a.c. 48

VOL. XXXX
NO. 1

TOPEKA, KANSAS, THURSDAY, JANUARY 2, 1902.

ESTABLISHED IN 1863
$1.00 A YEAR

KANSAS FARMER.

Established in 1863.

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

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

SUBSCRIPTION PRICE: $1.00 A YEAR

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

ADVERTISING RATES.

Display advertising, 15 cents per line, agate (fourteen lines to the inch).

Special reading notices, 25 cents per line.

Business cards or miscellaneous advertisements will be received from reliable advertisers at the rate of $5.00 per agate line for one year.

Annual cards in the Breeders' Directory, consisting of four lines or less, for $16.00 per year, including a copy of the Kansas Farmer free.

Electros must have metal base.

Objectionable advertisements or orders from unreliable advertisers, when such is known to be the case, will not be accepted at any price.

To insure prompt publication of an advertisement, send cash with the order; however, monthly or quarterly payments may be arranged by parties who are well known to the publishers, or when acceptable references are given.

All advertising intended for the current week should reach this office not later than Monday.

Every advertiser will receive a copy of the paper free, during the publication of the advertisement.

Address all orders:

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

THE NEW VOLUME.

This number begins the fortieth volume of the KANSAS FARMER. The thirty-ninth volume contains 1132 pages, every one of which is interesting to the farmer. At the State meetings which have been held recently the editor has met unusual numbers of KANSAS FARMER readers. Many of these have stated that often during the past year they have found in a single number matters worth more to them, in money, than the cost of several years' subscription.

The paper will be strengthened and improved in several ways during the next year. New features will be added and old ones improved. Among the new features will be found the weekly review of the Kansas City live stock and grain markets.

The publishers think you will like the change in the arrangement of the paper whereby the reading matter begins on the first page. Advertisements are valuable to the reader and are essential to the prosperity of the paper but they do not deserve first place. The interest of the readers is the study of the editors and publishers. The readers are invited to contribute to this interest by writing to the editor their experiences and observations as well as their inquiries.

The universal sentiment of Kansas was expressed by a rising vote of the State Horticultural Society last Friday in the adoption of a resolution commending Seecretary Coburn for appointment to the office of Secretary of Agriculture, should a vacancy occur.

The Kansas State Horticultural Society at its annual meeting adopted a resolution strongly supporting the position taken by Regent F. D. Coburn in the agricultural college matter. The unanimous vote by which the resolution was adopted was cheered vigorously from all parts of the hall.

Next week will be a big one for meetings in Topeka. The Kansas Poultry Show will continue throughout the week. The Kansas Improved Stock Breeders will have a three days' meeting, viz., Jan. 6, 7, 8. The Kansas Board of Agriculture will hold a three days' meeting, viz., Jan. 8, 9, 10. It will pay to attend these meetings, even at considerable sacrifice.

The subject of reciprocity is treated in a pamphlet just published by the committee on National legislation of the National Association of Implement and Vehicle Manufacturers. The question of reciprocity is likely to be much discussed throughout the country during the days to come. It is one which affects more or less directly the pocketbook of every citizen. To "read up" on it is both wise and entertaining. We advise our readers to secure copies of this pamphlet by writing to Frank E. Lukens, Secretary, 1433 Monadnock Block, Chicago.

How to exterminate the pocket gopher is a living question of especial importance to alfalfa growers. The most effective for the labor and expense involved is that used at the Kansas State Agricultural College. To find the gopher's "run" a small steel rod like a wagon end gate rod is pushed into the soil. Then a pointed stick or rod of the size of a hoe handle is pressed into the ground to make a hole into the "run." If this stick or rod is provided with a step so that the foot may assist in pressing it into the soil the labor is lightened. The hole being made, a smal potato or piece of potato is poisoned with strichnine and dropped into the "run." The gopher attends to his own burial.

The editor of the KANSAS FARMER had forgotten it if he had ever committed any great crime, but the State Horticultural Society at the opening session last Thursday and in the absence of the editor brought him to a realization of his unworthiness by enrolling his name in the list of its honorary members. This great honor is appreciated more than we can make the cold types express. The few whose names were already on that roll are persons who, whether on this or the other side of the dark river, have done signal service to the calling of the horticulturist. To be placed in such company by the act of men and women such as constitute the Kansas State Horticultural Society is more than the editor ever expected and, he fears, is more than he deserves.

The relations of the United States with Cuba will continue to be important matters of discussion until the time which probably must come sooner or later when the island shall become a part of this country. At present the question of duties on Cuban products sent to the United States is all important. Cuba's former trade relations were modified by the war. Her natural market for sugar and tobacco is the United States. The tariff on these two articles is very high, so high that our Secretary of War and the military governor of Cuba hold that she can not pay them and live. President Roosevelt, in his first message, suggested "substantial reduction" of these duties. If it were financially profitable our government could not afford to starve Cuba. But it can never be profitable to disable so good a customer as Cuba naturally is for products of American farms and factories.

The following paragraph, which backs the Christmas greeting of Alma and Carl Swenson, of Bethany College, Lindsborg, Kans., is characteristic of that very much alive educational institution:

"The West is the great country of our Nation's future. All good, philanthropic, and patriotic citizens do well to remember this. Help the small, Western college, ambitious to educate the sturdy manhood and womanhood of the boys and girls, growing up in territory of the Louisiana purchase, and you have helped the Nation. Bethany with its 12 departments, 40 professors and instructors, and 800 students, desires to be especially remembered in the above connection. Please continue to be Bethany's friend and enlist others with you in the same friendship."

AS TO SECRETARY OF AGRICULTURE.

President Roosevelt has appointed Governor Leslie M. Shaw, of Iowa, to the cabinet position of Secretary of the Treasury. While not an unheard of condition, it is unusual for two cabinet officers to hale from the same State. There have been persistent rumors that the Secretary of Agriculture, Hon. James Wilson, of Iowa, will resign. Just as persistently, it is asserted that Hon. F. D. Coburn, of Kansas, will be offered the place. At this writing it can only be said that there is no better material in the United States from which to make a Secretary of Agriculture than would be obtained by promoting Mr. Coburn from the head of the Kansas Department of Agriculture to the head of the United States Department of Agriculture. In knowledge of agriculture, in executive ability, in appreciation of the work in all its branches, in clearness and precision as a writer, as an author of agricultural books, Mr. Coburn has no equal in the United States. His work is of that robust, honest, aggressive, and fearless class which seems destined to mark the Roosevelt administration as an epoc-making one. Further, Mr. Coburn's State is peculiarly an agricultural State. It touches the irrigated regions on the West and reaches well into the humid regions on the East. It produces the staple farm crops with peculiar facility, and is a stock-growing State, whose interests reach from the ranges to the full-feeding sections and the great markets. Should a new head be wanted for the Department of Agriculture the Kansas man's appointment would be approved universally by the real farmers and stockmen of the entire country.

Feeding Wheat.

PROF. H. M. COTTRELL, IN THE INDUSTRALIST.

Wheat at present prices of feed is theoretically worth, for equal weights when all its constituents are considered, 15 per cent more than corn, 5 per cent more than bran, and 7 per cent less than middlings.

The results in feeding vary widely. Some good feeders report making twice the gains from wheat as from corn, and other equally careful feeders report only half the gains from wheat that they obtained from corn. Some feeders have found fheat a satisfactory feed for all kinds of farm stock. Other feeders are succeessful in feeding wheat to one class of farm animals, but fail when feeding it to others, so that there are both successes and failures in feeding wheat to horses, steers, dairy cows, growing cattle, and hogs.

The experiment stations have not made a sufficient number of feeding tests with wheat to present conclusive results. The general results obtained by what feeding the stations have done show wheat to be about equal to corn for most feeding purposes when fed by ordinary methods, with greater difficulty in keeping animals on feed with wheat. Conclusions in regard to the feed value of wheat and the best methods of feeding it must be drawn chiefly from observations made from ordinary farm feeding.

CHARACTERISTICS OF WHEAT.

Wheat has smaller kernels than corn and for this reason is more liable than corn to be swallowed without being well masticated. The bulk of Kansas wheat is the hard Russian wheat, which this year is unusually hard. Wheat is a palatable feed for all kinds of stock, but has the disadvantage of forming a pasty mass if eaten alone, especially when ground. Wheat contains about 50 per cent more digestible protein than corn, slightly more carbohydrates, and a little more than one-third as much fat as corn.

HOW TO FEED WHEAT.

General observations show that wheat should be fed whole to sheep and coarsely ground for all other kinds of farm stock. Soaking twelve to twenty-four hours is considered next to grinding, but most feeders have found soaking unsatisfactory. Every trial shows better returns when wheat is mixed with some other grain than when fed alone, although if prices permit it wheat may profitably form four-fifths of a grain ration. Mixing with other grains overcomes the tendency to form a pasty mass.

GETTING THE ANIMALS ON A WHEAT RATION.

Care should be used in getting animals on wheat. Only a small quantity should be fed at first, mixed with the grain which the animals have been eating. The amount of wheat fed should

BLOCKS OF TWO.

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

be slowly increased and the proportion of the other grains decreased. When wheat forms not over half the grain ration we advise taking ten days to work up to full amount, and when wheat forms the greater part or the whole of the grain ration take thirty days to reach full feeding. Wheat is usually condemned by new feeders because they get their animals on feed with it too quickly.

MIX WITH ROUGHAGE.

Judging from our experience with other feeds the best returns with the least disturbance in feeding will be secured in feeding horses and cattle by mixing the wheat about 3 pounds per head per meal of whole hay or straw, mixing in such a manner that each mouthful taken will consist of part wheat and part roughage.

WHEAT FOR HORSES.

Many farmers have had good results in feeding whole wheat to horses doing heavy work; many more have found it necessary to grind wheat in order to keep horses in good condition. With the thermometer standing at 104° in the shade, the writer recently drove 20 miles behind a team that had been fed no other grain but whole wheat for four weeks. The team made good time and stood the trip well, showing the favorable effect of wheat feeding under trying conditions.

At the North Dakota Experiment Station horses doing farm work kept up in flesh on less than 16 pounds of whole wheat per head a day, but it was with difficulty that they were kept from getting off feed. The conclusion was drawn from the test that it was not advisable to feed wheat alone as a grain ration for horses, and the less expert the feeder the greater risk. A mixture of 1 part bran and 2 parts ground wheat, by weight, was found to be worth more than whole oats.

Kansas farmers have obtained good results in feeding farm teams ground wheat mixed with either bran, corn-meal, ground barley, ground oats, or ground Kaffir-corn, and the wheat may form from one-half to four-fifths of the mixture.

WHEAT FOR FATTENING STEERS.

The Ohio Experiment Station tested for two years the value of ground wheat compared with corn-meal for fattening steers. The ground wheat showed slightly better results the first year and the corn-meal the second year. The two experiments indicate that the value of the two feeds for fattening steers is about equal when both are mixed with other grains.

WHEAT FOR GROWING CATTLE.

Feeders report ground wheat as an excellent feed for growing cattle, but when fed alone is not a satisfactory feed for fattening steers, the tendency being to cause growth rather than fattening. This may be overcome by mixing the wheat with equal parts of corn, Kaffir-corn, or barley.

WHEAT AS A MILK PRODUCER.

Almost without an exception dairymen report ground wheat as a good milk-producing feed. This is easily explained by the fact that wheat contains more protein than the other grains produced on the farm. Alfalfa 20 pounds, wheat 4 pounds, and Kaffir-corn or corn 3 pounds will make a good milk-producing ration for the average cow in full milk. With roughage such as prairie hay or corn fodder the amount of wheat will have to be increased, and the best results will be obtained by substituting soy-beans, cottonseed, or oil-meals in the place of the Kaffir-corn. Some farmers will have no other roughage this winter but wheat straw. With all the wheat straw a cow will eat, 7 pounds of wheat and 4 pounds of cottonseed-meal will make a fair ration. It will take thirty days to get a cow safely on such a ration.

WHEAT FOR FATTENING HOGS.

At the Kansas Experiment Station, in one experiment, fattening hogs made 14.6 pounds gain per bushel of ground wheat, 12.8 pounds gain per bushel of ground corn, and 10.8 pounds per bushel of ground Kaffir-corn. In another experiment corn-meal and ground wheat mixed in equal proportions made better gains than either of the feeds alone. In both of the experiments the gain was mixed with water at the time of feeding.

At the Missouri Experiment Station, when fed to pigs, 1 bushel of ground wheat soaked made 13.2 pounds gain, 1 bushel of ground wheat made 12.6 pounds gain, 1 bushel of whole wheat made 11.4 pounds gain, and 1 bushel of corn made 10.3 pounds gain.

At the South Dakota Experiment Station the gains in fattening hogs per bushel of feed were, whole wheat 12.2 pounds, ground wheat 12.5 pounds, and corn-meal 12.2 pounds. The best gains were made where wheat was mixed with some other feed.

At the Oregon Experiment Station a bushel of ground wheat made 12.9 pounds gain on fattening pigs, while an equal weight of mixture of 2 parts wheat, 2 parts shorts, and 1 part oats, all ground, made a gain of 14 pounds.

At the Wisconsin Experiment Station the average of 4 experiments showed that for fattening hogs corn-meal and ground wheat are practically equal, and that a mixture of the two in equal parts made a saving of about 3 per cent in the amount of feed required. One bushel of wheat gave about 12 pounds of gain on fattening hogs. Whole wheat, both dry and soaked, was unsatisfactory. The best results were obtained by grinding the wheat and moistening it with water or milk at the time of feeding.

WHEAT FOR STOCK HOGS.

Kansas farmers report ground wheat as better for growing pigs than corn and many recommend it highly for the brood sow while suckling, as they find it a good milk-producing feed. At fattening time it should be mixed with corn, Kaffir-corn, or barley, as wheat alone tends to make the animal grow instead of fatten. The pork from wheat alone is not as firm as that from corn or Kaffir-corn.

In considering whether it is best to buy wheat or corn, it should be remembered that a bushel of wheat weighs 7 per cent more than a bushel of corn.

I Will Cure You of

Rheumatism.

No pay until you know it.

After 2,000 experiments, I have learned how to cure Rheumatism. Not to turn bony joints into flesh again; that is impossible. But I can cure the disease always, at any stage, and forever.

I ask for no money. Simply write me a postal and I will send you an order on your nearest druggist for six bottles of Dr. Shoop's Rheumatic Cure, for every druggist keeps it. Use it for a month, and if it does what I claim pay your druggist $5.50 for it. If it doesn't I will pay him myself.

I have no samples. Any medicine that can affect Rheumatism with but a few doses must be drugged to the verge of danger. I use no such drugs. It is folly to take them. You must get the disease out of the blood.

My remedy does that, even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it and I take the risk. I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay, and pay gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

Simply write me a postal card or letter. Let me send you an order for the medicine. Take it for a month, for it won't harm you anway. If it cures, pay $5.50. I leave that entirely to you. I will mail you a book that tells how I do it. Address Dr. Shoop, Box 529, Racine, Wis.

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

Agricultural Matters.

Land Rents.

DR. HENRY WALLACE, DES MOINES, IOWA, BEFORE OAK GRANGE FARMERS' INSTITUTE.

Few, if any, who have not given the subject especial attention are at all aware of the rapidity with which the farm lands of the West, and especially those adapted to corn growing, are passing into the hands of landlords. The census of 1900 will in due time give us the full statistics and they will surprise the general public as well as the political economist. A few weeks since, I attended an institute at Charleston, Ill., which was mostly composed of landlords; and I was told, as a means of illustration of the extent of landlordism in that most fertile section, that on the plank road leading north from that town there were in the first 12 miles but 2 farmers living on and cultivating their own farms. One farm on each side of the road in 12 miles! At Bloomington, Ill., a few weeks later I was told that two-thirds of the land in McLain County was rented; and that two-thirds of the inhabitants of that beautiful city were retired farmers and their families.

The Family Friend

An old and true friend that will help you in times of distress. When racked with pain you would give anything for relief. In the hour when the little child, too young to make its wants known, lies suffering, its little face drawn with agony; in the hour when the good wife, worn and tired, needs an arm to lean on; at all such times, when the calling of a doctor means a dangerous delay, besides great suffering and a heavy bill, there is nothing else so good as a bottle of

WATKINS'

Vegetable Anodyne Liniment.

We receive numberless letters like these:

SAVED THE CHILDREN.

CLARA CITY, Minn., June 14, 1901.

We had five children sick with **diphtheria** last winter and carried them all through in one week without any doctor. **Watkins' Vegetable Anodyne Liniment** should be used at once as soon as any symptoms appear. We mixed two teaspoonfuls of Watkins' Liniment with two of vinegar and one of salt. Gave some of the mixture once an hour, also rubbed the Liniment on outside of neck. OTTO PETER.

HORSES WOULD HAVE DIED.

SHIPSHEWANA, Ind., June 18, 1901.

I have used **Watkins' Vegetable Anodyne Liniment** for nine years and find it the best remedy for **colic in horses** I ever knew. I saved two horses with it that would have died. Cannot speak highly enough of it. HENRY CATTON.

The best thing made for Cholera Morbus, diarrhea, flux, rheumatism, cuts, cramps, strains, burns, colic, mumps, sore throat, diphtheria, frosted limbs, etc. For horses and cattle it cures sprains, cuts, scratches, bruises, sweeny, colic, etc. Of course when you read this advertisement you may not feel the need, but the need of it may arise at any moment of the day or night, and then its worth can not be counted in dollars and cents. Order it the next time our agent calls, or if we have no agent in your county, send us your name and address at once, and we will see that you are supplied.

FREE! FREE! FREE!

We send out a beautiful 100 page illustrated Home Doctor and Cook Book absolutely free, and want to place your name on our mailing list. It is the cleverest and most complete thing of its kind ever issued. Write for one to-day.

Wanted a Man. We want one good, open-eyed young man in each neighborhood who has a little ambition, and an inclination to get on in the world, to write to us. We are in a position to start him in a good paying business of his own. We have lots of young fellows, "boys" you might call them, who are making a nice thing selling Watkins' Remedies.

The J. R. Watkins Medical Co.
28 Liberty Street,
Winona, Minnesota, U. S. A.

At Audubon, in one of the comparatively new counties of Iowa, I found an entire township in which there were but 2 men who cultivated their own farms. To a remarkable and increasing degree the same conditions prevail in the 4 counties I have visited in the institute work in the young State of Nebraska.

In Iowa and in some extent in Illinois and Nebraska, especially in the dairy sections, this landlordism is of the patriarchal, or paternal, type. The owner of the land purchased it at a few dollars per acre and spent thirty years of his life in improving it and in milking cows, and feeding hogs and cattle; and having laid up a handsome sum in the bank, thinks he has worked long enough so rents to son or son-in-law and moves to town to enable his wife to go to church and to obtain better school privileges for his younger children. The result is a decline in school population with hundreds of schools in each State with an attendance of 10 or less pupils in each, and with hundreds of other schools idle during the winter. There were five idle schools in each of 2 Iowa counties we recently visited, and in one county, Floyd, a school with but 2 scholars, and in the other county, Audubon, another school conducted with but 1 scholar. Where this paternal landlordism exists there is as yet but little complaint of the loss of land fertility, but where the landlord is speculator and rents the land until he can sell it, or an investor and holds the land solely for rents, the complaint of the loss of fertility is as general and widespread as this sort of landlordism, whether it comes from Minnesota, Iowa, Nebraska, or Illinois.

Coextensive with this sort of landlordism there is a manifest lowering of both the standards of living, of intelligence, and of manhood in the tenant class, and for this reason the subject of land rents and the principles underlying it becomes a question of Nation-wide importance, involving as it does, not merely the financial interests of the landlord and the tenant, but the enduring prosperity of agriculture and the position of the farming class in State and National affairs. I have therefore chosen the words "land rents" as a subject around which I could group a number of thoughts which I think the good of agriculture and of the Nation requires to be uttered, and uttered now, and to which I solicit your undivided attention.

LIMIT TO AMOUNT OF LAND.

I shall not trouble you with theories about rent, what Richard, or John Stewart Mill, or Henry George said about it; but deal with the subject in a plain, common-sense way which always appeals to plain, common-sense people. By land rent I mean the price paid in cash or grain, for a year, or a term of years, for the use of agricultural land. I say agricultural land for the renting of farms differs in at least two important respects from any other kind or sort of rent. First, the amount of land to be rented in any locality is limited. There is yet in the wide domain of this continent very much land to be possessed; but nearly all of it differs so greatly in climate, through latitude and longitude and rainfall, that the farmer to be successful must adopt entirely new methods and practically lose the experience which has furnished a large part of his capital heretofore. In these great corn and grass States of the Middle West, the land has all been taken up, and no more can be added. On the other hand, there is no limit to the number of houses, stores, and factories that can be built. Hence it is impossible that rents of this class can ever permanently be either too high or too low. A probable unlimited supply will always meet an unlimited demand. There will never, for any length of time, be 2 tenants for every store; but the time will soon come when there will be 2 tenants for every piece of land.

RACK-RENTS.

The land rents differ from all others in other very important respects, namely, that while the tenant of stores and factories will never put in more than he can take with him when he moves and will always take out what he puts in, the good farmer can never take with him what he has put into the land. Because of these rank differences between land rent and other rents, there is a world-wide tendency on the part of landlords to exact rack-rents, or a higher rent than the productive capacity of the land will justify.

Let us, bearing these distinctions in mind, imagine a concrete case and see how rack-rent comes in in any long settled country like this. I do not know what would be a fair rent but for illustration will say $400 per quarter section. We can imagine an average farm leased to a good tenant for a term of years for that price. He has kept up the multitudinous repairs on the farm, has gathered stock about him, fed the principal part of the grain and forage of the farm, and hauled out the manure. The lease has expired and he would like to renew it for another term of years at a fair rate. A soil robber, with a family of

TO CURE A COLD IN ONE DAY
Take Laxative Bromo-Quinine Tablets. All druggists refund the money if it fails to cure E. W. Grove's signature is on each box. 25 cents

husky boys, comes along, looks it over, goes to the landlord and offers $600 per year for the quarter. The landlord is delighted and concludes that prosperity has visited the land for sure; that the lines have fallen to him in pleasant places, and that he has indeed a goodly heritage; but he don't like to part with the old tenant, whom we will call Jones. However, he tells Jones of the offer and regrets that his duty to his family and himself requires him to accept the offer. He says a whole lot of nice things about Mr. Jones, Mrs. Jones, and the little Joneses, would rent to him cheaper than any one else, and "being as it is you, I will renew the lease for $550. Mr. Jones talks it over with Mrs. Jones, and the Joneses in general, and finally concludes that he will lose in the breaking up of his plans and otherwise at least $200, perhaps $400, and concludes that he will pay the higher rent, work a little harder, and trust to better times and good luck. The word goes out that Smith, the landlord, has rented Jones his quarter for $550, and every landlord at once puts op the price and figures with great satisfaction that a quarter which will rent for $150 more than formerly is worth at least $2,000 more in actual value.

THE TENANT'S SIDE.

But if Smith, the landlord, has had some pleasant sensations and counts himself richer, Jones, the tenant, has had sensations of a different character. He feels that Smith has taken advantage of his necessities, of the fact that he can not move without serious loss. His attitude gradually becomes quite different. He now regards his lease as rack-rent and permission to get out of the land all he can. He suspects, in fact knows, that at the end of this lease a similar advantage will be taken, that the screws will be turned once more, and that his rent will be advanced as nearly as possible to the point that will make him almost ready to let go without driving him away. Smith, the landlord, has got it out of him, and Jones, the tenant, will get it out of the land if he possibly can. In your hearts, landlords, do you blame him? I certainly do not. If you have granted him for a good price the right to the pound of flesh, why should he not take it though it takes the very life out of your land? Substantially, this is the history of rack-rents in every agricultural country in the world after that country has once been fully occupied.

RESULTS.

What follows next? Impoverished land, impoverished tenants, impoverished landlords, a bitter feeling between landlords and tenants, a lower grade of tenants, until farming ceases to be respectable, and the farm boy, disgusted with his father's calling and embittered against landlords as a class, flees for refuge to the city with all its allurements and temptations. The whole country puts on mourning in the shape of unpainted houses, dilapidated barns and fences, no live stock with the exception of the tired farm horse, the family cow and a few hogs; and it is abandoned as an inhospitable country, fit only for the man with the hoe.

EFFECTS OF LARGE LANDED ESTATES.

The beginning of the downfall of the kingdoms of Judea and Israel was the accumulation of large estates in violation of the Mosaic law, which made the land the inalienable property of the original family. The accumulation of large landed estates and the oppression of the peasants was one of the prime causes of the French Revolution. Ireland furnishes a striking example of rack-rents and the remedy. My ancestors in 1680 rented land at a mere nominal figure, making all the improvements, including roads. In the next one hundred and fifty years rents rose to 30 shillings per acre, until the government was compelled to establish land courts, which reduced the rent to 20 shillings. Then followed the Land Purchase Act, under which the landlord may sell the fee for twenty years' rent, the British government paying him in the lump sum and giving the tenant forty-nine years to pay out. Now the proposition is to force all landlords to sell at seventeen years' rent on the same terms. In other words, the practice of rack-renting, growing out of the fact that the land was limited and the tenants limitless, and the further fact that the tenant could better afford to pay the rack-rent than to move, has compelled the government to extinguish rack-renting by treating the land as a monopoly and fixing the price, both of the annual rent and the land itself. Similar legislation, though less drastic, may be found on the statute books of all old nations. Unless there is a better understanding than now prevails of the principles underlying land rent, it will in due time be necessary for this government to adopt similar measures if agriculture is to enjoy permanent and abiding prosperity.

ELEMENTS OF RENT VALUES.

What determines equitable and just rent values? Many things. Location with respect to market, transportation, rainfall, society, school, and church privileges, all have their weight. These are all now mainly determined in the Mississippi Valley and will change but little in coming years. The two valuable factors are the available fetrility of the land and the skill and integrity of the men who till it, and of these the last should be first. I can get more rent out of a second-class farm cultivated by a first-class farmer than out of a first-class farm cultivated by a second-class tenant. In farming, as in anything else, the man that has the best brain and the highest skill can afford to give the highest price.

MAINTENANCE OF FERTILITY.

If landlordism is to be permanently prosperous, landlords must adopt some method of renting lands that will maintain and increase the fertility of the soil and increase the skill and integrity of the tenant. I speak of landlordism as inevitable, for whether it be right or wrong, good policy or bad, in the next twenty-five years landlordism will increase and landlords will own the great bulk of the corn lands of the Mississippi Valley. The maintenance of the fertility of the soil involves some system of renting that will carefully protect the rights of the 3 parties to every just lease, the landlord, the tenant, and the land. A lease that does not recognize and protect the rights of all 3 parties is in violation, not only of the equities between man and man, but the laws of Almighty God. Both the landlord and the renter die, but the land itself remains and represents the rights of unborn generations of men, much less to this generation who have had the privileges of pocketing unearned increment, or the increase of land value through the settlement of the country, and then puttering about, or retiring to town, and patting their pocketbooks under the conviction that they have made money, and wondering why their sons or sons-in-law can't make money as fast as they did. Why, you miserable old duffer, you have not created value, but have pocketed unearned increment; while your tenant is up against the real thing in that he has to create values, to coin the actual stuff that feeds the world, from the sunshine, the raindrop, and the present available fertility of the soil.

NATURE PROTECTS FERTILITY.

It is one of the peculiarities of the Divine government in this world that it locks up fertility, keeping it in store for future generations of good farmers. It allows the man who tills the land from year to year to realize off only a small per cent of the potash, the phosphoric acid, and the nitrogen, the 3 great elements of fertility which the chemist can find in the soil. It is for this reason that it is not in the power of man to utterly, or nearly, exhaust any good soil of its actual fertility. The Lord lets him go about so far and then locks up the rest until the land spews out enant and landlord, as the promised land spewed out the Canaanites (for in this the 10 spies told the truth), and as the prophet told the children of Israel later that the land would spew them out. Even so, have the lands of Wisconsin, Illinois, and Iowa, spewed out the grain raiser and sent him across the Missouri; and they will eventually spew out that much greater sinner, the investing landlord, who extorts rack-rents and fails to provide either for the increased fertility of the land, or the increased skill and integrity of the tenant.

THE ALMIGHTY'S FARMING.

It would carry me far from my present purpose to enter into details as to how leases should be drawn up that will maintain and increase the fertility of the land. It may perhaps be wise to suggest one or two points. It would involve a study of the methods which the Almighty Himself has followed for thousands of years, ever since rock was converted into soil, and during which He has been growing in His large farming operations food for the fowls of the air and the beasts of the field. The Lord evidently does not consider the farm as a bank, but rather as a factory, of which the raw material is the rain, the sunshine, the electric currents, and the potash and phosphoric acids in the soil. These are all the gifts of God, given or withheld in such measure as suits His Infinite wisdom.

The Lord has been using this factory for thousands of years of create food for the wild beasts and creeping things and the fowls of the air, and He has turned it over to you to continue His farming operations and create food for the hungry nations. You have erected buildings for your family and your live stock, have fenced the farm off from other farms, have opened it up with the plow; and whether you propose to run the farm yourself or rent to a tenant, you would do well to notice the suggestion which the Lord has given you in His practice as to how to run it to the best advantage. You will thus learn more about farming than all the professors, all the books, and all the agrisultural papers and institute lecturers in the world can tell you. At most, they can only point out the Divine method.

HUMUS.

If you observe closely, you will notice that in addition to the actual mineral fertility of the soil, He keeps on hand constantly an amount of available fertility in the shape of potash and phosphoric acid, which He has weathered out of the rocks by means of water, frost, heat, and the action of plant roots. This is His stock in hand. He keeps also on hand, after the manner of the thrifty housewife, who always has yeast in store, a large amount of partially decomposed vegetable matter, which we call humus. The uses of this are manifold; it is a storage basin for water, soaking it up like myriads of little sponges in a wet time and giving it out slowly to the plants in a dry time. It is a reservoir of nitrogen without which not a muscle or a drop of blood of man or beast can be formed. It is also a divisor to keep the rock particles, constituting by far the major part of the soil, apart and thus facilitite the growth and development of plant roots, and it also stores up heat for use of plants. In His farming operations the Lord always keeps a stock of humus on hand, manufacturing it out of dead grass on the prairies, falling leaves in the forest, and the decay of roots in both. The more of these elements in hand in due proportions the greater the capacity of the farm factory and the greater its rental value.

LEGUMES AND STOCK FARMING.

If you are complaining of impoverished land, of land that washes in a wet time and bakes in a dry time, that will not grow clover as it used to do, know to a surety that you have departed from the right farming ways of the Lord of the harvest. You will notice if you study the Divine methods that He has made large use of legumes in order to keep up the ever-wasting and vanishing supply of nitrogen. Further, under Western conditions this can be done only by adopting some kind of stock farming. You must have legumes to furnish the supply of nitrogen for your soil and to keep up the supply of humus, through which alone the inherent fertility of the land can be available. This ought not to be a difficult matter with farmers in any Western State. The fact that population moves westward on isothermal lines has made the Western States heir to thrift, energy, and untiring industry. It is this fact that explains the mighty contrast to the surprised traveller between Wisconsin, northern Iilinois, northern Iowa, and southern Minnesota and the far richer lands of central Illinois and southern Iowa. The first mentioned blooms like the "garden of the Lord, the land of Egypt as thou comest unto Zoar," and the last, especially in central Illinois, is fast taking on the outward appearance of what the Scotchman calls a "widdie's farm."

SKILL AND ABILITY.

But if these northern and apparently more prosperous sections are to maintain their prosperity, they must, and by every means in their power, increase the skill, integrity, and standard of the tenants that cultivate these lands. Every decade with its improvements and sharper competition requires a higher measure of skill and a higher standard of integrity on the part of those who do the actual tilling of the soil, or participate in its management. How to get hold of the tenant, and the hired hand, how to impress upon their minds that a man without skill, no matter what his physicial ability, must go to the wall and become a mere hewer of wood and a drawer of water, is one of the problems which now confronts every man who has the good of agriculture at heart.

THE TENANT'S CHANCE MUST NOT BE WITHHELD.

Let me suggest in the first place that you must give the tenant a chance. You must not exact rack-rents, or all that his necessity compels him to give. You must not take advantage of the fact that a good tenant can not take with him all that he has put into the land. If you do, you will learn bye and bye that long ages before it was inscribed in the Holy Writ, it was written in the very constitution of this world, "Your sins will find you out." "The way of the transgressor is hard." If your land mourns by buildings falling into decay, by scant crops, by clay spots appearing on the hill-sides, know of a surety that the words of the ancient prophets are being fulfilled: "The land mourneth for the wickedness of them that dwell therein." Give the tenant a chance. Exact fair rents, not rack-rents.

You must do more than this, you must work with him; not by putting your hand to the plow, but by helping him with that head-work without which mere hand work is the drudgery of a slave. You can only increase his efficiency to pay higher and higher rents by persuading him to become a close observer and student of agriculture, and the best method of persuading him is by doing that yourself.

AN IMPORTED NOTION.

Again, there is a disposition on the part of many tenants to suspect that because they are tenants they are regarded by the landlord as only a tenant; that is, that the station in life of the tenant is below that of the landlord, a notion which I suppose, like so many other false notions, should be labeled "imported," and imported from countries where such class distinctions actually exist. A suspicion of this kind should not be tolerated for a moment. The tenant may be, and often is, greatly inferior to the landlord in intelligence, integrity, and executive ability; and again the very reverse may be, and often is, the case. Such a suspicion is

On Millions of Farms

the leading question is the replacing of worn out implements. If it's a *Plow, Lister, Harrow, Cultivator,* there is no question at all in the minds of many thousand farmers. It will be a

John Deere,

of course, just as with Mr. R. F. Stockton, of Maywood, Ills., who says,

"We used the old, reliable John Deere Plow for 25 years on the farm. It stands second to none. When I go back to farming, which I hope to do soon, the John Deere Plow will be my companion."

When *you* decide, why not choose *the best.* We make Plows of every description, for every purpose, for every section. Walking, Riding, Disk, Listing, single and in gangs, Middlebreakers, Harrows, Pulverizers, Walking and Riding Cultivators. The most extensive line in America.

The John Deere Plow Has Been the Standard of Quality for Nearly 60 Years.

If you wish to *see* how a plow is made in the oldest and largest steel plow factory in the world, send for handsome illustrated book, "From Forge to Farm"—*free* if you mention this paper.

DEERE & CO., Moline, Ills.

Stops the Cough and Works off the Cold.

Laxative Bromo-Quinine Tablets cure a cold in one day. No Cure, No Pay. Price 25 cents

not tolerated for a moment in the city, where many of the larger enterprises are carried on in rented property and a large per cent of the well-to-do live in rented houses. It is not wealth that makes the man. "Worth makes the man, and want of it, the fellow." The sooner both landlords and tenants realize that the man is neither socially the better or worse for being either landlord or tenant, the sooner one of the difficulties of making the farm pay higher and still higher rent will be removed.

SHORT LEASE, TO BE EXTENDED.

Charge the tenant a fair rent for a short time, with the assurance that it will be extended from time to time at fair prices as long as the relation is satisfactory to both parties. Give the assurance, not by word, but by act, that the tenant is not regarded as a mere hewer of wood or a drawer of water, a servant to do the landlord's bidding, and the way is open for his agricultural education, without which no permanent advance in rents proportionate to the selling value is possible.

THE FARM PAPERS.

How is this to be done? There is no better way for the landlord to increase the actual rental value of his farm than by persuading the tenant to subscribe for a first-class agricultural paper, the teachings of which are peculiarly adapted to the soil, climate, and conditions of the country in which he farms. If the tenants will not subscribe, you had better make his lease a short one and in the meantime subscribe for him yourself, and spend a cent each week in the purchase of a postal card that will call his attention to articles worthy of his special attention. No breeder of live stock should be without a breeder's paper. No dairy farmer should be without a dairy paper. No up-to-date farmer should be without one or more of the best up-to-date agricultural papers, adapted to the wants of his section that can be found in the United States, including always the best agricultural paper in his own State.

Subscription to a paper of this class is a recognition that in the opinion of the subscriber modern farming is not a mere matter of brute force, of hard knocks, of pure strength and awkwardness. It shows that the man has cu loose from the tradition of "father did so and so," and realizes that really effective work of farming is a good mixture of brain work and hand work, the brain guiding the hand. An agricultural library will soon follow, with the reports of the agricultural experiment stations and the annual institute reports of his State and adjoining States.

KNOWLEDGE HAS VALUE.

It is not difficult to get the farmer who is thus awakened and has an appetite for agricultural knowleage, "know how," to attend an institute, where he comes in personal touch with other farmers of like development; in touch, also, with the landlords, whose eyes are open, and he begins to absorb the enthusiasm which characterizes all really first-class farmers, whether they live on the farm or have their investments in agricultural enterprises. He realizes the truth of the lamentation of the old prophet, "My people are destroyed for a lack of knowledge." He is lifted out of the rut and begins to see something of the grandeur and glory, as well as the difficulties and disappointments, of that business which more directly than any other deals with the forces of nature. He magnifies his office and regards himself as no longer a granger, "man with the hoe," but a coworker with God Himself in feeding the hungry and clothing the naked nations. He does not regard himself as an Ishmaelite, his hand against every man, and every man's hand against him, but a man among men, with the respect and confidence of every other man who believes in good farming, clear thinking, and right living. He sees the great possibilities in farming, sees, if he is a tenant, that his real interests are identical with those of his landlord; that they are in fact, if not in name, partners, and are making the farm increasingly profitable to both. He sees, whether he be tenant or landlord, where it is possible to stop the terrible waste going on on farms every year through lack of knowledge of the capacities of the farm, or of the mighty forces with which he is acting. He becomes instead of a drudge the manager of the farm factory, and with his skill in management will give the owner of the factory a larger income or rent, whether he rents it for cash or works it on the shares; and his increased ability will justify him in paying a higher rent.

In this day and age of the world, it is not the pure brain worker that commands the highest wages, much less the man who has nothing else but strength to sell in the market; but it is the man who combines brain work with hand work, who understands men and things and has the capacity to bring things to pass. The world over, the more intelligent the worker, the higher aerage price he receives. The man who has the "know how" does not compete with the machine; he guides it. The man who has not the "know how" no matter what physical strength he may have, is the man fore-ordained by present conditions to scratch a poor man's head so long as he lives.

A QUESTION OF PHILANTHROPY AND PATRIOTISM.

The more thoroughly I study the subject of rent, the relations of landlord and tenant, the necessity of increasing the fertility of the soil and the ability of the man who tills it, the more overwhelming its importance becomes. It is not merely a matter of dollars and cents, not a mere question of economics; it is vitally related to the welfare of our country at large, a matter of patriotism as well as dollars. For as this civilization moves onward in the pathway of its manifest destiny, the proportion of farmers to the total population will certainly continue to decline. Cities with their corrupt government, will increase in population even more rapidly than in the past. The only thing that will preserve civil liberty in the city is the influx from the farms and the towns where farm sentiment molds public life.

