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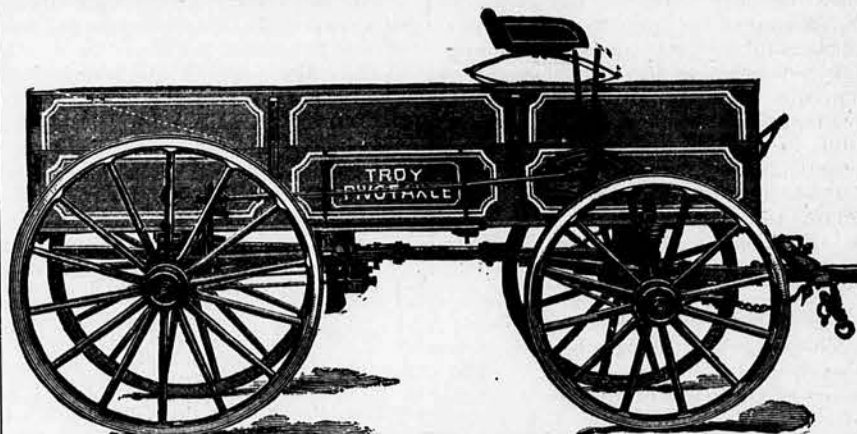
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The Stock Interest.

The Horn-Fly Pest.

EDITOR KANSAS FARMER:—What is the "standard kerosene emulsion," mentioned as a remedy for the horn-fly cattle pest, in KANSAS FARMER of June 14? Can it be safely applied with a swob? The horn-fly is on my cattle, and as I only have four cows, I do not feel like purchasing a knapsack pump. Please answer through KANSAS FARMER. ALEX. GARDNER, Richland, Kas., June 26, 1893.

The formula and directions for standard kerosene emulsion were given in the KANSAS FARMER of June 21, but will be repeated here for the benefit of those who have not perused that number:

	Per cent.
Kerosene	2 67
Common soap or whale-oil soap, pounds.	1 33
Water	1

Heat the solution of soap and add it boiling hot to the kerosene. Churn the mixture by means of a force-pump and spray nozzle for five or ten minutes. The emulsion, if perfect, forms a cream which thickens upon cooling and should adhere without oiliness to the surface of glass. If the water from the soil is hard or has a large percentage of lime add a little lye or bi-carbonate of soda, or else use rain water. For use against scale insects dilute one part of the emulsion with nine parts of cold water. For most other insects dilute one part of the emulsion with fifteen parts of water. For soft insects like plant lice the dilution may be carried to from twenty to twenty-five parts of water. For horn-fly dilute one part of the emulsion with ten parts of water. This can be applied with a swob or rubbed on with the hand. The knapsack pump is recommended for those who have such numbers of cattle as to render desirable a speedy method of application.

The Department of Entomology of the State University has just issued a bulletin of valuable information concerning this pest. It will be well for stock owners to send for this bulletin.

Complaints of this pest are increasing and the accounts recently published of damages done to stock in portions of the country where the fly has operated heretofore show that the importance of the subject is not likely to be overestimated. The discussion of remedies shows a diversity of opinion. The patent medicine man has already appeared with his specific. But after carefully considering all that has been said on the subject, the KANSAS FARMER is of the opinion that the kerosene emulsion above described and applied, as often as may be necessary, by a knapsack sprayer is the most effective remedy yet named whose application to considerable herds is at all practicable.

It is requested that results of all attempts to mitigate the evil of the pest be reported through the KANSAS FARMER.

Experiments in Fattening Steers.

Many Western farmers have become discouraged at the results of feeding steers because, when they balance their account after marketing the stock, they have little or no profit for the time, labor and feed expended. All such farmers would be benefited by a study of the recent bulletins giving full details of experiments in steer feeding issued by Prof. Georgeson, of the Kansas Agricultural college, as well as the Iowa experiment at their college at Ames, Iowa.

Mr. John Cownie, who has been reviewing the Iowa experiment, makes the observation that many farmers in undertaking to fatten cattle are well aware of the principles involved and the food necessary to produce a rapid gain in flesh, but some small omission, some little neglect which they consider of little or no importance at the time, causes a loss when proper attention would have resulted in gain.

