce nice green grass if the weather is at all favorable. Of course, the droppings soon disappear and become used up by the grass and weather, which leaves the run in perfect order for use again.—Bantam, in The Farm and Dairy.

Heat of the Brooder.

Authorities say that the heat in the brooder should begin with 95 degrees and be allowed to decrease about 1 degree a day after that until no heat is needed. Now I do not wish to set myself up as an authority, having never operated a brooder but this one time, but I must say, for me this is too high. March 1 I put twenty-one chicks in a brooder outdoors, and ran no higher than 80 degrees most of the first week. The second week 70 degrees was the average and the third 60 degrees. Now, according to the above the heat should then have been 85 degrees instead of 60 degrees. Only one chick was lost and it was weak from the start. The food consisted mainly of wheat, with bread and hard-boiled eggs at first, also some meat and onions, with grit put in their food once a day. These chicks were allowed out a short time each day if it was not stormy, even if the ground was frozen, after they reached two weeks. They are over three weeks old now, and a few days ago the thermometer registered 25 degrees, and a blizzard; but the brooder was kept outdoors, and some of the time was 56 degrees. All through the month the brooder has kept the heat high enough for them to be happy and scratch with one exception, when the lamp was left too low and it got cold and windy in the night. When wind comes it is necessary to bank up some, but that is all.—J. S. Wilson, in Stockman and Farmer.

Hawks.

A writer in the National Stockman offers the following sensible suggestions about hawks:

"The loss to farmers and poultry raisers by hawks every year amounts to a very large sum. There have been laws passed by several States with the object of exterminating them, but we have them just the same. There are three or four species of hawks which are especially destructive, not only to chickens but to game and other useful birds. Ohio passed a law a few years ago paying a bounty of 50 cents per head. There were lots of hawks killed. Some people even killed the little mouse hawk, a useful bird. The little screech owl suffered also, which should have been encouraged instead of killed. We, as farmers, should not ask such a law, but rather oppose it, when the remedy is in our own hands. If we can get them for a bounty we certainly can get them without. I believe that if every farmer would count the chicks he loses every year by hawks alone he would think it a good bounty if he succeeded in killing but one hawk in a season. Of course, not every farmer is a good marksman, and very often when the hawk comes he is in the field at work, and as a rule the women folks are afraid of a gun, even if it is not loaded. Their only weapon is their throats and aprons, which serves

A Running Fight.

HOW A NOTORIOUS GUERRILLA BAND WAS FOUGHT.

A Veteran of the First Missouri Cavalry Relates Incidents of Skirmishes with Quantrell's Bushwackers

From the Evening News, Detroit, Mich.

The well known employe of Detroit, Michigan, Board of Public Works, Joseph B. Myers, living at 177 Fort Street, west, is an important member of the Grand Army of Veterans, and recently had a remarkable experience.

Comrade Myers enlisted at Edinburg, Mo., in 1862, and served during the war in the southwest, and was discharged at St. Louis, Mo., in 1865. He was a member of Co. K, First Missouri Cavalry, 14th A. C. Western army, commanded by General Burnside, and later by Gen. Eads. He participated in the battles of Springfield, Sea's Ford and all the principal battles through Missouri.

For months the First Missouri Cavalry followed the notorious Guerilla Quantrell and his band of bushwackers. Scarcely a day passed but what there was a running fight.

For nearly six weeks Comrade Myers was in the saddle constantly. It was a campaign of strategy and endurance, as both sides were well mounted. Night and day it was fight and skirmishes and the men were prostrated for weeks after Quantrell was driven from the State. Many times the command rode all night to cut off his retreat and fought all day. The men slept and ate in their saddles during this campaign, and were glad when they were relieved.

"In 1895," said Comrade Myers, "I was reading an article in the daily paper regarding Dr. Williams' Pink Pills for Pale People. I was interested in the account as I was very sick at that time with stomach and liver troubles. I was all run down and was in a bad condition. What remedies I had taken gave me only temporary relief, and when I read the article in the paper I decided to give the pills a trial.