The farm is the breeding place of men as well as live stock, and if we send to the cities ill-bred boys and girls, with low intelligence, mere drudges, embittered by a strong sense of wrong, we but add to the pessimism and discontent which even now is the greatest menace both to the city and to the Republic. If, on the other hand, our farmers, whether landlords or tenants, cherish the exalted ideas of our forefathers, if the spirit of the country home, the country church, the rural school, is preserved and intensified, we not only pour life-giving streams into the great marts of trade, but we develop on the farm that exalted character which fits the farmer to act as umpire between the ever warring forces of labor and capital; an umpire, who, combining in himself both the capitalist and the laborer, can, like the daysman that Job longed for, lay his hand upon both.

If this Nation is to fulfill its glorious mission among the nations of the earth, it must rear on its farms a race of broad-browed, clear-thinking men. The stay of the Nation in time of peace, its strength in time of war. A race more invincible than Cromwell's Ironsides, mightier by far than Cæsar's legions; a class of men who can hold the balance true when other classes lose their heads.

THE WEST AND THE NATION'S DESTINY.

We are near the parting of the ways. It is possible for these great States of the Middle West to be not only the granaries of the nations, but by reason of their thrift, intelligence, and patriotism, and their ability to take broad views of all public questions, to be the arbitrator of the destiny of the Nation. And again, it is possible for these States, teeming with the stored wealth of ages, to become so impoverished by bad farming that they will give a scant and gruding return to the unintelligent toil of men who will naturally be regarded by other classes as mere "hewers of wood and haulers of water," fair game for every adventurer, and the prey for every plunderer. Whether the one or the other, whether these broad prairies shall flourish as the garden of the Lord, or whether in due time they will be adandoned by their owners and tenants, as other lands have been, depends largely on the equities of the customary rent.

A Kansas Fibre Plant.

EDITOR KANSAS FARMER:—I wish, through your columns, to direct attention to a subject of vast importance to the farmers of Kansas. Twenty-six or seven years ago, while at the crossing of the Neosho River at the old trail between Independence, Mo., and Santa Fe, New Mexico, my attention was called to a weed or a plant growing there. It was the month of March. There was quite a little patch, and it was 4 or 5 feet high. I went to it and found it to be a plant one-fourth to one-half inch in diameter, with a smooth surface; under that surface was a fiber which appeared to be very strong. I gathered some of this plant, pulling it up by the roots and breaking off a part so that I could get the leaves to send to the Department of Agriculture at Washington in order to ask them to classify it and give me the name.

Mr. Ellsworth, of the United States Department of Agriculture, wrote me that he could not find a name for it, but he thought it belonged to the Ramie family of Asia, and if it could be raised cheap enough he thought it would make a very valuable fibre for market.

In the year 1894, I was experimenting with flax and as I saw plenty of this plant growing about Fort Scott, I thought I would see what there was in it. I gathered some and put it through the same process that I was putting the flax through. In the spring of 1895 I sent to the agricultural college at Louisiana and got a small sample of the Asiatic Ramie, which they were experimenting with for a fiber plant. I found that my own plant would compare favorably with it. It is very hardy and grows 2 crops a year.

The sample I enclose was raised after a crop of early potatoes had been raised on the ground, and was gathered in October of the same year. If the farmers would try raising it it might prove to be one of the most valuable crops they have. I have already submitted it to 3 or 4 experts, but they do not agree as to a name, so I will call it Kansas Ramie until a better name is found for it. H. B. WARE.

[The samples of fiber which accompanied this letter of the father of the lawyer-poet are fine, very long, and strong.—Editor.]

Go take a look at an ELLWOOD STEEL WIRE FENCE

Examine it thoroughly and you will buy it, we are sure of that. Best steel wires, heavily galvanized. Six styles, all sizes.

To the eye of a practical man it is the perfect woven steel fence. Sold everywhere. Guaranteed. If your dealer hasn't it, write to

AMERICAN STEEL & WIRE CO., Chicago, New York, San Francisco, Denver.

The Stock Interest.

THOROUGHBRED STOCK SALES.

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

January 7, 1902—Tom Clark, Chicago, Herefords.
January 14, 15, and 16, 1902—Cornish & Patten and others, Kansas City, Herefords. C. R. Thomas, Manager.
January 22, 1902—E. E. Axline, Oak Grove, Mo., Poland-Chinas.
January 28 and 29, 1902—Winn & Mastin, Kansas City, Poland-Chinas.
January 28 to 31, 1902—Sotham's Annual Criterion Sale at Kansas City.
February 11 and 12, 1902—C. A. Stannard, Scott & March, and Gudgell & Simpson, Fort Worth, Texas Herefords.
February 11, 12, and 13, 1902—J. F. Stodder, J. W. & J. C. Robison, and Snyder Bros., Wichita, Kans., Combination Sale.
February 13, 1902—J. F. True & Son, Shorthorn cattle, Wichita, Kans.
February 19 and 20, 1902—Breeders' Combination Sale, South Omaha, Herefords. C. R. Thomas, Manager.
February 25-28, 1902—C. A. Stannard, Gudgell & Simpson, Scott & March, and others, Kansas City, Herefords.
February 26, 1902—J. R. Young, Richards, Mo., Poland-Chinas.
February 28 and March 1, 1902—Dispersion of Wavertree herd of Galloways, South Omaha, Neb.
March 19, 1902—Dispersion Shorthorn Sale. Col. W. R. Nelson, Kansas City.
March 20, 1902—B. B. & H. T. Groom, Kansas City, Shorthorns.
March 25-27, 1902—National Hereford Exchange, Chicago, Ill. (Sotham Management.)
April 16, 1902—W. O. Park, Atchison, Kans., Aberdeen-Angus.
April 22-24, 1902—National Hereford Exchange, Kansas City, Mo. (Sotham Management.)
April 25 and 26, 1902—H. O. Tudor, Holton, Kans., horthorns.
May 7 and 8, 1902—Colin Cameron, Kansas City, Arizona Herefords.
May 27-29, 1902—National Hereford Exchange, Omaha, Neb. (Sotham management.)
June 24-26, 1902—Natiodal Hereford Exchange, Chicago, Ill. (Sotham management.)

Blackleg in Kansas, and Protective Inoculation. Bulletin No. 105.

VETERINARY DEPARTMENT, KANSAS EXPERIMENT STATION. PAUL FISCHER, B. AGR., D. V. M., VETERINARIAN.* A. T. KINSLEY, M. S., ASSISTANT.

Blackleg, also known as quarter-ill, black-quarter, symptomatic anthrax, French charbon symptomatic, German rausch-brand, Dutch spons ziekte (sponge disease), was formerly regarded as a form of anthrax. The two diseases, however, are entirely distinct.

It has been long known that blackleg is not a contagious disease, and that the meat from affected animals could, without harm, be consumed as food by man or beast. Making post mortem examinations upon such animals or removing their hides are operations that are entirely without danger. It must, however, be borne in mind that anthrax, a very dangerous disease in man, also occures in cattle, resembles blackleg in some respects, and must therefore be guarded against. Though the meat from blackleg carcasses must be regarded as absolutely harmless, it can not be considered a wholesome article of diet. It decomposes readily, and, if preserved, will develop a disagreeably sweetish and rancid odor, reminding one of smoked herring (Kitt).

Clinical descriptions that were furnished many years ago show very plainly that blackleg and anthrax are two distinct diseases. But not until 1860, and again in 1875, when Feser discovered the presence of slender club- and spindle-shaped, rod-like organisms in the blood of blackleg victims, and proved them to be the cause of the disease, was it fully demonstrated that blackleg and anthrax were entirely distinct from each other. Feser produced the disease experimentally in rabbits, sheep, and cattle, by incoluating them with mud taken from blackleg regions in the Alps. In the same year similar experiments were made by Bollinger.

More recent investigations concerning the nature of blackleg and the biological characters of the blackleg germ were carried on in France by Arloing, Cornevin, and Thomas. The most important result of their work was the introduction of protective inoculation, or vaccination against blackleg.

OCCURRENCE—GEOGRAPHICAL DISTRIBUTION.

Blackleg occurs in both hemispheres of the world. The annual losses from this disease in the various countries of Europe and in the United States are something enormous. Although it seems that the Western States are especially unfortunate in sustaining heavy losses, perhaps no State in the Union is entirely free from this disease. All but 7 of the 105 counties of Kansas have reported losses from blackleg, and there is no reason whatever for assuming that those 7 counties are free from it. Blackleg is a stationary, infectious disease; i. e., it is a disease that confines itself to certain restricted areas or localities—to certain sheds, stables, fields, etc. In these places it remains indefinitely, while certain adjoining places and buildings are entirely free from this disease. The disease occurs in uplands, in mountainous regions, and on lowlands. Low, black soils, in river bottoms, swamps, and other wet places, are most dangerous.

CLIMATIC CONDITIONS.

The disease occurs in all seasons of the year, but causes greater losses late in the spring, during summer, and early autumn. Stable feeding and pasturing no doubt influence infection, but in no case can the disease occur without the presence of the blackleg germ.

INFLUENCE OF CLASS, BREED, SEX, AGE, ETC.

Blackleg is a distinctly bovine disease. Sheep and goats are occasionally affected; rabbits, guinea,pigs, and other animals can be infected experimentally. A few cases of natural infection in the horse have been observed. No one breed of cattle is more susceptible to blackleg than another. However, from the manner in which infection occurs, thin-skinned animals, hence thoroughbreds and grades, are more susceptible than thick-skinned or common cattle. Native cattle are less liable to become infected than newly introduced stock, especially if the latter came from regions where blackleg did not exist. This may be explained by the fact that native cattle in blackleg regions have, either by exposure or through hereditary influences, acquired a certain degree of immunity. In mixed herds, it is easy to observe that the thoroughbreds and grades are the first to die of blackleg. Sex has little if any influence on the production of the disease. It is stated by some that male animals seem to be the more susceptible, but there may be other explanations for this.

No single factor exercises a greater influence than age. Young animals, es-

*Dr. N. S. Mayo succeeded Dr. Fischer last September.

pecially those between the ages of six and eighteen months, are most liable to become infected. However, contrary to general opinion, the disease may occur at practically any age. From 502 reports received from practical stockmen, 2 reported undoubted blackleg in calves seven to ten days old; 4 reported undoubted blackleg in calves two to three weeks old; 24 reported nndoubted blackleg in calves four weeks old; 46 reported undoubted blackleg in calves six to eight weeks old; 75 reported undoubted blackleg in calves ten to three weeks old; 24 reported undoubted blackleg in calves three months old; 67 reported undoubted blackleg in calves four months old; 51 reported undoubted blackleg in calves five months old; 71 reported undoubted blackleg in calves six months old; 88 reported that seven to eighteen months was the youngest age at which they ever observed this disease.

Aside from class, breed, sex, and age, many other conditions no doubt influence the development of blackleg in cattle. Among the best known of these is a condition of general thriftiness and rapid growth. It is a matter of common observation among stockmen that the thrifty and well-nourished young cattle, especially in the spring and early summer, are always more liable than others to take blackleg. It must not be supposed, however, that animals in poor condition never take the disease. Greatly emaciated animals may take the disease and die.

Just why very young animals are more or less immune to the disease is not known. The fact that suckling calves receive animal nourishment was suggested by Arloing, Cornevin, and Thomas to be a partial explanation. Another factor of importance is that suckling calves, by not being exposed to slight injuries, abrasions, etc., produced by eating rough food, escape one opportunity for infection. It is known, however, that artificial inoculation in young calves is never as successful in producing disease as it is with older animals. There is no doubt that the chemical and physiological condition of the blood and tissues themselves, at a certain age and under certain conditions, offers more favorable conditions for the growth of the disease germ than at other times. The exact nature of these conditions, however, has not yet been learned.

ANIMALS EFFECTED.

Blackleg confines its ravages almost entirely to cattle, sheep, and goats, and in very rare cases horses also take the disease. Pigs, dogs, cats, and rabbits are practically immune. The disease is not known to occur in human beings. When horses and mules are inoculated a local reaction (swelling) is the only result. The disease can be produced in cattle by inoculating them with the blood of an affected animal.

THE CAUSE OF BLACKLEG.

The cause of every infectious disease is in the main twofold—(1) the direct or exciting cause, and (2) the indirect or predisposing cause or causes. In blackleg, the predisposing causes are due to racial as well as to individual peculiarities. As far as racial predisposition in cattle is concerned, it is limited to the condition of the skin. Thin-skinned animals are more easily wounded, and hence more liable to become infected. And, as before stated, breeds of cattle that have been exposed to the disease, by being raised in a blackleg district, possess a certain degree of immunity which is transmitted to the offspring. However, this would be individual rather than racial in character.

As to predisposition in individuals, there exists the greatest possible difference. Some animals are highly susceptible; others of the same breed are perfectly immune. Between the two extremes we find any number of intermediate conditions. Age always influences individual predisposition. Thus, while some animals are susceptible at almost any age, and others are immune at all times, the great majority of susceptible animals show the greatest predisposition at a certain age—six months to eighteen months or two years.

Finally, the individual animal's condition, by which we mean its general thriftiness, its rate of taking on new flesh, influenced by any change in diet, etc., is an important factor in determining susceptibility. It is known, for instance, that young, thrifty, rapidly growing animals, especially when this rapid growth is caused by a sudden favorable change in diet, as turning out on green pasture after dry winter feeding, are always in greater danger of an attack by this disease than other animals.

THE DIRECT CAUSE OF BLACKLEG.

The direct or exciting cause of blackleg is a parasitic vegetable organism belonging to the bacteria, and known as the blackleg bacillus. Blackleg is caused by the entrance of the blackleg bacillus into the connective tissue of the animal's organism. This entrance is always effected by means of wounds. As a rule, the smaller and deeper the wounds, the more favorable is the opportunity for successful infection; hence, wounds produced by the barbs of wire fences, thorns, awns of grains, etc., though usually invisable, are by far the most dangerous. As a rule, the production of the wound and the introduction of the disease germ occur simultaneously.

THE BLACKLEG BACILLI.

These are very minute, one-celled plant organisms. In shape they vary from slender rods to oval or spherical forms. The rods are usually enlarged at or near one end or the middle, thus assuming club- and spindle-shaped forms. They have the power of independent motion, which they produce with the aid of hair-like appendages called flagella. The enlarged portions bear the spores—organs that have been compared with the seeds of higher plants. These spores are the resting stage of the bacilli and are the most resisting organisms known. In size the bacilli range from 5 to 15 micromillimeters* in length and about 3 micromillimeters in thickness.

In the diseased animal these bacteria can be found in enormous masses in the affected subcutaneous connective tissue and muscles, but they are not found in the blood of the living animal. They occur also in large numbers in the bile and in the contents of the intestines. Some time after death they are also found in the blood. The blackleg bacillus is so-called anærobe; that is, it develops only in the more or less complete absence of oxygen.† In artificial cultures and in the animal body large quantities of gases are developed during its growth. These gases give rise to the characteristic blackleg tumors referred to later on. The first pure cultures of this germ were made in chicken broth by Arloing.

According to Kitasato, the most favorable temperature for its development is 36° to 38° C. (96.8° to 100.4° F.), but it will grow at as low a temperature as 16° to 18° C. (60.8° to 64.4° F.). Spores develop most rapidly at high temperatures. In the living body no spores seem to be formed, but they appear a very short time after death—at most, an hour or less.‡

Arloing, Cornevin, and Thomas have shown that blackleg virus (blackleg bacilli and spores) has a remarkable power of resisting the injurious influence of external agencies. When dried this power of resistance is even increased, and, in this condition, it may retain its virulence or disease-producing power for a long time without being mitigated in the least.

Buried cadavers of blackleg victims harbor the active germ indefinitely. Low temperatures have no effect whatever in decreasing its virulence. According to Kitt, fresh virus (fresh meat from blackleg carcasses) loses its disease-producing power when exposed to 100° C. for twenty minutes. Dried virus will resist the action of 110° C. for nearly six hours. Fresh virus is destroyed by boiling for two minutes; dried virus requires boiling for two hours to destroy it.

Dried virus is destroyed by the action of solutions of 1 part of corrosive sublimate in 5,000 parts of water, salicylic acid (1:1000), thymol (1:800), carbolic acid (1:50), boracic acid (1:5), hydrochloric acid (1:2), etc. On the other hand, alcoholic solutions of carbolic acid, unslaked lime, copperas, chloride of zinc, sulphuric acid and other disinfectants in common use have little value as destroyers of the blackleg bacillus.

Finally, it has been shown that the continued action of high temperatures and of certain chemicals has the power of reducing the virulence or disease-producing power of these bacteria. Bacilli thus reduced in virulence can be made to regain their original power by the addition of lactic acid, calcium lactate, acetic acid, dilute alcohol, etc. Blackleg bacilli are always found in the infected parts of animals that have blackleg. There they grow and multiply. In the soil they find a resting-place from which they enter the bodies of other animals and produce disease. Whether or not the blackleg bacilli multiply in the soil is still an open question. That they remain alive and virulent in the soil for an indefinite period has been demonstrated repeatedly.

MANNER OF INFECTION.

Blackleg is a wound-infection disease; that is, it is caused by the entrance of the blackleg bacilli into the tissues through wounds in the skin or other parts of the body (mucous membranes). These wounds must be deep enough to reach the subcutaneous or submucous connective tissue. Virus introduced merely under the skin but not into the subcutaneous connective tissue will, as a rule, not produce the disease. The blackleg bacilli being anærobic, deep wounds are best suited to serve as ports of infection. Such wounds can easily be produced by barbs of wire fences, thorns, the beards of grains, and other grasses, or any other sharp-pointed objects or instruments. They can occur in the stable as well as in the field. In both places infected food may be the medium of infection. In the pasture the soil itself may play this role. As soon as the germs have entered the tissue of the animal and found a favorable place for growth they begin to develop and multiply rapidly. They increase in numbers at an enormous rate, and at the same time produce a number of gases which accumulate and give rise to the peculiar gassy, crackling swellings characteristic of blackleg.

PERIOD OF INCUBATION.

The time between the entrance of the germs into the body and the appearance of the first recognizable symptoms of disease is called the period of incubation. On the average this is about two days, but varies according to the amount of virus introduced, the individual animal, and other conditions. Sometimes it requires five days, and experiments at this station show that distinct elevation of temperature and the charactertistic lameness may appear less than seven hours after inoculation and death result in less than twenty-one hours.

SYMPTOMS.

Blackleg has a very rapid course, death usually occuring within one and one-half to three days after the appearance of the first symptoms, or sooner. The principal symptoms are the appearance of rapidly developing crackling tumors, fever, enlargement of the neighboring lymphatic glands, and lameness.

(1) The blackleg tumors may appear in various parts of the body, but chiefly at the thighs, shoulders, neck, chest, flank, and rump. They do not occur below the knee or hock. Sometimes they are found in the mouth, at the gums, tongue, or in the throat. At first the tumors are small and very painful, but they increase in size rapidly and within a few hours can attain enormous proportions, and may even extend over the entire body. These tumors are ctharacterized by the fact that when they are touched, or when the hand is rubbed over them, they produce a peculiar crackling or crepitating sound; percussion produces a clear tympanitic sound. The middle portion of the tumor becomes cold and painless, sometimes dark colored, and resembles parchment when touched. When cut into with a knife the animal exhibits little or no sign of pain, and from the wound there exudes a dark red, nearly black, foamy fluid, with a disagreeable, somewhat sweetish odor. This fluid contains millions of bacteria. One or several of these swellings may be observed. The lymphatic glands near these tumors become enlarged, and can often be distinctly felt as hard swellings under the skin.

(2) The principal general symptoms are as follows, viz.: Sudden loss of appetite, suspended rumination, general depression. To these are added high temperature (105° to 107° F.), increased pulse and respiration. The visible mucus membranes, particularly those of the eye, become dark red, even purplish, or of a dirty leaden color. As a result of the pain produced by the tumors, the animals have a stiff and awkward gait. Finally they get down, are unable to rise, respiration becomes more labored, they groan, sometimes show symptoms of colic, the extremities get cold, they get weaker and weaker, and death occurs with a fall of the body temperature. The duration of the disease, when it terminates fatally, is six to forty-eight hours. Sometimes the blackleg tumors, sometimes the general symptoms just described, set in first. When the general symptoms are less severe, animals have been observed to recover in a day or two, or after four or five days from the appearance of the first symptoms.

POST-MORTEM APPEARANCE.

Beneath the skin, where during life the tumors were observed, we find puffed-up connective and muscle tissue of a dark red or nearly black color. From the cut surface there exudes a blackish, frothy mass, consisting of the blood and tissue juices charged with gases. The affected muscles have a porous, spongy texture, crackle when handled, and when exposed to the air for some time take on a peculiar iridescence. The escaping gases will burn with a bluish flame.

The lymphatic glands near the tumors are enlarged, gelatinous in texture, and contain numerous small hemorrhages. The lymphatic vessels are often distended with gas.

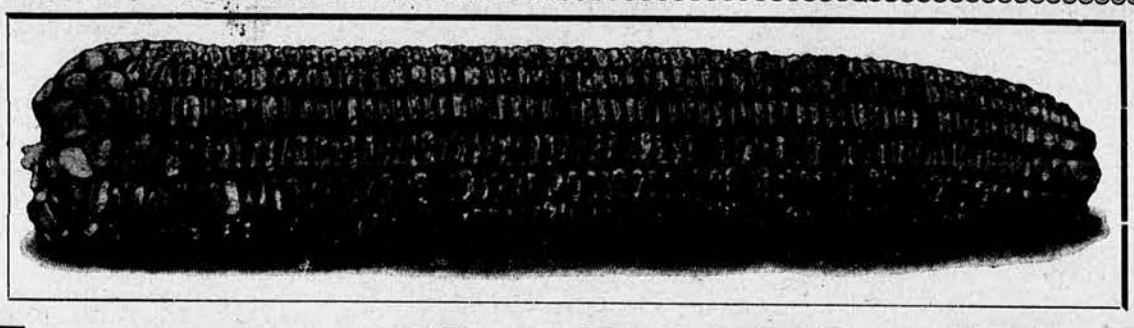
In the abdominal cavity we often find large quantities of bloody exudate or only slight quantities of colorless serum. The walls of the stomach and intestines may be swollen and covered with hemorrhages to a greater or less extent. The kidneys are similarly affected, large hemorrhagic spots being frequent in the surrounding tissues and in the walls of the abdomen. When the stomach and intestines are affected their contents are often bloody. The liver is congested. The spleen shows no abnormal changes.

In the thoracic cavity we find similar changes, viz.: the accumulation of bloody exudates, and a few large or innumerable small hemorrhagic spots

*A micromillimeter is the one-thousandth part of a millimeter; a millimeter is about one-twenty-fifth of an inch.

†Kitt has succeeded in cultivating it, artificially, under aerodic conditions.

‡Personal observations.



Vansant's Cattle King

The best cattle corn grown--medium early, 60 to 100 bushels per acre.

Early Reed and Mammoth White

are our other standard varieties. Early Reed is a popular sort, light yellow, ears from 9 to 12 inches long, deep grain, small cob, matures in 100 days, and is a big yielder for an early variety. Mammoth White is the best white corn grown, medium early, ears from 9 to 14 inches long, white cob. Selected, tipped, shelled, sacked, and f. o. b cars, $1.25 per bushel; osders booked now. Samples free.

W. W. VANSANT & SONS, FARRAGUT, IOWA.

in the lungs, heart, pericardium, and pleura. If the muscular substance of the heart is affected it is soft and friable. The air passages of the lungs also show hemorrhages. The number, size, and distribution of these hemorrhages and the quantity of the bloody and gelatinous exudates vary greatly.

The blood itself (except in the tumors) has its normal color and is distinctly clotted. The other muscular parts (those not containing tumors) show few changes from the normal.

The whole cadaver is, as a rule, considerably distended, from the accumulated gases. These gases result in part from the development of the blackleg germs, in part from fermentative processes in the stomach and intestines. As a result of the accumulation of these gases, a blackleg carcass that has been dead for several hours has a peculiar and characteristic appearance. The germs of blackleg, during the life of the animal, are found in the muscle and connective tissue only. After death they also occur in the blood.

DIFFERENTIAL DIAGNOSIS.

A number of other diseases, but malignant œdema and anthrax in particular, may be mistaken for blackleg.

ANTHRAX.

In this disease the tumors do not crackle or crepitate; no gases are devoloped. The disease is less fatal than blackleg. In anthrax 70 to 90 per cent of the attacked animals die; in blackleg practically all die. In anthrax the spleen is always enormously enlarged; in blackleg this organ is not affected in any striking manner.

In blackleg the blood coagulates after death; in anthrax it has a tarry appearance. Guinea-pigs die when inoculated with either anthrax or blackleg virus. Rabbits die from anthrax but are immune to blackleg. Hence, when in doubt, a rabbit and a guinea-pig may be inoculated with blood or juice from a tumor of the suspected animal. If both the animals die, the conclusion reached is that the animals had anthrax; if the Guinea-pig alone dies, the disease was blackleg. A bacteriological examination would also serve for diagnostic purposes and, when practicable, would be preferred.

The germs of the two diseases are quite characteristic under the circumstances. The bacilli of blackleg are club- or spindle-shaped, vary considerably in length, nearly always bear spores, have rounded ends, and are actively motile. The bacilli of anthrax are somewhat larger, more uniform in length, have square ends, usually no spores when taken from fresh cadavers, and are non-motile.

MALIGNANT OEDEMA.

This disease has a still more striking similarity to blackleg. It can not be expected that any one possessing no knowledge of pathology could recognize the difference between these two diseases. It may be said, however, that malignant œdema may occur anywhere, while blackleg is restricted in its occurrence to so-called blackleg areas or districts. Blackleg usually claims a large number of victims, malignant œdema only isolated ones. The latter disease is usually not as fatal as blackleg. Malignant œedema and anthrax both occur in human beings.

A bacteriological examination will determine the difference between anthrax and malignant œdema. Here artificial cultures are of especial value. Malignant œedema usually results from the infection of large wounds, blackleg from infection of small wounds. The treatment of castration, dehorning, and other wounds with antiseptics is the best percaution against malignant œdema infection.

SEPTIC METRITIS

(inflammation of the womb), caused by certain bacteria, may be mistaken for blackleg. The fact that this usually occurs in older animals, in females only, and as a rule after calving, will serve as a guide to a diagnosis.

TREATMENT.

Treatment for a disease like blackleg, with its rapid and almost invariably fatal course, is practically out of the question. It would be impossible to record here a list of the remedies and the methods of treatment that have been tried, and even recommended as infallible in producing the desired effects. Some of these methods are barbaric, and the confidence placed in the action and in the effects supposed to result from other methods borders on the pathetic. A common practice in this State is to drive or run an animal until it completely tired out and refuses to go further, and then let the case take care of itself. Cases of cures brought about in this manner are frequently reported. However, reports of recovery without any treatment whatever are quite as common. The mere circumstance that driving a sick animal almost to death does not actually kill the animal is no proof that it cured it. The theory upon which this treatment is based is the popular supposition that the real trouble lies in the fact that the blood in the blackleg tumors is clotted and can not circulate properly. Now, in the first place, the blood in those places is not clotted; and, secondly, if it were clotted, it is very doubtful whether running an animal, and thus accelerating its pulse and respiration, would have any tendency to unclot it. Finally, we know that blackleg is not a disease of the circulatory apparatus, but a disease due to the presence of a living germ in the animal tissues, and that death results from poisoning by the products excreted by these germs. It is difficult to see how exercising the animal could have any effect on the chemical composition of the toxine excreted by the blackleg bacillus.

Some stockmen resort to bleeding, and report cures as results. Bleeding could not possibly have any beneficial effect in such cases unless a large quantity of blood were lost, and in any case this would affect the future well-being of the animal. Since animals purported to have been saved by bleeding rarely amount to anything afterward, we must conclude that this is an unsatisfactory method of treatment. As a rule it is carried on in a barbaric fashion, and should therefore be discouraged.

Some cattlemen cure blackleg by cutting off the tips of the tails of the affected animals. Cases of recovery have been reported when the tumors have been deeply incised vertically, large quantities of frothy liquid allowed to escape, and then strong solutions of carbolic acid or other disinfectants introduced. Although this method of treatment is not irrational, it is not a safe plan, by any means, to ascribe to the treatment every case of recovery following it. Be this as it may, however, we know that it is not an infallible remedy nor anything approaching it. We know that such animals, even when they recover, are usually worthless; and, lastly, the incision of the tumors allows blood loaded with blackleg germs to escape, drop to the ground, and create new sources and opportunities of infection. Much more could be said about other methods of treatment which are equally or more unsatisfactory. But time and space are too valuable. We must conclude that there is no satisfactory treatment for blackleg.

PREVENTION.

Since therapeutic treatment for blackleg is of practically no value whatever our only hope lies in prevention. As is the case with human ills, many of the so-called preventive measures that are taken to prevent plackleg are based on a lack of knowledge of pathology, and on superstition. All sorts of preventives are used by various cattlemen and all of them are supposed by those who have used them to be infallible if, by chance, no cattle happened to die after their application. The popular preventives in common use are starving, bleeding, so-called nerving, setoning or roweling, the introduction of all sorts of substances and preparations like elder pitch, onions, salves, ointments, etc., under the skin, the feeding of salts and sulphur, etc., etc. It is not necessary to consume time and space to describe these operations; those who originated and those who practice them are familiar with them. Very careful and extensive observations by reliable men in different countries show conclusively that these operations have little or no value and in many cases are positively harmful. Hence the less this sort of information is disseminated the better. The mere fact that animals do not die after receiving these treatments is not sufficient evidence to prove that they would have died had they not been treated. Besides this, our records at the experiment station show so many contradictory reports regarding the value of these methods of treatment that when the results are averaged up there remains absolutely nothing in favor of them.

It is no doubt true that starving an animal will to a certain extent prevent the appearance of the disease, even if we base this statement on nothing else than the fact that all well-fed animals usually suffer most. But be that as it may, no one will insist that it pays to feed an animal and then starve it to keep it alive. There can be no profit in this practice.

There is only one method of preventing blackleg that is founded on scientific principles and has resulted from carefully conducted researches and experiments; it has stood the test of time and of practical application. This is preventive inoculation or vaccination.

PREVENTIVE INOCULATION.

Preventive inoculation is nothing new. It was practiced by the Chinese a thousand years before the birth of Christ. The Chinese resorted to preventive inoculation to protect themselves against smallpox. At the close of the last century, Jenner, an English physician, discovered the value and introduced the practice of inoculating with cowpox (vaccination) for the prevention of a related disease, smallpox. The Chinese used attenuated smallpox virus for protective inoculation. They exposed themselves to mild cases of smallpox and thus became immune to further attacks.

It was a matter of common observation that when animals or persons recovered from a contagious or infectious disease they would rarely take the disease a second time. They became immune. Whether the attack from which they recovered was very severe or extremely mild, the immunity, within limits, was the same. In other words, a mild case was just as effective as a severe case in preventing a second attack. The duration of the immunity depends on various factors, on the animal itself, and above all on the particular disease. Under certain conditions every infectious disease produces immunity to a second attack for a certain time. The mere fact that the patient recovers makes this necessary. For some diseases the immunity lasts only a short time—a few weeks or a few months; in other cases it lasts one or two years or even a lifetime. Protective inoculation against blackleg consists in the artificial production of a mild case of blackleg from which the animal recovers and then becomes immune. The material used for inoculation is an artificially attenuated culture of blackleg germs. This method, with various modifications, was first studied and practically applied in France by Arloing, Cornevin, and Thomas. A brief outline of their work is as follows:

WORK OF ARLOING, CORNEVIN, AND THOMAS.

In their inoculation experiments, these three investigators found that when active, unattenuated blackleg virus (blood or tissue juice containing blackleg bacilli or pure cultures of these germs) was inoculated subcutaneously or intramuscularly the inoculated animals always died of blackleg. They found that when the virus was introduced directly into a bloodvessel a mild general attack of the disease was produced, the animal recovered, and was immune against the effects of subsequent inocluations. Intratracheal inoculation produced similar effects. On the other hand, inoculations by way of the digestive tract (feeding) had no effect whatever.

On the strength of these observations, 13 animals were inoculated at Chaumont with virus dissolved in distilled water, filtered, and injected into the jugular vein. Six months later these animals, with 12 check animals, were inoculated subcutaneously with blackleg virus. None of the former took the disease, but 9 of the check animals died of blackleg. In 1881, 245 animals were inoculated, with the same success, in the Department de la Hautemarne; similarly, 78 animals in the Department des Ain, in 1882.

Inoculation by the intravenous method required a skillful surgical operation, consisting of exposing the jugular vein, and very exact manipulation in introducing and withdrawing the needle, in order to prevent the virus coming in contact with the subcutaneous connective tissue. Then the subcutis of the tail was chosen as a point of operation. Virulent cultures inoculated at this point were found to produce only a temporary and harmless swelling, but resulted in perfect immunity. The dense connective issue and the low temperature of the tail account for the mild character of the tumor; one checking the development, the other preventing the spread, of the blackleg bacilli. Aside from these precautions, the virus was reduced in virulence by subjecting it to the action of a certain degree of heat.

METHOD OF ATTENUATING THE VIRUS.

Arloing's later method of attending blackleg virus is as follows: Forty grams of muscle substance from a blackleg tumor is rapidly dried at 32° C. (90° F.), then evenly mixed with 80 grams of water. This mixture is divided into 12 equal parts, each part spread on a flat plate and heated in an incubator for six hours. Half of the material is heated at 100° C. (212° F.), and half is heated at 85° C. (185° F.). The first produces a weak, the second a strong virus. The inoculation is performed in two operations; first the weaker and then the stronger virus being used.

The virus is prepared for use as follows: One gram of the material is triturated with 5 grams of water, strained through fine linen, and the filtrate is injected into the animal by means of a hypodermic syringe. This amount of material is sufficient for 10 animals. The point of inoculation is the under side of the tail, 8 inches from its tip. The hair is carefully shaved off, a trocar is introduced for a distance of 8 centimeters between the skin and bone; this is withdrawn, and then the hypodermic needle of the previously filled syringe is introduced, the required amount injected, needle carefully withdrawn, and then, to prevent escape of the injected fluid, a small rubber bandage is applied and allowed to remain four hours. Thus 20 to 25 animals can be inoculated in one hour.

Ten days later the operation is repeated, this time using the stronger virus.

EARLY STATISTICS ON BLACKLEG PROTECTIVE INOCULATION.

In 1883, Cornevin inoculated 125 animals in France, with favorable results. Similar results were obtained by Cornevin in 1884. At the close of the latter year Hess and Strebel inoculated 2,000 cattle in Switzerland, and turned them out in infected regions of the Alps. In an equal number of check animals the mortality rate was 28 times greater than in the inoculated animals.

From 1884 to 1888 Strebel inoculated 8,641 cattle in Switzerland, of which 15 died of blackleg=0.17 per cent=1:567; of 21,000 check animals, not inoculated, kept under the same conditions, 491 died of blackleg=2.34 per cent, or 14 times as many as in the vaccinated herds.

According to Strebel, the percentage of loss in unvaccinated animals in the Canton Freiburg, in 1899, was 12½ times as great as in vaccinated herds (6,616 head). In 1890, it was 8 times as great. During the seven years of 1884 to 1890, the average proportion of loss in the vaccinated compared with the unvaccinated herds was 1:11½.

In the Austrian Alps, Sperk inoculated 925 animals in 1885; none of these died, while of 6,387 check animals 107 died of blackleg. In 1886, 2,140 animals were inoculated in Salzburg, and 3,820 in Tirol-Vorarlberg. In these herds the loss was 4 and 16 respectively. Of 9,160 check animals in Salzburg, and 17,401 in Tirol-Vorarlberg, the deaths from blackleg were 86 and 330 animals respectively. According to these figures, the mortality rate in the unprotected animals was 1 to 2 per cent; that of the protected animals 0.2 to 0.4 per cent. The cost of the inoculation is given at from 50 to 75 pfennige (or 12½ to 17½ cents) per head.

In Barvaria, 963 animals were inoculated in 1886, and no deaths occurred.

In Prussia, in 1886, 64 cattle were inoculated, with no losses. In 1887, 485 were inoculated, and turned out with 264 unprotected cattle. Of the former, 2 died; of the latter, 3; nearly 3 times as many.

Professor Kitt, of Germany, made the observation that single vaccination, with vaccine attenuated by heating six hours at 85° to 90° C., and injecting the material at the shoulder, was just as effective as and more convenient than the old method of double inoculation at the tail. The results of the first experiments seemed to be in harmony with this view; but later experience showed that a certain degree of danger attended this method. The experiments carried on at the Kansas State Agricultural College will give further light on this question.

In the Dairy.

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

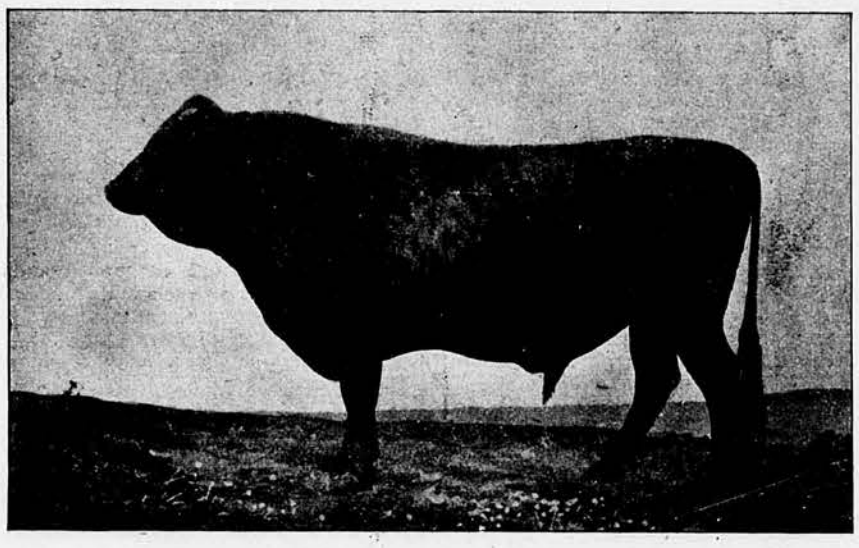
Nearly Time to Start.

Only five days from the date of publication of this issue until the Kansas Dairy School begins. Every young man who contemplates taking this course should be at Manhattan promptly on time. On account of the large number of students and the character of the work it will be impossible to receive students after January 7.

The prospects for a very successful dairy school increase every day. Recently, while attending a farmers' institute with Dr. Henry Wallace, of Des Moines, Iowa, the latter expressed himself as though he would be able to attend the next meeting of our State Dairy Association, which convenes at Manhattan, March 4, 5, 6, and 7. A letter from W. D. Hoard, of Wisconsin, states that if he can leave Washington, where he goes early in January to engage, tooth and nail, in the fight for the Grout-Tawney bill, he will also attend our next dairy association. These together with other prominent dairymen outside of the State and our own excellent corps of agricultural editors and practical dairy farmers, will give enough instruction and enthusiasm alone to pay every student for taking the short course. Again, by the time the Dairy Association meets dairymen and creamerymen will be looking around for promising young men to fill positions along dairy lines. The student who starts in on January 7 and applies himself will be in line for promotion at this time.