Every farmer in the West should be a feeder, and never under any circumstances, if he desires to be permanently successful, ought he to sell a single bushel of grain from his farm. No nation or people, from the creation of the world to the present day, ever became rich and powerful from disposing of raw, crude material. No farmer can keep up the fertility of his farm by raising grain for sale, and see year

after year the plant food of his soil carried away to be sold to the highest bidder.

To raise stock and fatten them properly is the key-note of success for the Western farmer, and surely there is no excuse for any one who cannot do this work successfully when all the accumulated knowledge of the past is placed before him at his own home by the agricultural press at merely a nominal price.

Large and Small Hogs.

For the benefit of hog-raisers the swine editor of *Farm, Stock and Home* gives a few facts developed by one of our most careful experimenters, Prof. Henry, regarding cost of pigs before and after weaning. In his annual report he says, in conclusion:

"It will be seen that this year we produced gain somewhat cheaper while the pigs were with the sow than after they were weaned, while last year the reverse was the case. Averaging the trial for two years we have \$2.87 as the cost of producing 100 pounds of gain with pigs before they are weaned, and \$2.75 per 100 pounds gain as the cost of food for pigs immediately after weaning, a difference of 12 cents for 100 pounds gain, an amount so small that it may be entirely set aside by the result of further investigations. The result of our work so far points most plainly to the fact that in its early life the pig gives the best gains for the food consumed. The practical teachings of these trials is that at no time can the hog be fed so economically as in early life, and the stockman can well afford to not only give the sow all the food she can consume without getting off feed while suckling her young, but the pigs should early be taught to eat by themselves and receive liberal allowances of suitable food. The following table shows the amount of food required for 100 pounds of gain:

SOWS AND PIGS BEFORE WEANING.			
	Meal.	Milk.	Cost.
Lot 1.....	241 lbs.	563 lbs.	\$3.10
Lot 2.....	288 lbs.	649 lbs.	3.44
Lot 3.....	198 lbs.	654 lbs.	3.03
Lot 4.....	240 lbs.	528 lbs.	3.00
Average.....	242 lbs.	598 lbs.	\$3.14
PIGS AFTER WEANING.			
	Meal.	Milk.	Cost.
Lot 1.....	251 lbs.	587 lbs.	\$2.53
Lot 2.....	215 lbs.	577 lbs.	2.55
Lot 3.....	313 lbs.	443 lbs.	2.61
Lot 4.....	177 lbs.	542 lbs.	2.60
Average.....	214 lbs.	539 lbs.	\$2.55

"The main object of this experiment was to ascertain if pigs can be fed economically through the sow. As we did not give the pigs of lots 1 and 4 the same feeds after weaning as before, we cannot use the results of these lots directly for comparison. The result with lots 2 and 3, getting the same kind of feed throughout, are summarized in the following table:

SOWS AND PIGS BEFORE WEANING.			
	Corn meal.	Milk.	Shorts.
Lot 2	184 lbs.	482 lbs.	...
Lot 3	116 lbs.	...	232 lbs.
Average...
PIGS AFTER WEANING.			
	Corn meal.	Milk.	Shorts.
Lot 2.....	187 lbs.	562 lbs.	...
Lot 3.....	115 lbs.	...	230 lbs.
Average...

"In a recent controversy in these columns on this subject, we asked: 'Is not the first fifty pounds we make on each pig the cheapest we ever make?' To this it was answered: 'No, I consider the first fifty pounds raised at no profit whatever, considering the cost and keep of sow.' Well, yes, if we all could buy pigs at the above cost after weaning, we could make swine feeding still more profitable. But we think the foregoing result leaves little room for long arguments. In regard to the 400-pound hog referred to in the controversy, and the limit to his profitability, we would answer that the market don't want him; it is the medium hog of from 230 to 280 pounds that brings the best prices."

The highest price on cattle in the Kansas City market for this year was realized for twenty head of 1,571-pound steers. The cattle were sold at \$5.70.

The Chicago Stockman says that visitors are so numerous at the yards nowadays that it is a question which is the larger attraction—the World's Fair or the Union stock yards.

Horsemen, Use the Knife.