"The story I read was about a man in Ohio, and I said, that if he lived in Detroit I would go and see him.

"Well I grew worse instead of better, and I finally went out and bought a box of Dr. Williams' Pink Pills for Pale People. The first box did not help me apparently, but I continued using the pills and the second box gave me much relief.

"I took five boxes before I was cured but that was a very cheap cure compared with what I had spent with physicians and druggists.

"I still use the pills once in a while and can cheerfully and truthfully recommend them to any old soldier who is suffering from liver and kidney trouble or general debility.

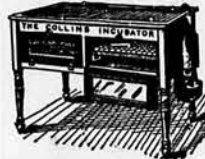
JOSEPH B. MYERS.

Before me personally appeared Mr. Joseph B. Myers, who being duly sworn, declares the foregoing statement to be true in every respect. Signed this 14th day of September, 1897.

ISAAC M. BATES,

Notary Public.

Comrade Myers is a prominent member of Gen. O. M. Poe Post 433, G. A. R., and is well known in Detroit.



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PAGE LAST WEEK

We told you there was something in the coil of The Page. As the mercury rises watch the fence and see about it. Does it sag? PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

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their purpose to some extent, but they are not always on hand with their squeals and aprons. Now, I have a remedy for the trouble, if applied, which beats all bounties, squeals, etc. In the spring of the year, in March, the hawks begin to mate and they can be seen soaring about near their nests.

The nests are easily found before the leaves appear, as they resemble a bundle of limbs and brush, differing in size from about the size of a half bushel to an ordinary tub. Each farmer can easily examine his place in search of nests. When found mark the place. After they begin to hatch go there before daylight, which is the best time. Slip up within shooting range to a place previously made so you can be hid from view from the hawk. Now watch for the male bird. If he is not near the nest he will appear soon after daybreak with something which he has caught for the female bird to eat. Shoot him as soon as he alights, and if the female bird does not leave the nest, with a good rifle she can be reached through the nest. Aim well to the lower center, as they sit low down in the center of the nest. If she flies away she will soon return. It will pay to get them, as one family of hawks will consume from 150 to 200 chickens, besides birds, etc., during a season.

Fight Lice Now.

Start the war in April and keep it up. If you have not used something to destroy them the past winter, your hens have lots of them now. About a month ago a breeder said he had no lice. We asked when he had used anything to kill them. He replied, "Last fall." We caught one of his hens and showed him that she had hundreds on her. It always is in season to fight them. Hens don't lay when their feathers are full of them. All the condiments, gentle stimulants and pepper made fail to make lousy hens lay.—Southern Poultry Journal.

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as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is ten-fold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, Ohio, contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally and is made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

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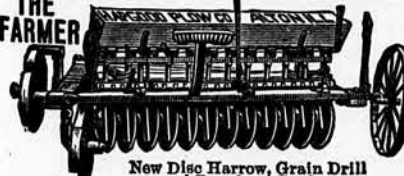
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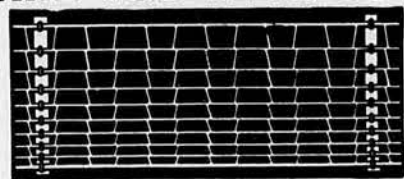
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FOR SALE.—100 cars cottonseed meal. Also corn and feed. Address Western Grain and Storage Co., Wichita, Kas.

TOULOUSE GESE, PEKIN DUCKS, CORNISH Indian Games, Brown Leghorns, Great Danes, Scotch collies and fox terriers. Burton & Maxwell, Topeka, Kans.

WANTED.—To lease or buy a cattle ranch, from 1,000 to 1,500 acres; southern Kansas preferred. Must have living water. Address, J. H. Wallace, 2408 E. Eleventh Street, Kansas City, Mo.

FOR SALE.—Imported and full-blood Percheron, Clydesdale and Coach stallions. Good individuals, colors and ages. For further information address W. H. McMillen, Manager, Box 204, Topeka, Kans.

BLOSSOM HOUSE.—Opposite Union depot, Kansas City, Mo., is the best place for the money, for meals or clean and comfortable lodging, when in Kansas City. We always stop at the Blossom and get our money's worth.