Let every young man interested in dairying plan to take this course this winter. It matters not whether he wishes a position or whether he prefers to return to the farm. This course will not only pay one in dollars and cents, but it will pay him in the satisfaction he will get out of his work by putting more thought into it.

D. H. O.



Recorder 29239, sire of seven tested daughters.

Testing Cream.

ED. H. WEBSTER.

Frequently the question is raised as to the best methods of testing cream and inquiries come in as to where a good cream scale can be procured. Creameries that have had heretofore but little cream to test are buying more and more hand separator goods and hence the necessity of a more reliable method than the pipette.

Pipettes are frequently seen with two marks—one 17.6 c. c. for milk, and one 18 c. c. for cream—such a pipette is utterly worthless for reliable work. If one has but little cream to test, the 17.6 c. c. pipette and a table for making corrections in the reading for the different percentages of fat is fairly reliable. Such a table is published by the Iowa Experiment Station and is the work of Prof. C. H. Eckles.

But in creameries where any number of tests are to be made of cream, a set of cream scales should be at once purchased. They can be secured from any of the supply houses. The Troemner scale is the best the writer knows of. The scale has a sliding weight for balancing the bottle and two weights for cream, one 9 gram and one 12 gram—the 9 gram will usually have to be used for our ordinary cream bottles as most of them read but to 30 per cent and much cream nowadays tests above that. When using this weight the results must be multiplied by two.

The greatest difficulty found in testing cream is in securing a correct sample. Cream is usually thick and will not mix as readily as milk; some means, either pouring back and forth two or three times, or by vigorous stirring, must be used to secure an even cream—on this point the operator must use great care and judgment. A failure here will destroy any after precautions we can take. The cream-test bottles now in common use are not what they should be. There are two styles of long necked bottles made but as yet there is no test machine on the market that will handle them. At least two supply houses are working on such machines and before long I think that the trade will be supplied with them.

These bottles differ in this respect from common bottles. The neck is long enough to provide for a 55 per cent scale in one case and for a 30 per cent scale in the other, divided into one-fifth of 1 per cent divisions, so that the reading can be made as close as we read a milk test, to one-tenth of 1 per cent if necessary. With good scales and intelligent handling the latter bottles will give closer results than the former in the writer's opinion. Either is far ahead of the ordinary bottles now sold for testing cream.

Recorder 29239.

The cut presented to our readers this week is that of Recorder 29239, the grandsire of Brown Elsie's Grandson 60412, the young Jersey bull owned by the Kansas State Agricultural College. Recorder is the sire of 7 tested daughters. He was sired by Combination 3d 17576, the sire of 10 tested daughters. Recorder's dam is Brown Bessie 74997, the cow of World's Fair fame.

The above cut is loaned by H. C. Taylor, Orfordville, Wis. D. H. O.

Interesting Facts From the Kansas Agricultural College Barnyard.

A. H. SANDERSON.

On the afternoon of Tuesday, February 5, 1901, I, with a crowd of other dairy students, went down to the Kansas State Agricultural College barn, and after looking around and interrogating three or four of the barn hands, came in possession of the following facts:

At present 26 head of cows are milked. They are kept in the barn at night and on stormy days. On these stormy days they are fed and watered inside, the water being carried to them in pails. On ordinary days they are turned out into the yard at about 9 o'clock in the morning and taken in again at a quarter to 4 in the afternoon. In the outside yard is a tank of clean water, and a feeder with alfalfa hay in it.

During the day the stable is cleaned out, and well bedded again with clean straw, also the grain ration is put in a small sack and placed in the aisle in front of each cow, so that everything is ready when the cows are turned into the barn. In the stable all the cows are tied up with a chain and strap except 7 which are kept in box stalls. This chain and strap system consists of a 1½ inch strap which is buckled around the cow's neck, and through a ring on it is run a small chain which is fastened to one side of the manger and the other end of the chain attached to the opposite side of the manger by a plug, which is connected by a strap to a lever. By pulling this lever all the cows in that row can be turned loose at once.

The milking is always done before feeding, to prevent dust from the feed getting into the milk, and also because the cows are quieter and therefore give more milk when not eating.

These cows on an average are fed 4½ pounds of grain twice a day, and 10 pounds of alfalfa hay in the barn at night. The grain ration consists of a mixture of one-half corn-and-cob-meal, and one-half ground oats; also, during January, 15 pounds of finely chopped beets are to each cow in the morning in addition to the grain ration. These beets increased the flow of milk one-fourth while they were fed. Also to test the feeding value of Acme food 10 cows are each fed 92 grams per day of this food in addition to the above, but it did not seem to perceptibly change the flow of milk.

At present an experiment is being carried on with 2 cows to ascertain the feeding value of sweet clover. The same amount of grain is fed these cows, but in place of the alfalfa 20 pounds of sweet clover is given them. No statement of the results could be given that day.

Three men do the milking. They start at 5 o'clock in the morning, and it takes about an hour and three-quarters to finish the job. They commence in the afternoon at a quarter to 4, and it takes about an hour and a half to do the work. To prevent dust from the cows falling into the milk-pail her udder and sides are wiped with a damp cloth before being milked. After each cow is milked her milk is weighed and recorded, then well stirred and a compo-

A NEW YEAR RESOLUTION
FOR GOOD DAIRYMEN.

With the protection of honest butter from fraudulent competition seemingly in sight through the proposed national law now before Congress, 1902 should prove a most successful and prosperous year in dairying where conducted in up-to-date, businesslike manner.

The dairy farmer who is skimming his own milk at home from any reason can't possibly make a better New year resolution than that he will purchase a DE LAVAL separator within the next three months. It will save its cost within the year. Its use means a better product and more of it, the saving of much of the drudgery of dairying to wife and daughter and improvement in every way. In fact a De Laval machine and dairying prosperity have come to go hand-in-hand, whether in factory or home separation.

A De Laval catalogue may be had for the asking. It is well worth reading whether you want a separator or not.

THE DE LAVAL SEPARATOR CO.

RANDOLPH & CANAL STS., CHICAGO. 103 & 105 MISSION ST., SAN FRANCISCO.
General Offices: 74 CORTLANDT STREET, NEW YORK.
1102 ARCH STREET, PHILADELPHIA. 327 COMMISSIONERS ST., MONTREAL.

To make cows pay, use Sharples Cream Separators. Book "Business Dairying" and Catalogue 237 free. West Chester, Pa.

Sent on Trial

The Easiest to Operate, the Closest Skimmer, Simplest and most Durable, is the
KNEELAND OMEGA
Cream Separator.
We want you to know how good it is before you buy any other kind. Send for our free book, "Good Butter and How to Make It."
The Kneeland Crystal Creamery Co., 26 Concord Street, Lansing, Mich.

HOUSTON WYETH, PRESIDENT; President Wyeth Hardware Co., and Vice-President National Bank of St. Joe.

J. A. WALKER, VICE-PRESIDENT AND MANAGER; of Walker Brothers, Marysville, Kans.

L. C. HAMILTON, TREASURER; Manager Artesian Ice & Cold Storage Company.

W. W. MARPLE, SUPERINTENDENT OF TERRITORY; formerly with the Beatrice Creamery Company.

Blue Valley Creamery Company,
ST. JOSEPH, MISSOURI.

Pioneers of the "Farm Separator System."

WE WANT TO BUY YOUR CREAM.

The plan on which we operate is entirely new, and our experience for the past year has proven that it is very far in advance of any plan or system ever before adopted. The most attractive features about this plan is its economy and in consequence the increased price paid to the man who milks. On this plan we are able to pay, at the present time,

23 Cents a Pound for Butter Fat.

It is just as easy and practical for you to ship your own cream as to have the middleman ship it for you; therefore, we invite correspondence with every man who milks that lives within 500 miles of St. Joe, Mo., and we know that it is to your interest to do so. Any further information concerning the system or the way to ship will be cheerfully given. All correspondence promptly answered. Look us up carefully. Have your banker look us up. We take pleasure in referring you to The National Bank of St. Joseph, The Merchants Bank, and The Tootle-Lemon Bank.

Write to us immediately and prepare to place your name on OUR list of patrons with hundreds of others who are daily testifying to the merits of the new system. Address

BLUE VALLEY CREAMERY CO.
ST. JOSEPH, MISSOURI.
Agents for the "Iowa" Dairy Separator.

EMPIRE
THE LEADING
CREAM SEPARATOR
CATALOGUE FREE
BUTTER EXTRACTOR CO. BLOOMFIELD N.J.
WESTERN OFFICE FISHER BLDG. CHICAGO

site sample taken, after which it is strained into a can.

The milk-pail used has a covered top except one hole 6 inches in diameter. A wire seive sets into this hole and as the milk must go through it a good deal of dirt and hair is kept out of the pail. In straining the milk it passes up through a fine wire seive, and then through two thicknesses of cheese-cloth.

As each milk-can is filled it is carried upstairs into the milk-room, and there aerated and cooled. The E. L. Hill aerator is the one used. The process consists in forcing clean air into the bottom of the can of milk, and as it rises through the milk many of the disagreeable odors are carried off. The Star cooler consists of a set of coiled tubes through which cold water is forced, while the milk runs down over these tubes. Milk can be cooled within 2° of the temperature of the water used in this machine.

Altogether about 500 pounds of milk is produced daily, and after treated as I have explained it is hauled up to the agricultural building and used in the dairy school.

We then went around and saw the 13 heifers which are being used for dairy purposes. Eight of these are grade Guernseys, the remainder are a mixture of Holsteins and Herefords. As soon as these heifers are 2 years old they are bred to the large Guernsey bull which is kept in the barn. These heifers are fed alfalfa hay, and stover in outside hay feeders. They have a shed facing the south to protect them in bad weather.

Thirty head of young calves are being raised, 20 on skim-milk and 10 on whey. The skim-milk calves are 2 to 3 months old, and they are divided into two equal lots. Each calf is fed 8 pounds of skim-milk twice a day. Besides this, one lot gets 10½ pounds of whole corn, and 25 pounds of prairie-hay. The other lot gets 9 pounds of corn chop and 25 pounds of hay. All of these calves look well, but the lot fed shelled corn looks a trifle better at present.

Each calf of the whey-fed lot is given 5 pounds of whey at a feed, and the lot gets 7 pounds of hay and 5 pounds of grain at a feed. The grain is a mixture of equal parts of ground oats and ground Kaffir-corn. These calves are about 1 month old, and look sleek and healthy.

The temperature of the milk and whey when fed is 95°. All stock have free access to a tank of clean water during the day.

Altogether I was well pleased with the methods used in handling the stock and the milk, considering their surroundings.

Profit in Maintaining the Milk Flow.

PROF. D. H. OTIS, KANSAS EXPERIMENT STATION.

It will pay to keep up the flow of milk, even though feed is high. Press Bulletin No. 102, from this station, shows that 16½ pounds of wheat straw and 4 pounds of ground wheat per day will maintain an average cow. The present low price of stock cattle, with every prospect of high prices in the spring, should induce farmers to hold their cattle, even though feed is high priced. How much more feed will it require to obtain a good flow of milk has been the subject of investigation at the Kansas Experiment Station. Three cows representing a fair average of our Kansas milch cows were fed wheat straw, ground wheat, and cottonseed-meal. The cows were accustomed to the cottonseed-meal gradually by starting with one-half pound and increasing a quarter of a pound daily until the maximum of 4 pounds per day per head was reached. This transition period required fourteen days. As these cows had been receiving sorghum pasture and alfalfa hay, they did not relish the straw at first and were allowed 52 pounds of alfalfa hay each during the transition period. The following figures give the results in the production of butter fat:

	Pound.
Daily production of butter fat per cow previous to experiment, 30 days	0.74
Daily production of butter fat per cow during transition period, 14 days	0.70
Daily production of butter fat per cow during experiment, 30 days	0.62

The reduction of one-tenth pound in the daily production of butter fat is accounted for in the sudden change from succulent pasture to dry straw and the increase in the lactation period. After the cows were accustomed to the change the production of milk and butter fat was fairly uniform.

During the thirty days under experiment these 3 cows consumed—

	Pounds.
Wheat straw	1,410
Ground wheat	590
Cottonseed-meal	244½

According to experiments reported in Press Bulletin No. 102, these cows would consume as much or more straw and 360 pounds of wheat of the above grain as a maintenance ration. This leaves 230 pounds of ground wheat and 244½ pounds of cottonseed-meal to be charged against the butter fat account. At $1 per hundred for wheat, and $1.50 per hundred for cottonseed-meal, this would amount to $5.96. During this time these 3 cows produced 56.2 pounds of butter fat. At 17 cents per pound (the price promises to be considerably higher during the winter), the financial account stands as follows:

Value of 56.2 pounds butter fat	$9.55
Cost of feed	5.96
Total profit	$3.59
Profit per cow	1.19

In the above account the skim-milk is to pay for the hauling. With good management it will more than do this.

It will be noticed that this experiment represents an extreme case. Nearly every farmer has some corn or Kaffir-corn fodder, millet, sorghum hay, prairie hay, red clover, alfalfa, oat hay, or even oat straw, that he can use instead or in place of part of the wheat straw with much better results. Any of these rough feeds will enable the dairyman to reduce the amount of grain needed. Where red clover or alfalfa is available little or no cottonseed-meal is required.

By feeding his milch cows on a milk ration a farmer will not only save more money than he would to winter them on a maintenance ration, but he will keep his cows in the habit of giving milk (a very important point), will help to keep his creamery, skimming-station and cheese factory operating on a paying basis, and will have his cows on hand as a prifitable investment in the spring. If he then desires he can dispose of any of his surplus stock at high prices.

Gossip About Stock.

The well known breeders of large English Berkshires, Manwaring Bros., Lawrence, Kans., report their hogs still doing finely and orders coming in right along. Sales are better than were expected and inquiries are still coming in. They have shipped 6 head in the last two weeks, and have booked orders for 2 more.

Farmer Brighton, Fairfield, Iowa, offers our readers his new invention, the "Swine V, Stock Marker and Calf Dehorner," which has been sold and used with satisfaction to the writer's knowledge. It is a good article for agents and as well a benefit to the farmer and stock raiser. The advertisement deserves credence.

Don't overlook the great sale of high-class Poland-Chinas to be held at Newton, Kans., on Friday, January 17, 1902, by John D. Marshall, Walton, Kans., who will send catalogue on request. The offering is particularly desirable and comprises 40 bred sows, a few mature boars and a select draft of summer pigs. Notice the advertisement on page 20

Some interesting announcements about Poland-China hogs are made in the new advertisement of D. A. Kramer, Washington, Kans., who has a few choice boars old enough for service and a number of strictly fancy gilts bred to a son of Ideal Black Chief. Mr. Kramer sells his stock on a positive guarantee that the stock will be as represented.

The Chestnut Grove Stock Farm, Poland-Chinas, owned by J. R. Young, Richards, Mo., have been in great demand by breeders. He has on hand 5 show boar pigs out of his famous U. S. Chief sow. They are extra fine, and should make good herd headers. If not taken soon they will be included in Mr. Young's next public sale, which will be held on February 26, 1902.

McLay Bros., of Janesville, Wis., ask for correction as follows: "In the Clydesdale awards at International, stallion 2 years old and under 3, first prize credited by you to Graham Bros., should be, 'won by McLay Bros., on Prince Punctual;' 4 animals, any age, bred and owned by exhibitor, credited to Robert Holloway, should be, 'won by McLay Bros.;' draft horses in harness, pair horses weighing 3,000 to 3,500, first prize credited by you to Nelson Morris, should be, 'won by McLay Bros.'"

Messrs. E. A. Eagle & Son, of Rosemont, Kans., write: "Our consignment of 10 head to the sale of Herefords at Kansas City, January 14, 15, 16, is our second public offering, and consists of 7 heifers and 3 bulls. Gudgell 94011, our herd bull, is a son of Corrector, and a full brother to Sir Comewell. Especial attention is directed to Frank, a son Gudgell, and out of a Wild Tom cow. Most of our consignment is equally well-bred, and any of them will prove a profitable purchase."

In speaking of his consignment in the combination sale of Herefords at Kansas City, January 14, 15, 16, J. A. Larson, of Everest, Kans., says: "My offering is 1 heifer and 3 bulls. The heifer is a 2-year-old and a large, thick-fleshed daughter of Hesiod 26th. She was bred last May to March On 19th, the bull that sold in the recent Armour-Funkhouser sale for $700. The 3 yearling bulls are by Chester 77075, a son of imported Chesterfield." Mr. Larson raises good cattle and 4 of them are in this sale.

Parties contemplating attending the combination sale of Herefords at Kansas City, January 14, 15, 16, will do well to engage their rooms in advance, as at that time an implement dealers' convention is in session, and from 2,000 to 3,000 out of town visitors are expected. Reduced rates from the territory embraced by the Western and Southwestern Passenger Associations will also be in effect, the rate being one fare plus $1 for the round trip. Tickets will go on sale early enough to allow you to attend the first day's sale. Inquire of your nearest railroad agent concerning this.

Poland-China breeders will be interested in the striking advertisement of Winn & Mastin, Mastin, Kans., who probably have won more first prizes and sweepstakes than any other exhibitors in America in 1900. At the International in Chicago their show herd won 12 prizes. Their establishment is well equipped, having natural gas for both heating and lighting, a system of waterworks, and the very best modern improvements in every way that money and skill can furnish. At present they have a lot of extra fine male pigs by Perfect I Know, and Proud Perfection. The dams of the pigs are the best sows money could buy. This firm will be pleased to have a visit or letter from any breeder needing first-class Poland-Chinas.

Mr. A. L. Sullivan, as manager of the Lincoln Importing Horse Company's interests, at Lincoln, Neb., extends a cordial invitation to all horsemen and farmers who visit Lincoln to spend an hour or so at his headquarters. He can bring before them a real horse show and exhibit of high-class Percherons and Shires that are destined to do service in the Western country. This great importing establishment represents most fully the bone and sinew of the draft horse business in the Western country and deserves a very liberal patronage upon all hands. When in Lincoln go and see the horses, and if you are not there incidentally, go for specific purpose. It will pay you.

The Model Herefords, owned by O. Harris, of Harris, Mo., won the bulk of the honors in this year's show rings. His show herd was principally the get of Benjamin Wilton 63828, and in the combination sale of Herefords at Kansas City, January 14, 15, 16, Mr. Harris is selling some bulls sired by Benjamin Wilton, and also a number of heifers that are either his get or are bred to this grand bull. The 10 head to be sold constitute the largest draft for a bulblic sale ever made from this herd, and each animal to be offered deserves special attention. It should be remembered that Betty 2d, the cow that sold recently for $4,500, was by Benjamin Wilton. This kind of blood is not often offered the public, and the wise ones will certainly not overlook Mr. Harris' consignment.

Jones Bros., of Comiskey, Kans., have the following to say of their consignment to the combination sale of Herefords at Kansas City, January 14, 15, 16: "The cattle we offer for the January combination sale are all good, vigorous animals that have not been over fed, and we believe will prove to be good investments for their purchasers. Sir Benjamin, by Wild Tom, is a 4-year-old bull that has done remarkable service for us during the two years we have used him, and we only offer him now because we have quite a number of cows in calf to him, besides 2 crops of calves. He is a very large fellow, weighing at present 2,650 pounds. We are also selling 2 bull calves by him that will undoubtedly do valuable service to their future owners, and also uphold the names of their sire and grandsire. Another bull is by Lincoln 2d, the first prize 2-year-old bull at Kansas City in 1899. Two of our heifers are also in calf to Lincoln 2d, and several of them are sired by Sir Benjamin."

Steele Bros., of Belvoir, Kans., write: "With reference to our consignment in the combination sale of Herefords at Kansas City, January 14, 15, 16, will say that in selecting the 12 head which will comprise our offering we have put in the best that we have, and they are a very useful lot of thrifty, well grown, young cattle. Eight of the 12 are heifers, ranging in age from 17 months to 2 years. We reluctantly sent 2 of Princeps' best heifers that are sure to attract their share of attention. McKinley is represented by 3 choice heifers bred to Princeps, 1 being a full sister to Perfection Maid, selected last year by Professor Haney for the Kansas State Agricultural College. Two daughters of Ben Butler show exceptional size and quality, and are well along in calf. There is also 1 daughter of North Star, who will be remembered as being the largest bull sold in the combination sale in Kansas City in 1899. The 4 bulls are large, thrifty fellows from 16 to 20 months old. Special attention might be called to Commodore by Ben Butler and out of Coronet 6th, she by Plutarch by The Grove 3d. He was calved May 8, 1900, and we consider him the best son of Ben Butler we have ever offered, and

MORE PROOF SHOWING THAT THE DeLAVAL CO.

ARE TELLING THE TRUTH WHEN THEY ACKNOWLEDGE THAT THERE

HAS BEEN LYING ABOUT PARIS SEPARATOR AWARDS

In our last advertisement we referred to three statements that were in a recent DeLaval advertisement, by which they hoped to make readers believe that the name "Aktiebolaget Separator" did appear on the official list of awards distributed at the Paris Exposition and claming "Aktiebolaget Separator" to be their European organization, regardless of the fact that less than a month before they claimed "Societe Anonyme Separator" to be their European organization. However, they dropped this latter claim like a piece of hot iron when we proved that "Societe Anonyme Separator" exhibited at Paris a Butter Radiator and not a Cream Separator, and are again claiming "Aktiebolaget Separator."

One of the letters referred to purported to be signed by U. S. Consul-General at Stockholm, Sweden, under the date of April 17, 1901, reads as follows:

"From evidence this day furnished me I am able to certify that the Separator Company, Ltd., (Aktiebolaget Separator), of this city did receive the 'Grand Prize' for their Alpha-DeLaval Separators at the Paris Exposition in the year 1900, as per announcement in the 'Journal Officiel' Paris, of August 18, 1900, this day presented at his office."

NOTICE, this statement says "as per announcement in the 'Journal Officiel' of August 18, 1900."

Grands prix.

Egrot et Grangé et Guillaume. — France.
Société anonyme Separator. — Suède.
Simon frères. — France.
Burmeister et Wain. — Danemark
Garin (Edmond). — France.
Domaine de la couronne et des haras Godollo. — Hongrie.
Domaine de l'Etat Bozja-Kovina. — Hongrie.
Administration du domaine de la couronne. — Roumanie.
Kœbers Einsen werk. — Allemagne.

Médailles d'or.

Jacq
Baqu
Ferm
Niels
Pelis
Carn
Merc
Dair

Ch
Be
Ant
Buh
Par
Ja

As to the truth of this we ask the readers to examine the photographic reproduction given herewith of the list of winners of the Grand Prize at Paris in Class 37, the one in which cream separators and other dairy goods were entered, as published in the "Journal Officiel" dated August 18, 1900, and see if they can find the name of "Aktiebolaget Separator." We can not and do not believe anyone else can.

Also notice the date of the statement—April 17, 1901, then bear in mind that seven months later, in November, 1901, the DeLaval Co. claimed their award through the "Societe Anonyme Separator," but being cornered, they go back to their former claim that the award came through the "Aktiebolaget Separator."

In the light of this photographic reproduction and these statements we claim that our statement that the Official List of Awards published and distributed at the Paris Exposition contained no mention of any award to the DeLaval Separator Co. or the Aktiebolaget Separator is absolutely true.

The sum and substance of the whole matter is it is terribly galling to the DeLaval Separator Co. to be continually beaten by the United States Separator, and they attempt to bluff off their defects by publishing all sorts of statements in their advertisements, claiming first one thing and then another. It shows that they have very little respect for the intelligence of readers when they make separate and contradictory claims within two weeks of one another.

THE UNITED STATES SEPARATOR WINS ON ITS MERITS

AND STANDS TO-DAY THE

STANDARD SEPARATOR OF THE WORLD

VERMONT FARM MACHINE CO., - - Bellows Falls, Vt.

worthy a place in a good herd. Taken as a whole, it will be found a useful and attractive lot."

W. P. Wimmer & Son, of Mound Valley, Kans., write that after seventeen years' experience in breeding Poland-China hogs they have been able to produce a type which aproaches their ideal. They now have a hog of good heavy bone, deep body, short legs, large heart girth, short nose, small tippy ears well set head, slightly arched back, and that stands right up on the toes. Some few months since they sold a bunch of talings, a part of which was 10 months and part 18 months old, which averaged 300 pounds. Also a barren gilt just under 18 months that weighed 555 pounds in good condition. The aged herd boar weighs 700 pounds at 3 years, and "can travel like a horse," while I. B. Perfection 25172 is credited with having the best pair of feet and legs the owner ever saw on a hog. The Messrs. Wimmer now have 14 spring and summer boars, all fashionably bred and sired by 4 of their best boars, which they are willing to close out very reasonably in order to make room for spring litters. These are all of the type described above; will be sold at but little above pork prices, and are thoroughly guaranteed as to quality and breeding. See them, or write at once for prices.

R. E. Cowdry and J. Harry French, of Topeka, Kans., have recently purchased from Champlin Bros., of Clinton, Iowa, importers and breeders, the imported French Percheron Norman Stallion Nicole, for $2,000. This is no doubt one of the very best draft stallions ever brought to Topeka, and he will certainly command a very generous patronage. Nicole is 4 years old, a jet black, 16½ hands high, and weighs 1,650 pounds at the present time. He will weigh 1,800 pounds or more when matured. He has a finely formed head, wide between the eyes, indicating great intelligence and a kindly disposition, both of which he possesses, a high beautifully arched neck; very deep, powerful shoulders, short back with a strong coupling, finely turned, broad hips, and an exceptionally fine set of broad flat legs, with almost perfect feet. His way of going is lofty and elegant, moving with the ease and freedom of a trotter. It is a difficult matter to accurately describe this superb horse—he must be seen and carefully examined in order to be properly appreciated. Farmers and breeders who are expecting to use a draft stallion the coming season, will surely find it to their interest to examine him before engaging their mares. He can be seen at the stables of R. E. Cowdry, corner First and Quincy Streets, Topeka, Kans., where terms for breeding and other information pertaining to this fine stallion can be obtained.

Publishers' Paragraphs.

Try a Sure Hatch Incubator. See advertisement on page 16.

The American Bank of North Topeka publishes its report in this issue. It shows nearly enough cash on hand to equal the demand certificates and individual deposits.

The W. W. Vansant & Sons' seed-corn advertisement is about the most handsome thing to be seen in Kansas Farmer Columns this week. If that beautiful photograph of a model ear of the popular Cattle King variety, as grown by the Vansants, does not catch the eye of the average Kansas corn-grower we shall miss our guess. Mr. Vansant is an old corn-

The advertisement of Fairbanks, Morse & Co. will be found in this issue. They are the manufacturers of the celebrated "Fairbanks" scales, Fairbanks-Morse Gas and Gasoline Engines and Eclipse and Fairbanks' Windmills, and now call special attention of farmers to their little "Jack of all Trades" for farm work, and we suggest that all our readers investigate this wonderful little labor saver.

J. B. Armstrong & Sons, the big seed-corn-growers at Shenandoah, Iowa, report a large increase in retail orders for December over any year previous for same time. Their early orders begin down in Texas and work north as the season goes on. They are now hearing from Kansas and Missouri quite extensively, and are getting quite a sprinkling of early orders from Nebraska. All these early orders are carefully booked and taken care of in the very best way. When you write about business, mention Kansas Farmer.

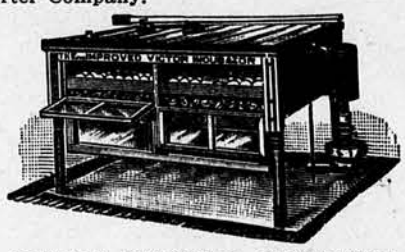
We are in receipt of a new and attractive seed catalogue issued by Barteldes & Company, seedmen of Lawrence, Kans., for the year 1902. It is running over with descriptions of good things to raise in the garden and has a delightful suggestion of spring in almost every page. The back of cover is adorned with a handsome calendar, which is to be a permanent feature. The catalogue is a model of completeness and a characteristic of the Kansas seed house methods of doing business. Our readers may have this catalogue for the asking.

Ross & Ferrell, proprietors of the Southwestern Iowa Seed House, Farragut, Iowa, are having a big local trade, as well as developing prospects for a most satisfactory run of trade in all parts of the corn-growing country. They ask that corn-growers investigate what they have to offer before ordering seed for next year's planting. They are fully stocked up with the best of matured corn of leading varieties, in both white and yellow, and they propose to do everything that promptness and care will do toward meeting the wants of customers. Please not their advertisement in Kansas Farmer, and write for circular and price list.

M. H. Smith & Son, De Soto, Neb., are the well known growers of high class seed-corn. These gentlemen are back in the Kansas Farmer this week with their advertisement of tested and fire-dried seed-corn. For nineteen years they have been breeding and improving the best varities of corn that they could find, and they have made a practice of going to all the big corn shows with the product of their skill. During seventeen or eighteen years their corn has won four-fifths of all the first prtmiums awarded on corn at the Nebraska State and district fairs. Their corn has been a winner of silver medals at all the big expositions of recent years. In preparing their corn for the planter nothing is left undone to make it a sure and strong grower under ordinary field conditions, and the fact that they have never had any corn returned to them shows only too well how careful they are in making their seed meet the wants of the farmer who plants it. Their fine cribs of golden ears are the best sight one could possibly see just now in the whole country. Golden Row has a pure yellow dent, is deep-grained, excellent in length, and a slender red cob. It runs very uniform in type, and has been a persistent premium winner at the Nebraska State fair for ten years. The "Mammoth Golden Yellow" has been the most popular large yellow corn ever known in Nebraska. This corn requires one hundred and fifteen days to mature. The "Nebraska White Prize" is to the white varieties what Golden Row is to the yellow. It is the most productive of all white dents and matures in one hundred days. The "Mammoth White Pearl" is one of the heaviest-eared varieties that are grown. Those who ask for illustrated circular and price list will gain a very accurate desciption of each variety and also learn of their winnings at the corn shows. Please write early for any information you may want this year. They have more good corn to select from than last year, but remember that hundreds of their patrons were too late last year, and they were compelled to return a very large number of orders, cash enclosed. See the advertisment.

Any chicken raiser—farmer or poultry fancier—who is not familiar with the advanced theories and successful practice demonstrated in the Ertel incubators must eventually confess himself behind the times.

The George Ertel Company have issued a finely illustrated 178 page booklet descriptive of the various styles and sizes of incubators and brooders that have made the name Ertel famous in the poultry world. This book any one may have who will write his wants to the George Ertel Company.



ERTEL'S "VICTOR" INCUBATOR.

To those who do not own an Ertel incubator or who have not seen the book, it will be interesting to know that this book tells how a hatch in almost any machine may be increased, and how any brood may be kept in good health, and hundreds of other things every chicken owner should know.

There is also an interesting chapter on raising ducks, and others on building poultry houses and poultry yards.

The acquaintance with the pleasant business methods of Messrs. George Etrel Company, which will result from aplication for this book, will not be the least interesting experience.

Write to-day to George Ertel Company, Quincy, Ill.

Orders Again.

New Philadelphia, Ind., Nov. 11, 1901.
Heller Chemical Co., Chicago, Ill.

Gentlemen:—I send you to-day another order. The goods I have heretofore received from you have given entire satisfaction. Many thanks for your promptness. I like your way of doing business. Send me some more order sheets and a copy of the Mystic Circle Fortune Teller.

John B. McKnight.

A $100 Reward.—Start the New Year Right.

Have you 10 or 12 ordinary cows that you would like to make $100 a year more out of than you are now doing? If so, ship your cream direct to the Blue Valley Creamery Company, St. Joseph, Mo. Sell your cream to the highest bidder. This company is now paying 23 cents a pound for butter fat. Keep your eye on this paper for quotations. Any information wanted concerning how to ship, or its plan of doing business will be cheerfully given by the company on receipt of letter or postal card. Address Blue Valley Creamery Company, St. Joseph, Mo.

Grain Markets.

Conducted by James Butler, Secretary of the Farmers' Co-operative Grain and Live Stock Association.

"The human race is divided into two classes,—those who go ahead and do something, and those who sit still and say, why wasn't it done the other way."—Oliver W. Holmes.

Grain Markets to 2 p. m., Dec. 31.

Chicago.—No. 2 red wheat, 86¼-86¾c; No. 2 hard wheat, 80-81½c; No. 2 corn, 64½-65c; No. 2 oats, 45½-46c.

Kansas City.—No. 2 red wheat, 87c; No. 2 hard wheat, 77 to 79c; No. 2 corn, 66½-67c; No. 2 oats, 47½c.

Get Together, Organize and Centralize.

In Union There is Strength and Safety.

The following questions are frequently asked: First, will it pay to organize co-operative elevators, to handle our own grain at local stations? Second, if we do so organize, is it necessary or desirable to unite together and consolidate our sales, through a central board or company? Third, is it a practical business proposition?

To all these queries, an emphatic and unequivocal yes is given. In fact we can ill afford to do otherwise. Millions of dollars annually go into the pockets of the owners of Kansas elevators that could and should go into the pockets of the farmers.

Elevators are just as properly a part of the farmers' crop raising outfit as wagons, grain sacs, granaries, barns and horses, and just as readily provided and managed. None of these things will provide or manage themselves! Business foresight must be used in each case. It is both unnecessary and unbusinesslike for the farmer to part with the ownership of his grain till it reaches the domestic miller, or foreign purchaser, and in time he will own his own mills, cooperatively, and sell the finished product, flour and bread, from his own cooperative store and bakery.

One moderate sized elevator would handle the grain of 100 to 200 farmers. Twenty-five cents an acre would build an elevator, the cheapest granary that could be built. The enhanced price received for the crop in any year would pay every cent back. But it is difficult for single or separate elevators, with limited capital and often inexperienced managers, to successfully conduct business in competition with the great elevator combination, with scores of millions of dollars behind it, and willing and able to spend any amount of money to break up opposition.

Again, it is difficult and practically impossible for each separate elevator to employ and pay the necessary high salary of experienced managers. The elevator combine don't attempt it; it furnishes the brains at headquarters, and put clerks at meager salaries in the local elevators.

Hence every elevator should join in a strong central society, owned and controlled by them, and through which every dollar of their shipping business should be transacted. The central company on its part could afford to pay for the best ability, and could command unlimited capital, by virtue of its great clientage and the tens of thousands of prosperous farmers behind it. Even the fifty cooperative elevators and shipping associations now operating in Kansas, would be invincible, if firmly bound together by a central union. Supposing they each handle but 100,000 bushels a year, that would mean five million bushels in the aggregate, and the one cent a bushels usually paid to the commission men would make a fund of $10,000 a year that would support an office and pay all necessary help handsomely. Multiply that by ten, which would only be five elevators to the county (many towns have that number), and with no increase per elevator the income would be $100,000 a year; that would enable you to erect great terminal elevators.

But the business would increase at each elevator with the vigorous management a central power would give. (In a letter before me from the secretary of the farmers society, of Rockwell, Iowa, I find that its business has grown from $125,000 in 1889 to $625,000 in 1900. (Simply good management and loyalty of the members. That it is practicable, is shown by the examples of the great elevator companies themselves; no better argument of its necessity or practicability or profitableness could be adduced.

Get together, organize, centralize. In union there is strength and safety.

Alonzo Wardall.

GOOD SEEDS CHEAP

Best in the World.

None so low in price. Largest illustrated seed catalogue ever printed, FREE. Engraving of every variety. Price only 1 cent per pkg, and up. A lot of extra packages, rare sorts, presented FREE with every order. Send name and address by card or letter.

R. H. SHUMWAY, Rockford, Illinois.

Hereford Cattle.

Fwelve head of registered cattle for sale: Seven cows, bred; 3 bulls and 1 heifer calf; also 1 2-year-old bull. Write, or come and see me before buying elsewhere.

JOHN DUNN,
Princeton, Franklin County, Kansas.

MEADOW BROOK FARM

F. H. CONGER, Proprietor, YATES CENTER, KANS.

Devoted to the breeding of

Registered Shorthorn Cattle.

Lavender's Best No. 151639 in service. Herd contains a strong infusion of St. Valentine blood, through St. Valentine 12th, one of his best sons. Stock always for sale. Inspection and cooresponden ce invited.

Best Fruit Paper

If you want to succeed with your fruit gardens or orchard, you should read the best fruit paper published, the **Western Fruit Grower.** It is fully illustrated, 16 to 48 pages, monthly; 50 cents a year, 3 months' trial subscription for **Ten Cents.**

Address **Western Fruit Grower**
Box 5, St. Joseph, Mo.

Official statement of the financial condition of the

AMERICAN BANK

at North Topeka, State of Kansas, at the close of business on the 10th day of December, 1901.

RESOURCES.

Loans and discounts	$21,721.04
Loans on real estate	1,597.42
Overdrafts	89.28
Real estate	1,904.61
Furniture and fixtures	600.00
Expense account	1,176.71
Cash items, other than reserve items	556.39
Cash and sight exchange, legal reserve	33,577.73
Total	$61,225.18

LIABILITIES.

Capital stock paid in	$22,600.00
Surplus fund	14.27
Interest	953.08
Exchange	247.71
Individual deposits	36,494.84
Demand certificates	915.28
Total	$61,225.18

State of Kansas, County of Shawnee, ss.

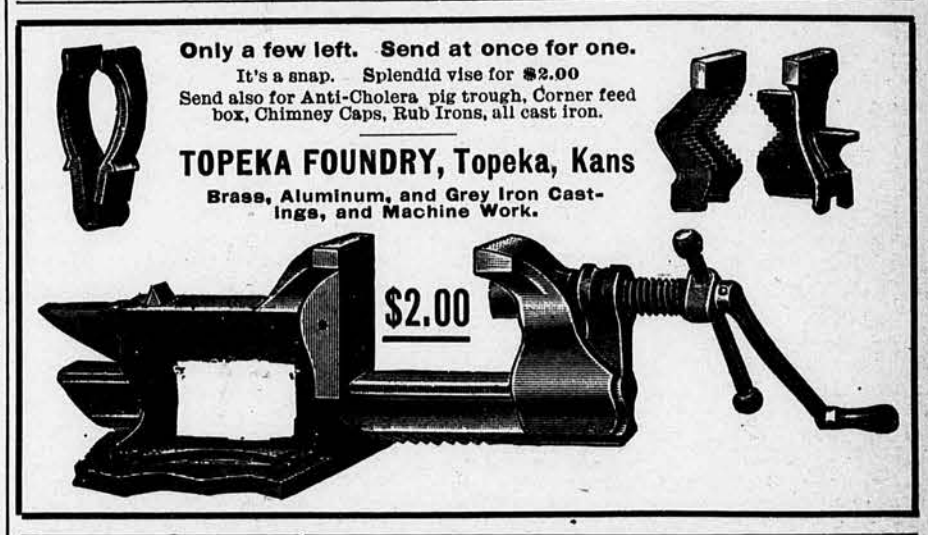
I, E. D. Small, President of said bank, do solemnly swear that the above statement is true; that said bank has no liabilities, and is not indorser on any note or obligation, other than shown on the above statement, to the best of my knowledge and belief. So help me God.