Not only in this State, but in every State in the Union, stallions are becoming as numerous as weeds in a neglected garden, and a large majority of them are just about as useless. Not one in 5,000 has sufficient merit to warrant the owner in keeping him. One has only to make a tour of the country towns to be convinced of the growth of this unnecessary evil. On nearly every hillside and in nearly every valley these fellows can be found, valued because "the old mare was a good one," or for some other simple reason, valueless themselves and absolutely unsalable. Better to make an error in reduction than one in addition in this respect.

There is a reasonable margin of profit to the farmer if he succeeds in raising a good roadster, besides affording lots of pleasure to the boys in watching and handling the colts, and a gelding of fair size, good style and good individual merit will always find a purchaser, even if he doesn't promise great speed.—*National Stockman and Farmer.*

The foregoing extract graphically describes a condition which farmers should well consider. Of all classes of stock there are more practically worthless animals among the horse stock than with any other class. Stock-raisers have not used the same care and judgment in horse breeding that they have with other stock. There has been too much of a hit and miss system, and to-day farmers are reaping the bitter and unprofitable results of careless and unbusiness-like methods of horse-raising. It has been a mistaken policy to breed every mare on the farm to any sort of a stallion that might be convenient to the farm. The result of this indiscriminate and heterogeneous system of breeding has given us a surplus lot of practically mongrel type of horses which lack uniformity, and it takes a pretty good Yankee to "swap" them off.

Now, as to the remedy. It will be remembered, when the cattle business was fast declining, that breeders and stock journals urged the use of the knife. And it was used to good effect. Let the same policy obtain with horses. Castrate every male colt which does not give assurance of making a representative stallion to get produce for which there is a definite demand at remunerative prices, and do not breed a mare unless she is of the right sort, and then only to a stallion that is a first-class animal. In this way we may be able to curtail the future supply of inferior stock and enhance the profits of horse-raising. Use the knife and spare not. The scrub stud horse must go.

National Wool-Growers' Meeting.

A meeting of the National Wool-Growers' Association will be held in Chicago, at the World's Fair buildings, October 5, 1893. The purpose of this meeting is to take such action in regard to legislation and other matters as shall be deemed proper for the protection of the sheep-breeders and wool-growers of the United States. It is hoped that every one who can possibly do so will be present and take part in the proceedings. It is a critical time for our interests, and if we do not look out for them no one will do so for us. Assurances of attendance have been received from the Ohio Wool-Growers' Association and the Michigan Wool-Growers' Association; and it is presumed that New York, Vermont and other States will be numerously represented there. No meetings of this association have been held for several years, but this meeting is called because it is believed that the time has arrived for effective action and to declare our views and wishes in unmistakable terms. Let all who are interested in this subject give the widest possible circulation to this notice, and not only attend themselves but induce

as many wool-growers as possible to be present. There is strength in union and power in numbers.

GOV. JOHN T. RICH,
Vice President.

Early Hay for Sheep.

No one is doing more constant work in behalf of sheep husbandry than Prof. C. F. Curtiss, of Iowa. The results of his investigations and experiments always have the merit of practical value to the sheep-raiser.

He says that hay intended for sheep should be cut early for several reasons. First, it is better relished and better adapted to the sheep's needs, being richer in protein and less woody. The sheep, above all other farm stock, likes fine, early-cut hay. For this reason rowen, or second-cut grass, can be fed to good advantage. Second, the early-cut meadow will furnish good grazing for the lambs at a time when pastures are dry and tough. The mid-summer season is a critical period in the lamb's growth. June pastures are generally all that could be desired for sheep, but in July and August there is a lack of young and tender grass so much relished and so essential to the lamb's uninterrupted growth. The aftermath renders excellent service at this time and the early-cut meadow is the only one that can be relied on in all seasons for a good second growth. There are thus two very important reasons for cutting sheep hay early.

Stock Notes.

Rather serious losses of cattle have occurred on the ranges in the southeastern part of Colorado this spring, from the late snows and cold rains.

Two thousand head of beeves were hay-fed in Middle Park, Colorado, last winter, a number which the coming winter is likely to see doubled. The grass that grows in the park is of the most nutritious character, and cattle fed on the hay made from it fatten almost as readily as on a grain ration.