TO EXCHANGE.—A daughter of Hadley Jr., dam by Klever's Model, for ten bushels of alfalfa seed on track. F. W. Baker, Council Grove, Kans.

JACKS FOR SALE.—Three choice black jacks for sale, 3 to 5 years old. Prices right. Theo. Welch selbaum, Ogden, Riley Co., Kans.

WRITE TO ALEX RICHTER.—Hollywood, Kas how to sub-irrigate a garden, etc., and cost of same. Send him the size or dimensions of your garden, and he will give full information.

FOR SALE.—At Wyndon Place, 10 miles southwest of Topeka, on Alma road, four registered Shorthorn bull calves, 8 to 12 months old. Postoffice address, J. W. Sheldon, southeast corner Sixth and Van Buren, Topeka, Kans.

WANTED.—Alfalfa, cane and millet seed; also a limited quantity of Jerusalem corn seed. Correspond with F. Barteldes & Co., Lawrence, Kas.

BERKSHIRE SOWS BRED.—To farrow in March and April. Choice of individuality and breeding, at \$20. Rutger Farms, Russell, Kans.

SHORTHORNS FOR SALE.—Forty-six cows and 8 heifers, Cruickshank, Young Marys, Rose of Sharon and others; an extra lot. Nearly all were sired by that grand Cruickshank, Royal Prince 100646. Six bulls ready for service, sired by Young Mary bull, Glendon 113371. Theodore Saxon, 222 West Eighth St., Topeka, Kas.

LIVE STOCK AUCTIONEERS.

GEORGE W. BARNES, Auctioneer, Valencis, Kas. Lowest terms. Extensive experience both as breeder and salesman. All correspondence given prompt attention.

J. N. HARSHBERGER,

LIVE STOCK AUCTIONEER, LAWRENCE, KAS. Years of experience. Sales made anywhere in the United States. Terms the lowest. Write before claiming date.

S. A. SAWYER, FINE STOCK AUCTIONEER.—S. Manhattan, Riley Co., Kas. Have thirteen different sets of stud books and herd books of cattle and hogs. Compile catalogues. Retained by the City Stock Yards, Denver, Col., to make all their large combination sales of horses and cattle. Have sold for nearly every importer and noted breeder of cattle in America. Auction sales of fine horses a specialty. Large acquaintance in California, New Mexico, Texas and Wyoming Territory, where I have made numerous public sales.

We can save you money, if you want most any paper or magazine, in connection with Kansas Farmer. Write for special club list.

PUBLIC SALE OF HEREFORD CATTLE

TO BE HELD AT OUR SALE PAVILION AT BELTON, CASS COUNTY, MISSOURI, ON MONDAY, APRIL 24, 1899.

105 Registered Herefords

Forty-two bulls and 63 heifers, from 13 to 26 months old. Thirty-three of these heifers have been bred and safe in calf by either the undefeated Heslod 20th 66304, in leading State fairs in 1896 and 1897, Imp. Roderick 80155, Imp. Victor 76070, Monitor 58276 or Tribune 10th 78558. This selection is from our herd of over 500 head of our own breeding and the tops of our young stock. Many of the bulls are good enough to head herds and quite a number of the heifers are good enough for the show yard. Sale will commence at 10 o'clock a. m. Write for free copy of catalogue.

A special train will leave Kansas City Union Depot over the Kansas City, Fort Scott & Memphis Railway on April 24 at 8 a. m., arriving at Belton at 9:20 a. m. will leave Belton at 7 p. m., arriving at Kansas City at 8:20 p. m. Cols. F. M. Woods, James W. Sparks, and S. A. Sawyer, auctioneers.

Belton is 30 miles south of Kansas City and is on the Pittsburg & Gulf, the Memphis and Frisco railroads.

SCOTT & MARCH, Belton, Mo.

Great Combination Sale of Shorthorn Cattle

To Be Held at the Kansas City Stock Yards, in the Sale Pavilion of W. S. Tough's Sons, at Kansas City, Mo., on

THURSDAY, APRIL 27, 1899, AT 1 P. M.