E. D. SMALL, President.

Subscribed and sworn to before me, this 21st day of December, 1901.

[Seal] N. B. Arnold, Notary Public.

(Commission expires on the 3d day of December, 1904.)



"Western Seeds for Western Planters."

KANSAS SEED HOUSE.

We keep everything in the line of **SEEDS** for Farm, Field, and Garden—Fresh, Pure, and True. Alfalfa and Grass Seeds our specialty. Chempion Beardless Barley and Russian Speltz—two **Grand Novelties** for dry soils. Bromus Inermis—the new drouth-proof grass. Limited quantity of Macaroni wheat for those who wish to try it. Send for descriptive circular and elegant new catalogue for 1902, and learn all about them. Free to all.

F. BARTELDES & CO., SEEDSMEN, 804 Mass. St., Lawrence, Kas

BURPEE'S SEEDS ARE THE BEST THAT CAN BE GROWN

If you want the choicest vegetables or most beautiful flowers you should read **BURPEE'S FARM ANNUAL FOR 1902,**—so well known as the "Leading American Seed Catalogue." It is mailed **FREE to all.** Better send your address TO-DAY. W. ATLEE BURPEE & CO., PHILADELPHIA.

Seed Corn and Wheat

We have won four-fifths of the first prizes at the Nebraska State Fair for the past 19 years. At our 1901 State Fair we won 11 firsts and 9 of the seconds--all the prizes offered on corn. Swedish spring wheat, a week earlier than Velvet, Chaff, or Blue Stem. It won first prize at our State Fair this year. For price list and samples, address with 2-cent stamp,

M. H. SMITH & SON, DeSoto, Washington County, Nebraska.

Horticulture.

Pollination of Orchard Fruits.

PROF. F. A. WAUGH, OF THE UNIVERSITY OF VERMONT, BEFORE THE MINNESOTA STATE HORTICULTURAL SOCIETY.

I am very much indebted to you for the invitation to address you at this time. I appreciate highly the work which your society has done in the past and the promises which it makes for the future, and in every way I wish you success.

A NEW QUESTION.

The subject on which you have asked me to speak is comparatively new in the field of practical horticulture. The pollination of orchard fruits as a practical question in orchard management begun to be discussed only about ten years ago. A great many hints had been thrown out here and there previous to that time, but no general theory seems to have been suggested until the date of which I speak. The need of cross pollination was recognized by the fruit growers themselves, probably first with the native plums; and the fact that they are generally self-sterile was plainly set forth by Professor Bailey in his Bulletin No. 38 of the Cornell Experiment Station, which was the first satisfactory study we ever had of the plums native to America.

The first scientific study of these questions, however, was made by Mr. M. B. Waite, of the Department of Agriculture at Washington. His work was done chiefly with pears, although he experimented to some extent on apples. Briefly, he showed that many varieties of pears require cross pollination, and that many others yield larger and better fruit when they are cross-pollinated.

Publication of Waite's results, along with many other things, contributed to incite popular interest in this subject and to induce a number of experimenters to take up the question in many ways, from many sides, and with many fruits.

My own work has been done chiefly with plums, and, although I was preceded in this field by many other experimenters, some of whom secured substantial results on their work, I think it is not unfair to say that my experiments were the first ones of special importance dealing with the plums. What I have to say in the following address is necessarily based largely on my own experiments and practical observations in the field. But I shall not confine myself to the plums, and shall try not to neglect the results brought out by scientists and practical horticulturists in all parts of the country.

THE PROBLEM STATED.

The facts with which we have to deal are briefly stated as follows: Many varieties of orchard fruits, especially plums, pears, and apples, do not bear satisfactory crops when standing by themselves. Some of them do not bear at all. The trees of such varieties require to be mixed with trees of other more or less closely related varieties; or, they require to be grafted with a mixture of two or more varieties. This general condition is summed up by saying that such fruits are self-sterile, and, as we shall see, the problem of self-sterility is the one with which we have chiefly to deal.

ABNORMAL AND DEFECTIVE BLOSSOMS.

As soon as this matter begun to be observed the fruit growers and experimenters both found that a great many plum blossoms are imperfect. In the majority of such blossoms the pistil or female organ from which the fruit itself directly develops is defective, sometimes it is entirely wanting. It is evident that a blossom having no pistil can not produce a plum, and it is at least fair to suppose that any defect in the pistil renders the chance of fruit bearing much smaller. Considerable attention was given, therefore, eight or ten years ago to this part of the subject. It was found that in some cases all the blossoms on a tree were so deficient as to make fruitage impossible. Yet such cases were so rare, and the cases of comparative deficiency so unimportant, that altogether these considerations threw very little light on the general orchard problem of unfruitful trees.

While studying these plum blossoms to get a better knowledge of their deficiencies many curious abnormalities were brought to light. In some plums the male organs matured before the female organs (at least, such was stated to be the case, although I have never observed this phenomenon). In a great many blossoms the female organs matured in advance of the male organs. In some cases the pistils were longer than the stamens, and in other cases the stamens were longer than the pistils. Such variations had been observed in other species of plants, and had been found of the highest significance in explaining the pollination of those species. It was necessary, therefore, that the early investigators of the native plums should have looked for some explanation of the problems in hand in these abnormalities. At the present time it must be said that they have thus far explained nothing, and it now seems probable that they throw no light on the practical questions involved.

SELF-STERILITY.

Self-sterility then, plain and simple, seems to be the main issue. In the ordinary typical case the plum tree bears an abundance of blossoms which are for the most part perfect, having all of the organs both male and female normally developed, and yet being incapable of fruiting by itself. The pistils simply refuse to be fertilized by the pollen from the same flowers, or from other flowers of the same tree, or even from other flowers on other trees of the same variety.

The first practical question which naturally arose was as to the extent of this self-sterility. Some varieties were thought to be self-fertile, although some were shown to be self-sterile. A great deal of work has been done in determining the characteristics of varieties in this regard. It is now possible to find in various books and bulletins more or less complete lists of the varieties of plums, pears, apples, grapes, and other fruits in common cultivation classified according to their self-fertility or self-sterility. I will not stop to present such lists here. It will be sufficient for the present to say simply that it has been found that plums are very largely self-sterile, cases of self-fertility being altogether rare; that a majority of pears tested show more or less self-sterility, and that the same is true of apples. Perhaps a quarter of the grapes in common cultivation are totally self-sterile, another quarter are practically self-sterile, and a third quarter need cross-pollination for best results.

There has been some objection made to this summary way of classifying varieties outright according to their self-sterility or self-fertility. It has been said by the critics that these qualities do not belong specifically to the varieties, but rest upon many external and more or less incidental conditions. Self-fertility, these critics say, varies with season, climate, locality, age, and vigor of the tree, etc. While there is undoubtedly some truth in this view, it may be well to notice that for the present it rests almost purely on speculative reasoning. Nobody has made a satisfactory experiment to prove any of these supposed variations, and for the present these criticisms, though very interesting, may be safely discarded. At any rate the question is of small practical importance, as we shall see further along.

THE REMEDY—MIXED PLANTING.

The remedy for all this unfruitfulness has already been named, viz.: the mixing of varieties either by planting several together or by grafting two or more into one tree. This is such a simple and easy matter, and the risks of self-sterility are so great, that it seems an altogether unjustifiable practice now to plant large blocks of apples, pears, or plums of any single variety. There are, indeed, to be found many orchards of solid blocks of certain varieties through the country which bear fairly well, or even abundantly, but they are exceptions. Solid planting is always risky, and there are enough risks in the fruit business without taking any gratuitous ones. It has been objected by a few extensive fruit growers that mixed planting is really troublesome. They say it is easier to handle a block of a single variety, both in cultivation and in picking the fruit, and that unless mixed planting is shown to be absolutely necessary such advice as we have been driving toward in the foregoing discussion is dangerous. Personally, I think these men minimize the dangers of solid planting and magnify the difficulties of mixed planting. If one were to plant 160 acres in any class of fruits he would hardly want to put the whole thing into one variety, even though that variety were Ben Davis apples. If two or three varieties are to be planted it is just as easy to put them into strips a half mile long and three or four rows wide as it is to put them into 80-acre blocks. I think that the general opinion of practical fruit growers will bear me out in this.

Attention should be called at this point to the fact already mentioned that many varieties which are not strictly self-sterile bear more and better fruit when suitably cross-fertilized. In many cases this amounts to a great deal, particularly when larger and better looking fruit is secured, as is often the case, it has a direct influence on the cash account, and this is the supreme test in all experiments. The difference between No. 1 and No. 2 apples is not more than a half-inch in the measure of their diameters, but it is apt to be more than a half dollar in the measure of their selling prices. If proper cross-pollination will put 20 per cent more of the apples in any orchard into the first grade barrels, then cross-pollination had better be looked after.

MUTUAL AFFINITIES OF VARIETIES.

When the experimenters first begun to tinker with these questions they were all apparently possessed of the feeling that striking mutual affinities and distastes existed amongst the varieties of plums, pears, apples, etc. The notion was, for instance, that though Hawkeye might fertilize De Soto well enough it still might be of no value whatever in fertilizing Weaver or Miner, Ocheeda or Rollingstone. Several of us inquisitive chaps spent a long time, therefore, in prying into the private affections of our friends in the orchard. It must be said that if they had any such private predilections they kept them well to themselves. All of the teasing little experiments yet performed have failed to bring out more than what would make a good society scandal for a New York journal. At the present time it seems fairly certain that these special proclivities cut no figure with the practical orchardist—at least not in the present stage of our pomological development. One variety will pollinate almost any other variety, providing only that the two blossom at the same time.

BLOSSOMING PERIODS.

In fact, this question of blossoming at the same time turned out to be of more practical consequence than many of the more beautiful and recondite theories of the laboratory horticulturist. There are so many varieties of plums, and they belong to so many different species, with qualities so highly diverse, that it is very easy, taking it "by and large," for one variety to miss another in its blossoming season. Further south this study of blossoming seasons is very important, but for districts as far north as Minnesota and Vermont it is of much less consequence. The entire blossoming season is much shorter here, and, moreover, we do not cultivate so many species. The various clases of plums which extend the blossoming season so greatly in the Central and Southern States are almost unknown in our orchards. It is a question which the practical grower needs to keep in mind, but which he need not lose much sleep over while he lives in the salubrious climate of Minnesota.

AGENCIES OF POLLINATION.

Before leaving the subject it is almost necessary that a word should be said regarding the means by which the pollen is carried from on tree to another. Most persons have supposed that this was done largely by the wind, and out here on the plains where wind is plenty and cheap that view has very naturally taken strong hold. The only difficulty with it is that it does not agree well with the facts in the case. The pollen of apples, pears, and plums is usually gummy, sticky, viscid, adhering to whatever it touches and not inclined to move about in the wind. Of course, during those delightful spring days at plum blossoming time when the wind occasionally blows with a force equal to the business of moving a stone fence it is not unreasonable to suppose that even the sticky and unwilling pollen might be moved somewhat out of its tracks. Still one will see that the pollen masses would cling together and would soon lodge on the ground rather than on the pistils for which they were meant, and that the whole business would be poorly and inefficiently done.

The real work of scattering pollen, in 99 cases out of 100, is done by the bees, especially the wild or cultivated honeybees. The gummy, mucilaginous pollen sticks to them, the hairy surface of the insect body being specially suitable for sticking purposes, and the bee passes from tree to tree laden all over with the yellow fertilizing material. Cases have been called to my attention in which it seemed doubtful about the bees really having done the work, and I do not wish to assert that they are the only salvation for self-sterile apple, pear, and plum trees. Nevertheless, their importance has been greatly underestimated hitherto, and I think we can afford to give them greater consideration in the future.

GENERAL RULES FOR MIXING.

A question which is very commonly asked is this: "How far apart should varieties stand for the best results in cross-pollination, and how should they be placed with reference to one another?" When it was supposed that the wind was the principal agent in cross-pollination it was usually recommended to plant the varieties in rows east and west, so that the prevailing south wind of the spring season could carry the pollen northward across the rows. Perhaps such an arrangement is still the best, since the wind probably has some influence in certain cases, and since the bees also may travel more or less with the wind.

With varieties which are distinctly self-sterile—and this is especially true of plums—not more than three rows of a common variety should be planted next to one another. When a large plum tree is in full blossom it presents an extensive field for the activities of even the most able-bodied bee. A bee is apt to get his load off from two or three such trees and go home to the hive. He may, therefore, spend all his time on the Stoddard rows without getting across to the rows of Surprise waiting next in order. For myself, I should think that in handling plums, alternate rows would be more satisfactory, giving just a single row to each variety. With apples and pears I should feel perfectly safe in putting two, three, or even four rows of a single variety, but more than that I should regard as infringing on the limit of safety.

CONCLUSION.

In concluding this talk I feel like drawing a moral for more general application. It seems to me that the problems connected with the pollination of orchard fruits have been pretty well worked out, the difficulties have been thoroughly fought over and fairly satisfactory conclusions have been urged in all practical questions involved. We are ready to go on to something else. Thus the questions come up one by one; each generation has its own problems and its own difficulties which it has to meet under new conditions, and until one problem is solved a new one can not be taken up. Thus we have to do our part for the progressive development of horticulture, and it is much to the credit of the Minnesota Horticultural Society that it has been so strong a mover in the advancement of civilization along pomological lines.

One thing more: The men who have taken this question up on the practical side and who have examined it thoroughly in their own orchards have received a far larger benefit than they anticipated at the outset. They have been able not only to discover practicable means of making their trees more fruitful, but they have had a deeper insight into the whole broad knowledge of pomology. They have been made better horticulturists in every way. They have grown more in love with their calling through coming into closer contact with their trees and vines. No man can take up the investigation of any one question in his own orchard and follow it out earnestly and honestly without having his views broadened in every direction, and I may close by presenting the still plainer fact that no man can broaden his views on these subjects without becoming a more efficient cultivator of the soil, making more money out of his fruit, being a better horticulturist and a better citizen.

Cancer Increasing.

This disease has quadrupled itself in the last forty years. This is made manifest by the increased number of patients applying to Dr. Bye, of Kansas City, Mo. His offices are crowded continually by patients from every State in the Union. Dr. Bye is the discoverer of a combination of Medicated Oils that readily cure cancer, tumor, catarrh, piles, fistula, and all skin and womb diseases. Write for Illustrated Book. Address Dr. W. O. Bye, Drawer 1111, Kansas City, Mo.

The Largest Yields From Northern Grown Seeds.

They are essential for **successful Farming** and **Gardening**, for they have the greatest vitality and vigor, mature early and yield the largest crops. We raise them ourselves here in the cold climate of Minnesota. **CHOICE** and **RARE** kinds of **VEGETABLE SEEDS, SMALL FRUIT PLANTS** and **Flower Seeds.** We are growers of New and Improved kinds of **Seed Grain, Seed Corn, Seed Potatoes, Timothy, Clover, Bromus Inermis,** and other valuable **Grass Seeds** for **Permanent Pastures** and **Meadows.** Our prices are reasonable and our Seeds will please you. Write for our Illustrated Catalogue.

FARMER SEED CO., 16 4th St., Faribault, Minn.

Grange Department.

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

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

NATIONAL GRANGE.

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

KANSAS STATE GRANGE.

Master.....E. W. Westgate, Manhattan.
Lecturer.....A. P. Reardon, McLouth.
Secrtaery.....Geo. Black, Olathe.

Hon. Aaron Jones in Kansas.

Hon. Aaron Jones, of Indiana, master of the National Grange, will be in Kansas July 17-28 in the interest of the grange in this State.

It is desired that the time be given to those localities most promising of good results and any grange or farmers' organization wishing to have Mr. Jones address them upon the subject of grange work is requested to communicate with me as early as possible. Mr. Jones is one of the best speakers in our order and has had more influence probably than any other man in securing free rural mail delivery.

E. W. WESTGATE.

Manhattan, Kans.

The President on Rural Routes.

While President Roosevelt is not in sympathy with the Patrons of Husbandry upon the subjects of ship subsidies and irrigation of arid lands at public expense, we are pleased to notice that he is in favor of extending the free delivery of mail in the country as well as town. In his first message he says:

"It is just that the great agricultural population should share in the improvement of the service. The number of rural routes now in operation is 6,009, practically all established within three years, and there are 6,000 applications awaiting action. It is expected that the number in operation at the close of the current fiscal year will reach 8,600. The mail will then be daily carried to the doors of 5,700,000 of our people who have heretofore been dependent upon distant offices, and one-third of all that portion of the country which is adapted to it will be covered by this kind of service."

Drudgery vs. Dignity.

David Harum has told us that "small farmin' ain't cal'lated to fetch out the best traits of human nature—an' keep 'em out." He quotes "some feller" as saying that farming is "workin' all day an' doin' chores all night." It happens to be a fact that no business or trade—as a business or a trade—is "cal'lated to fetch out the best traits of human nature—an' keep 'em out." Something else than our work must make us men and women, or we will remain much less than we might be. Our other hours must give character to our working hours, or we will be, as Markham says, "slaves to the wheel of labor." Our plans and hopes for the future color and characterize our present. There is pleasure in looking forward to the conquests we purpose to make over ourselves and our surroundings. There is power in resolute aim and effort—power to accomplish the things before you, and increasing power for the work of the future.

* * *

David Harum is right; there is drudgery in farming. The business of the grange is to keep the farmer from being a drudge. It must teach him how to save money and time—how to use both money and time. It must help him to make the future serve the present—the present to serve the future. It must help him to a larger life, to a brighter and more hopeful outlook. The grange must compel the farmer to think. If he will not think of anything else, let it make him think of his disadvantages. It will not take long to induce him to think he ought to have more advantages and opportunities; and then it may be possible to get him to work with others to increase the opportunities of all farmers. Men must work; but the kind of work that reacts for good to the worker is the kind that follows and is guided by real thinking.

* * *

Man prate of the dignity of labor as if there were such a thing. Dignity is a quality of mind and manhood, of purpose and attitude. The only dignity that can attach to labor comes from the man who labors and the spirit that dominates him in his work. The ox presses his shoulders to the yoke and the horse to the collar in the service of man; but there is no "dignity" in the labor of ox or horse or driver. There may be dignity in the driver, but it is a dignity of spirit and not of muscle. Dignity is of the soul, not of the body.

* * *

It ought not to be forgotten that the first of the specific objects of the grange, as set forth nearly thirty years ago in the Declaration of Purposes, is "to develop a higher and better manhood and womanhood among ourselves." The man is the first object of the grange; his personal uplifting is its chief duty, his material improvement its next cure.—D. W. Working.

Grange Notes.

The growing organization is the strong organization. Its growth is the evidence of its life and strength. It is the organization to join if you want benefits or opportunities for usefulness. This advice has its limitations. We do not always care to be with the majority; for it often happens that the crowd is headed in the wrong direction. But the grange—founded upon correct principles—appeals to the best that is in men and women and works to advance their every worthy interest. It is growing, becoming daily stronger for service; and every farmer who desires to better his condition ought to be active in this service.

There are farmers in nearly every community who think they can not afford to join the grange. "It costs too much in money and time," they argue. But they are wrong; and we must convince them of their error. It must never be thought that the grange is a gift enterprise; that it offers something for nothing; that it forgives its members their dues and pays them so much an hour for the time spent in attending its meetings. It is nothing of the kind and does nothing of the kind. But he is ill-informed who thinks it costs too much (in time or money or in time and money) to be a member of the grange. True, there are individual granges that are unprofitable cumberers of the ground. One live man or woman could make every such grange a power for good. Perhaps the very man who thinks that the grange "does not pay" is the one who could put new life and energy into the home organization and make it genuinely profitable to every member and to the whole community. But most of us are poorly prepared to show that the grange is profitable to its members and how it pays them for their time and effort. It will pay us to study the economics of organization.

There has been much disputing about the relative value of the different kinds of grange work. Shall the social features be made of first importance? or the education? or the business? But why dispute about a matter which you may never be able to decide? Does your grange contain members who lack the social graces? Your opportunity is no less plain than your duty. Has education been neglected in your community? The grange is a school. Have your members less business capacity than they ought to possess? There is room for progress in this as in other directions. Fundamentally, the grange is cooperative in spirit and in method; and cooperation is education in mutual helpfulness. Is the chief thing to have a good time? Let all help. Is the chief thing to make money? Work in harmony. Is the chief thing to gain knowledge? All can help. Perhaps the chief thing is to live nobly. Who shall say that noble living does not involve every object which can possibly be put first? Better than disputing about the order in importance of the different kinds of work is diligent working to accomplish the duty nearest at hand.—Grange Bulletin.

At the Kansas City Market.

There is probably no live stock commission firm that does business at the Kansas City Stock Yards that can give you better service in the way of selling or purchasing stock than the Union Live Stock Commission Company. This company has a corps of competent men in all of the departments of the live stock trade. It furnishes this paper and market reports free upon application.

Directors: M. S. Peters, Jerry Simpson, F. E. Rowles, W. K. Greene, Henry O'Neill, Geo. W. Williams, L. C. Boyle.

Honey for Kansas, Missouri, and Oklahoma.

Two cans, 120 pounds net, amber $7.80, whitest (more from alfalfa bloom) $9.00, comb honey in one pound sections, 10 to 13 cents. Also small cans, all sizes. See price list. Nothing but genuine bees' honey. Reference, Kansas Farmer Co. Address, Arkansas Valley Apiaries, Oliver Foster, Proprietor, Las Animas, Col.

The Veterinarian.

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

Eczema (Chronic).—I have a 6-year-old cow in poor flesh. She has hard eruptive scales along a portion of the backbone, across hip bones, and patches on shoulders. These scales are very tenacious and of about eighteen months standing. I have tried local applications of sulphur and lard, kerosene emulsion, and carbolic oil, but with no success.

Smith Center, Kans. H. G. REED.

Answer.—Apply strong vinegar with a sponge, every three days for 3 applications. Then take crude carbolic acid 1 part to 50 parts boiling water; when cool apply with a sponge and repeat in one week. After this treatment, take 5 ounces camphor phenigue (veterinary), and 11 ounces olive-oil, mix and apply every three days.

Actinomycosis.—I have a 3-year-old Shorthorn bull that has actinomycosis. Is the disease hereditary? Will the treatment recommended in KANSAS FARMER effect a cure? C. B. I.

Barnes, Kans.

Answer.—First; it is not hereditary. Second; as a rule it will cure.

Tumor.—About two years ago my large 5-year-old Dane dog had a swelling come from the root and under side of tail. This swelling is slowly growing larger and is at present about the size of a goose egg. At different intervals it bursts open and blood flows freely for about a day. The ball is filled with flesh and has veins. It does not seem to hurt him. What is it and what can I do for him?

Howard, Kans. AN INQUIRER.

Answer.—Disect it out by the roots and cauterize with a red hot iron afterwards.

Actinomycosis.—I have a grade Shorthorn yearling steer that is affected with a scaly nose, labored breathing, hair harsh and standing. There is no discharge from the nose, but it seems to be inflamed and the membrane is swollen. He eats well and is growing some. I had him in open pasture all summer. In the fall he indicated overheat by panting when other cattle were normal. All of the other stock are in excellent condition. I have not tried to treat him. H. M. JOHNSON.

Formosa, Kans.

Answer.—Put 3 ounces of iodide of potash in a pint of water. Mix and give 2 tablespoons in a tea cup of water once a day.

Wheat Harvest Calendar.

January—Australia, New Zealand, Chili, Argentine Republic.

February and March—Upper Egypt, India.

April—Lower Egypt, India, Syria, Cyprus, Persia, Asia Minor, Mexico, Cuba.

May—Texas, Algeria, Central Asia, China, Japan, Morocco.

June—California, Oregon, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Tennessee, Virginia, Kentucky, Kansas, Arkansas, Utah, Colorado, Missouri, Turkey, Greese, Italy, Spain, Portugal, South of France.

July—New England, New York, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Iowa, Wisconsin, Southern Minnesota, Nebraska, Upper Canada, Roumania, Bulgaria, Austria, Hungary, South of Russia, Germany, Switzerland, South of England.

August—Central and North Minnesota, Dakotas, Manitoba, Lower Canada, Columbia, Belgium, Holland, Great Britain, Denmark, Poland, Central Russia.

September and October—Scotland, Sweden, Norway, North of Russia.

November—Peru, South Africa.

December—Burmah, New South Wales.

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

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

FRANK J. CHENEY.

Sworn to before me and subscribed in my presence, this 6th day of December, A. D. 1886.

SEAL. A. W. GLEASON, Notary Public.

Hall's Catarrh Cure is taken internally and acts directly on the blood and mucous surfaces of the system. Send for testimonials, free.

F. J. CHENEY & CO., Toledo, O.
Sold by Druggists, 75c.
Hall's Family Pills are the best.

Mirth is an almost infallible sign of good health. A sick woman may force a smile or at times be moved to laughter. But when a woman is bubbling over with mirth and merriment she is surely a well woman.

Dr. Pierce's Favorite Prescription has made thousands of melancholy and miserable women cheerful and happy, by curing the painful womanly diseases which undermine a woman's health and strength. It establishes regularity and so does away with monthly misery. It dries debilitating drains and so cures the cause of much womanly weakness. It heals inflammation and ulceration, and cures the bearing-down pains, which are such a source of suffering to sick women.

"I take great pleasure in recommending Dr. Pierce's Favorite Prescription for female weakness," writes Mrs. Susannah Permenter, of Pauls Store, Shelby Co., Texas. "I was troubled with bearing-down pains in my back and hips for six years, and I wrote to Doctor Pierce for advice. I tried his 'Favorite Prescription' and six bottles cured me. I feel like a new person and I thank Dr. Pierce for my health. Life is a burden to any one without health. I have told a great many of my friends about the great medicine I took."

Accept no substitute for "Favorite Prescription." There is nothing "just as good."

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

HAVE YOU SEEN THE

Jack of All Trades?

PUMPS WATER—
SHELLS CORN—
GRINDS FEED—
CHURNS BUTTER—

—and hundreds of other jobs with the strength of 15 men. Most Convenient and useful power ever invented. Costs only TWO cents per hour to run. Especially adapted to farm work.

IT IS A **NEW ENGINE** MADE BY

Fairbanks Morse & Company

Chicago, Cleveland, Cincinnati, Louisville, Indianapolis, St. Louis, Kansas City, St. Paul, Minneapolis, Omaha, Denver, San Francisco, Los Angeles, Portland, Ore.

DR. HENDERSON

101-103 W. 9th St., Kansas City, Mo.

A Regular Graduate in Medicine. Over 30 Years' Practice—22 in Kansas City.
The Oldest in Age and Longest Located.
Authorized by the State to treat CHRONIC, NERVOUS AND SPECIAL DISEASES.

Cures guaranteed or money refunded. All medicines furnished ready for use—no mercury or injurious medicines used. No detention from business. Patients at a distance treated by mail and express. Medicines sent everywhere, free from gaze or breakage. No medicines sent C. O. D., only by agreement. Charges low. Over 40,000 cases cured. Age and experience are important. State your case and send for terms. Consultation free and confidential, personally or by letter.

Seminal Weakness and Sexual Debility The results of youthful follies and excesses. I can stop night losses, restore sexual power, nerve and brain power, enlarge and strengthen weak parts, and make you fit for marriage. Send for book.

Stricture and Gleet Radically cured with a new and Infallible Home Treatment. No instruments, no pain, no detention from business. Cure guaranteed. Book and list of questions free—sealed.

Syphilis Blood poisoning and all private diseases permanently cured.

Varicocele, Hydrocele and Phimosis Permanently cured in a few days without pain or danger.

Book for both sexes—96 pages, 27 pictures, with full description of above diseases—the effects and cure—sent sealed in plain wrapper for 6c. stamps—free at office.

☞ Eleven rooms and parlors, so arranged that patients need not see each other.

Free Museum of Anatomy for Men.

Office Hours: 8 a. m. to 8 p. m. Sundays 10 to 12.

Editorial.

The National Starch Company, New York, has issued a booklet on "Profit in Feeding, a Practical Treatise for the Dairyman, Stockman, and Poultryman." It treats of feeds and nutrition in a scientific way. Though a trifle technical, the book may be studied with profit by every feeder. The purpose is to bring to public attention the value of the gluten-meal, gluten feed, and other products of the starch factory. While it is not stated that the book is for free distribution, it will doubtless be sent to such farmers as request it. Careful study of its pages will prove interesting and instructive.

The officers of the Kansas State Poultry Association have sent a premium list of their coming big show at Topeka to every breeder in the West who they thought might exhibit, but in the holiday rush some of these books failed to reach their destination. Any breeders not receiving a copy of the premium list can get one by sending at once to Geo. H. Gillies, secretary, Topeka. The Kansas State show this year promises to be the largest show held in the West for years. At least 1,500 birds are expected, besides nearly 500 pigeons. Big premiums are offered, and entry fee is only 25 cents. The show will be held at Topeka, week of anuary 6-11.

THE THIRTY-FIFTH ANNUAL MEETING OF THE STATE HORTICULTURAL SOCIETY.

That horticulture and horticultral interests are well taken care of in Kansas was amply shown by the largest and most enthusiastic meeting in the history of the State Horticultural Society which closed its thirty-fifth annual session in Topeka last week. This is one of the oldest societies in the State, and it has learned by experience to retain good officers when it gets them. So when President F. Wellhouse called the society to order the only thought any one could have had was that the society would be incomplete without him in the chair.

The first day's session began at 2 o'clock on Thursday, December 26, and was devoted to the annual reports of the trustees, by Congressional districts, on "Horticultural Conditions and Progress." These reports were made in the following order:

First district.—E. J. Holman, Leavenworth.

Second district.—B. F. Smith, Lawrence.

Third district.—F. L. Kenoyer, Independence.

Fourth district.—Col. J. W. Robison, Eldorado (substitute).

Fifth district.—William Cutter, Junction City.

Sixth district.—J. J. Alexander, Norton.

Seventh district.—Geo. W. Bailey, Wellington.

All the reports agreed that the last season had been the most remarkable one in the history of the State. The dry weather of the summer had, at one time, threatened the absolute extinction of the fruit crop, but the late rains saved it; and Kansas to-day can boast of having raised in 1901, the most magnificent apple crop in her life, as well as a peach crop that was second to none. During the past season only about one-half of a strawberry crop was harvested, while the blackberries and raspberries, and other small fruits were practically a failure. Early cherries, on the other hand, made an excellent crop in most of the districts, while grapes are a never-failing crop in practically all sections of the State.

Several of the trustees made predictions to the effect that there would be practically no small fruit next year, but the prospects for apples and other large fruits at this time are excellent. The peaches have suffered from the recent cold weather and do not promise a heavy yield.

One noticeable peculiarity of the season was that many apples developed into fine fruit, after the late rains had come, which were unfit to gather at the first picking; and another was that the apples, this year, were firmly attached to the trees so that there was no falling off, and they had to be pulled from the trees by force.

Taken all together, the horticulturists are happy over the returns made by their orchards during the past season, and are feeling in a very comfortable frame of mind over the prospects for the next.

Incidentally, the subject of subsoiling came into the discussion at one point, and was vigorously sat upon by the weight of the society. They don't want any subsoiling in theirs.

Also a decided stand was made against the advocacy on the part of any one of the proposition to establish commercial orchards, either of peaches or apples, by the planting of seedlings in the hope that new varieties might be developed. This is the province of the experimenter.

During the second day of the meeting six each of the best known varieties of apples and peaches were championed by committees appointed for that purpose.

A little pleasing variety was added to this session by the response of Mr. Gano to a call for a report upon the now famous apple which he originated, and which bears his name.

Several resolutions of importance were adopted. One of these commended Regent F. D. Coburn for his efforts to give agriculture and allied sciences their proper place in the course of study at the State Agricultural College. Another recommended him for appointment as Secretary of Agriculture, should a vacancy occur, and was adopted by a rising vote amid hearty applause. Both of these are referred to elsewhere. With its characteristic enterprise the KANSAS FARMER will publish, in an early issue, the full details of the meeting, including the papers read and the discussions and reports of the several officers and committees. This issue of the KANSAS FARMER will be well worthy of being filed away for future reference.

THE HORTICULTURISTS RESOLVE AS TO THE AGRICULTURAL COLLEGE.

At the annual meeting of the State Horticultural Society, held last week, the following resolution was adopted:

"Whereas, In the estimation of this society there has been shown a disposition by the management of the agricultural college of this State to place mechanic arts and agricultural training in the background, thus ignoring the special purpose of the institution; therefore,

"Resolved, That the State Horticultural Society of Kansas regrets such disposition, and heartily commends the efforts of Regent F. D. Coburn to bring these subjects into the prominence in the college which is contemplated by the Congressional grant."

While this resolution was doubtless intended to express the sentiments of the society, it is apt to be misleading without a full understanding of the positions taken by the parties to the controversy.

It has not heretofore been charged, so far as the KANSAS FARMER is informed, that there has been any attempt on the part of the college authorities to "ignore the special purpose of the institution," but rather that the attempt was made, in a very determined manner, to restrain the "agricultural training" in favor of other and very much less important departments of work in such an institution.

The organic act, under which this college was established and is maintained, was intentionally worded so as to be elastic in its interpretation, as is shown by the following quotation from section 4 of the original "Morrill Act." After providing for the granting of land to the several States and the sale thereof, the act provides that the money thus received shall be invested in a certain manner and "that the money so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished and the interest of which shall be inviolably appropriated by each State to the endowment, support, and maintenance of at least one college, where THE LEADING OBJECT shall be, without excluding other scientific and classical studies, and including military tactics, to teach such subjects as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

This means that the leading object of the college must be either agriculture or the mechanic arts according to the conditions. That is, in a State where the dominant industry is mechanical, the dominant department of the college may be mechanical. In a State like Kansas, where the dominant industry is and always must be agriculture the dominant department of the college should be the agricultural. The language of the law which requires that "THE LEADING OBJECT shall be," "to teach such branches as are related to agriculture and the mechanic arts," no less than the necessities of the people, demand that agriculture shall be the most prominent feature of the Kansas college. Otherwise this college has no excuse for an existence. According to the contention, the management has endeavored to place all departments upon a dead level so as not to have any "leading object." It is even charged, in addition, that other and very much less important departments have been developed and fostered by the use of the college funds to the detriment of the agricultural department.

The funds of this college are and always have been, limited. Hence it becomes one of the most difficult duties of the Regents to so apportion these funds that the "leading object" of the college shall best be attained. Before the agitation arose the management seemed to have adopted a policy which hampered the agricultural department of the college by refusing to appropriate to it sufficient funds with which to carry on its work in accordance with the magnitude of the subject and its vital importance to the people of this State. This institution must be an agricultural college. The State already has an excellent university and does not need another at present.

All branches taught in this college should be in harmony with "the leading object," agriculture, and this without in the least slighting the mechanic arts or other branches. All are important and mechanic arts especially so to the farmer. Even a preacher is better equipped for his work if he can drive a nail without smashing his thumb.

What the farmers of Kansas, as represented by their Regent, F. D. Coburn, demand, is that we shall not have a mere headless thing existing for no particular object and whose only vitality is the momentum gained in past years, but a vigorous and growing institution which shall be able to give a reason for its existence and which shall fitly represent the great industry by which our people thrive. An institution of which every Kansas farmer may be proud in any company and for which he will not feel obliged to apologize.

The resolution failed to mention the experiment station. It is, indeed, not unusual to consider the work of this as a part of, and comprehended in, that of the college. The relation is so close that confusion is pardonable. It is still a question whether this close relation has not more to condemn than to approve. But this relation is not likely to be changed and it becomes necessary to make the best of it as it is. One of the prominent features of Regent Coburn's position has had in view the betterment of the work of the experiment station by placing in the agricultural department a part of the experimental work which is essentially agricultural, but has, so far as has been handled, been in the botanical department, namely the plant-breeding. Those on the defensive in this matter have accused the KANSAS FARMER of demanding results, immediate results, from experimental work which must necessarily require years to produce. Readers of this paper know that it has asked that the Kansas station do only what the stations of other States are doing for them. But the farmers of Kansas have a right to expect results as soon as others produce them. The position of the Kansas Horticultural Society on this part of the subject may be fairly inferred from the proposition —which met much favor—to ask the legislature to establish a station for the propagation of new fruits. The editor of this paper took the ground that this work should be left for the Agricultural Experiment Station. No action was taken on the proposition for a new station, but it will be necessary that Regent Coburn's propositions or some others prevail with a view to getting "results" from the experiment station if the serious consideration of some such proposition as the above mentioned shall in future be prevented. The Kansas State Experiment Station has done and is still doing excellent work along some lines. It is the hope of its friends that such arrangements may prevail as to bring it to the front rank in such other important lines as have a direct bearing on the returns for the labors and expenditures of the husbandman.

Educational Notice.

A subscriber of ours, a prominent business man of Boston, writes that he will be very glad to hear from any ambitious reader of the Kansas Farmer who desires a technical education, and has not the means to attend school. This gentleman, whose name is withheld at his request, has at his disposal a few scholarships in a well-known educational institution. If you are ambitious and in earnest, write to W. L. B., Box 3737, Boston, Mass.

Breeders' Twelfth Annual.

Every breeder of improved stock and every farmer and feeder in Kansas is cordially invited to attend the twelfth annual meeting of the Kansas Improved Stock Breeders Association, to be held at Representative Hall, State Capitol building, Topeka, on Monday next, January 6, 1902. Also the breeders sixth annual banquet, to be held on Wednesday night, January 8, 1902, at the rooms of the State Horticultural Society. All the best hotels, the Copeland, Throop, and National, offer special rates to members of the association, besides the reception committee has a list of private accommodations. All Kansas railroads have granted an open rate. Be sure to ask your agent for reduced rate round-trip tickets. "Whosoever will may come" and put in the entire week advantageously at the State Poultry Show, the annual meeting of the State Board of Agriculture. The breeders' program is as follows:

PROGRAM.

Monday.—Afternoon Session—2 O'Clock.

Reception of new members.
Report of Secretary-Treasurer.
Reports of special committees.
Miscellaneous business.
President's annual address—President G. W. Glick, Atchison.
"Color in Shorthorns and the 'Red Craze'"—D. P. Norton, Dunlap.
"About Trade Extension with Mexico"—General discussion.

Evening Session—7.30 O'clock.

"Pertinent Pointers for Breeders of Pedigreed Stock"—Editor Western Breeders' Journal, Clay Center.
"Immunity and Protective Inoculation"—Dr. A. T. Kinsley, Manhattan, and J. E. Shartle, Kansas City.
"Sure and Profitable Crops to Raise for Live Stock"—General discussion, opened by John M. Fitch, Lawrence.
"Object Lessons from the American Royal and the International Live Stock Exposition in 1901"—C. E. Sutoon, Russell, and C. A. Stannard, Emporia.
An Address—Chas. F. Martin, Secretary National Live Stock Association, Denver, Col.