This offering consists of 60 head of finely-bred Shorthorn cattle, 44 females and 24 bulls ready for use.

The animals in the sale represent Shorthorns of the purest and best breeding, of fashionable families and of fine beef and milking quality.

Many fine show animals can be found among the females, while a number of the bulls are extra fine show animals and fit to head herds, as they are exceptionally fine animals and of the purest and most fashionable breeding.

The sale will be for cash but if time is desired it will be given if arrangements are made before sale commences.

Catalogues will be furnished by addressing either of the undersigned:

JOHN MCCOY, SABETHA, KANS.

POWELL BROS., LEE'S SUMMIT, MO.

G. W. GLICK & SON, ATCHISON, KANS.

COL. F. M. WOODS, Lincoln, Neb., Auctioneer.



M. W. DUNHAM'S OAKLAWN FARM.

Intending Buyers of

PERCHERON

...and...

French Coach Horses

Will find no difficulty in making their purchases at Oaklawn by reason of the death of Mr. M. W. Dunham.

208 STALLIONS—Prize-Winners themselves or descendants of prize-winners.

230 DISTINGUISHED BROOD MARES and Produce....

ITS 1898 IMPORTATION INCLUDED THE Greatest Prize-Winners of France In Every Stallion Class.

For more than 30 years the horses sold from Oaklawn have been unapproached in number, unrivalled in excellence and the prices for which they have been sold, breeding qualities considered, have never been met.

Separate catalog for each breed: Say which is wanted. Study Oaklawn's methods and share its success. Address

Estate of M. W. DUNHAM, WAYNE, DU PAGE CO., ILLINOIS.

Imp. NELSON, 1st Prize in France, 1898.

Please mention the Kansas Farmer when writing to any of our advertisers.

The Apiary.

Conducted by A. H. DUFF, Larned, Kas., to whom inquiries relating to this department should be addressed.

Bees and Horticulture.

There is no law in this country to punish a man for committing suicide or taking his own life, neither is there any law to punish anyone for spraying fruit trees when in full bloom. But it is generally supposed that anyone who is intelligent enough to grow an orchard, should at this day and age have learned that such an act is suicidal, and that if his preparation is effectual, he destroys the pollen-distributing insects, which are his best friends, and this prevents the proper pollenization of the blossoms of his orchard, which must result in an inferior crop of fruit.

Orchardists thinking of branching out into new fields should, to some extent at least, post themselves, and consult those who are more fortunate in having posted themselves, in things pertaining to their business, and have kept pace with new discoveries and improvements. There is no scarcity of up-to-date horticulturists, and scarcely a county in this State now that does not have an organized horticultural society. There is no topic perhaps more discussed than that of spraying fruit trees. Tables are prepared, and have been published time and again in almost every agricultural paper in the United States, giving every stage of the blossoms and buds when spraying should be done.

Honey bees are the best pollen distributors we have, and their value in this direction is of great importance. One might suppose that the honey crop of this country is the only value attached to honey bees. This is not the case, by any means, and I will venture the assertion here that their greatest value is in their pollenizing operations. There can be no doubt that honey bees as pollen distributors are of more value than the crop of honey they store to the people of this country. It is only of late years that the enormous extent of this has been discovered. In times long past people were much in the dark on this question, so much so that the bee keeper and the fruit grower were at war with each other. That bees had much to do with fruit, all knew, but the fruit grower easily jumped at the conclusion that the bees did the fruit a damage.

This was perhaps the principal means of starting investigation and experiments on this point. Experiments have shown that honey bees are the best pollen distributors, and that we are largely indebted to them, not only for the quantity of our fruits, but for the quality as well. Other insects are, of course, pollen distributors, but only on a small scale, compared to honey bees. Not only in the line of fruits do we receive benefits thus, but largely in the common cereals grown on the farm, thus assisting nature in the perfection of seed, together with fruit. The honey bee is the most general distributor, and not so much of a specialist as other insects which confine themselves to certain flowers only. The honey bee gathers pollen wherever pollen is found, and her scope of territory is by no means small. Bees work a field five or six miles in diameter.

Every up-to-date fruit grower of the present time is fully aware that the honey bee is his best friend, and governs himself accordingly, by fostering them as near his fruit farm as possible. A strawberry patch without honey bees is almost a blank. Not only domesticated fruits, but all wild fruits, are thus brought up to the highest state of perfection possible by this same process. Every fruit and vegetable growing district, and not this alone, but every neighborhood where man exists, should be supplied with honey bees, not only to gather honey, but to pollenize the flowers.

\$32.50. \$32.50.

The above greatly reduced rate has been made by the Union Pacific to California points. Through tourist sleepers, quicker time than any other line.

For tickets and full information call on F. A. Lewis, City Ticket Agent, or J. C. Fulton, Depot Agent, Topeka.

Finest Honey in the World

Is gathered by bees from alfalfa bloom, so say best judges. Send direct to the Arkansas Valley Apiaries for prices of honey delivered at your station, in any quantity, at from 6 cents per pound up. I refer to the Kansas Farmer concerning the excellent quality of this honey, and for fair dealings of Oliver Foster, proprietor, Las Animas, Bent Co., Colo.

The Lowest Rates East

are offered via the Nickel Plate Road. With solid through trains to New York, and through sleeping cars to Boston, travelers via this deservedly popular low-rate line are offered all conveniences of an exacting traveling public. Then, too, the quality of the service is unsurpassed. Modern day coaches and luxurious sleeping cars contribute to the comfort of passengers, while unexcelled dining cars cater to the tastes of the most exacting.

Geo. Groenmiller & Son,

Centropolis, Franklin Co., Kas.

Breeders of Red Polled Cattle and Cotswold Sheep, Buff and Partridge Cochins, Light Brahmas, Brown S. C. Leghorns and Golden Wyandottes.

Only a few seven-eighths Red Polled bulls for sale

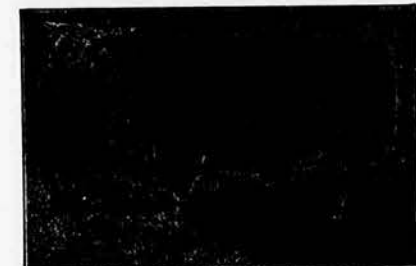
Rocky Hill Shorthorns.

At Newman, Jefferson County, Kans. Straight and Cross-Bred Bates and Cruickshanks. Five yearling Bulls for sale. Send for catalogue.

J. F. TRUE & SON.

CLOVER CLIFF FARM.

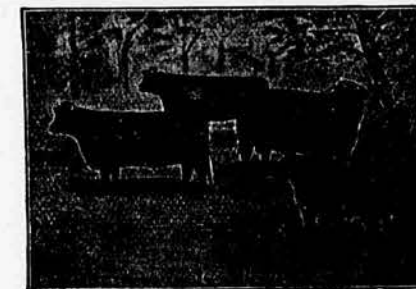
Registered Galloway Cattle. Also German Coach, Saddle and Trotting-bred horses. World's Fair prize Oldenburg Coach stallion, Habbo, and the saddle stallion, Rosewood, a 18-hand, 1,100-pound son of Montrose, in service. Visitors always welcome. Address BLACKSHERE BROS., Elmdale, Chase Co., Kas.



SPRING VALLEY HEREFORDS.

Lincoln 47095 by Beau Real, and Klondike 42001, at the head of the herd. Young stock of fine quality and extra breeding for sale. Personal inspection invited.

ALBERT DILLON, HOPE, KANS.



CEDAR HILL FARM.

Golden Knight 108086 by Craven Knight, out of Norton's Gold Drop, and Baron Ury 2d by Godoy, out of Mysie 50th, head the herd, which is composed of the leading families. Young bulls of fine quality for sale; also offer a choice lot of grade bull and heifer Shorthorn spring calves.