Tuesday.—Morning Session—9 O'clock.

"Diseases of Live Stock"—Dr. N. S. Mayo, Manhattan.
"Twenty Years' Experience in Kansas Sheep Husbandry"—W. W. Cook, Russell.
"A State Fair or Exposition: What Will Kansas Do About It"—General discussion.
"The Free for All" five-minute remarks by members of the association. Experience, suggestions, criticism or anything of interest for the good of the order.

Afternoon Session—1.30 O'clock.

"Some Evils of Over-fattening Young Sows"—H. M. Kirkpatrick, Walcott; Christ Huber, Pontiac; John Bollin, Kickapoo.
"Dipping Hogs for Health and Thrift"—Colonel Moore, Kansas City.
"Suggestions as to Breeding and Feeding Swine"—Geo. W. Falk, Richmond, Mo., and Teddy W. Morse, Kansas City, Mo.
"Hand-fed Calves at the Kansas Station"—Prof. D. H. Otis, Manhattan.
"Progress of Pure-bred Stock at the Agricultural College Farm"—Senator J. L. Allen, Highland.
"Dairy Stocks and Products as Viewed in a Trip Around the World"—J. E. Nissley, Topeka.

Evening Session—7.30 O'clock.

"The Angora Industry"—W. T. McIntire, Secretary of the American Angora Goat Breeders Association, Kansas City.
"The Horse Our Farmers Should Raise"—T. A. Hubbard, Rome.
"The Evils and Extravagance of Horse Companies"—A discussion—J. C. Robison, S. C. Hanna, and H. W. Avery.
"The Horse and Mule Industry and the Market Requirements"—John M. Grant, Kansas City.
"Combination Sale and Judging Contest at Time of Annual Meeting"—General discussion.

Wednesday.—Morning Session—9 O'clock.—Steer Feeders' Session.

"Baby Beef"—Prof. H. M. Cottrell, Manhattan.
"The Steer to Feed for Profit"—J. D. Small Atchison; C. P. Dewey, Manhattan; T. M. Potter, Peabody.
"The Relation of the Breeder of Pure Stock to the Farmer and the Feeder"—Herbert W. Munford, Professor of Animal Husbandry, College of Agriculture, Urbana, Ill.
"The World's Fair at St. Louis in 1903"—An official of the Louisiana Purchase Exposition Company, and members of the Kansas Commission.

Afternoon Session—1 O'clock.

Reports of committees.
Appointment of standing committees.
Election of officers and directors.
"The Work of Agricultural Colleges"—President E. R. Nichols, Manhattan.
An Address—Prof. W. A. Henry, Dean of the Wisconsin College of Agriculture.
An Address—Prof. C. S. Plumb, Indiana Experiment Station.
Adjournment at 3.45 o'clock.

Last Week's Trade.

R. G. DUN & CO.'S REPORT.

If any evidence were needed of the unparalleled prosperity with which this Nation has been blessed during the past year, the expenditure for Christmas gifts and decorations should be ample. Distribution of Christmas gifts among the employees of large firms and corporations was on the same scale, often the increase over last year amounting to 100 per cent, while the profit sharing at the end of the year will reach unprecedented figures. It is noticed that Southern trade shows less satisfactory gains over last year than at other section, which is not surprising, as the principal product of the South has averaged from $8 to $10 a bale less than

a year ago, while the quantity thus far marketed shows no commensurate increase.

Following closely upon the interruption by floods and storms last week, transporting and manufacturing facilities were further handicapped by the closing of numerous markets. Iron furnaces and steel mills were tied up, and the movement of coko was hampered. This resulted in such insufficient supplies of fuel that many stacks were banked at a time when full activity was especially desired. The situation as to coke is more critical than at any previous time this season. Output in the Connellsville region has been at a record breaking pace for a month or more, but stocks accumulate at the ovens because motive power and cars can not be secured. Pig iron production is no longer at the high mark recorded when December opened and with fancy prices for fuel it is natural that Bessemer sheets advance. Producers report their full output sold up to the middle of next year and structural mills are in about the same position. A large Mexican rail order has been offered, but may go to Europe of domestic makers are unable to undertake any new deliveries for some time to come.

Business in wholesale dry goods has been interrupted by holiday influences and stock taking among jobbers. Cotton goods ruled quiet, apart from the demand for converters, which was on a liberal scale. Cotton mills are sold ahead for several months as a rule and there is no urgency to make new contracts, especially in view of the uncertain raw material market.

In the woolen goods division overcoatings find ready purchasers, while prices on some lines just opened are about 5 per cent higher than last season.

Wool is strong and tending upward, with a good demand, not only from mills and dealers, but on speculative account. Stocks are closing the year in much better condition than at the start, exceptional consumption having made large inroads. Raw cotton is also making a better showing. Footwear shops are actively engaged and are shipping much more heavily than a year ago. Leather and hides are strong, but comparatively quiet.

A decidedly high price level has been maintained for the leading staples, with option trading of good dimensions, despite the double holiday at the produce exchange. Wheat recovered most of the recent moderate decline, supported by a fairly steady demand. Notwithstanding the high level of quotations as compared with earlier years, exports for the week from all ports of the United States, including flour, amounted to 3,540,972 bushels, compared with 756,014 bushels a year ago and 2,417,018 bushels two years ago. Interior receipts were light and flour mills have been handicapped by the car shortage, which made it difficult to bring in raw material or take out the finished product.

Corn continues about 60 per cent above the price a year ago, which readily explains Atlantic exports of only 313,258 bushels, against 3,319,255 bushels last year.

Sugar became conspicuous through the aggressive cutting of quotations by competing refiners. Raw grades declined slightly on account of big crop estimates and other outside influences, but the fall in standard granulated was disproportionately heavy and at the bottom point, after deducting all rebates, no profit could be figured. Even at the lowest price buyers were slow to take advantage, evidently anticipating more favorable terms.

Failures for the week numbered 250 in the United States, against 237 last year, and 23 in Canada, against 18 last year.

REVIEW OF A REMARKABLE YEAR IN LIVE STOCK.

The Great Live Stock Industry.

Editor Kansas Farmer:—It may not be generally understood that the live stock industry of the United States is the greatest and most valuable industry in this or any other Nation, contributing more than anything else to agricultural prosperity which is the basis of general prosperity.

Few persons, outside of those who construct or study comprehensive totals pertaining to the production and distribution of the necessaries of life, realize the magnitude and importance of this great industry.

For the first time the census of the United States has attempted a complete enumeration of the domestic animals of the country. The general result of this live stock census was announced December 3, by Hon. L. G. Powers, Chief Statistician of Agriculture, Washington, D. C., in an address before the National Live Stock Association during its fifth annual convention at Chicago. Taking the figures revealed by this census, showing the number of head of each kind of animals in the United States on June 1, 1900, and applying the same general average valuation per head (January 1, 1900), used by the United States Bureau of Statistics in its annual report for 1900, we have the following interesting result:

Number.	Kind.	Av. price. per head	Value.
21,365,250	Horses	$44.61	$ 953,103,802
3,459,582	Mules	53.56	185,295,212
18,172,914	Milch Cows	31.60	574,264,082
51,349,820	Other Cattle	24.97	1,282,205,005
61,645,325	Sheep	2.93	180,620,802
65,113,363	Hogs	4.58	298,228,363
1,895,491	Goats	2.93	5,547,928
119,992	Asses	53.56	6,426,771
223,121,737	Animals, total		$3,485,691,965

This stupendous sum, showing less than the actual aggregate value of the domestic animals of the United States on June 1, 1900, exceeds the total combined value of the products of all the fields, forests, and mines of the Nation for the preceding year. Astounding as that proposition may seem, it is nevertheless susceptible of easy demonstration by official figures.

In reality, the total value of the Nation's live stock is considerably greater than the aggregate above shown, owing to advance in prices and the fact that the prices given are the estimated values on farms of farm animals only, the animals in cities and towns being considered much higher in value. However, the figures given are sufficient for all practical purposes until the actual official valuation is ready, and convey to any thoughtful business man a pretty clear idea of the extent and meaning of that great industry which furnishes the world with food, clothing, power, and many other daily necessaries of life. It is safe to say that the present value of the live stock of the United States is, approximately, $4,000,000,000—a sum almost too vast for comprehension, calculated not only to arrest the attention of the general reader, but to arouse the admiration of the world for such a splendid development that has taken place almost wholly within a single ordinary lifetime.

THE YEAR 1901.

The most gratifying year in the history of the live stock industry is drawing to a close. There has been a strong, steady demand for meats, especially choice meats both at home and abroad, and interest has steadily increased in live stock production, both for market and for breeding purposes. Never has there been such determined effort toward improvement of all breeds, and never has there been such widespread interest manifested, together with an entire absence of anything like a "boom" in prices.

The situation, as the year draws to a close, is a most healthy and prosperous one in all departments of the industry, the only drawback being the short corn crop, which has forced many to curtail feeding operations, but at the same time has taught and is teaching many valuable lessons of economy in the use of feed and hastening the complete utilization of that most wonderful plant, Indian corn, besides encouraging a wider diversification of crops and the adaptation of other foods to the growing and fattening of stock.

The interest in live stock production and improvement has been fostered and encouraged by better market prices and by numerous fairs and expositions, where the best breeding stock of all kinds has been placed side by side for comparison and study, thus educating the eye and mind of the producer as never before, and inducing him to strive for higher excellence. All this is laying a solid foundation for still greater prosperity in the future. Higher excellence means better prices and more widespread distribution of products, followed of course by larger production and increased prosperity for all engaged in the industry.

In keeping with her characteristic enterprise, Chicago leads in this movement toward better prices and higher excellence in breeding and feeding live stock, the increased interest manifested all over the country finding its natural center where the greatest live stock market on earth is located, where the strongest demand for meats of all kinds exists and where is established the great International Live Stock Exposition which attracts exhibitors and visitors annually from all over the world. No such object lesson in all that pertains to excellence in the breeding and feeding of live stock was ever previously placed before producers in this or any other country. The premiums offered at the second annual exhibition just closed aggregated more than 5 times the total premiums offered at the great Royal Show of England, held in October. Over 400,000 visitors attended this second anual show, together with the fifth annual convention of the National Live tock Association, held in Chicago at the same time, and it is safe to say that the lessons and incentives derived from these great events will be productive of favorable results in every State of the Union for decades to come.

EXCEEDS SIXTEEN MILLION ANIMALS.

During the past year, the Chicago live stock market has received, in round numbers (last ten days estimated), 3,069,700 cattle, 183,600 calves, 9,015,000 hogs, 4,102,500 sheep, and 110,000 horses, or a total of 16,480,000 animals in 303,900 cars, showing an increase of 340,700 cattle, 47,300 calves, 320,900 hogs, 553,600 sheep, 11,000 horses, and 18,500 cars, over 1900.

This gratifying increase in receipts has been accompanied by strong prices, cattle, calves, hogs, and horses having advanced in values, while good sheep have been in strong demand at fair prices, and common sheep have all been promptly disposed of at moderate prices, notwithstanding the enormous quantities of such stock thrown on the market.

Shipments during the year were, approximately, 1,034,700 cattle, 19,500 calves, 1,318,200 hogs, 770,800 sheep, and 102,900 horses, in 75,800 cars, being an increase in shipments of 100,100 cattle, 5,400 calves, 285,500 sheep, and 11,200 horses a decrease of 133,900 hogs, and an increase of 4,700 cars over 1900.

The receipts of cattle are the highest of any year since 1893, but the average weight is greater and the quality vastly superior with eight years improvement.

All past records were broken in the receipts of sheep during the year, as were the monthly, weekly, and daily records also.

There were slaughtered in Chicago during the year, 2,035,000 cattle, 164,100 calves, 7,696,800 hogs, and 3,331,700 sheep, a total of 13,227,600 animals manufactured into a vast variety of foods and other products. This number is over 1,000,000 greater than in 1900, surpassing all previous years in slaughter, and indicating the remarkable expansion of Chicago's packing industry.

The total value of the live stock sold on the Chicago market during the year was $601,406,000. This vast sum is $32,295,000 greater than last year's valuation, which surpassed all previous records by over $8,000,000. The immense volume of business transactions indicated by these figures exceeds in the aggregate the total combined value of all the grain, lumber, iron, and steel, and wholesale dry goods received and sold in Chicago during the year, although Chicago, by reason of her splendid location and commercial facilities, is the leading market of the world for all these commodities.

When we consider further the many millions of dollars in value added by the packers in the slaughtering, refrigeration, preparation, and distribution of these animals in the various forms of food, and other products and by-products of slaughter, we have a grand total representing the mightiest single aggregation of will, intelligent enterprise, ample means, and skilled labor ever devoted to one industry, unapproached by any similar commercial and industrial center on earth.

PURE-BRED STOCK SALES.

One of the most gratifying features of the year, indicating as it does the sure and rapid improvement of the stock destined for this market, is the large number of successful sales of pure-bred stock held in Dexter Park Amphitheater and the splendid new live stock pavilion. These sales have been greater in number and better average prices have been realized for pure-bred animals of better quality, than ever before at any live stock market. The leading beef breeds have all been represented in these sales, and each has established new records. In fact, all records for the past twenty-five years in pure-bred stock sales have been broken here during last year and this, and Chicago stands preeminent as the market of the world for pure-bred stock, as well as for market animals grown for slaughter and export. hese sales have given more encouragement to breeders everywhere than any other single cause, although there has been an entire absence of anything resembling a "boom," the high prices realized being warranted by the superior excellence of the animals offered for breeding purposes.

A PROSPEROUS FUTURE.

The growing popularity of the Chicago market, the increasing domestic and foreign demand for meats; the new and extensive packing houses, and packing house enlargements; increasing Chicago's already stupendous packing industry; the many additional facilities for handling the stoc; and other extensive improvements now under way and being planned by the Union Stock Yards Company; the steadily increasing demand for and keen interest in pure-bred live stock of all kinds, evidenced by the many successful and record breaking sales in Dexter Park Amphitheater during the year just closed, and last, but by no means least, the International Live Stock Exposition, must not only maintain the usual volume of receipts, but add materially to the yearly record of supplies on this great market and the prosperity of its patrons.

PACKINGTOWN AND UNION STOCK YARDS.—MATERIAL IMPROVEMENT.

That Chicago's live stock and meat packing industry is growing by rapid strides, with an impetus and enterprise behind it that is bound to carry its development far beyond anything heretofore regarded as possible, is further evidenced by the large number of extensive and permanent improvements built during the year.

IN PACKINGTOWN.

One of the most important improvements of the year is the big plant constructed by the Schwarzchild & Sulzburger Company on the west side of Ashland Avenue, thus extending Packingtown beyond the mile limit on the west. It has at present a daily slaughtering capacity of 1,500 cattle, 2,500 hogs, and 2,000 sheep, and is so planned as to admit of as much more expansion as the business develops. The entire plant is electrically installed and up to date in every particular. It is now in operation with a full force of buyers, office managers, clerks, and operators in every department.

Armour & Company have just completed their immense $1,000,000 electric power plant, doubling the fire and boiler capacity of last year and adding 4 new 600 ton ice machines, thus centralizing the motive power for their entire 65 acres of works. They have also constructed a lard refinery at Forty-third Street and Center Avenue, at a cost of $200,000, an apple cooler at Forty-third, Street and Center Avenue costing $30,000, reconstructed and enlarged their already mammoth beef house, and many other improvements. This concern has expended during the past four years approximately $10,000,000 in construction.

Swift & Company have erected a large extension to their central power plant, and have also made important additions to their refrigerating and warehouse capacity, besides enlarging the capacity of their works in many other ways to keep pace with the increase in their business.

Nelson Morris & Company have expended fully $750,000 in extensions and new buildings during the year, mainly on the 10 acre tract purchased last summer at Ashland Avenue and Forty-third Street, among them being several new departments, including the manufacture of glue and butterine.

Libby, McNeill & Libby's building operations have been on a scale of unusual magnitude during the past year, invovling a total expenditure amounting to over $800,000, and they are now employing about 1,000 more men than they did a year ago.

The Anglo-American Provision Company went into the beef-packing and sheep-slaughtering business during the year, involving the erection of 5 new buildings, besides other buildings and new equipment earlier in the year.

The Friedman Manufacturing Company, manufacturers of butterine and neutral lard, with works located west of the Anglo-American plant, have built a large new plant, and Darling & Company have constructed a large addition to their fertilizing works at a cost of about $150,000.

All packers and slaughterers of Chicago have found expansion of their works necessary during the past year, to meet the increasing demands which are being made upon this great center of production for food products.

ANOTHER BIG PLANT COMING.

One of the strongest evidences that business prospects are the brightest in Chicago for the live stock and packing industry, is the fact that another and most important addition is being made to the magnnficent colony of packers already located around the Union Stock Yards. The oldest and one of the greatest and best known packing firms of the West, the G. H. Hammond Packing Company, formerly of Hammond, Ind., has decided to move to Chicago, and has already begun the erection of a mommoth new plant at Forty-fifth Street and Center Avenue. It will be strictly modern in every particular. The capacity will be much greater than that of the one they will abandon at Hammond. It will be 40 per cent greater in cattle and 300 per cent in hogs. It is thought that nearly all of the 2,500 men now employed in the company's works in Hammond, will, together with their families, move into Chicago and retain their positions with the company in the new plant.

IN THE STOCK YARDS PROPER.

The packers are not alone in the march of progress, but the Union Stock Yards & Transit Company, the management of which is determined to do everything in its power toward the encouragement and development of these great industries, has made many permanent and important improvements during the past year, calling for an expediture of over $1,000,000. The streets, alleys, and a large share of the pens have been paved with vitrified brick, the work being of the most substantial quality, the paving being laid on concrete base, and in order that the sanitary condition of the yards might be as near perfect as possible, the entire sewer system, involving about 50 miles, was taken up and replaced, and many other improvements have been made looking to the better sanitary condition of the yards.

To the Exchange Building an additional story was added, and the interior completely remodeled, and a new electric light plant installed, while the Transit House was also thoroughly overhauled. A new exposition building was erected, 600x137 feet, built of brick and steel, for the cattle display during the International Live Stock Exposition, and for pure-bred stock sales at other times, and much additional space for the exposition was created. At the beginning of the year it was found necesary to build an immense new addition to the sheep house, having a capacity of 25,000 animals, making the total daily capacity 75,000 head. To keep pace with the future growth of the trade, the company is now preparing to built another similar addition to its sheep market facilities.

There was also built during the year a new model sheep dipping plant, with capacity for dipping 12,000 sheep per day. The new vat is composed of brick and cement, allows a straight away swim of 100 feet, and is conceded by all experts to be the cleanest, best, and most efficient in the country.

Many new loading and unloading chutes have been built, and improved shipping facilities provided. A great number of pens have been put in. New scale houses have been built, and new and improved boilers and dynamos installed in the company's plants. Other important improvements are projected, in both Packingtown and the Union Stock Yards proper, and altogether the remarkable material development of the Stock Yards district during the past year constitutes one of the strongest evidences of its permanent growth and prosperity. H. C.

Chicago, Ills.

TABLE OF CONTENTS.

Actinomycosis 11
Blackleg in Kansas, etc.....4
Breeders' twelfth annual.....12
Coburn, F. D.....1
Country editor and country school..14
Drudgery vs. dignity.....11
Dun's review.....12
Eczema.....11
Facts from college barnyard.....7
Feeding wheat.....1
Fiber plant, a Kansas.....4
Fischer, Dr. Paul.....4
Fruit-growing and poultry-raising...16
Grange notes.....11
Horticultural society meeting.....12
Horticulturists resolve.....12
Jones, Hon. Aaron in Kansas.....11
Just tell them so (poem).....14
Kinsley, A. A.....4
Land rent.....2
Live stock review.....13
Maintaining the milk flow.....8
Nearly time to start.....7
New volume.....1
Ode (owed) to my hen (poem)....16
Otis, D. H.....8
Pollination of orchard fruits.....10
Poultry notes.....16
Recorder 29239.....7
Reed, H. G.....11
Rent, land.....1
Rural routes, the President on.....11
Sanderson, A. H.....7
Sea-serpent, seeing.....15
Secretary of Agriculture.....1
Sheperd, N. J.....16
Sulphur, how to burn.....16
Testing cream.....7
Training children.....14
Tumor 11
Wallace, Henry.....2
Waugh, Prof. F. A.....10
Ware, H. H.....4
We are seven (poem).....15
Webster, Ed. H.....7
Wheat, feeding.....1
Wheat harvest calendar.....11
White, William Allen.....14

The Home Circle.

JUST TELL THEM SO.

There's much to do the whole way thro',
And little use complaining,
For the darkest night will change to light,
And the blackest cloud quit raining.
If worth you find in weak mankind,
'Twill do all good to know
That some one thought they nobly wrought,
And frankly told them so.

Enough will remain of bitter pain,
With all the aid you lend;
Some will be sad and others glad,
On down to the journey's end.
As in the throng you pass along,
With rapid strides or slow,
If virtue you see in bond or free,
Just stop and tell them so.

There are many cares in home affairs
That wear the brain and heart,
And many a way, 'most every day,
In which to bear a part.
If you love your wife as you do your life,
It will keep her heart aglow,
And make her feel your love is real,
To often tell her so.

If on the road you see a load,
Some pilgrim downward pressing,
A willing hand to help him stand
Will bring you back a blessing.
So in the fight 'twixt wrong and right
That's waging here below,
Should praise be said, don't wait till dead,
Before you tell them so.
—John T. Hinds, in the November Woman's Home Companion.

The Country Editor and the Country School.

WILLIAM ALLEN WHITE, BEFORE THE STATE TEACHERS' ASSOCIATION.

Every year 200 or 300 men and women gather in Topeka and shake hands and bump elbows and read papers and discuss with some show of seriousness the making of newspapers. That gathering is called the annual meeting of the State Editorial Association. At it we editors convince ourselves that if it wasn't for the tremendous power of the press, there would be a long low irritating sound of ripping in the canvas of civilization, followed by the crackle of the fires of anarchy.

We don't know what a pabulum is, but we editors convince ourselves that the press is the pabulum of liberty and that pabulum is not only an excellent, but a necesary thing to have in the house. Then after rallying around the pabulum for a while we pat our chests proudly, squint our eyes wisely, and go home content to take up again the burden of preserving an ungrateful people in the enjoyment of life, liberty, and the pursuit of happiness, at a minimum rate of $1.50 a year for each subscriber. We editors sometimes realize that there are other professions helping along the work of progress—the doctors and lawyers, and preaches, and even school-teachers—but they merely form the ornate fringe of the great National fabric to which the editorial profession is the center pole.

Now the school-teachers, when they gather in convention at Topeka, do not swell up with vain pride as we editors do. The school-teachers are willing to divide the work on the problems that confront mankind, by admitting that in the solution thereof there are two factors—school-teachers and others. When one considers what a step in advance this pedagogic position is, compared with the positions assumed by editors and lawyers at their conventions, one is forced to conclude that school-teaching is one of the liberal professions.

These remarks are made to preface the thought that perhaps all of us, whatever our profession in this world, give undue importance to our calling in themselves. We are inclined to look upon them as end, rather than means to civilization. We talk a great deal about the schoolhouse and the newspaper, about education and the press, as if they were important: they are not so necessarily. The chief end of man is not to read, and write, and figure, and know the news. The chief end of man is to live bravely, and kindly, and cheerfully with his neighbors, and only as school-teachers and editors help men to live thus are they of any value to society. The school-teacher who doesn't teach children to live simple, useful, good-natured lives, and the editor whose paper doesn't teach this to his community, are baggage on the train of progress.

The teacher should educate his pupils not primarily to pass examinations, and to know about books, but to be able to grapple vigorously with life and enjoy the struggue. The editor whose paper breathes a spirit of unkindness, of class hatred, or of any kind of hatred, is an enemy to society as surely as a horse-thief is. He may print the news till he is black in the face, but it does more harm than good.

A teacher may be perfect in discipline, excellent in drill, thorough in every technical department of work, and still be a menace to civilization. For the important thing in teaching is not in any of these—though it requires them all. The important thing is character—because character is the soul of influence, which is the only part of education that counts.

Teaching by precept is a slow and sorry business. But teaching by example is inevitable. A brave, kind, wise soul in a schoolroom or in an editor's office, no matter how humble the schoolhouse is or the newspaper, is a great force in the world. For such souls teach widely, powerfully, and in spite of themselves. The influence of the editor and of the school-teacher is intimate and strong, because its real force comes unconsciously to the objects of its power. Therefore men and brethren and sisters in bondage, because we have large power, we have heavy resonsibility. We may not shake it off. And the man or woman who tries to shake off this responsibility of influence is a pretty bad lot.

The country school-teacher who moans and groans because she is wasting a $50 talent on a $30 district, needn't worry; she is mistaken.

The country editor who scorns to fill his 6 column folio with wholesome, honest, cheerful local news because the people don't appreciate him, will always be wrestling with the mortgage. The world keeps books pretty accurately and when a man has anything coming to him, he can get it if he asks for it cheerfully. But the man who sues fate pays the costs.

And it's all so immaterial—this struggle to beat the next man to some paltry goal.

The real thing in life is to live sincerely and the only way to live sincerely is to live usefully, cleanly, cheerfully, and kindly. And the chief reward of that kind of a life is that it has a wholesome influence on the world—an influence that is as immortal as a natural law. Nothing except well directed kindness matters at all.

And so as a country editor speaking to country teachers, I beg of you to help one another and to help us all to be kind, to be brave, to be honest—"And with God be the rest."

Training of Children.

MARY C. STETSON, IN WORD AND WORKS.

A great many mothers are worried and anxious about the wrong things; they are annoyed by earth stains, which a little patience and water will take away. If Jennie or Tom comes in covered with mud and grime, there is a great outcry, when really that should not be an unexpected event. I wouldn't give much for the energy of a child who couldn't soil a dress; but—let me whisper it—what is a real cause for anxiety is a little deceit, a little lie, a little moral contamination of any kind. Mothers should rejoice that there is a time when all impurities are outward and can be washed away with pure water, and pray that they may never see a time when all their tears will fail to purify a soul. Since girls, as a class, are not physically so strong as their brothers, they are shielded in childhood by greater care, and the habit grows. It has really come to be a tradition that girls should be taken care of, but boys can take care of themselves.

The educated woman does not so much believe in traditions. She will study her children and their needs as though they were the first beautiful experiment on earth. She will begin early and not turn away her boy when the new baby comes. When she is able, she will leave the infant, whose wants are only physical, and take her little boy up to her bed, hear his little prayer, and sympathize a moment with his sorrows and joys. She will greatly desire that a feeling of dependence on her love and advice be kept alive, because she knows that if she sends her boy away from her when he is little, he will be beyond her call when he is grown.

I know the ordinary boy makes his presence felt. I have myself found turtles in unexpected places. I have also been obliged to serve fruit on a plate, because all the glass fruit dishes were filled with little fishes from the river. I know, too, one boy can furnish noise enough for his family, and also the neighbors; but you remember what Burdette said about that: "Let the boy go away, and you may hire a brass band to fill the dreadful silence of your home; it can not be overcome." One tradition, the best followed, is to keep the girls in evenings, unless some one goes to take care of them; but it won't hurt a boy any to go alone. Why? Because he is boy.

"But can't a boy have any fun?" he asks. Certainly; this is one of the important elements of his life. Let his father go with him to legitimate places of amusement; if that is impossible, let his mother go. His mother? Such a motley crowd is hardly the place for a lady. Perhaps it is time that the presence of a true lady along with her sons is felt in such crowds. Are you going to send your beautiful boy where you would rather not be seen yourself? If you desire a pure, strong manhood for your son, the foundations must be laid for it. He should be taught to have the same high standard of morals that you teach to your girls. A boy yearns for sympathy and interest as much as his sister; he needs the ties of affection more. The worst boy I ever knew, when he was lying on his death-bed, sent for a neighbor and asked if she would sing to him, as she sang to her own children, "I am so glad that Jesus loves me."

It takes several years for boys to make a decision as to the place they would better fill in life. They can not choose between being president or a policeman, but finally decide in favor of being a drum-major, with the beautiful hat, at the head of the procession. Let them aspire! Encourage them to go on and educate themselves for a high calling. Perhaps their mothers may be the means of their being leaders in that great procession which is on a long march of help to this suffering world. Who can tell? A great deal has been written about teaching our girls how to work before they assume the duties of a home. I go further than this, and insist that a young man should have much the same training. Making bread and pastry may be omitted, but there are times which are liable to come into a man's life—for instance, sickness in the family—and he needs his breakfast. He ought to be able to cook a beefsteak, make coffee and toast, and pour boiling water on oat-meal. Boys are teachable. Only speak about the knowledge being a necessity to camping out, and see how capable they will become.

Many delicate women in the past have done all the housework, washing, sweeping, dishwashing, and cooking for a family of boys, while these boys, in hours of recreation, were working off surplus energy by tossing balls over barns, throwing hammers, and swinging in a home-made trapeze. This is all wrong. Boys in such a family should do much of the housework. Again, what a blessing these home-taught boys are when they go out into the world. They can fully appreciate a tidily kept home, and can lend a hand when it is necessary.

One of the most refined and intellectual clearical gentlemen I ever met was stopping in a home where the mother did her own work. One day, when he saw that she was exhausted with much serving, he asked, "Where is that basket of clothes which needs ironing, that I saw here to-day?" She demurred, but he insisted, and he stood in that hot kitchen and ironed and sang, sang and ironed until the work was done. Does some one think he must have been effeminate? Well, if it is effeminate to be a soldier and fight 10 hard battles, perhaps he was. If it describes him, he makes it a good word. He had a good mother, who had helped fit her son for this very place. It was an action worthy of Philips Brooks.

I know another instance of a man being entertained at a convention where the home was entirely cared for by one pair of hands. Before he went down to breakfast he opened the window and threw the bed open, as his mother had taught him years before. When he went back to his room he thought, "Why should I not relieve this woman, on whom I have no claim at all, as I would relieve my own mother?" Later in the day, when the woman could find a free minute, she went up-stairs, to find the room immaculate, the work done.

Do you wonder that her eyes filled with tears, that some one had seen she was overtaxed and had tried to lighten her burdens?

A Boon To Humanity

is what everybody says who has used

St. Jacobs Oil

For it cures the most difficult cases of Rheumatism—after every other form of treatment has failed.

St. Jacobs Oil never fails.

It Conquers Pain

Price, 25c and 50c.

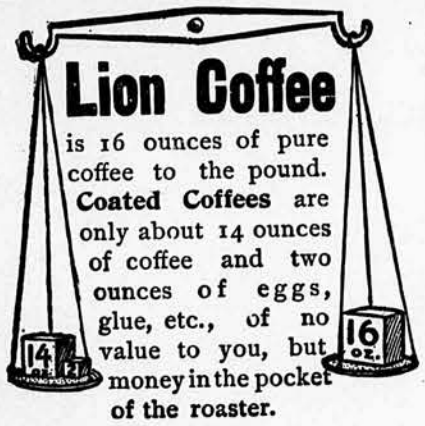
SOLD BY ALL DEALERS IN MEDICINE

Earning Pin-Money

One woman made $1485 last year doing easy work for THE LADIES' HOME JOURNAL and THE SATURDAY EVENING POST. She did not have to work nearly so hard as some women do to earn half that.

There is no chance about it. You are sure of what you earn; and you can get a money prize besides.

The Curtis Publishing Company Philadelphia



Lion Coffee

is 16 ounces of pure coffee to the pound. Coated Coffees are only about 14 ounces of coffee and two ounces of eggs, glue, etc., of no value to you, but money in the pocket of the roaster.

BIG CUT IN DRUGS

We sell all kinds of drugs, medicines, family remedies, powders, tablets, medical appliances, sick room conveniences, toilet articles and preparations, extracts, essences, optical goods, veterinary preparations, paints, &c. to you direct from our large laboratories and guarantee to save you money on every article you buy. We are

The Largest and Cheapest

Wholesale and Retail Drug House in the World.

We publish the largest, handsomest and most complete catalogue ever issued, containing over 1500 illustrations and over 15000 listed drugs, medicines and articles. It contains everything you could possibly want or think of. The saving to you in our method of doing business amounts to 15 to 75 per cent. Remember we prepay charges on most goods to you and we are the only drug house in the world that does so. The catalogue will serve as a guide to all kinds of remedies for all ailments. Keep it handy for reference. Catalog sent for 10c to pay cost of mailing—refunded on first order. Write at once.

ONLY EXCLUSIVE MAIL ORDER DRUG HOUSE.

Heller Chemical Co. Dept. 47, Chicago, Ills.

The Young Folks.

WE ARE SEVEN.

A simple child,
What should it know of death
That lightly draws its breath?
And feels its life in every limb.

I met a little cottage girl;
She was eight years old, she said;
Her hair was thick with many a curl
That clustered 'round her head.

She had a rustic, woodland air,
And she was wildly clad;
Her eyes were fair, and very fair;
Her beauty made me glad.

"Sisters and brothers, little maid,
How many may you be?"
"How many? Seven in all," she said,
And wondering looked at me.

"And where are they? I pray you tell."
She answered: "Seven are we;
And two of us at Conway dwell,
And two are gone to sea.

"Two of us in the churchyard lie,
My sister and my brother;
And, in the churchyard cottage, I
Dwell near them with my mother."

"You say that two at Conway dwell,
And two are gone to sea,
Yet ye are seven!—I pray you tell,
Sweet maid, how may this be?"

Then did the little maid reply:
"Seven boys and girls are we;
Two of us in the churchyard lie,
Beneath the churchyard tree."

"You run about, my little maid,
Your limbs they are alive;
If two are in the churchyard laid,
Then ye are only five."

"Their graves are green, they may be seen,"
The little maid replied:
"Twelve steps or more from my mother's door,
And they are side by side.

"My stockings there I often knit,
My 'kerchief there I hem;
And there upon the ground I sit,
And sing a song to them.

"And often after sunset, sir,
When it is light and fair,
I take my little porringer,
And eat my supper there.

"The first that died was sister Jane;
In bed she moaning lay,
Till God released her of her pain;
And then she went away.

"So in the churchyard she was laid;
And, when the grass was dry,
Together 'round her grave we played,
My brother John and I.

"And when the ground was white with snow,
And I could run and slide,
My brother John was forced to go,
And he lies by her side."

"How many are you, then," said I,
"If they, two, are in heaven?"
Quick was the little maid's reply:
"Oh, Master! we are seven."

"But they are dead; those two are dead;
Their spirits are in heaven!"
'Twas throwing words away; for still
The little maid would have her will,
And said: "Nay, we are seven!"
—William Wordsworth.

Seeing a Sea-Serpent.

Sydney, N. S. W.

I am Captain Laurence Thomson, of the steamship Nemesis, which is one of Hubbart, Parker & Co.'s line of intercolonial steamers. She trades between Sydney, Melbourne, Adelaide, and the West Australian ports. While on our last trip, off Cape Naturaliste (115° E., and 34°, 20 min. S.), I was called to the bridge by my third officer, Mr. Perry, who was on watch at the time.

As that part of the world is considered by all Australian coasting officers to be the worst on the continent, if not in the whole world (there are 5 vessels going to pieces there just now), I lost no time in answering, and in a fraction of a minute stood by the third officer on the bridge. He was evidently restraining his excitement, or trying to; and, as the third is a genuine Australian, it is, perhaps, needless to say that he suffered greatly through having to restrain himself.

"Look, Captain!" he said. "What sort of craft is that over there? I looked as directed away to starboard, and then, seizing my glasses, I looked again.

About half a mile off, between us and the rocky shore line which ran parallel to our course, and of which the dreaded Cape Leewin was the southern boundary, and Cape Naturaliste, round which our course was, the northern termination, were two large objects—or, rather, I thought they they were two. I took them to be enormous whales, as that spot is a great haunt of theirs during the season. They did not blow, however, and seemed to move in a very peculiar manner, the one about 50 feet behind the other. Suddenly a black, cylindrical body emerged from the space between the two, and, with a convulsive jerk, the second, or now, as it appeared, the third, body shot forward toward it.

The middle section continued rising above the water in an ever-extending arch until, to my amazement, it resolved itself into a connecting part between what I had taken to be two separate bodies, and I now saw that the whole was some enormous monster, longer than the Nemesis herself, and as flexible as a piece of rubber.

Slowly and gracefully the curve was transmitted down its entire length, exactly like a wave rolling to the shore. I could see through the arch formed by the strange thing, but just then did not make any careful observations as to its size and so on.

Fascinated, I watched the round, glistening body as it emerged from the sea at the tail-end, and, after traversing the curve like a huge cable going round a wheel, plunge into the sea only to come to the surface again a few yards farther on, and add itself to the comparatively strange "line of life" toward the head.

At length the end appeared, and, rising swiftly on the curve, straghtened itself out with a jerk and fell back in the water again, just as another spiral formed itself behind where the head should be, and began receding to the stern, as the former one had done.

A slight wash of foam was evident where the tail had re-entered the water, but otherwise it appeared to propel itself without any effort.

The body generally was of a grayish-black color; but where the Western sun shone on the under side of the moving, dripping arch it sent out a curious dancing, dazzling reflection. In serious doubts as to the reliability of my senses, I struck the rail with my fist to see if my physical powers still remained.

I turned to my third officer, but from the remarks he was dropping unconsciously I gathered that he, too, was thinking hard.

The steersman, like all good sailors, was looking straight ahead, while I was looking at him.

"Well, Mr. Perry," I said, "we are unfortunate indeed."

"How so, sir?" he asked.

"Why, in seeing this monstrous creature which has all the qualifications necessary for a sea serpent and we won't be able to prove it."

"Well, I reckon the man that doubts me had better for his own good be three or four stone heavier than I am," said he, resolutely, and I thought the same.

Desirous that as many witnesses as possible should be got, I deliberately rang up the chief engineer, Mr. Blair, who I knew was utterly void of imagination. He was Scotch, and allowed for no laws on earth other than those of cause and effect.

Just then excited voices from the afterdeck told me that the passengers and all officers who were not on duty had assembled there and were watching, with various comments, the movements of the "Switch-backed Freak," while sundry sounds that reached us from forward, but which, alas, I dare not repeat, indicated that the crew were intelligently speculating on the identity of the extraordinary monster.

"What do you make it to be, Mr. Blair?" I said.

"A dinna ken; but look! look at it, noo!"

A very powerful and expressive observation from Mr. Perry, in conjunction with a still more forcible and sulfurous remark from the steersman, added amphasis to Mr. Blair's words; and turning again to starboard—I could indeed hardly believe my own eyesight.

The creature had reared its head high above the waters and was gently swaying it backwards, forwards, and round about, as if its body were composed of innumerable ball-joints.

A huge fin or flap now shot out from behind the head, and, circling in the air, threw itself over the head and then back at right angles to the still verticle neck! An instant later and it shaped itself into all sorts of fantastic forms, the under part being almost pure white in color. Soon, however, the tentacle began to beat the waters and the head to move more violently. With the glasses I could make out a darker shade of skin about where one would expect to find the eyes; but in my opinion the creature had no eyes, and only at that moment had become aware of our presence by some other sense. The stewardess says she heard a sound like stones rattling inside a very resonant wooden box; but Mac says she only heard the pumps drawing air. At any rate, I myself heard nothing, and in another second the enormous monster was down in the water again. Its lenght became corrugated, and, like a rope when shaken, the corrupations sped to the stern and dissolved.