C. W. TAYLOR, PEARL, DICKINSON CO., KANS.

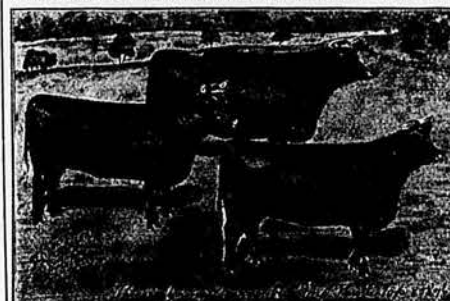


GLENDAL SHORTHORNS, Ottawa, Kans.

Leading Scotch and Scotch-topped American families compose the herd, headed by the Cruickshank bulls, Glendon 119370, by Ambassador, dam Galanthus, and Scotland's Charm 127264, by Imp. Lavender Lad, dam by Imp. Baron Cruickshank. Young bulls for sale.

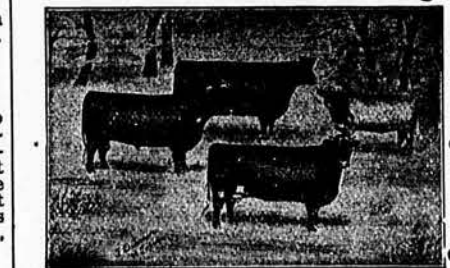
C. F. WOLF & SON, Proprietors.

ELDER LAWN HERD OF SHORTHORNS.



THE HARRIS-BRED BULL, GALLANT KNIGHT 124466, a son of Gallahad, out of 8th Linwood Golden Drop, heads herd. Females by the Cruickshank bulls, Imp. Thistle Top 83876, Earl of Gloster 74523, etc. Size, color, constitution and feeding qualities the standard. A few good cows for sale now bred to Gallant Knight. Address

T. K. TOMSON & SONS, DOVER, KANS.



SHORTHORN CATTLE.

I have combined with my herd the Chambers Shorthorns and have the very best blood lines of the Bates and Cruickshank families. Herd headed by Baron Flower 114352 and Kirklevington Duke of Shannon Hill 126104. The Cruickshank Ambassador 110811 lately in service.

Best of shipping facilities on the A., T. & S. F. and two branches of the Missouri Pacific Railways. Parties met by appointment.

B. W. GOWDY, GARNETT, KANS.

THE AMERICAN GALLOWAY BREEDERS' ASSOCIATION

Has just issued an interesting pamphlet containing some well-written articles, which will be of interest to every stockman. They are for free distribution and you can get a copy by writing to

FRANK B. HEARNE, Secretary, Independence, Mo.

Higgins' Hope Herd Registered Poland-China Hogs.

I am now offering a Choice Lot of Gilts and Sows bred to my Herd Boar, Eberley's Model 20854. If you are looking for the right kind, drop me a line and get my list before buying.

J. W. Higgins, Jr., Hope, Kans.

VALLEY GROVE SHORT-HORNS

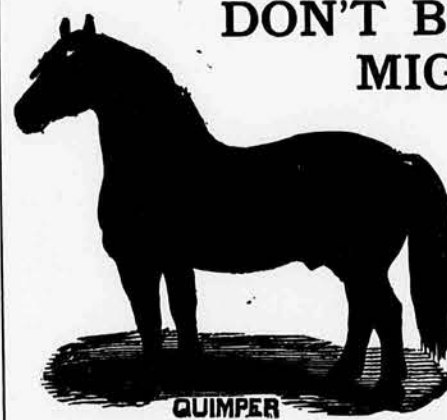
THE SCOTCH BRED BULLS

Lord Mayor 112727 and Laird of Linwood 127149

HEAD OF THE HERD.

LORD MAYOR was by the Baron Victor bull Baron Lavender 2d, out of Imp. Lady of the Meadow and is one of the greatest breeding bulls of the age. Laird of Linwood was by Gallahad out of 11th Linwood Golden Drop. Lord Mayor heifers bred to Laird of Linwood for sale. Also bred Shetland ponies. Inspection invited. Correspondence solicited. A few young bulls sired by Lord Mayor for sale.

Address T. P. BABST, PROP., DOVER, SHAWNEE CO., KAS.