When the sun did not shine on them the curves looked oily, and suggested, from the semi-transparent skin, that the creature must be built of soft, pulpy material.

It turned to cross our bows and go seawards, so I instantly ordered the Nemesis to be laid round to intercept it. Meanwhile Mr. Blair (whom we call "Mac" for reasons that will be known to most people), had gone below, and soon the funnel belched forth a cloud of heavy smoke, which hung over the deck and made every one as black as the stokers. A faint vibration now ran through the Nemesis and Mac came up again, saying, "She's gaun 69 noo"—referring, of course, to the revolutions of the engines. The monster, however, was now just crossing only a short distance ahead, and, recognizing that the Nemesis was not "Clyde-built"—although her chief engineer was—and not caring that my owners should think I altered the ship's course to chase a mysterious monster of the deep, I turned the ship round to be parallel once more, and then ordered every one to take notes as to the immense creature's size, etc.

I had only two passengers on board, one a Mr. Johnston, owner of the Shamrock Hotel, at Geraldton, West Australia, and the other a Mr. Macrae, of Sydney. Both were on deck with the chief officer. Mr. Johnston was greatly excited, but Mr. Macrae took it all as a matter of course, and calmly sketched the now swiftly moving creature whom we had watched so long and so attentively.

I laid the Nemesis in line myself, the chief officer and Mr. Johnston "marking off" at the bows, while Mac, Mr. Macrae, and the third engineer took their observations at the stern.

The chief steward and an assistant, together with all the crew, save the firemen on duty, were also watching.

When the first officer signaled to me that our bows were abreast I repeated to Mac, who instantly "sighted" and reported that about 20 feet of the monster still projected past the Nemesis' stern. The Nemesis is 273 feet in length.

We all gathered on the forepeak then and estimated carefully the height of the arches, which was easily proved, as they were short a foot of the deck on which we stood; and this was 16 feet above water.

Comparing it, then, with a log of "Jarrah" wood, with which all on board were familiar, we agreed that it was about 3 feet 6 inches in diameter. So as the creature was now increasing its speed, and the spirals rolling off quicker than the eye could follow them without getting dazed, I reluctantly ordered our course to be set round Cape Naturaliste, and in due course we entered Vasse Harbour.

Eventually we arrived at Fremantle, where, as soon as we got tied up, a young fellow from the Perth Morning Herald boarded us and asked:

"Have you seen anything unusual this side of Leewin, Captain Thompson?"

"Why do you ask?" I said, for I can not stand chaff, and could not understand how news could come quicker than we did ourselves.

"Oh, well, you see, Captain Campbell, of the steamship Perth, has just got in, and he reports having seen a sea serpent off Rottnest Island, so I thought you might have seen it, too. Of course, it all depends on what brand of whisky you use on board."

I went over to the Perth, of the Melbourne Steamship Company, and saw my friend, Captain Campbell.

I gradually induced him to talk of what he had seen. To cut it short, we compared notes and found that our observations agreed in every detail. He, his officers, passengers, and crew had also seen the extraordinary monster off Rottnest Island, aboue 80 miles north of Vasse, twelve hours after we had seen it, and while we were in Vasse Harbour. Captain Campbell is one of the best-known skippers on this coast, and, as he sorrowfully told me, his word had never been doubted before.

He thinks the creature must have been thrown up from some great depth by one of those submarine eruptions, which, round the "Leewin," are pretty frequent—as we coasters know.

I have not attempted to do more than give the bare, hard facts about the monster, as I am not used to writing anything other than mere reports for my owners. The facts given, i. e., length, diameter, movements, and peculiarities, I guarantee absolutely and have been very careful not to mention anything that I did not directly see myself, although others on board claim to have seen a few more details.—Wide World Magazine.

Mrs. Crimsonbeak.—"I see in the paper that woman in looking after another woman to see what she had on, fell out of the window."

Mr. Crimsonbeak.—"Well, that only goes to show that some women in trying to follow the styles can go too far."
—Yonkers Statesman.

ACHING KIDNEYS

Urinary troubles, Palpitation of the heart, Constipation and stomach disorders, yield at once to

Prickly Ash Bitters

It is a marvelous kidney tonic and system cleanser, strengthens the tired kidneys, helps digestion, regulates the bowels.

PRICE, $1.00.

SOLD BY ALL DRUGGISTS.

Kuyler's -NEW YORK- LICORICE TABLETS

UNSURPASSED FOR THE CURE OF COUGHS & COLDS

5 & 10¢ PACKAGES

DRUGGISTS EVERYWHERE OR DELIVERED FREE ON RECEIPT OF PRICE.

SEVEN GREAT SCHOOLS.

Chillicothe Normal School
Chillicothe Commercial College
Chillicothe Shorthand College
Chillicothe Telegraphy College
Chillicothe Pen-Art College
Chillicothe School of Oratory
Chillicothe Musical Conservatory

Last year's enrollment 729. $130 pays for 48 week's board, tuition, room rent, and use of text-books.

For FREE Illustrated Catalogue, address

ALLEN MOORE, President, Box O, CHILLICOTHE, MO

Western Normal College

More than 3,000 graduates; over 12,000 farmer students. The school for youths from the farm. Enter any time. $75.00 pays for board, room, and tuition for 6 months. Cut out this ad. and mail to the President, and reduced railroad fare can be secured in most cases. Particulars and Free Catalog will be mailed promptly in reply. Address—

J. M. HUSSEY, President, Shenandoah, Iowa.

The Topeka Business College

LEADING SCHOOL OF BUSINESS, SHORTHAND, PENMANSHIP & TELEGRAPHY

Large School. Reasonable Rates. Good Positions. Catalogue Free. Address L. H. Strickler, Topeka, Kans

The Poultry Yard.

ODE (OWED) TO MY HEN.

I said to my hen: "Oh, hen, old hen,
The days of your setting are o'er,
As you see you're no match
For the chicks I can hatch
In my newly-bought incubator.'

I said to my hen: "Oh hen, white hen,
You ought to have chicks of your own,
For of eggs from my best
I filled up your nest,
It's time, but I see you have none."

I said to my hen: "Oh, hen, white hen,
Will you take these chickens small?
They were hatched in a 'chine
(You know what I mean),
And they have no mother at all."

Then the old hen opened her bill and said,
"As she eyed those chickens small:
"You must send right away
For a brooder to-day;
I never can hover them all."
—Julia F. Main, in Twentieth Century Farmer.

Poultry Notes.

N. J. SHEPERD, ELDON, MO.

Charcoal can be given to fowls to advantage. It acts on the blood and tones it up, the effects of which are clearly noticeable in the bright color of the comb and wattles and the activity displayed by the fowls. Keep a box of charcoal where the fowls can help themselves.

Middlings make a good feed for poultry, but when fed alone is rather sticky. On this account it is a good plan to mix with something else. A very good way is to add 1 quart of middlings to 10 parts of bran and corn-meal, scalding the whole thoroughly before feeding.

While live dust can be supplied to poultry to an advantage it should not be mixed with the soft feed unless with chicks that have grown too fast and have leg weakness. It is very stimulating and is apt to cause enlargement of the liver in hens that are not laying. Put it where the hens can help themselves and then they can eat what they want.

When the hens have been laying for quite a while the eggs at the close of the prolific period will not produce as strong chickens as those which were laid at the beginning of the period. The claim is made that the layer begins to diminish by this continual effort and the eggs are not sufficiently endowed with vitality near the last of the laying.

If the fowls have a free run one male is sufficient for from 15 to 20 females, depending somewhat upon the breed, the larger breeds requiring a larger number of cocks in proportion to the femals than the smaller and more active breeds. To produce more males than females, in mating use an adult male and pullets; to produce a larger proportion of females mate cockerels with pullets.

Ducks to be profitable must be able to find a good portion of their own feed and on this account should only be kept where they can have a reasonably free range. A pasture or the run of an orchard, especially if they can have access to water, is the best. But during the winter they will need dry quarters and feeding regularly. It is usually best to winter only what is needed for laying and breeding.

With comfortable quarters and the right kind of food a good many eggs may be secured in winter. The food should be such as will make blood and not too much fat. Boiled vegetables with skim-milk and wheat bran are good articles of food. Burnt bones or lime in some form are indispensable. Eggs are the result of health and activity and the objection to condiments is that they are not health producers.

How to Burn Sulphur.

Sulphur is an excellent disinfectant when burned in the poultry house, but as sulphur melts and smothers the flame it is difficult to burn it satisfactorily. One way to do so is to dissolve one-half pint of pine tar and one-half pint of turpentine in one-half gallon of kerosene in an open vessel. Soak in this solution large corn cobs until they are well saturated. Then take them from the solution and dust on them all the powdered sulphur that will stick to them. Use nails or pieces of wire and insert the pointed ends into the larger ends of the cob and then stick them on the floor. Remove all the combustible matter from the poultry house, permitting the fumes to enter every crack and crevice all over the surface and the lice will be destroyed. This should be done once a month in warm weather.—American Poultry Advocate.

Fruit Growing and Poultry Raising.

T. R. JENNINGS, IN CLIMATE AND CROPS.

Many farmers are so situated that they can engage in two branches of light farming to considerable advantage. With a proper arrangement of buildings and yards, it is quite possible to make poultry raising and fruit growing combine very profitably, and to do so as well, with less expense, as with any branch of straight farming in connection with poultry raising. If small fruits are grown extensively it will be necessary of course to keep the poultry yards at some distance from the fruit plantation, but where orchard fruits are grown considerable saving can be effected by building at least a portion of the poultry yards in the orchards. It is not a good plan to build the houses in the orchards, but some portion of the ground devoted to runs should extend under the trees. This arrangement gives the fowls considerable shade without any detriment to the orchard. When arranged in this manner, especially if the orchard is young, the ground between the rows can still be cultivated to advantage. In no case should the cultivation of the orchard be sacrificed. The advantage of this combination lies in the fact that the fruit can be cared for at a time when the poultry requires but little attention. Farmers who are inclined to give up the heavier branches of farming for any reason, should look into the possibilities of obtaining a good living from fruit culture combined with poultry raising.

Christmas Holidays.

Now that the holidays are over and you have abused your digestive organs until they are on the point of rebellion, the proper thing to do is to get back into working condition as speedily as possible. "A stitch in time saves nine" is an old saw but it is a great truth in homely dress and applies with greatest force to the human body. A little trifling ailment which was not considered worthy of a second thought has in countless instances cost a life. A "stitch in time" would have saved much suffering and distress to the victim and his family. Those who have to fight the battle of life, the wage-earners, must at once get in shape for another year's work. If they start out with an ailing body, be it ever so trifling, they can not do their best and if no attention is paid to the trouble it soon becomes severe, entailing loss of time and money or worse. Prudent persons will get rid of the disorder as speedily as possible. A few doses of Prickly Ash Bitters will do this work. It will cleanse and strengthen the digestive organs, empty and purify the bowels, regulate the whole system and impart a feeling of strength and energy that will make work a pleasure. It is good for the whole family. Children who are puny, sickly, or who have eaten too freely of sweet stuff will immediately improve under its beneficial effect. For ladies, particularly those subject to headache, indigestion, constipation or the ailments peculiar to their sex, it is of the greatest value as it purifies the system thoroughly, tones up the vital organs, clears the complexion and promotes good appetite, vigor and cheerfulness.

Seed Time and Harvest.

A good time to think more seriously of the harvest is seed time. The decision you make then will determine the value of your crops later. The growing competition in seed selling is an increasing temptation to unscrupulous dealers to make extravagant claims for their seeds, both in price and producing qualities. The wisest farmers are those who are influenced most by what experience has proven to be good and true. Thousands of seed sowers in all sections of the country sow Ferry's famous seeds year after year, and have the satisfaction of good harvests to justify their continued faith in the Ferry firm. They pay a few cents more at seed time, but realize many dollars in better crops at the harvest. The natural consequence of this confidence is an ever increasing business. D. M. Ferry & Co. sent out last year more seeds than any other seed house in the world. The 1902 catalogue of this house is now ready and will be found a useful guide in selecting the choicest seeds for the farmer, the truck gardener and the flower gardener. It is sent free on request. Address D. M. Ferry & Co., Detroit, Mich.

THE ALL ROUND INCUBATOR
..THE IOWA..
has no Cold Corners but equal heat and ventilation in the egg chamber. Our methods are indorsed by prominent poultrymen because they succeed when others fail. Our FREE Catalogue will prove our claims.
IOWA INCUBATOR COMPANY
BOX 57, DES MOINES IOWA

THE MARKETS.

Kansas City Live Stock Markets to Monday Evening, Dec. 30, 1901.

Owing to the light receipts the live-stock market here last week held up much better than some traders had expected and instead of slumping off, in most cases advances were recorded. Cattle receipts were 12,800, against 37,000 the previous week and 15,700 the same week a year ago. The feature of the cattle trade was the liberal supply of corn cattle, considering the size of the receipts, and the strength they showed, in the face of the supply. Prices advanced up to Friday, at which time the general market was 25 to 50 cents higher than the bad close the week previous, and 60 to 75 cents higher in extreme cases. On Friday 10 to 15 cents of this advance was lost, but the close was relatively higher than the previous week. Monday's market of this week was snappy and gave promise of holding so, unless excessive receipts come in.

Hog receipts, while less than half those of the previous week, continued to roll in heavier than last year, a total of 42,200 arriving for the six days' period. Hogs have once more found favor in the packers' eyes, and are again on the upturn. In our last report good heavies were selling at from $6.45 to $6.65. They sold here this Monday at from $6.60 to $6.90. Compared with a week ago, the hog market is from 25 to 50 cents higher. Heavy hogs, while in great demand, did not show such an advance as did the light piggy stock. In some cases pigs are from 75 cents to $1 higher than last week. The advance in the light stock is partly accounted for by the great slump it took last week, when the packers put all their bearish influences against the pigs. From now on, dealers look for swine to sell strong and generally anticipate light runs. Should the supply prove heavy, these calculations will be overturned, but the concensus of opinion looks for the receipts to moderate.

Sheep receipts for the week were ridiculously light, scarcely enough coming in during the entire week to make a full killing for a single packer half of that period. Total arrivals amounted to 2,000 head. Under this bullish influence, values advanced. Lambs sold on Monday at $5.60, the highest price since May. The general advance on lambs from our last report is from 35 to 60 cents. Muttons also sold higher, but hardly so much so as did lambs. Salesmen still adhere to their bullish opinions in regard to the future lamb market.

The grain markets showed considerable strength early in the week, wheat putting on 3 cents the first two days. Later much of this advance was lost. Receipts were light at 251 cars, less than 100 of which were from Kansas. Turkey red is commanding a premium of 2 to 3 cents over the ordinary hard wheats. Nearly all grades of soft wheat are bringing 10 cents more than the hard varieties. There is a general better feeling in wheat, which is caused by the theory that the present crop will all be used before the new crop will be ready for harvest. Corn changed but little during the week, and generally there was a weak undertone to the market. Oats also remained in about the same condition as in our last report. P.

Weekly Grain Market Letter.

Topeka, December 30, 1901.

The unexpected has happened; instead of the usual dull, declining markets during the holidays, wheat has been active and advancing, and the advance, I think, has been neither sentimental nor theoretical, but a legitimate demand and supply advance. It is though the final Government report on wheat due shortly will show that this country raised about a 700,000,000 bushel wheat crop, of which 65 per cent is supposed to be winter wheat. But the paradoxical thing of this is, that the scarcity and urgent demand for winter wheat from all over the country is the real cause of the advance; and the biggest demand too, comes from the very sections where the largest crop was supposed to have been raised; this makes it the more difficult to comprehend.

Interior millers from Illinois, Ohio, Indiana, and Kentucky are scouring the country for wheat, and wheat last week was being shipped from Chicago to Kansas City, St. Louis, and the Southwest. The visible supply, I think, was at its maximum last week, and will hereafter decrease, perhaps gradually at first, but sharply later on. The decrease for last week was 157,000 bushels. In view of the extraordinary condition now existing in the wheat market, it will be interesting to analyze and locate the various stocks of wheat—both spring and winter—that go to make up the visible supply.

According to the statistician of the Chicago Board of Trade, stocks of wheat in public elevators in the United States and Canada December 21 were 58,805,000 bushels, located as shown below:

IN SPRING WHEAT MARKETS.

Boston	1,596,000
Buffalo	6,083,000
Buffalo, afloat in harbor	3,963,000
Chicago	6,671,000
Chicago, afloat	417,000
Duluth	8,627,000
Duluth, afloat	511,000
Milwaukee	409,000
Minneapolis	14,217,000
New York	3,995,000
On Canals	46,000
Montreal, Canada	35,000
Ft. Williams, Canada	1,677,000
Toronto, Canada	38,000
Port Arthur, Canada	70,000

IN WINTER WHEAT MARKETS.

Detroit	923,000
Baltimore	818,000
Peoria	695,000
Philadelphia	1,020,000
Galveston	665,000
Indianapolis	307,000
Kansas City	1,716,000
St. Louis	3,345,000
New Orleans	569,000
Toledo	392,000
Total	58,805,000

The above figures show a remarkable state of affairs, and furnish food for reflection. While 65 per cent of the total wheat supply raised in this country is winter wheat, the proportion of winter wheat in public elevators is less than 20 per cent; in other words, with a total vis-

POULTRY BREEDERS' DIRECTORY.

FOR SALE—Black Langshan cockerels, scoring from 91½ to 93 by Judge Rhoades. James Bottom, Onaga, Kans.

SIXTY MAMMOTH BRONZE TURKEYS—Two separate pens, headed by a 42-pound tom. Address Mrs. Fred Cowley, Columbus, Kans.

FOR SALE—100 choice Light Brahma cockerels; 100 hens and pullets. Write for prices. Best stock for money. F. W. Dixon, Holton, Kans.

FOR SALE—White Holland turkeys. Egg orders booked. Annie D. Galbraith, White City, Kans.

FOR SALE—Choice blue-barred Plymouth Rock cockerels, $1 to $1.50 each. Address Mrs. L. Hothan, Carbondale, Kans.

BARRED ROCK COCKERELS at reasonable prices. Write for what you want. Score card with all birds. Standard bred. John C. Snyder & Sons, Kildare, Okla.

BELGIAN HARES...
Belgian hare fry beats chicken, and a good breeding pair of hares will keep you supplied all the year round. I can supply you in the finest breeding stock at $3.50 per pair; $5 per trio, until further notice.
A. H. DUFF, Larned, Kansas.

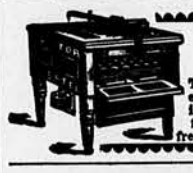
$15 A WEEK AND EXPENSES for men with rigs to introduce our Poultry Mixture. Straight salary. We mean this. Enclose stamp. EUREKA MFG. CO., Dept. 47 East St. Louis, Ill.

$5 50 EGG SIZE. Self-regulating. 30 DAYS TRIAL; Satisfaction guaranteed or no sale.

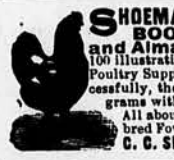
100 EGG SIZE $9.50
200 EGG SIZE Compartment. $15
No. 54 Catalog 2c. BUCKEYE INCB. CO., SPRINGFIELD, O.

INCUBATORS AND BROODERS

BEST HOT WATER PIPE SYSTEM. Simple, durable, economical and safe. Hatches stronger and more chickens from 100 eggs than any other. Prices reasonable. 96-page illustrated catalog of Incubators, Brooders, fancy poultry and poultry supplies free. C. C. SHOEMAKER, Box 420, Freeport, Ills.


VICTOR INCUBATORS
The simplest, most durable, cheapest first-class hatcher. Money back if not as represented. Circular free; catalogue 6c. We pay the freight. GEO. ERTEL CO. Quincy, Ill.

200-Egg Incubator for $12.80
Perfect in construction and action. Hatches every fertile egg. Write for catalogue to-day. GEO. H. STAHL, Quincy, Ill.


SHOEMAKER'S BOOK on POULTRY and Almanac for 1902. 160 pages, over 100 illustrations of Fowls, Incubators, Brooders, Poultry Supplies, etc. How to raise chickens successfully, their care, diseases and remedies. Diagrams with full description of Poultry houses. All about Incubators, Brooders and thoroughbred Fowls, with lowest prices. Price only 15c. C. C. SHOEMAKER, Box 244, Freeport, Ill.

You Can Succeed

in the poultry business just as we have if you follow the same plans. We tell all about what we have done and how we did it, in our new year book,
"Poultry for Profit."
Gives cuts of every variety of fowl, together with prices for singles, pairs, trios and pens, and eggs for hatching, in season. Cuts and plans for poultry houses. It cost too much money and time to be given away, but is sent for 10 cents.
THE J. W. MILLER CO., Box 140, Freeport, Ill.

INCUBATORS
and Brooders—the best that can be made—self-regulating—thousands in use—satisfaction guaranteed or no pay—we pay the freight. Catalog free.
BURR INCUBATOR CO., Box F 12, Omaha, Neb.

This Season,
with short feed and high prices is the time to buy a feed cooker.
THE RELIABLE
Stock Food Cooker and Water Heater Combined
will give the most satisfactory results. Price and sizes: 25 gals. $5; 35 gals. $9; 50 gals. $12, and 100 gals. $16. Catalogue mailed free.
Reliable Incb. & Brdr. Co., Box-62, Quincy, Ill.

CALIFORNIA RED WOOD
Twelve ounce cold rolled copper tanks; hydro-safety lamps; climax safety heater; corrugated wafer regulator, and the best system of heating and ventilation is what makes the Sure Hatch Incubators hatch sure. Common Sense Brooders take good care of little chicks. Our free catalogue contains hundreds of actual photographs of the Sure Hatch at work and is full of honest poultry information. You ought to have it. Let us send it to you. Write at once, addressing nearest house.
Sure Hatch Incubator Co., Clay Center, Neb., or Columbus, O.

STANDARD POULTRY.
Barred Plymouth Rocks, White Plymouth Rocks, Partridge Cochins, Buff Cochins, Light Brahmas, Black Langshans, Silver Wyandottes, White Wyandottes, Silver Spangled Hamburgs, Brown Leghorns, and Belgian Hares. All Our Breeding Pens of this season at Bottom Prices, also Spring Chicks. Prices now less than half of winter prices. Fine Exhibition and Breeding Stock of Rare Quality. Write Me Your Wants. Circular Free.
A. H. DUFF, Larned, Kansas.

ible supply of wheat of 58,805,000 bushels, only 10,450,000 bushels is winter wheat. Now the question is what has become of the winter wheat? Has it been used for feed? It is agreed, that the large bulk is out of farmers' hands, notwithstanding that shipments out of Kansas are said to have been less than 70 per cent of those of last year, and yet we are told Kansas farmers raised 90,000,000 bushels of wheat this year. Where is this wheat? Well, the fortunate farmers who did not sell their wheat, in my opinion, have nothing to regret, and will be amply rewarded.

The visible supply of corn is now 11,131,000 bushels, of which nearly one-half is held in the large Chicago elevators. Very little is held in the Southwest, hardly a million of bushels, located as follows:

	Bushels.
St. Louis	672,000
Kansas City	268,000
New Orleans	9,000

It is not likely that the price of corn will decline much, notwithstanding larger receipts are looked for next month. The demand is large, and nearly all corn now consumed in the Southwest comes from Illinois and Iowa and finds ready sale.

Receipts of wheat are getting less everywhere. Minneapolis and Duluth had only 891 cars, Chicago 48 cars, and Kansas City 57 cars to-day; and markets closed strong at quotations noted below:

Chicago.—No. 2 red wheat, 86¼ cents; No. 2 hard wheat, 81½ cents; No. 2 corn, 64 cents; No. 2 oats, 46½ cents.

Kansas City.—No. 2 red wheat, 87 cents; No. 2 hard wheat, 77-77½ cents; No. 2 corn, 66 cents; No. 2 oats, 47½ cents.

F. W. Frazius.

Kansas City, Dec. 30.—Cattle—Receipts, 4,408; calves, 25. The market was strong and irregularly higher. Representative sales:

SHIPPING AND DRESSED BEEF STEERS.

No.	Ave.	Price.	No.	Ave.	Price.
74	1310	$6.00	164	1226	$5.85
20	1276	5.75	18	1225	5.70
42	1084	4.90	16	1150	5.25
88	1109	5.55	7	760	4.65

COLORADO STEERS.

85	1134	6.00			

WESTERN STEERS.

74	952	4.85	66 Tex	1063	4.65
14	1138	4.75	4	870	4.50
28	545	2.40	16	1046	3.95
8	750	3.50	5	630	2.65

TEXAS AND INDIAN STEERS. (Quarantine Division.)

47	1035	4.80	71	1025	4.75
268	974	4.65	162	866	4.60
50	921	4.55	68	1013	4.60
40	908	4.40	6	705	3.35

TEXAS AND INDIAN COWS. (Quarantine Division.)

7	921	3.35			

WESTERN COWS.

92	993	3.70	83	880	3.70
9	600	2.35	1	720	2.75
3	786	2.00	20	715	1.90

NATIVE HEIFERS.

4	765	4.50	22	831	4.30
27	854	4.20	15	868	3.75
42	606	3.25	5	702	3.50
17	855	3.10	11 c&h	944	3.35

NATIVE COWS.

2	965	4.00	21	1176	4.35
2	1330	3.90	25	1025	3.85
2	875	2.35	10	788	1.85
6	1031	2.25	3	750	1.25

NATIVE FEEDERS.

22	1116	4.35	16	984	3.85
1	970	3.50			

NATIVE STOCKERS.

92	757	3.90	23	784	3.85
6	601	3.75	44	825	3.65
11	883	3.80	2	470	3.30
25	642	3.50	3	776	3.00

STOCK COWS AND HEIFERS.

7	687	3.10	33	527	2.85
3	766	2.75	4	762	2.75
6	466	2.65	3	733	2.60
5	733	2.60	11	529	2.30

Hogs—Receipts, 8,679. The market was 5 to 10 cents higher. Representative sales:

No.	Av.	Price	No.	Av.	Price	No.	Av.	Price
75	298	$6.90	57	320	$6.87½	77	250	$6.85
78	225	6.80	67	212	6.75	20	215	6.75
23	207	6.40	70	196	6.40	78	175	6.35
60	183	6.35	91	183	6.35	74	198	6.35
108	74	4.85	16	97	4.90	40	69	4.55
93	62	4.50	3	123	4.00	107	70	4.25

Sheep—Receipts, 2,206. The market was strong and active. Representative sales:

183 W. lms.	71	$5.40	108 W. lms.	70	$5.40
102 lambs	68	5.00	55 lambs	58	4.25
142 W. e.	99	3.60	26 ewes	128	3.85
5 lambs	44	3.00	15 lambs	60	3.50

Chicago Live Stock.

Chicago, Dec. 30.—Cattle—Receipts, 18,500. Good to prime steers, $6.40@7.25; stockers and feeders, $2.00@4.25; Texas fed steers, $3.15@4.25.

Hogs—Receipts, 28,000. Mixed and butchers, $5.10@6.30; bulk of sales, $6.25@6.60.

Sheep—Receipts, 25,000. Good to choice wethers, $4.00@4.30; western sheep, $3.25@4.25; native lambs, $3.00@6.00.

St. Louis Live Stock.

St. Louis, Dec. 30.—Cattle—Receipts, 4,500. Native beef steers, $4.30@6.45; stockers and feeders, $2.50@3.90; Texas fed steers, $3.90@5.20.

Hogs—Receipts, 6,500. Pigs and lights, $5.75@6.10; butchers, $3.50@6.80.

Sheep—Receipts, 700. Native muttons, $2.75@4.00; lambs, $4.50@5.75.

Omaha Live Stock.

Omaha, Dec. 30.—Cattle—Receipts, 2,700. Native steers, $4.00@6.75; western steers, $3.75@5.40; Texas steers, $3.50@4.40; stockers and feeders, $2.75@4.30.

Hogs—Receipts, 5,400. Heavy, $6.35@6.30; bulk of sales, $6.25@6.45.

Sheep—Receipts, 3,200. Fed muttons, $3.30@4.25; fed lambs, $4.50@5.75.

Kansas City Grain.

Kansas City, Dec. 30.—Wheat—Sales by sample on track:

Hard—No. 2, 76½@77c; No. 3, 73c.

Soft—No. 2, 87c; No. 3, 85@86c.

Mixed Corn—No. 2, 66@67c; No. 3, 65½@66c.

White Corn—No. 2, 67c; No. 3, 66½c.

Mixed Oats—No. 2, 47½c; No. 3, 47c.

White Oats—No. 2, 47¾c; No. 3, 48¼c.

Rye—No. 2, nominally 65½c.

Prairie Hay—$6.00@13.50; timothy, $9.00@14.50; clover, $9.50@13.00; alfalfa, $11.00@13.00; straw, $5.50@6.00.

Cotton Seed Meal—$29.00 ton in car lots. Linseed meal, $30 per ton.

Chicago Cash Grain.

Chicago, Dec. 30.—Wheat—No. 2 red, 84¼@86¼c; No. 3, 81¼@85¼c; No. 2 hard winter, 78⅛@80⅛c; No. 3, 77⅝@79c; No. 1 northern spring, 79¼@80¼c; No. 2, 77¼@78¼c; No. 3, 74@77¼c. Corn—No. 3, 62¼@62¾c. Oats—No. 2, 45¼@45¾c; No. 3, 44¾@45c.

Futures: Wheat—December, 78¼c; January, 78¼c; May, 82⅛c; July, 81⅞c. Corn—December, 63⅝c; January, 63⅝@63¾c; May 66½c; July, 66½c; September, 65¾c. Oats—December, 44½c; May, 45½c; July, 39⅝c; September, 32¼c.

St. Louis Cash Grain.

St. Louis, Dec. 30.—Wheat—No. 2 red cash, elevator, 87c; track, 87½c; No. 2 hard, 79@83c. Corn—No. 2 cash 65⅝c; track, 65@65¾c. Oats—No. 2 cash, 47c; track, 47½c; No. 2 white, 48¼@48½c.

Kansas City Produce.

Kansas City, Dec. 30.—Eggs—Fresh, 19c doz; country held eggs, 16c doz.

Butter—Creamery, extra fancy, separator, 22c; firsts, 18c; dairy, fancy, 17c; packing stock, 13c; cheese, northern full cream, 10c; Missouri and Kansas full cream, 10c.

Poultry—Hens, live, 5½c; roosters, 20c each; springs, 7c lb.; ducks, young 6½c; geese, 5c; turkey hens, 7c; young gobblers, 7c; pigeons, 75c doz.; squabs, $1.25@2.00 doz. Choice, scalded dressed poultry 1c a bove these prices.

Game—Rabbits, drawn, 40c per doz.; jack rabbits, undrawn, per dozen, 50c.; squirrels, 50c; frogs, 50c@$2.00 per dozen; plover, 75c@$1.00 per doz.; jack snipe, 75c@$1.00 per doz.; sand snipe, 25@40c per doz.; ducks, mallard, per dozen, $4, red head, $5; canvas back, $5; teal, $2.50; mixed, $2.00.

Potatoes—$1.10@1.20 per bushel in small lots; car lots, $1.00@1.04; sweets, $3.00@3.25 per barrel.

Fruit—Apples, $1.00@5.00 per barrel; cranberries, $7.50@9.00 per barrel; California pears, $2.25@2.60 per box.

Vegetables—Navy beans, $2.20 bu; cabbage, $1.00@1.75 per cwt. Onions, 90c@$1.15 bushel in job lots; beets, 40@60c bu.; turnips, 15@25c bushel.

Special Want Column.

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

SPECIAL.—Until further notice, orders from our subscribers will be received at 1 cent a word or 7 cents a line, cash with order. Stamps taken.

CATTLE.

FOR SALE OR EXCHANGE—For another as good, one red Shorthorn bull, registered, with good pedigree; can't use him any longer. For particulars, address J. P. Klamm, Fairmount, Kans.

HEREFORDS FOR SALE—Five heifers and 8 young bulls, sired by Imp. True Britton. Address J. M. Foster & Co., Topeka, Kans.

FOR SALE CHEAP—Seven registered Galloway bulls, all of serviceable age, little thin in flesh but good individuals, are all sired by Prince of Clinton 11508. Dams of some of these are imported cows. Thos. Gribben, Hope, Kans.

FOR SALE—Jersey bull calf, a great grandson of Pedro, out of great grandaughter of Diploma. First, second, and third dams all good for four gallons daily with first calf, and all three with good sized teats. Price $20, crated. Dropped June 6. Address Geo. W. Maffet, Lawrence, Kans.

FOR SALE—Registered Shorthorns; five cows, two heifers, three heifer calves, three bull calves calved January and February, 1901, herd bull calved January, 1900. Catherine Anderson, Admix, 153 North 9th St., Salina, Kans.

FOR SALE—One dark red, registered Shorthorn bull; a sure breeder. Brookover Bros., Eureka, Kans.

FOR SALE—3 pure Cruickshank-Shorthorn bulls. H. W. McAfee, Topeka Kans.

SHORTHORN CATTLE SALE—I will offer at public sale, 1½ miles south of Marysville, at 2 o'clock p. m., on Tuesday, October 15, 17 registered Shorthorns, 19 high grade Shorthorns, and 3 thoroughbred Jerseys. Lewis Scott, Marysville, Kans.

HORSES AND MULES.

PERCHERONS—For sale at a bargain. Three 1,800-pound mares—one aged, others 7 and 8 years old, one 3-year-old (Brilliant) stallion, one 10-year-old 2,100-pound stallion; all registered. Two high-grade fillies, 2 and 3 years old; all good ones, grey. Would take part pay in well-bred registered Shorthorn heifers or young cows. S. T. Marshall, Atlanta, Kans.

FOR SALE—Four registered Percheron stallions of Brilliant blood. Ages are one 7 years old, two 3 years old, one yearling. Weights from 1,750 to 2,200 pounds. No heavier or better stallions can be found among the main breeders of America. Prices and description quoted upon application. C. Spohr, Rome, Kans.

FOR SALE—At a bargain—young draft stallions. A. I. Hakes, Eskridge, Kans.

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

BALMOLINE—Nature's Wonderful Healing Salve. Man or Beast. Druggists, 25 and 50 cents. Trial size 4 cents from B. H. De Huy, Ph. D., Abilene, Kans.

SWINE.

CHOICE BOAR PIGS—Sired by Pluto Medium 20337, $15 each. John D. Ziller, Hiawatha, Kans.

HERD BOARS—For sale or trade. Chief's Model 28444 by Chief Tecumseh 3d. Have used him 3 seasons; can't use him any longer as I am keeping his get. 800-pound hog at 33 months; also Black Missouri Chief 26007, 18 months old, by Missouri's Black Chief. Will trade for sows bred for spring farrow that are extra individuals and well bred, or spring gilts or fall gilts. A. B. Mull, Iola, Kans.

FOR SALE—Pure-bred Duroc-Jersey boars and gilts old enough for service. H. A. J. Coppins, El Dorado, Kans.

FOR SALE—Three serviceable boars: Yearling boar, a grandson of Chief Tecumseh 2d, out of daughter of Hadley Jr.; also, May boar, grandson of Hadley Jr., out of grandaughter of One Price, second dam by World's Fair Hadley, thirteenth dam Olk Harkrader Sow 11. Also March boar, grandson of Chief Tecumseh 2d, out of grandaughter of Look Me Over. Address Geo. W. Maffet, Lawrence, Kans.

FOR SALE—Berkshire boar, 2 years old, registered. Write W. H. S. Phillips, Carbondale, Kans.

FOR SALE—Berkshire boars and gilts. O. P. Updegraff, Topeka, Kans.

PIGS RIGHT—Prices right. Duroc-Jerseys and Poland-Chinas, all sizes. Write D. Trott, Abilene, Ks.

PEDIGREED POLAND-CHINAS—$5 each; registered Shorthorns cheap. Send for my Pig Booklet, FREE. M. C. Hemenway, Hope, Kans.

FARMS AND RANCHES.

FARM FOR RENT—100 acres bottom land, very productive, finest corn, potato, and truck land, pasture sufficient, 12 miles Kansas City; money or share rent. H. M. Kirkpatrick, Wolcott, Kans.

WANTED TO RENT—A dairy farm, on shares. Owner to furnish means for selling milk to creamery or city trade. Butter-maker 25 years. Married. Address Dakota, care of Kansas Farmer Co., Topeka, Kas

FOR SALE—150 acres Kaw Valley bottom near Lawrence. Address D 51, Lawrence, Kans.

FARM WANTED—To lease for 1 to 3 years, in eastern Kansas, by good tenant, about 160 acres, well improved; cash or on shares. Describe. Address H. G. H., Room 411, New Nelson Building, Kansas City, Mo.

FOR SALE—Several 10-, 15-, and 20-acre tracts of land with good houses on West 6th and 10th Sts., Topeka, close in. Bargains on good terms. Better see these before they are sold. F. J. Brown, 17 Columbian Bldg., Topeka, Kans.

IF YOU want to buy a good farm, address J. F. Schump, Garden Plain, Kans.

160-ACRE IMPROVED FARM—In Marion County Kansas, for sale or trade; a bargain. Full particulars by return mail. Address John Fox Jr., New Cambria, Kans.

FARM LOANS—Low rate, best terms, 5 to 10 years with privilege to pay in full or in partial payments before due. Loans can be closed at once. Call on or write The Kansas Mutual Life Insurance Co., 701 Jackson Street, Topeka, Kans.

FOR SALE—A splendid home in Topeka, Kans., located on West 8th St., 10 blocks west of Kansas Ave., and one-half block east of the Governor's mansion. Seventy-five feet front and improved with two good houses, as follows: One house of 7 rooms, all nicely finished in hard wood, closets, pantry, cellar, front and back porch, 100-barrel cistern, good well, the house is piped for gas, good barn 20x24, coal house, chicken house and yard, closet connected with sewer, brick walk, nice shade trees, nice yard. Also one new house of 7 rooms—full two story, two halls, closets, pantry, electric lights in every room, halls, pantry, bath room, cellar, gas for cooking and heating, hot and cold water, bath room, fine bath tub, closet, city water, all connected with sewer, front and back porch, good walks. This property is on paved street and in one of the most desirable parts of the city for a home. Price reasonable. We also have a fine tract of land containing 12½ acres, two miles from North Topeka. This is a fine tract for fruit growing or gardening purposes, has about 60 apple trees; no other improvements, nearly all in cultivation and rents for $5 per acre. We might trade a part or all of this property for a good stock farm at actual cash prices. John G. Howard, Eskridge, Kans.

MISCELLANEOUS.

WANTED—Send one dime, and receive by mail, new secret article. Large sums of money conveniently carried on person night and day, anywhere, safe from thieves, fire, etc. Edwards, 30 Grant Street, Cleveland, Ohio.