QUIMPER

DON'T BE A— MIGHT HAVE BEEN,

But buy some Good Young Breeding Stock now—while prices are reasonable and opportunities great.

For 25 Years the Leading Western Breeder of Percheron and Coach Horses.

I have now the finest collection of young Home-Bred Stallions and Mares ever owned in the State. Correspondence solicited. Visitors welcome.

HENRY AVERY, WAKEFIELD, KANSAS.

Nelson & Doyle

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Have for sale at all times, singly or in car lots... Registered Herefords and Short-horns.

Stock on Sale at Stock Yards Sale Barn, Also at Farm Adjoining City.

N. B.—We have secured the services of John Gosling, well and favorably known as a practical and expert judge of beef cattle, who will in the future assist us in this branch of our business.

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Write for Proofs Covering Four Years' Use in U. S. A. on 650,000 Head.

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Are the Finest Equipped, Most Modern in Construction and afford the Best Facilities for the handling of Live Stock of any in the World. The Kansas City Market, owing to its Central Location, its Immense Railroad System and its Financial Resources, offers greater advantages than any other. It is the Largest Stocker and Feeder Market in the World, while buyers for the great packing houses and export trade make Kansas City a market second to no other for every class of live stock.

	Cattle and Calves.	Hogs.	Sheep.
Official Receipts for 1898	1,846,233	3,672,909	980,303
Sold in Kansas City 1898	1,757,163	3,596,828	815,580

C. F. MORSE, Vice Pres. and Gen. Mgr. E. E. RICHARDSON, Secy. and Treas. H. P. CHILD, Asst. Gen. Mgr. EUGENE RUST, Traffic Manager

Free Samples of WRIGHT'S CONDENSED SMOKE.



Send us 10 cents in stamps (to pay postage) and the names of ten or twenty of your neighbors that cure their own meats and we will send you a sample of WRIGHT'S CONDENSED SMOKE, the great meat preservative, the great time, money and labor saver. Address, E. H. Wright & Co., 915 Mulberry street, Kansas City, Mo. In writing mention KANSAS FARMER.

No Money in Advance!

High Grade Bicycles \$15.50. Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men, Women, Boys and Girls, well made and durable. \$60 "Oakwood" \$24.50 \$50 "Arlington" \$22.00 No better wheels made. Others at \$10, \$12.50, \$15.50, \$17.50 & \$19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. CASH BUYERS' UNION, 162 W. Van Buren St., B-64, Chicago, Ill.

WHEN WRITING ANY OF OUR ADVERTISERS PLEASE MENTION KANSAS FARMER.