WANTED—Millet, cane, and Kaffir-corn seed. Mail samples, quote price. Alfalfa seed for sale. The Pierce Seed Co., Pueblo, Colo.

WANTED—Guns; buy, trade on new ones. Remodel, or repair any part of any gun made. Strictly high grade work. The largest line of modern guns in the State always on hand. Athletic sporting goods. Foot, and base ball supplies. Practical ideas developed, and patent models manufactured; any material, any model. H. B. Howard, 505 Kansas Avenue, Topeka, Kans.

CANE SEED—200 bushels at $1.50 per bushel. Address F. M. Penlon, Marion, Kans.

OYSTER SHELLS—Eighty cents per 100. Poultry and stock foods, and feed. Topeka Seed House, 306 Kansas Avenue, Topeka, Kans.

SHEPHERD PUPS—Another lot of fine Scotch Collie pups, ready to ship; from registered stock. Males $5, females $4. A. P. Chacey, North Topeka, Kans.

WANTED—Cane and Kaffir-corn seed in car lots Mail samples and quote price. McBeth & Kinnison, Garden City, Kans.

WANTED—If you wish to buy or sell corn, oats, hay, cane seed, kaffir-corn, corn chop, or anything in the feed line, correspond with us. Western Grain & Storage Co., Wichita, Kans.

HIGHEST PRICE paid for cane seed, alfalfa, millet, kaffir-corn, and pop corn. Please send samples. Kansas City Grain & Seed Co., Kansas City, Mo.

WANTED—Alfalfa hay. Send price and amount for sale. E. B. Davis, Columbus, Kans.

CHOICE ALFALFA SEED, price $4.50 f. o. b. J. E. Good, Canada, Kansas.

WANTED—Alfalfa, millet, cane seed, kaffir-corn, milo maize, and pop corn. If any to offer please correspond with us. Kansas Seed House. F. Barteldes & Co., Lawrence, Kans.

WOOL WANTED—We have just completed our New Woolen Mill in North Topeka and want at once 200,000 pounds of wool for which we will pay the market price. Write us if you have wool for sale. Western Woolen Mill Co., North Topeka, Kans.

FOR SALE—Feed mills and scales. We have 2 No. 1 Blue Valley mills, one 600-pound platform scale, one family scale, and 15 Clover Leaf house scales, which we wish to close out cheap. Call on P. W. Griggs & Co., 206 West Sixth Street, Topeka, Kans.

AGENTS.

WE WILL GIVE the exclusive agency of our specialty to one canvassing agent in every town; up-to-date article and big profits. Daisy Mfg. Co., Seymour, Iowa.

PATENTS.

UNITED STATES AND FOREIGN PATENTS
F. M. COMSTOCK & CO.
OFFICE 520 KANSAS AVE., TOPEKA, KANSAS.

J. A. ROSEN, attorney and counselor in patent, trademark, and copyright causes. Patents procured and trademarks registered. Office, Rosen block, 418 Kansas Avenue, Topeka, Kans.

English and Fitch Ferrets — Trained to Hunt..... RATS, RABBITS, Etc. Prices Low. .....
FARNSWORTH BROS., Elk Falls, Kas.

The Stray List.

Week Ending December 19.

Greenwood County.

STEER—Taken up by J. H. Pegram, in Lane tp., November 30, 1901, one red steer, 3 years old, brockle face, white on belly, brush of tail white; valued at $25.

Cherokee County—S. W. Swinney, Clerk.

STEER—Taken up by H. Stuckey, in Pleasant View tp., November 4, 1901, one dark red steer, 2 years old, underbit in right ear; valued at $18.

Week Ending December 26.

Washington County—S. T. Yoder, Clerk.

MARE—Taken up by J. T. Morehead, in Highland tp. (P. O. Hollenberg), September 19, 1901, one black mare, weight 1,000 pounds, 4 years old, star on forehead, sweeney in left shoulder; valued at $20.

Wabaunsee County—B. Buckli, Clerk.

STEER—Taken up by C. A. White, in Mission Creek tp. (P. O. Eskridge), November 23, 1901, one roan steer, 2 years old, branded 4 7 on left side and both ears sloped on under side. Also one roan steer, 1 year old, no brand, left ear underbit. Also one red steer, 1 year old, no brand, left ear underbit; valued at $55.

COWS—Taken up by E. J. Dailey, in Mission Creek tp. (P. O. Eskridge), November 23, 1901, one red cow, dehorned, right ear cropped. Also one brindle (white face) cow, dehorned, right ear cropped; total value, $40.

HEIFER—Taken up by L. T. Rice, in Mill tp. (P. O. Halifax), November 23, 1901, one red heifer, 1 year old, no marks or brands; valued at $15.

Sumner County—W. E. Wood, Clerk.

COLT—Taken up by J. B. Randall, in Avon tp. (P. O. Dalton), December 4, 1901, one pony colt, color mostly white with large bay spots on body, not branded; valued at $15.

MARE—Taken up by Frank Manning, in Caldwell, one bay mare, 1,100 pounds, 7 years old, shod in front, white hind feet, star in forehead, some harness marks, small scar on right knee.

Chase County—W. A. Waddell, Clerk.

STEER—Taken up by F. W. Jeffrey, in Diamond Creek tp. (P. O. Elmdale), November 25, 1901, one red and white steer, 1 year old, no brands; valued at $10.

Cherokee County—S. W. Swinney, Clerk.

MARE—Taken up by Walter Allen, in Mineral tp., November 30, 1901, one bay mare, 14½ hands high, 3 white feet, star in forehead, black mane and tail, had saddle on, branded H. F. on left thigh; valued at $20.

Elk County—G. J. Sharp, Clerk.

CATTLE—Taken up by A. N. Webster, in Painter Hood tp., November 12, 1901, one black steer, short yearling, white face, crop off left ear; valued at $12.50. Also one red bull, short yearling, white face, crop off right ear; valued at $12.50.

Chautauqua County—C. C. Robinson, Clerk.

STEER—Taken up by P. Stroud, in Washington tp. (P. O. Niotaze), November 6, 1901, one red and white spotted steer, 2 years old; valued at $20.

STEER—Taken up by David Chilcote, in Hendricks tp., November 28, 1901, one red Texas steer, 4 years old, branded A N on right hip, crop and underbit off right ear and underslope on left ear; valued at $20.

Bourbon County—Lydia Barton, Clerk.

MARE—Taken up by G. H. Toyton, 2½ miles west of Fulton, Bourbon County, Kans., December 2, 1901, one bright bay mare, with white hind feet, white spot on face, brown legs, dark mane and tail, about 4 years old, weight 1,000 pounds; valued at $20.

Ford County—S. T. Reynolds, Clerk.

HEIFER—Taken up by S. R. Bright, in Dodge tp. (P. O. Dodge City), one red heifer, 2 years old, branded + and F on left hip; valued at $17.

Lyon County—H. E. Peach, Clerk.

STEER—Taken up by L. R. Wright, in Emporia tp., November 18, 1901, one red and white spotted steer, 2 years old, branded N° on left hip.

Week Ending January 2.

Pottawatomie County—A. P. Scritchfield, Clerk.

CATTLE—Taken up by John Maskil, in Lone Tree tp., (P. O. Wheaton), December 8, 1901, one red steer, dehorned. Also one roan bull.

Chase County—W. A. Waddell, Clerk.

STEER—Taken up by Arch Miller, in Falls tp., (P. O. Cottonwood Falls), December 16, 1901, one red and white steer, 2 years old, branded T on right hip; valued at $25.

Smith County—Jno. A. Crabb, Clerk.

HEIFER—Taken up by W. J. Meredith, in Washington tp., May 13, 1901, one dark red heifer, medium size, tip of right ear cropped; valued at $15.

MAKES Pumps Work Easy

The Yankee Pump Governor, simple and cheap. The original and only practical invention that can be attached to any pump in five minutes, making the hardest working pump so easy a child can work it. With it Windmills turn in lighest breeze, all jerking stopped. 25,000 now in use. Good county Agents Wanted. Address today Dept. 31 BANE MANUFACTURING CO., Chicago. Windmills, Pumps, Gasoline Engines, Steel and Wood Tanks, Tank Heaters, Etc.

Breeders' Directory.

DUROC-JERSEY SWINE.

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

Registered Stock, DUROC-JERSEYS, contains breeders of the leading strains.
N. B. SAWYER, - - Cherryvale, Kansas.

M. H. ALBERTY, - - Cherokee, Kansas.
DUROC-JERSEYS.
100 head for this year's trade; all eligible to record.

MAPLE AVENUE HERD **DUROC-JERSEYS.** J. U. HOWE, Wichita, Kans. Farm 2 miles west of city on Maple Avenue.

FAIRVIEW HERD DUROC-JERSEYS.
Have sold all spring males, but have about 60 fine pigs of September and October farrow at reasonable prices.
J. B. DAVIS, FAIRVIEW, BROWN CO., KANS.

DUROC-JERSEY SWINE—REGISTERED
Write for prices on what you want in Febuary, March or April Gilts open or bred to order. A few extra June and July pigs, $10 each.
NEWTON BROTHERS, Whiting, Kans.

STANDARD HERD OF
Registered Duroc-Jerseys
PETER BLOCHER, Richland, Shawnee Co., Kans.
Herd headed by Big Joe 7363, and others. S. C. B. Leghorns.

POLAND-CHINA SWINE.

V. B. HOWEY, Box 103, Topeka, Kansas.
Breeder and shipper of Poland-China hogs, Jersey cattle, S. L. Wyandotte chickens. Eggs in season.

POLAND-CHINAS. 15 April and May boars. 1 yearling boar by Chief Perfection 2nd. Good fall and spring gilts bred to our GREAT HERD BOARS.
DIETRICH & SPAULDING, Richmond, Kansas.

RIVERSIDE HERD OF POLAND-CHINA SWINE
Contains up to date and prize-winning individuals. Young stock for sale. Correspondence or inspection solicited.
M. O'BRIEN, (Riverside), Liberty, Kansas

W. P. WIMMER & SON, Mound Valley, Kans.,
...Breeders of...
FASHIONABLE POLAND-CHINA HOGS
Young stock for sale at all times. Prices reasonable.

KANSAS HERD OF POLAND-CHINAS has some extra fine spring gilts, some January gilts, and sows 18 months, bred to Sen. I Know, he by Perfect I Know; and some nice fall boars by Sen. I Know, and U. S. Tec. Address F. P. MAGUIRE, HAVEN, RENO COUNTY, KANSAS.

T. A. Hubbard,
ROME, KANS., Breeder of POLAND-CHINAS and LARGE ENGLISH BERKSHIRES.
Two hundred head. All ages. Twenty-five boars and 45 sows ready for buyers.

SUNNYSIDE HERD OF
Pedigreed Poland-China Hogs
We now have for sale some extra good young boars, and a lot of gilts 8 to 10 months old. All good. Gilts will be bred or sold open as desired. This is a choice lot of young stuff that will be priced cheap, quality considered.
M. L. SOMERS, Altoona, Kans

VERDIGRIS VALLEY HERD OF
POLAND-CHINAS.
For Sale: 12 head of the best early boars that I ever produced; large, heavy-boned, and smooth. Ten head of May, June, and July boars that are fancy; also one last fall's boar that is a show pig.
E. E. WAIT, Altoona, Kansas.
Successor to WAIT & EAST.

...THOROUGHBRED...
Poland-China Hogs.
Special drive on 10 spring boars, weighing from 180 to 225 pounds, at prices to move them; they are large, lusty fellows, 3 of them good enough to head any pedigreed herd; also 20 choice gilts that I will breed to Star Perfection, by L's Perfection, Black Perfection—grand son of Missouri's Black Chief and L's Perfection, and Corwin's Improver. 100 head in herd. Write for anything you want in Poland-China hogs. John Bollin, KICKAPOO CITY, KAS. (Express Office, Leavenworth.)

..FANCY..
POLAND-CHINAS
FOR SALE: 125 fall and spring boars and gilts, sired by Dandy U. S. 17446, and Model Boy Jr. 2400. The sire of each of my herd boars cost $1,000. Choice pigs offered at reasonable prices. Write at once to
M. ROLAND HUGHES, Independence, Mo.

..KRAMER'S..
POLAND-CHINAS
FOR SALE: Boars old enough for service. Ten strictly fancy gilts bred to a son of Ideal Black Chief by Missouri's Black Chief. One extra fall yearling sow, bred. All stock sold on a positive guarantee to be as represented. Address—
D. A. KRAMER, Washington, Kansas.

R. S. COOK, Wichita, Kansas,
BREEDER OF
POLAND-CHINA SWINE
The prize-winning herd of the Great West. Seven prizes at the World's Fair. The home of the greatest breeding and prize-winning boars in the West, such as Banner Boy 28441, Black Joe 28608, World Beater, and King Hadley. FOR SALE—An extra choice lot of richly-bred, well-marked pigs by these noted sires and out of thirty-five extra-large, richly-bred sows.
Inspection or correspondence invited.

POLAND-CHINA SWINE.

High-Class Poland-China Hogs
Jno. D. Marshall, Walton, Harvey Co., Kans.,
Breeds large-sized and growthy hogs with good bone and fine finish and style. On Friday, January 17, 1902, at Newton, Kans., will hold a Public Sale of 40 bred sows, 3 boars, and pigs of both sexes.

SHADY LANE STOCK FARM.
HARRY E. LUNT, Proprietor, Burden, Cowley Co., Kans
Registered Poland-Chinas
25 Boars and 25 Gilts of late winter farrow, sired by Searchlight 25513, and Look No Further. Dams of the Black U. S., Wilkes, Corwin, and Tecumseh strains. Prices low to early buyers.
Remember the three days' Combination Sale at Wichita, Kans: February 11, 1902, Poland-Chinas by Snyder Bros. and H. E. Lunt; February 12, 1902, Shorthorns by J. F. Stodder, and February 13, 1902, Draft horses by J. C. Robison and Snyder Bros.

BERKSHIRE SWINE.

Ridgeview Farm Herd of
LARGE ENGLISH BERKSHIRES
Have for sale—spring pigs of quality, at reasonable figures. Write us before buying.
MANWARING BROS., Lawrence, Kans

East Lynn Farm Herd
LARGE ENGLISH BERKSHIRES
Herd headed by Premier 4th 55577, assisted by a son of Imp. Commander.
For Sale—A grand lot of boars ready for service, and a few choice gilts. Will price them right if taken soon. Inspection invited 6 days in the week.
WILL H. RHODES, Tampa, Marion Co., Kans.

CHESTER-WHITE SWINE.

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

TWENTIETH CENTURY HERD OF
UP-TO-DATE, PRIZE-WINNING CHESTER WHITES

We have 70 pigs, mostly sired by Balance All 11327, the champion boar of 1900 at leading State Fairs and the International Live Stock Exposition. Address DORSEY BROS., Perry, Ill.

CATTLE.

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.

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

POLLED DURHAMS. Single and double standard. Male stock for sale. I have the largest and best herd of this breed of cattle in the State. Correspondence and inspection invited. J. Q. HOWES,
1221 West Douglas Avenue, WICHITA, KANS.

POLLED DURHAMS.
The leading herd west of the Mississippi river. 25 head of both sexes for sale. Foundation stock sold to Kansas and Washington Agricultural Colleges the past year. A. E. BURLEIGH, Knox City, Knox Co., Mo.

Registered Herefords
Ten extra good bulls, 7 to 12 months old; 8 are sired by Klondike 72001, and 2 by Young Autocrat 101417. Will sell cheap. ALBERT DILLON, HOPE, KANS.

Alfalfa Meadow Stock Farm,
Shady Bend, Kansas.
Herefords, Poland-Chinas, Light Brahmas. Stock of all kinds for sale. Special: 48 Poland-China pigs. 200 bushels of pure, fresh Alfalfa Seed.
O. B. WHITAKER, Proprietor.

MAPLE LEAF HERD OF THOROUGHBRED
Shorthorn Cattle, and Poland-China Swine.
Farm is 2 miles south of Rock Island depot. JAMES A. WATKINS, Whiting, Kans.

Registered Herefords.
THOS. EVANS, BREEDER,
Hartford, Lyon County, Kansas.
Special Offerings: Young cows and heifers, and a few bulls for sale.

BREED THE HORNS OFF BY USING A RED POLLED BULL.
CHAS. FOSTER & SON, Foster, Butler Co., Kans.
Breeders of RED POLLED CATTLE.
Herd headed by POWERFUL 4582. Pure-bred and grades for sale. Also prize-winning Light Brahmas.

....125....
RAVENSWOOD SHORTHORNS
O. E. LEONARD, Bellair, Mo.
Males and females for sale. Inspection especially invited. Lavender Viscount 124755, the champion bull of the National Show at Kansas City, heads the herd.
ED. PATTERSON, Manager.
Railroad and Telephone station, Bunceton, Mo.

When writing advertisers mention Kansas Farmer.

CATTLE.

CHOICE GALLOWAY CATTLE.
I have registered Galloway bulls for sale.
O. E. MATSON, Furley, Sedgwick Co. Kans

D. P. NORTON'S SHORTHORNS Breeder of Pure Bred SHORTHORN CATTLE
Dunlap, Morris Co., Kans.
Herd Bull, Imported British Lion 133692
Young stock for sale.

E. S. COWEE, Burlingame, Kans., R. R. 2, Breeder of
PURE-BRED HEREFORD CATTLE, and DUROC-JERSEY SWINE.
KIDS' DUKE 96637 at head of herd. Young bulls and heifers for sale.

Norwood Shorthorns. V. R. ELLIS, Gardner, Kans.
Sir Charming 4th at head of herd. Cruickshank-top crossses on best American families. Young stock for sale

O. F. NELSON, Hiawatha, Kansas
Breeder of REGISTERED
Hereford Cattle.
Herd headed by Dandy Dolan 102828 full brother to famous Dandy Rex.

Rock Hill Shorthorns and ..Saddle Horses..
Bulls in service, Sempstress Valentine 157069, and Mayor 129229. A fine string of young bulls and a few heifers for sale.
J. F. TRUE & SON, Proprietors.
Post-office, PERRY, KANS. Railroad station, Newman, Kans., on Union Pacific R. R., 12 miles east of Topeka

...ALLENDALE HERD OF...
Aberdeen-Angus Cattle
The Oldest and Largest in the United States
Splendid recently imported bulls at head of herd Registered animals on hand for sale at reasonable prices at all times. Inspect herd at Allendale, near Iola and La Harpe; address Thos. J. Anderson, Manager, Iola, Allen Co., Kans., R. R. 2, or—
ANDERSON & FINDLAY, Prop's, Lake Forest, Ill.

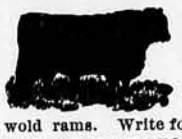
Scotch Shorthorns
FOR SALE.
The Great Missie Bull, Imp. Mariner 135024,
BRED by W. S. Marr, Uppermill, sired by Golden Ray (67132), dam Missie 88th by Ventriloquist (44180). Also SIX YEARLING BULLS of choicest Scotch breeding.
HANNA & CO., Howard, Kans.

THE GEO. H. ADAMS
HEREFORDS
AT LINWOOD, KANS.
YEARLING Bulls and Heifers for sale, sired by Orpheus 71100, and Ashton Boy 52068, and out of choice imported, and home-bred cows. Address all correspondence to GEORGE F. MORGAN,
General Manager, Linwood, Kansas.

GALLOWAYS
DISPERSION SALE
of the entire Wavertree Herd, at
SOUTH OMAHA, FEB'Y 28 AND MARCH 1, 1902.
For Catalogue and other particulars, address
W. H. B. MEDD, V. S.,
NOBLES COUNTY. DUNDEE, MINN.

E. H. WHITE, Estherville, Iowa,
IMPORTER AND BREEDER OF
GALLOWAY CATTLE.

Herd Foundation Stock A Specialty.
A few choice Females and 14 Bulls for sale.
Inspection or Correspondence invited.

Pure-bred Galloways

Young Breeding Stock for Sale
Several Bulls Ready for Immediate Service.
Large herd. Can supply demand now. Also pure-bred Cotswold rams. Write for prices.
W. G. McCANDLESS & SON, Cottonwood Falls, Kans

MT. PLEASANT HERD OF SHORTHORNS.
Herd headed by Acomb Duke 18th 142177. Herd composed of Young Marys, Galateas, and Sanspareils. Young bulls for sale.
A. M. ASHCRAFT, Atchison, Kans. R. F. D. No. 3.
Inquire at Ashcraft & Sage Livery Barn, Main Street.

..SUNFLOWER HERD..
SCOTCH, AND SCOTCH-TOPPED
Shorthorn Cattle, Poland-China Swine
Herd Bulls, Sir Knight 124403, and The Baron 121327.
Herd Boars, Black U. S. 2d 25582 S, and Missouri's Best On Earth 19836 S.
Representative Stock For Sale.
Address ANDREW PRINGLE,
Wabaunsee Co. Eskridge, Kansas

CATTLE.

Aberdeen-Angus
THE RUTGER FARM HERD
—OFFERS—
Thirty registered bulls, 8 to 30 months old, low down, blocky fellows of choicest breeding and individuality. Also a few heifers bred to Expand.
CHAS. E. SUTTON, RUSSELL, KANS.

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 16-hand 1,100-pound son of Montrose in service. Visitors always welcome.
Address BLACKSHERE BROTHERS, Elmdale, Chase County, Kansas.

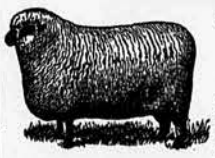
Silver Creek Shorthorns.
The Scotch bull, Gwendoline's Prince 180913, in service. Also the imported Scotch Missie bull, Aylesbury Duke. 100 head of the best Scotch, Bates, and American families. High class Duroc-Jersey swine for sale.
J. F. STODDER, Burden, Cowley Co., Kans.
Remember the three days' Combination Sale at Wichita, Kans: February 11, 1902, Poland-Chinas by Snyder Bros. and H. E. Lunt; February 12, 1902, Short horns by J. F. Stodder, and February 13, 1902, Draft horses by J. C. Robison and Snyder Bros.

H. R. LITTLE,
HOPE, DICKINSON CO., KANS.,
Breeds Only the Best, Pure-Bred
SHORTHORN CATTLE.
Herd numbers 135, headed by ROYAL CROWN, 125696, a pure Cruickshank, assisted by Sharen Lavender 143002.
FOR SALE JUST NOW—16 BULLS of serviceable age, and 12 Bull Calves. Farm is 1½ miles from town. Can ship on Mo. Pac., R. I., or Santa Fe. Foundation stock selected from three of the great herds of Ohio.

CLOVER BLOSSOM SHORTHORNS
Herd Headed by the Cruickshank Bulls
Imp. Nonpareil Victor 132573
Sire of the champion calf and junior champion bull of 1900
...Grand Victor 115752...
Himself a show bull and sire of prize-winners.
FEMALES are Scotch, both imported and home-bred, pure Bates, and balance 3 to 6 Scotch tops.
STOCK FOR SALE.
GEO. BOTHWELL, Nettleton, Caldwell Co., Mo.
On Burlington Railroad.

GLENDALE SHORTHORNS, OTTAWA, KANSAS.
Leading Scotch, and Scotch-topped American families compose the herd, headed by the Cruickshank bull Scotland's Charm 127264, by Imp. Lavender Lad, dam by Imp. Baron Cruickshank. Twenty bulls for sale.
C. F. WOLFE & SON, Proprietors.

SHEEP.

ANOKA FARM RAMBOUILLET AND COTSWOLD SHEEP.

GEO. HARDING & SON
Importers and Breeders,
WAUKESHA, WIS.
25 Imported, and 75 American Rams and 150 Ewes for sale. Our show flock at the Pan-American and all State Fairs this year was a sweeping success. Write us your wants and mention KANSAS FARMER.

Do You Make Kansas City?
..If So, Stop at the..
...MIDLAND...
HOTEL.
KANSAS CITY, MISSOURI.
Stockmen's Headquarters.
Street Cars direct from Depot or Stock Yards

O. F. MENNINGER M. D.,
Consulting Physician.
727 KANSAS AVENUE, TOPEKA, KANSAS.
Specialties: Chronic, and Obscure Diseases Heart and Lungs

HORSES AND MULES.

PERCHERON HORSES, and ABERDEEN-ANGUS CATTLE.

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

HENRY AVERY & SON,

BREEDERS OF

Pure Percherons.

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

Wakefield, Clay County, Kansas.

PERCHERON STALLIONS

FOR SALE.

DIRECT 18839, by Bendago 11807, by Brilliant 1271, dam Fenelo 14118 by Fenelon 2682, by Brilliant 1271. Bendago's dam the famous prize-winner Julia 5976 by La Ferte 5144. Also 6 Young Stallions by Direct.

HANNA & CO., Howard, Kans.

Pleasant Hill Jack Farm.

PHILIP WALKER, Breeder,

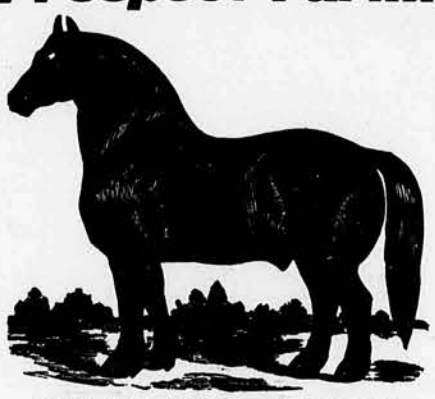
MOLINE, ELK CO., KANS

25 Mammoth, Warrior, and Spanish Jacks New For Sale.

Quality and Breeding Unexcelled.

Inspection and Correspondence Invited.

Prospect Farm.



H. W. McAFEE, Topeka, Kansas,

Breeder of

OLYDESDALE HORSES, AND SHORTHORN CATTLE.

For Sale—25 Clydesdales, including 3 registered stallions of serviceable age, and 18 mares. Inspection and correspondence invited.

LIVE STOCK AUCTIONEERS.

CAREY M. JONES,

Live Stock Auctioneer,

Davenport, Iowa. Have an extended acquaintance among stock breeders. Terms reasonable. Write before claiming date. Office, Hotel Downs.

R. E. EDMONSON, late of Lexington, Ky., and Tattersall's (of Chicago, limited), now located at 208 Sheidley Building, Kansas City, Mo., offers his services as Live Stock Auctioneer. All the Herd and Stud Books. Wire before fixing dates.

R. L. Harriman,

Live Stock Auctioneer,

Bunceton, Mo.

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

LIVE-STOCK AUCTIONEER

Col. J. N. HARSHBERGER

Lawrence, Kans.

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

James W. Sparks,

Live Stock Auctioneer

Marshall, Mo.

Sales Made Anywhere

Have been and am now booked for the best sales of high-class stock held in America. Thoroughly posted on pedigrees and individual merit. Large acquaintance among the leading stock-breeders of America. Terms reasonable. Write me before claiming your date.

When in Chicago, Stop

At the newly furnished and decorated hotel. Steam heat and electric elevators. Formerly the Clifton House, but now the

Windsor-Clifton Hotel

Corner of Monroe Street and Wabash Avenue. Located most central to the wholesale and retail stores, theaters and public buildings.

The prices range from 75 cents and upwards per day. European plan. Visitors to the city are welcome.

SAMUEL GREGSTEN, Proprietor

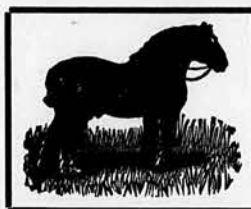
Centropolis Hotel.

The best $2.00 (and $2.50 with bath) Hotel in America.

W. J. KUPPER, Proprietor.

CLARK D. FROST, Manager.

KANSAS CITY, MO.



Percheron Stallions.

70 First Class Young Percheron Stallions

Now in our Shenandoah stables. Our last importation arrived October 1, 1901—mostly black, 3-year-olds, 30 imported stallions. An elegant string of 25 big two's and three's of my own breeding. Thirty years in the business. Come and see the horses.

M. L. AYRES, Shenandoah, Iowa

Riverside Stock Farm

O. L. THISLER, CHAPMAN DICKINSON CO., KANS.

Importer and Breeder of

PERCHERON, and FRENCH COACH HORSES, and SHORTHORN CATTLE.

For Sale—A few Shorthorn heifers, and Percheron stallions; also a Special Bargain on 9 Registered Hereford Bulls, 2 years old, and a few Full-blood Percheron Mares.

WE ARE NOT THE LARGEST IMPORTERS

In the United States, neither have we all ton horses. But we do make five importations each year. Our stables at Lincoln, Neb., and at South Omaha Union Stock Yards are full of first-class Percheron and Shire stallions. If you want a good one for what he is worth, it will pay you to see us. Our horses won sweepstakes in all draft and hackney classes at Nebraska State Fair. Address all correspondence to

WATSON, WOODS BROS. & CO., Lincoln, Neb.

SPECIAL NOTICE: Woods Bros., of Lincoln, Neb., have two cars of Shorthorn and Hereford bulls and cows at a bargain.

German Coach, Percheron, and Belgium Horses.

OLTMANNS BROS., Importers and Breeders, WATSEKA, ILLINOIS.

Three Importations in 1901. ***100 Stallions For Sale.***

No other firm enjoys such buying facilities; the senior member being a resident of Germany is personally acquainted with the best breeders in France, Germany, and Belgium. We can save you money. Come and see us. We shall exhibit at the International Live Stock Exposition, Chicago, Dec. 1-7, 1901.

S. A. SPRIGGS, Westphalia, Kansas,

BREEDER AND DEALER IN

Registered Mammoth, and Imported Spanish Jacks and Jennets; Also Registered Stallions.

All stock guaranteed just as represented. Correspondence solicited.

SNYDER BROS., Winfield, Kans.,

Breeders of

POLAND-CHINA SWINE; SHIRE, CLYDE, AND PERCHERON HORSES, AND POLLED DURHAM CATTLE.

For Sale at Special Prices—17 BOARS, and 25 GILTS, farrowed mainly in November and December. They are extra well bred and very thrifty.

8 Polled Durham Bulls, of serviceable age. 17 Stallions over 2 years. 2 Mammoth Jacks.

Remember the three days' Combination Sale at Wichita, Kans: February 11, 1902, Poland-Chinas by Snyder Bros. and H. E. Lunt; February 12, 1902, Shorthorns by J. F. Stodder, and February 13, 1902, Draft horses by J. C. Robison and Snyder Bros.

THE LINCOLN IMPORTING HORSE COMPANY,

LINCOLN, NEBRASKA.

The Largest Importers of

HIGH CLASS Draft Stallions

In all the West.

Our last importation arrived October 14. They were selected by two as competent horse judges as ever crossed the ocean Our facilities for building up and acclimating foreign stallions can not be excelled in the United States, our main barn costing over $10,000.

At the present time we have a grand lot of Percheron and Shire stallions, 2, 3, and 4 years old.

Write us for further information; would much prefer to have you visit our barns where you are made welcome and entertained with an exhibit of the best specimens of the up-to-date drafter.

Long distance telephone in our office—575.

DRAFT STALLIONS

Percherons, Shires, and Clydes.

We have a selection that are sure to suit you. As grand a lot of young stallions, of serviceable age as can be found in the country. We do not claim to have every color or kind of a stallion, you or anybody may want, but what we claim you will find true if you pay us a visit. All of our selections are made by a member of our firm, who has been at this line of work the past decade and has absolutely a first choice from the leading breeders of Furope. Our last importation, consisting of the three great breeds, and 62 head in numbers were selected in the early part of February, before any of the shows and to-day are ready for sale. Write us, or come and see us, if you or your community are in need of the best to be found.

KEISER BROS., Keota, Keokuk County, Iowa.

America's Leading Horse Importers

Won at the Two Last Universal Expositions

At the Paris Exposition, 1900, our Percherons won Every First Prize with a possible exception.

At the Pan-American Exposition, Buffalo, 1901, our stallions won Every First Prize including the Grand Sweepstakes over all draft breeds.

We import more horses than any other three firms in America, and more prize-winners than all others.

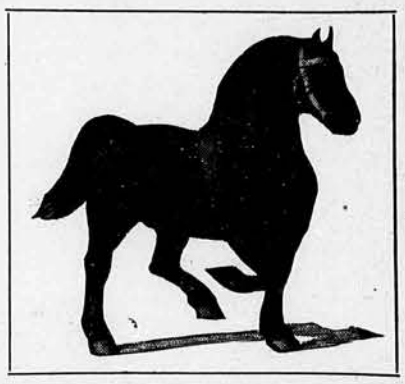
We buy the best, can buy them cheaper and will sell them for less than anybody else.

If you want the kind that will improve your stock of horses, call on or write—

McLAUGHLIN BROTHERS,

COLUMBUS, OHIO.

LAWRENCE, KANS. EMMETSBURG, IOWA.



PERCHERONS.

J. W. & J. C. ROBISON,

Importers and Breeders,

TOWANDA, BUTLER CO., KANS.

LARGEST HERD IN THE STATE.

IMPORTED, AND AMERICAN BRED STALLIONS AND MARES For Sale at all times.

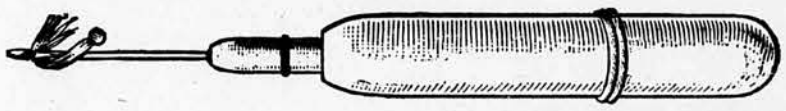
Prices reasonable. Inspection invited. Seventeen young stallions for sale.

Remember the three days' Combination Sale at Wichita, Kans: February 11, 1902, Poland-Chinas by Snyder Bros. and H. E. Lunt; February 12, 1902, Shorthorns by J. F. Stodder, and February 13, 1902, Percherons by J. C. Robison and Snyder Bros.

"BLACKLEGINE"

Pasteur Blackleg Vaccine Quite Ready for Use.

This is in the form of a cord impregnated with the vaccine. Each dose is separate and applied with a special needle. The dose is hitched on to a notch in the needle and then inserted under the skin at the shoulder. The needle is provided with a detachable handle. Vaccination with "Blacklegine" is as rapid and easy as taking a stitch. There is no dissolving, or mixing, or filtering a powder; no injecting or trouble in measuring doses; **no expensive syringe outfit.**



BLACKLEGINE OUTFIT, SHOWING NEEDLE INSERTED IN HANDLE AND DOSE OF VACCINE ATTACHED READY FOR VACCINATING.

Prices: "Single Blacklegine" (for common stock): No. 1 (ten doses), $1.50; No. 2 (twenty doses), $2.50; No. 3 (fifty doses), $6.00. **"Double Blacklegine"** (for choice stock) (first lymph and second lymph, applied at an interval of eight days), $2.00 per packet of ten double doses. **Blacklegine Outfit** (handle and two needles), 50 cents.

PASTEUR VACCINE COMPANY,

Chicago, New York, Omaha, Kansas City, Ft. Worth, San Francisco.

50 SHORTHORN BULLS FOR SALE.

THE BILL BROOK HERD OF REGISTERED **SHORTHORNS** HAVE ON HAND FOR READY SALE *FIFTY YOUNG BULLS,* from 6 to 20 months old; also a few good heifers. Address *H. O. TUDOR, Holton, Kansas.*

TEBO LAWN HERD SHORTHORNS.

HERD BULLS ARE: ALICE'S PRINCE 122593 bred by W. A. Harris; VICTOR BASHFUL 152797 bred by J. R. Crawford & Sons; VALIANT 151304 bred by C. C. Norton; ADMIRAL GODOY 133872 bred by Chas. E. Leonard.

FEMALES are the best Cruickshank families TOPPED from the leading importations and American herds. These added to the long established herd of the "Casey Mixture," of my own breeding, and distinguished for INDIVIDUAL MERIT, constitute a breeding herd to which we are pleased to invite the attention of the public. Inspection and correspondence solicited.

G. M. CASEY,
Rural Route No. 1. CLINTON, MO.

THE CLARK DISPERSION SALE AND THE HARNESS COMBINATION SALE OF

Hereford Cattle

AT CHICAGO, ILL., TUESDAY AND WEDNESDAY, JANUARY 7 AND 8, 1901.

Two Great Opportunities for the Purchase of Hereford Breeding Stock.

ON TUESDAY, JANUARY 7, THOS. CLARK, of Beecher, Ill., will disperse his Hereford breeding herd, consisting of 60 head of prize-winning cattle. Perfection, the grand sweepstakes bull at the recent International Exposition, together with many females in calf or with calves at side to his service will be sold. Sale begins at 1 o'clock p. m.

ON WEDNESDAY, JANUARY 8, MESSRS. G. W. HARNESS, JR., W. L. THOMAS & SONS, S. H. GODMAN, CLEM GRAVES, and six other Indiana and Illinois breeders will sell 76 head of Herefords. The herds represented are all good ones and the cattle to be sold in this sale are the "tops."

For Clark Catalogues, write THOS. CLARK, - - - Beecher, Ill. | For Harness Catalogue, write G. W. HARNESS, Jr., Galveston, Ind.

GREAT SALE OF HIGH CLASS

Poland-Chinas,

FRIDAY, JANUARY 17, 1902.

J. D. MARSHALL, Walton, Kans., will, on above date, sell at Public Sale, in Tomson's Livery Barn, Newton, Kans., a draft of 40 bred sows of the best in his herd; also two extra fine yearling boars, and one 2-year-old boar. All recorded or eligible to record. Also a draft of choice pigs—both sexes; summer farrow, which are all first-class.

WRITE FOR CATALOGUE ◉ JOHN D. MARSHALL, Walton, Harvey Co., Kans.

Winn & Mastin

Owners of the Largest and Finest Herd of **...POLAND-CHINAS...** In the World.

The 4 sweepstakes boars, Perfect I Know, Proud Perfection, Corrector, Missouri Sunshine, and the International winner, Lamplighter, at head of service. Eleven sweepstakes sows in herd. Our herd won 45 prizes at State Fairs this year; 21 firsts, 12 seconds, 3 thirds, 1 fifth, and 8 sweepstakes. A great lot of show pigs and sows bred to above boars for sale at reasonable prices. Satisfaction guaranteed. ALLAN F. OVIATT, Herd Manager.

WINN & MASTIN, - - Mastin, Kansas.

(Mastin is situated 15 miles south of Kansas City, on Memphis, and Mo. Pac. Rys.)

MAINS' HERD OF POLAND-CHINAS.

Pigs by Anderson's Perfect, Harris' Black U. S. (the champion sweepstakes boar at the Iowa State Fair of 1900), Kemp's Perfection (the highest priced pig by Chief Perfection 2d sold last year). Stock of all ages for sale, including three yearling boars.

JAMES MAINS, Oskaloosa, Kansas.

STEELE BROS., Belvoir, Douglas Co., Kans.,
Breeders of SELECT
HEREFORD CATTLE.
YOUNG STOCK FOR SALE. INSPECTION OR CORRESPONDENCE INVITED.

Sunny Slope Herefords

...200 HEAD FOR SALE...

Consisting of 40 good Cows 3 years old or over, 10 2-year-old Heifers bred, 50 yearling Heifers, and 100 Bulls from 8 months to 2 years old. I will make VERY Low Prices on any of the above cattle. Write me or come and see me before buying.

C. A. STANNARD, Emporia, Kans

SCOTT & MARCH
BREEDERS OF PURE BRED
HEREFORDS.
BELTON, CASS COUNTY, MO.

BULLS in service, HESIOD 29th 66304, Imp. RODERICK 80155, MONITOR 58275, EXPANSION 93662, FRISCOE 93674, FULTON ADAMS 11th 83731.

25 miles south of Kansas City on Frisco; Ft. Scott & Memphis; and K. C., P. & G. Railroads

LAMPLIGHTER 51834.

Gudgell & Simpson,
Independence, Mo.,
..BREEDERS AND IMPORTERS OF..
Herefords

One of the Oldest and Largest Herds in America.

ANXIETY 4TH Blood and Type Prevail

Both Sexes, In Large or Small Lots, Always For Sale

T. K. Tomson & Sons,
Proprietors of
Elderlawn Herd of Shorthorns.
DOVER, SHAWNEE COUNTY, KANSAS.

GALLANT KNIGHT 124468 in service. How would you like a cow in calf to, or a bull sired by, Gallant Knight 124468? His get won 14 prizes at the National Cattle Show held at Kansas City last October. 100 head in herd. Correspondence and inspection invited.

Valley Grove Shorthorns

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 breed Shetland ponies. Inspection invited. Correspondence solicited. A few young bulls sired by Lord Mayor for sale.

Address T. P. BABST, Prop., Dover, Shawnee Co., Kans

Pearl Shorthorns.

Herd Bulls:
BARON URY 2d 124970. LAFITTE 119915.

Inspection Invited

C. W. TAYLOR, Pearl, Kans

...IDLEWILD HERD OF...

Shorthorn Cattle.

Owned by W. P. HARNED, Vermont, Mo.

200 HEAD. | NO BETTER BREEDING FEW BETTER CATTLE

Cruickshank's Booth Lancaster, and Double Marys represented, with preponderance of Cruickshanks.

IMP. GOLDEN THISTLE, by Roan Gauntlet, dam by Champion of England.

THE IMPORTED COW is the dam of Godoy, my chief stock bull, he by Imp. Spartan Hero, he by Barmpton. Godoy is closer to the greatest Sittyton sires than any living bull except his full twin brother. For Ready Sale—25 Bulls, 12 to 18 months old, and 40 Yearling Heifers to sell at drouth prices. Railroad Station, Tipton; main line Missouri Pacific; Vermont, Mo., on branch Missouri Pacific.

This Mill Does all kinds of work fine; on one set of grinders without injuring them. The Tandem Sweeps are easy on the horses. No Gearing. No Friction. It's different from all others. (*Also make 7 sizes belt-power mills*) 2 to 25 H.P.
C.N.P. Bowsher Co. South Bend, Ind.

$7.00 DAILY AVERAGE selling easy Pump Governors. They make the hardest working pump work easy. Windmills turn in the lightest wind. Fits all pumps. Exclusive territory. No talk—merit sells it. Pump Governor Co. 23 L, S. Canal St. Chicago, Ill.

WELL DRILLING Machines

Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock. Mounted on wheels or on sills. With engines or horse powers. Strong, simple and durable. Any mechanic can operate them easily. Send for catalog.
WILLIAMS BROS., Ithaca, N. Y.

KIRKWOOD FOR 1900
STEEL WIND MILLS, STEEL TOWERS, PUMPS, and CYLINDERS, TANKS, and FITTINGS OF ALL KINDS
—Address—
Kirkwood Wind Engine Co
Arkansas City, Kans.

WINTER WATER.

When the stock goes into winter quarters you will want to be sure of a reliable and constant supply of water. A bored well is the safest and surest. Our Well Machinery does it best and cheapest. Drills 25 to 1500 ft deep. We make all appliances. Have stood the test of 13 years. We also have Gasoline Engines for all purposes. Send for free catalog.
W. M. Thompson Co. Sioux City, Iowa.
Successors to Sioux City Engine & Iron Works

LIGHTNING WELL MACHY
IS THE STANDARD
STEAM PUMPS, AIR LIFTS,
GASOLINE ENGINES
WRITE FOR CIRCULAR
THE AMERICAN WELL WORKS
AURORA, ILL.—CHICAGO.—DALLAS, TEX.

GRIND YOUR WHEAT

OUR MILLS for 1901 are made for that, and are *Improved Corn Grinders* beside. You will find a surprise in prices in our circular of ungeared and double and triple geared mills. Ask for our Windmill Catalogue, too, when you write. Add.,
Currie Windmill Co., Topeka, Kans

Well Drills FOR Water Oil Gas Coal

Successful drillers use them! Write us stating your wants fully. Give diameter and depth of wells, and tell what kind of power is wanted.
Address LOOMIS & NYMAN, Tiffin, Ohio.

SHORT FEED, in a season like this, may be made to go very much farther by grinding. The best way to grind it is with our **BUCKEYE** Feed Mill and Power Combined. Grinds corn and cob, and all other grains, especially wheat. Supplies power for shelling, cutting, sawing, pumping, etc. Write for free catalog W.
STAVER CARRIAGE CO., 76th & Wallace Sts. Chicago.

None Better Made.

Get Bigger Crops and still **Sow Less Seed.**

You can do it if you use the **CAHOON Broadcast SEEDER** really the most practical hand seeder made. Saves four-fifths of the labor of seeding and one-third the seed.

Insures a bigger crop because it distributes the seed evenly.

Any one can use it. Sows 6 to 8 acres per hour. Ask your dealer for it. Send to us for discriptive circulars.
GOODELL COMPANY, 43 Main Street, Antrim, N. H.

DO NOT BUY

WELL DRILLING MACHINERY until you see our new Catalogue No. 41. We will furnish it to you FREE. Write to our address, either Harvey, Ill., Chicago, Ill., or Dallas, Texas.
F. C. AUSTIN MFG. CO.,
Factories at Harvey, Ill.

This Tubular Fence Post made of Galvanized Metal and Vitrified Shale base, is the most economical and durable post made. It will not rust, rot down or burn up. Specially good for farm, railroad, cemetery and lawn fencing. Posts made plain or beautifully ornamented. Extra large and strong posts for corners or other places of special strain. Any kind of barb, smooth, cabled or woven wire fencing can be securely fastened to the posts. Special fittings, as corner braces, gate hinges, etc. Good agent's proposition. Write for free circulars, prices and special terms.
BLOOMFIELD MFG. CO., Box K Bloomfield, Ind.

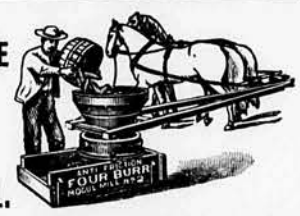
STICKNEY JUNIOR

A Perfect 3-Horse Power Gasoline Engine for Farmers at only $110.00

Lowest price, simplest and best engine. A child can run it. Will do all the work of the farm, shop and home. Send for free catalog.
CHARLES A. STICKNEY CO., St. Paul, Minn.

ALLIGATOR BRAND ROOFING is tough, durable and easily laid, made of chemically treated strong fibrous material coated with a flinty sand—not a tar paper or any kind of tar production. Waterproof, wind proof, acid proof, protection against fire. Suitable for any kind of building, for roofing or siding. For particulars and low prices write
KANSAS CITY ROOFING AND CORRUGATING CO., 218-220 W. 3rd Street, Kansas City, Mo.

THE OLD RELIABLE ANTI-FRICTION 4-BURR MOGUL MILL.



No gearing; no friction; thousands in use.
Four-horse mill grinds 60 to 80 bushels per hour; two-horse mill grinds 30 to 50 bushels per hour. We make a full line of Feed Mills, best ever sold, including the
Famous Iowa Mill No. 2, for $12.50.
Also Feed Steamers, Farm Boilers, and Tank Heaters. Send for free catalogue.
Manufactured and sold by the
IOWA GRINDER & STEAMER WORKS, Waterloo, Iowa.

Schley Didn't Need any vindication; nor does Page Fence. The whole truth may be told of either without injuring them.
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

ARE YOU WITH US?

The Dealer Is Against Us because we sell you wire fence direct from the factory at wholesale prices.
The dealer does not give you a better fence than we do, but he charges you more for it. You can buy the
ADVANCE FENCE direct from us just as cheap as the dealer can. No loose ends. All closely interwoven. Cross wires can't slip. No small wires used. Write a postal for circulars and prices.
Advance Fence Co., 130 K St., Peoria, Ills.

VARICOCELE A safe, painless, permanent cure guaranteed. Twenty-five years' experience. No money accepted until patient is well. *Consultation and Book Free,* by mail or at office. Write to DOCTOR C. M. COE, 915 Walnut Street, KANSAS CITY, MO.

LIGHTNING HAY PRESSES
HORSE AND STEAM POWER CATALOG FREE
KANSAS CITY HAY PRESS CO
129 MILL ST KANSAS CITY MO.
THE OLD RELIABLE

LET US CONVINCE YOU

That the most valuable Wind Mill to purchase is not something new, but a mill that has been on the market for the past 15 years with constantly increasing sales. : : : :

THE NEW WOLCOTT WIND MILL
Combines
Strength, Simplicity, and Durability.

Less working parts, easiest to erect, and requires less attention than any other Wind Mill on the market. Our stock includes wood wheel wind mills, Steel or Wood Towers, Pumps, Pipe, and Fittings, and our location and facilities enable us to furnish a first class line of Pine or Cypress stock and reservoir tanks at lower prices than any other manufacturer. Write for Catalog, and introductory wholesale prices and terms.
Wolcott Wind Mill Co.,
Niagara & Walker Sts., Saginaw, W. S. Mich.

LEAN'S ALL STEEL HARROWS AND LAND ROLLERS

Made throughout of specially forged steel and tempered under our own process. Light weight and light draft combined with greatest strength and rigidity. All working parts are placed within an outside frame. The position of the teeth can be instantly adjusted by steel lever to any position or cleared of rubbish without stopping team. In preparing ground for seed or for harrowing all kinds of crops there is nothing that will equal Lean's.

OUR STEEL ROLLERS are so constructed that all parts are interchangeable—and if any part should break, can be repaired at home at small cost. We want to tell you more. Why not send for our catalogue?

Send for illustrated catalogue to-day.
ROBINSON & CO., General Agents, Kansas City, Mo.
RODERICK LEAN MFG. CO. MANSFIELD, OHIO.

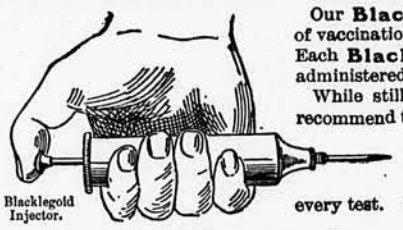
The Farmer Is Not Lazy, because he saves himself and does the work in less time by riding one of the

BROWN SULKY PLOWS.

He is brainy. They are the strongest, simplest, most economical. Built on new and original lines; they are the plows. Whether you are planning to buy a plow now or not, it will be to your interest to learn more of the Brown line of gang, sulky and walking plows, their construction and special features. You get all of these points in our new catalogue. We want every farmer to have one. Write for one. They are free.
GEO. W. BROWN & CO., 111 Kellogg Street, Galesburg, Illinois.

Vaccinate Your Cattle

PARKE, DAVIS & CO.'S BLACKLEGOIDS (Blackleg Vaccine Pills)
WILL POSITIVELY PROTECT THEM FROM BLACKLEG.



Blacklegoid Injector.

Our **Blacklegoids** afford the simplest, safest, surest method of vaccination. No filtering is necessary, no measuring, no mixing. Each **Blacklegoid** is an exact dose, and it is quickly and easily administered with our Blacklegoid Injector.

While still marketing our "Blackleg Vaccine Improved," we recommend the use of our **Blacklegoids** because of their absolute accuracy of dosage and their ease of administration. Ask your druggist for them and you will get a vaccine that is reliable, a vaccine that has stood every test. Write us for literature—free on request.

PARKE, DAVIS & CO., Detroit, Mich. Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

The Farmers' Co-operative Grain and ...Live Stock Association...

Will handle your grain, hay, and feed on commission. If you appreciate honest work, good treatment, and prompt returns, consign your grain to us. We want the consignment of all co-operation associations, independent dealers, scoop shovel men, and farmers. Correspondence solicited.
Address all communications to
JAMES BUTLER, Secretary, Room 14, Office Block, Topeka, Kansas

---

CREAM SEPARATOR GIVEN AWAY FREE

We know the PEOPLES CREAM SEPARATOR is the best in the world. We want all farmers and farmers' wives to convince themselves that our statement is true. We will for a limited time give away ABSOLUTELY FREE for a few hours' work, one of these separators to every one writing for it. Don't forget to send us the name of your nearest freight office with your request for free separator. Write today; its free for the asking. PEOPLES SUPPLY CO., DEPT. X, KANSAS CITY, MO.

PILES=No Money till Cured

All diseases of the rectum treated on a positive guarantee, and no money accepted until patient is cured. Send for free 200-page book; a treatise on rectal diseases and hundreds of testimonial letters, valuable to anyone afflicted. Also our 64-page book for women; both sent free.
Address, DRS. THORNTON & MINOR, 1007 Oak Street, Kansas City, Mo.

DEMPSTER MILL MFG. CO.

MANUFACTURERS.

BEATRICE, NEB. ◉ OMAHA. ◉ KANSAS CITY. ◉ SIOUX FALLS, SOUTH DAKOTA.

Wind Mills. ✿ Pumps.

"DEMPSTER STEEL" IMPROVED WINDMILL

MADE BY
DEMPSTER MILL MFG. CO.
All the Latest Improvements.
Interchangeable Bearings
Built for Business.
Factory: BEATRICE, NEB

WATER SUPPLIES
FOR FARM AND RANCH.

WELL MACHINES, GASOLINE ENGINES, GRAIN DRILLS.

Our Latest: A Successful Shovel
TWO ROW CULTIVATOR.

MOORE'S HOG REMEDY

KEEPS HOGS CLEAN ON INSIDE AND OUTSIDE,

Kills lice, cures mange, removes worms, aids digestion, and prevents and cures disease at small cost. Moore's Hog Remedy is used and indorsed by such well known breeders and stockmen as A. J. Lovejoy, Roscoe, Ill.; N. H. Gentry, Sedalia, Mo.; Wm. D. McTavish, Coggin, Ia.; Riverside Hereford Cattle Co., Ashland, Neb., and hundreds of other men who are far too sagacious to be imposed upon themselves, and too honorable to impose upon their neighbors by recommending a remedy unless they had thoroughly tested its merits. Moore's Hog Remedy is sold in sealed cans only—Never in bulk. Do not accept a substitute said to be just as good. At dealers, or by express prepaid on receipt of price $2.50 per gallon. Three to six gallons by freight, prepaid, $2.25 per gallon. Book "Care of Hogs" free. Call, or address

Moore Chemical & Mfg. Co.

1501 GENESEE STREET, - - - KANSAS CITY, MO.

A Miraculous Feat.

"It seemed that nothing short of a miracle could save my little daughter from an untimely death," says City Marshall A. H. Malcolm, of Cherokee, Kan. "When two years old she was taken with stomach and bowel trouble and despite the efforts of the best physicians we could procure, she grew gradually worse and was pronounced incurable. A friend advised

Dr. Miles' Nervine

and after giving it a few days she began to improve and finally fully recovered. She is now past five years of age and the very picture of health."

Sold by all Druggists.

Dr. Miles Medical Co., Elkhart, Ind.

California

Via The Santa Fe...

Personally-Conducted Excursions.

THAT IS, an experienced Passenger Director, who is familiar with the country, scenery, etc., accompanies these trains, to look after the comfort and convenience of passengers, and point out places of interest, which are many, especially in Colorado, New Mexico, Arizona, and Southern California.

New tourist cars daily to Los Angeles and San Francisco without change. A whole day and night saved to California via the Santa Fe.

Send for illustrated book ("California and Back") free.

Address: T. L. KING, Agent, A. T. & S. F. Railway, Topeka, Kansas.

IVER JOHNSON
SAFETY HAMMER AUTOMATIC REVOLVERS

Absolutely Safe — Mechanically Perfect

31 YEARS OF SOLID EXPERIENCE
BACK OF EVERY PART

1871 — 1902

$4.50 The Best
Revolver
In the World for the Money.

The Corner Stone of the Fire-Arms' trade of America. . . .

Of your dealer or sent on receipt of price, cash with order.

Iver Johnson's
Arms and Cycle Works,
Fitchburg, Mass., U. S. A.
Manufacturers of the well-known Iver Johnson Bicycles, Guns and Revolvers.
N. Y. Salesrooms: 99 Chambers St.
Estab. 1871. Catalogues free.

ACCIDENTAL DISCHARGE IMPOSSIBLE

For Only $13.50

we will sell you this Improved "Eureka" High Arm Family Sewing Machine. It is a better machine than the dealer or agent will ask you $30 for. Makes the famous double loop stitch, which looks alike on both sides of the goods. The arm is large and high, leaving ample room for goods. Automatic take up, which controls thread and avoids any slack. Automatic bobbin winder—winds without operating rest of machine. Has tension liberator—goods may be drawn from machine freely. Finest woodwork in best finish oak only. Velvet lined center drawer and four side drawers. Fine veneered top with best wood cover. Each machine is equipped with ruffler, tucker, binder, braider, hemmer, quilter, thread cutter, feed-hemmer and filler, 12 needles, 6 bobbins, oil can and oil, 2 screw drivers, screwing guide and guide screw device. Every machine is guaranteed for five years. Order promptly. They wont last long at this price. Buyer's Guide mailed free.

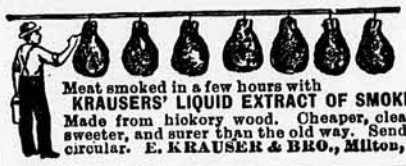
Snow, Schmiedeskamp & Co. Dep. 28, *Mail Order House*, Quincy, Ill.

No Humbug

Three Perfect Instruments in One

Humane Swine V, Stock Marker, and Calf Dehorner. Stops swine of all ages from rooting. Makes 48 different ear marks, large or small, with same blade. Extracts Horns. Testimonials free. Price $1.50; or send $1, get it on trial; if it suits send balance. Patented April 23, 1901.

FARMER BRIGHTON, Fairfield, Iowa.



Meat smoked in a few hours with KRAUSERS' LIQUID EXTRACT OF SMOKE. Made from hickory wood. Cheaper, cleaner, sweeter, and surer than the old way. Send for circular. E. KRAUSER & BRO., Milton, Pa.

NO SPAVINS

The worst possible spavin can be cured in 45 minutes. Ringbones, Curbs and Splints just as quick. Not painful and never has failed. Detailed information about this new method sent free to horse owners.

Write today. Ask for pamphlet No. 98.

Fleming Bros., Chemists, Union Stock Yds., Chicago.

LUMP JAW.

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

Chas. E. Bartlett, Columbus, Kans.

The PERFECTION
Water Elevator and Purifying PUMP

The simplest device for raising water. Easily adjusted to any well or cistern. Can be erected in 15 minutes. Steel chain and buckets galvanized after construction. Works easily; never freezes, takes air into the water, keeping it pure and sweet. Has every desirable feature. Lasts a lifetime. Thousands in general use. Price $6, freight prepaid for complete pump for 10 ft. well or cistern. Add 30c for every additional foot in depth. Send for Free Catalog. St. Joseph Pump & Mfg. Co., 801 Grand Ave., St. Joseph, Mo., U S A

See Air Bubbles.

SICK KIDNEYS CURED FREE.

Dr. LeRoy's new treatment will cure all diseases of the Kidneys, Bladder, and Stomach. A 6 day's treatment with a little book of medical advice worth hundreds of dollars will be sent free to readers of this paper. Send a 2-cent stamp to pay postage. Address, The Dr. LeRoy Medical Co. Evansville, Ind.

DR. COE'S SANITARIUM

Established 15 Years

Located at Twenty-sixth and Wyandotte Streets.

A pleasant Remedial Home. Organized with a full staff of Physicians and Surgeons for the treatment of all Chronic and Surgical Diseases, and equipped to treat, room and board patients. A quiet home for women during confinement.

Trusses, Braces, and Appliances for Deformities manufactured.

Trained Attendants. Best Invalid's Home in the West. Diseases of Women a Specialty.

Write for circular on deformities—club feet, curvature of the spine—nasal, throat, lung, kidney, bladder, and nervous diseases, stricture, piles, fistula, tumors, cancers, paralysis, epilepsy, all eye, skin, and blood diseases.

All the Most Difficult Surgical Operations Performed With Skill and Success.

New restorative treatment for loss of Vital Power, Rupture, Varicocele, Hydrocele, Hare Lip, etc. Persons unable to visit us may be treated at home by mail. One personal interview preferred. Consultation at office or by letter free and confidential. Thirty years' experience in Sanitarium work. My book, to either sex, containing much valuable information, sent free. Address,

DR. C. M. COE, Propr.,
Office, 915 Walnut St., Kansas City, Mo.

DR. E. J. WALSH, PRESIDENT.

DISEASES OF MEN ONLY.

The greatest and most successful Institute for Diseases of Men. Consultation free at office or by letter. BOOK explaining Health and Happiness sent sealed in plain envelope for four cents in stamps. All letters answered in plain envelope. Varicocele cured in five days. Call or address

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

PILES Fistula, Fissures, all Rectal Troubles quickly and permanently cured without pain or interruption of business. Mr. Edward Somers, Castleton, Ill., suffered with bleeding, swelling, and protruding piles for many years, doctors had given his case up as incurable; he was completely cured by our treatment in three weeks.

Thousands of pile sufferers who have given up in despair of ever being cured, have written us letters full of gratitude after using our remedies a short time. You can have a trial sample mailed FREE by writing us full particulars of your case. Address

HERMIT REMEDY CO.,
Suite 736, Adams Express Bldg., Chicago, Ill.

RHEUMATISM....

Is quickly relieved and promptly cured by

Dr. Drummond's Lightning Remedies.

The internal remedy is pleasant to take, acts immediately, does not disturb digestion, and is for rheumatism only in all its torturing forms. The external preparation restores stiff joints, drawn cords, and hardened muscles. If your druggist has not these remedies in stock, do not take anything else. Send $5 to the Drummond Medicine Co., New York, and the full treatment of two large bottles will be sent to your express address. Agents wanted.

BED-WETTING I will send FREE to any mother a sample of a simple remedy that cured my child. MRS. G. SUMMERS, Box C, Notre Dame, Ind.

Ladies Our monthly regulator never fails. Box FREE. DR. F. MAY, Bloomington, Ill

---

BED-WETTING CURED. Sample free. DR. F. E. MAY, Bloomington, Ill

---

Skunk! SHIP THEIR Skins and Other

FURS, HIDES, PELTS, WOOL, ETC.

To McMillan Fur & Wool Co.
Minneapolis, Minn.
WRITE FOR CIRCULARS

FOX AND WOLF HOUNDS

Of the best English strains in America; 33 years' experience in breeding these fine dogs for my own sport; I now offer them for sale. Send stamp for circular.

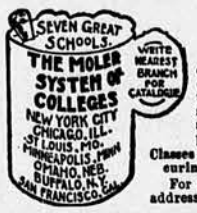
T. B. HUDSPETH,
Sibley, - Jackson County, - Missouri.

SKUNK KILL THEM and send their skins to us. Also ship all other kinds of raw.... **FURS.** Highest market price paid. Farmers will get 50 cents to $2.00 more by shipping to us their... **Cattle and Horse Hides** than they can by selling same to the local butcher. Prompt **CASH RETURNS** at highest market price guaranteed. Write for price list and shipping tags. **ANDERSCH BROS., Dept. 10. 412-418-419 Main St., Minneapolis, Minn.**

Universal Repair Machine

Combined Vise, Anvil, Drill, Hardy, Tool Grinder, Last, Pipe Vise, Sewing Clamp.

Greatest time and money saver ever invented, as thousands will testify. **SATISFACTION GUARANTEED** Big inducements to agents. Sells at sight. Address with stamp. **BLOOMFIELD MFG. CO., Box 12, Bloomfield, Ind.**



WE WANT MEN TO LEARN BARBER TRADE.

We have facilities that save years of apprenticeship. If you want a comfortable business without capital, or steady employment at good salary, learn this trade; quickly and scientifically. Comparatively no expense. Anyone can learn.

Classes for Ladies in Hairdressing, Manicuring, Facial Massage and Chiropody.

For free catalogue and full particulars address nearest college.

CALIFORNIA

TOURISTS

can reach their destinations with great comfort and at the least expense via the

Great Rock Island Route

PERSONALLY CONDUCTED

:TOURIST EXCURSIONS:

Leave KANSAS CITY

Every Wednesday and Friday via Colorado Springs and Scenic Route to San Francisco and Los Angeles.

Every Wednesday via Ft. Worth and Southern Route to Los Angeles and San Francisco.

Latest IMPROVED Tourist Cars ON FAST TRAINS.

LOWEST RATE TICKETS AVAILABLE.

Write for information and itinerary to

E. W. THOMPSON, A. G. P. A., -- -- Topeka, Kansas.
JOHN SEBASTIAN, G. P. A., Chica o.

HOMES FOR THE MILLION

—IN—

Southwestern Missouri, Western Arkansas, Eastern Texas, and Western Louisiana.

ON THE LINE OF THE

K. C. S.

KANSAS CITY SOUTHERN RAILWAY

"Straight as the Crow Flies"

FROM

KANSAS CITY TO THE GULF

Through the cheapest land now open for settlement in the United States.

A magnificent country adapted to the cultivation of small grain, corn, cotton, rice, sugar cane, apples, peaches, berries, commercial truck farming, and the raising of horses, mules, cattle, hogs, and sheep at prices ranging from **FREE GOVERNMENT HOMESTEADS to $25 and More Per Acre.**

Write for a copy of "CURRENT EVENTS" published by the **Kansas City Southern Railway.**

S. G. WARNER, G. P. & T. A.,
Temple Block, Kansas City, Mo

H. D. DUTTON, Trav. Pass. Agent, Kansas City, Mo.
F. E. ROESLER, Trav. Pass. and Immigration Agent, Kansas City, Mo.

THE AGRICULTURAL PROBLEM...

Is being solved in a most satisfactory manner, along the line of the

Missouri Pacific Railway

....AND....

Iron Mountain Route

All sorts of crops are being grown, and they are large crops, too. Reduced rates are offered the first and third Tuesdays of each month, and these events are called low rate Homeseekers' Excursions. Literature on Missouri, Kansas, Arkansas, Texas, and on

Zinc and Lead Mining,

will be mailed free on application to

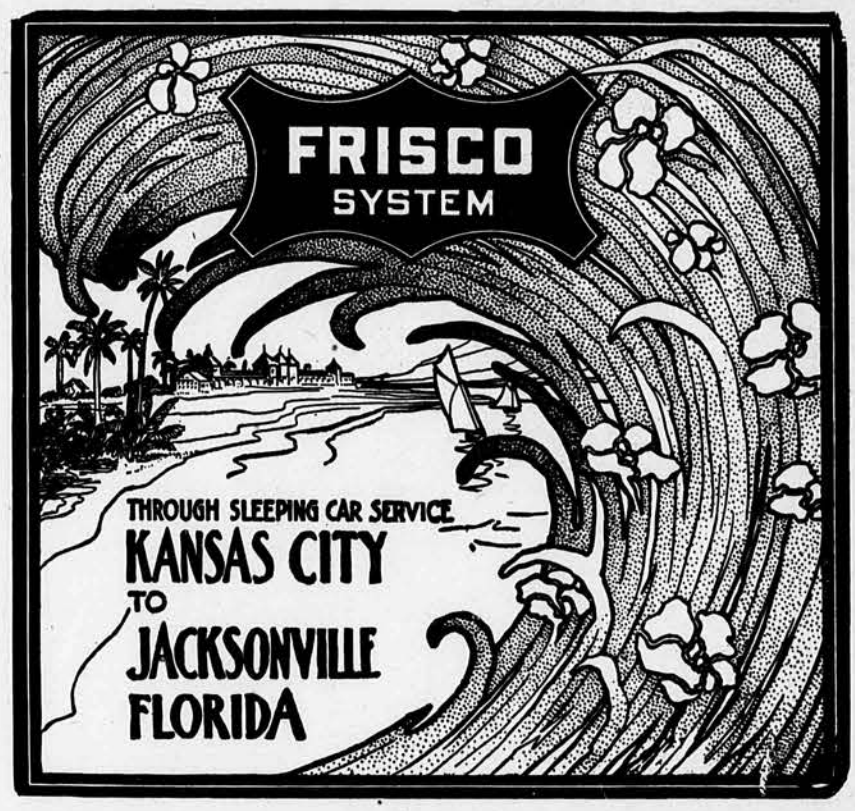
H. C. Townsend,
General Passenger and Ticket Agent,
ST. LOUIS, MO.

ARKANSAS

Is the land of agricultural surprises. All crops grow better here than elsewhere, more of 'em, and earlier, too. The climate is just right, likewise the altitude. Land and living are cheap, and markets are near.

IRON MOUNTAIN ROUTE

operates five daily trains from St. Louis, double daily service from Memphis. An excellent descriptive pamphlet, illustrated, containing all kinds of useful information, to be had gratis on application to General Passenger Agent H. C. Townsend, St. Louis.



UNION PACIFIC — THE OVERLAND ROUTE — WORLD'S PICTORIAL LINE.

IMPROVED TRAIN SERVICE

TO

CALIFORNIA and OREGON

VIA

Denver and Salt Lake City

No. 1

"THE OVERLAND LIMITED"

Day Coaches, Palace Sleepers, New sixteen-section Pullman Ordinary (Tourist) Sleeping Car and Free Reclining Chair Car.

No change of cars from Kansas City to Portland.

JUST 69 HOURS KANSAS CITY TO PORTLAND.

A splendid Denver Train.

No. 5

"THE PACIFIC EXPRESS"

Chair Cars, Day Coaches, Dining Cars, Pullman Palace Sleeper to Salt Lake City and Ordinary (Tourist) Sleeper to San Francisco without change.

THROUGH TRAIN TO SAN FRANCISCO AND PORTLAND WITHOUT CHANGE.

Solid vestibuled, equipped with Pintsch Light and steam heated.

For full information, call on or address

F. A. LEWIS, City Ticket Agent, 525 Kansas Avenue.

J. C. FULTON, Depot Agent.

J. G. PEPPARD,
1101 to 1117 West 8th St.
(Near Santa Fe St.)
KANSAS CITY, MO.

MILLET CANE
CLOVERS TIMOTHY
GRASS SEEDS.

SEEDS

IOWA FARMS $4 PER ACRE CASH BALANCE 1 CROP TIL PAID. J. MUCHALL SIOUX CITY, IA.

SEEDS BUY SEEDS THAT WILL GROW 5 pkts. FLOWER SEEDS: Giant Cyclamen, Giant Pansy, Giant Verbena, Double Dahlia and Poppy, 7c. 5 pkts. VEGETABLE SEEDS, 10c. PLANTS: 6 Roses, 25c; 4 Pelargoniums, 25c; 6 Begonias, 25c. Catalogue and present free for names closed buyers. A. C. ANDERSON, COLUMBUS, NEB.

HEALTHY TREES HOME GROWN, free from disease. We pay freight. Apple, 3 to 4 ft., $6; cherry, 2 to 3 ft., $15; peach, $1; Concord grape, $2 per 100. 1000 Ash, $1; Catalpa, Locust, R. Mulberry, B. Elder and Osage Hedge; low price. Catalog free. Galbraith Nurseries, (Formerly Jansen Nursery) Bx 32, Fairbury, Neb.

Geo. S. Josselyn
FREDONIA, N.Y. INTRODUCER OF
Campbell's Early.....The Best Grape.
Josselyn.....The Best Gooseberry.
Fay.....The Best Currant.
Awarded gold and silver medals at the Pan-American. Large list of Grape Vines and Small Fruit Plants. Catalogue Free.

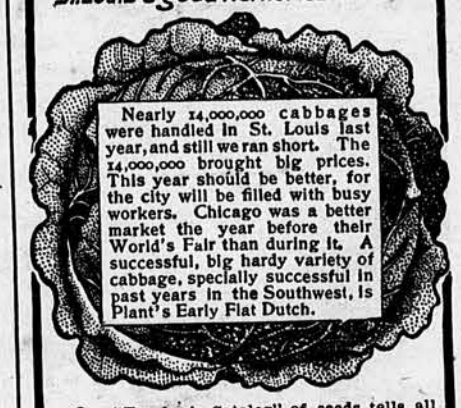
GOT A DOLLAR? Invest it in our choice Fruit Trees, Shrubs or Vines. Ours will grow. They are well rooted, healthy and true to name. Send a trial order to-day. Due bill good for 25c and Catalogue in German or English free. We pay freight on $10 orders.
Trees
25 Grafted Apple Trees for $1.
25 Budded Peach Trees for $1.
40 Concord Grape Vines for $1.
Fairbury Nurseries, Box L, Fairbury, Neb.

FERRY'S SEEDS
For
The Farmer
The Gardener
and
The Housewife
They cost a little more. They are worth a *great deal* more than the ordinary kind. Sold everywhere. 1902 annual free.
D. M. FERRY & CO.
Detroit, Mich.

APPLES.
Six varieties—good, hand-picked eastern winter stock. White and Yellow Seed Corn, red onions, and 16 varieties strawberry plants. Have some 100,000 well matured plants for spring setting. Get our list and prices; freight paid on apples. J. M. Lancaster & Co., Beatrice, Neb.

ROCKY FORD SEED HOUSE
Truckers buy your Rocky Ford Cantaloupe Seed direct from the grower. I won FIRST PREMIUM at the State Fair on them fall of 1901. Seeds grown under irrigation mature perfectly My motto is "QUALITY FIRST." Valuable Catalogue telling how to grow and market these; also description and prices of all kinds of choice garden seeds, free. Write to-day.
D. V. BURRELL, Rocky Ford, Colo.

Get Good Prices
For Plants Early Flat Dutch Cabbage
St. Louis a good Market last Year.



Nearly 14,000,000 cabbages were handled in St. Louis last year, and still we ran short. The 14,000,000 brought big prices. This year should be better, for the city will be filled with busy workers. Chicago was a better market the year before their World's Fair than during it. A successful, big hardy variety of cabbage, specially successful in past years in the Southwest, is Plant's Early Flat Dutch.

Our "Trucker's Catalog" of seeds tells all about the most profitable kinds of cabbbages to grow in this section, gives 128 p. valuable information about everything for our market; tells you all about our seeds for other varieties of money makers. Write for it. It is free.
PLANT SEED CO., 810 N. Fourth St., ST. LOUIS.
Everything in Seeds

J. I. REYNOLDS, President. (Formerly of Trumbull, Reynolds & Allen.)
KANSAS CITY GRAIN & SEED CO.
BUY AND SELL Millet, Cane, Kafir, Alfalfa, Red Clover, Timothy, Pop Corn, Seed Corn, Cottonseed Meal, Linseed Meal, Corn, Oats, Rye, Barley, Etc.
KANSAS CITY, MISSOURI.

ALFALFA SEED OUR SPECIALTY. We are headquarters for this king of drouth resisting plants, and can furnish pure, plump, vigorous seed crop 1901 in car or one-bushel lots. Also all other kinds of field seeds. Write us for prices.
McBETH & KINNISON, Garden City, Kansas.

KENTUCKY BLUE GRASS SEED.
For a beautiful as well as a most profitable pasture sow BLUE GRASS.
The genuine Kentucky seed is what you want, and from September until June is the proper time to sow. For pure seed of our own raising, and full particulars, write MT. AIRY SEED FARM, Paris, Kentucky.

SEED Drouth Resisting! We Have It! Send 2-Cent Stamp for Samples, Prices, and Testimonials, to J. B. ARMSTRONG & SONS, Shenandoah, Iowa. **CORN**

SOUTHWESTERN IOWA SEED HOUSE
Best varieties Field-corn a specialty. We handle nothing but best of pure seed an want your orders. Samples free. Write for circular and price-list to-day.
ROSS & FERRELL, Prop's,
Farragut, Iowa.

SEED CORN!
FOR THE MAN WHO PLANTS IT.
During our Eighteen Years Growing and Handling Seed Corn as a Specialty, we have never found any Variety, Kind, Sort, or Color equal to, and so Well Adapted to all sections, climate, and soil as our IOWA SILVER MINE and IMPERIAL, white varieties, and PRIDE OF NISHNA, yellow. They Always Grow the Biggest Crops, and last season, Stood the Drouth Better and Made Bigger and Better Crops Everywhere than any other Sorts in Existence. Write for prices, catalog, samples, and "What the Man who Planted our Seed has to say", Free. A 50-page "Book on Corn Growing" for 4c in stamps for postage. PRICE, $1.75 per bushel; 10 bushels and over $1.65. Bags free aboard the cars here. Write to-day. Address,
J. R. RATEKIN & SON, Shenandoah, Iowa.

THE GREAT
HEREFORD COMBINATION SALE!
AT KANSAS CITY, MO., JANUARY 14, 15, AND 16, 1902.

200 REGISTERED HEREFORDS
....TO BE SOLD AT.....
PUBLIC AUCTION.
A BREEDERS' SALE OF BREEDING ....CATTLE....

The herds contributing number jointly about 3,500 head of registered cattle, with an annual increase of 1,400 head. Many of the plums of the last three crops of calves will go to the highest bidders in this sale. Sale will begin promptly at 1 o'clock p. m., on
TUESDAY, JANUARY 14.

THE CONTRIBUTORS:

HENRY ACKLEY, Wellsville, Kans., three head.
EST. OF K. B. ARMOUR, Kansas City, Mo., eight.
CORNISH & PATTEN, Osborn, Mo., fifteen.
E. A. EAGLE & SON, Rosemont, Kans., ten.
FUNKHOUSER & ACKLEY, Wellsville, Kans., three.
FUNKHOUSER & LARSON, Everest, Kans., two.
BENTON GABBERT & SON, Dearborn, Mo., twenty-five.
JAS. A. GIBSON, Odessa, Mo., six.
GUDGELL & SIMPSON, Independence, Mo., ten.
O. HARRIS, Harris, Mo., nine.
JONES BROS., Comiskey, Kans., eight.
J. S. LANCASTER & SONS, Chandler, Mo., ten.

J. A. LARSON, Everest, Kans., one.
L. P. LARSON, Powhattan, Kans., one.
LOWELL, BARROLL & DeWITT, Denver, Col., twenty.
C. N. MOORE, Lees Summit, Mo., six.
T. C. SAWYER, Lexington, Mo., four.
SCOTT & MARCH, Belton, Mo., ten.
C. A. STANNARD, Emporia, Kans., five.
STEELE BROS., Belvoir, Kans., twelve.
STEWARD & HUTCHEON, Greenwood, Mo., six.
R. T. THORNTON, Kansas City, Mo., two.
N. H. WOOLSTON, Sugar Lake, Mo., one.

Reduced Rates on all Railroads. For Catalogue, write C. R. THOMAS, 225 West 12th Street, KANSAS CITY, MO.