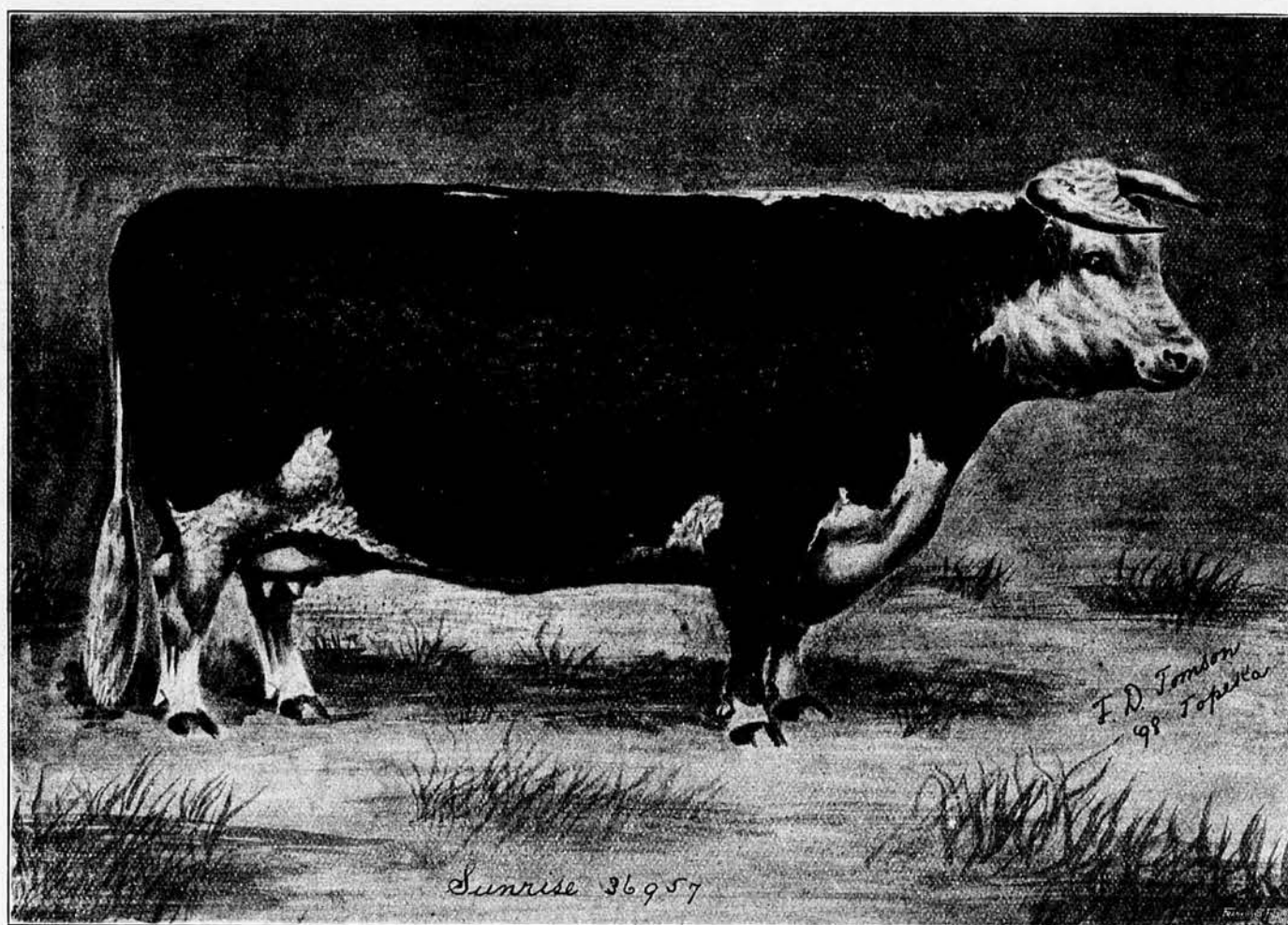
SUNNY SLOPE SALE!

...One Hundred Head of...
Registered Hereford Cattle at Auction

At the Kansas City Stock Yards Pavilion,

Kansas City, Missouri, Tuesday, April 18, 1899.

Grand Bulls, Cows and Heifers.



SUNRISE 36957.

First at Kansas City Inter-State Fair; first in class and sweepstakes over all beef breeds, Kansas State Fair, 1896.

Fifty bulls, choice out of 100 head, among them my great herd bull, Kodax of Rockland (40731), with several of his get. Forty head of 2-year-old heifers, bred to such sires as Wild Tom (51592), Imported Keep On (76015), Archibald V. (54433), Kodax of Rockland (40731), Java (64045) and Imported Sentinel (76063). Ten head of yearling heifers, five head of cows in calf or with calf at side. In the sale will be the get of Beau Real, Wild Tom, Climax, Kodax of Rockland, Washington, Cadillac, etc. These cattle were especially selected for this sale and are one hundred head of the best young cattle out of 500 head now on Sunny Slope Farm, and there is not one in the one hundred head that is not good enough to go in any herd in the country.

Remember that the sale commences at 10 a. m. sharp. Will be glad to meet my friends and the former patrons of the Sunny Slope Herd upon this occasion. Those who have not received a catalogue should write for one at once.

C. A. STANNARD, Emporia, Kans.

—AUCTIONEERS:—

Col. F. M. Woods, Col. S. A. Sawyer, Col. J. W. Sparks, Col. R. E. Edmonson and Col. J. N. Burton.