Reports from the main beef-producing regions show an actual shortage of cattle. This seems to be real and not fancied, and higher prices are confidently predicted. Stockmen and farmers should bear in mind that when once a shortage in cattle is established it cannot be overcome in a single season. It will be wise to keep some good stock growing, and so be prepared to take advantage of good prices if they do come.

Colman's *Rural World* says: "It is generally understood that it costs less to grow five hogs that will weigh 200 pounds each than it does to grow two that weigh 500 pounds each. And almost every one will say the pork from the smaller hog is better. Our own opinion would lead us to prefer to grow six pigs to a weight of 150 pounds each when dressed than the two of 500 each, and to prefer the 900 pounds of pork from the six than 1,000 pounds from two."

Canadian cattle exporters are having a deal of trouble in getting their stock into Great Britain on account of the stringent and arbitrary regulations which are being enforced. Local importers of Canadian cattle in England and Scotland have notified exporters to stop shipping, as the delays, owing to the requirements of the board of agriculture, that cattle shall be slaughtered upon arrival, are ruinous to the trade. Shippers have again requested the board of agriculture to raise the existing embargo, but the board refuses to grant the request.



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Direct to market and get all the value there is in it. We receive more Wool direct from the Growers than any house in this market, and make quicker returns. If you doubt it our books will prove it, and our shippers have testified to it. Average time on returns last season was eleven days from the time each shipment was received and we handled over three hundred thousand pounds. If you want your Wool sold at its true market value and get quick returns, don't dispose of it until you write us for prices and our terms for handling, and see the testimonials of our shippers. We are not an exclusive Wool house, but handle Hay, Grain and Produce of all kinds, and will quote prices if requested and give any information wanted.

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References:
Metropolitan National Bank,
Chicago,
and this Paper.

Agricultural Matters.

Agricultural Experiment Station Work in the United States.

The chief part of the growth of this work has been within the last five years, since the Hatch bill went into operation. There are doubtless many honest-thinking persons in this country who are still so thoroughly wedded to States rights as to doubt not only the wisdom but even the constitutionality of the Hatch act, but no one can refuse to acknowledge its beneficent results.

By the terms of this law there are appropriated annually by the general government \$15,000 to each State and Territory that shall accept the terms of the grant and establish and maintain an agricultural experiment station. There is also established in Washington a central office, called the Office of Experiment Stations, in which the results of the station work in the various States are digested and tabulated, and which also has a consulting and advisory interest in the progress and execution of the work. In the organization of so large a number of stations in so short a time, it was necessary to employ a great many persons who were entirely unfamiliar with the character of the work they were called on to perform. Doctors of divinity, pedagogues, professors of belles lettres and politicians have been placed in some instances at the head of affairs, and have proceeded to inaugurate and conduct scientific experiments. The results, however, have been favorable beyond any reasonable expectation.

Under the act of Congress, approved March 2, 1887, known popularly as the Hatch bill, agricultural experiment stations are now in operation in all the States and Territories with the exception of Alaska, Montana and Idaho.

In a few of the States more than one station has been established, so that in all forty-nine are now in operation. In Alabama, Connecticut, Massachusetts, New Jersey and New York separate stations are maintained wholly or in part by State funds.

In Louisiana there is a special sugar station at Audubon Park, New Orleans, maintained chiefly by subscriptions of the sugar planters of the State. In connection with this station there is a complete experimental sugar factory, and a sugar school in which instruction is given in all branches of knowledge relating to the growth of sugar-producing plants and the manufacture of sugar therefrom. In addition to these already mentioned the Department of Agriculture has established several stations for special experimental work. Grass stations have thus been established in different States. Direct grant of special funds for entomological investigations are also given, as mentioned below.

Special stations for investigations of sugar-producing plants have also been established in Nebraska, Kansas and Florida, sustained wholly by the Department of Agriculture. The investigations which are made by the Wisconsin station on sugar beets are also paid for by the department.

The total grant of money made last year by Congress for the experimental work amounted to \$728,000 for the Hatch bill stations and the office of experiment stations, and \$50,000 for the sugar experiments. The amount expended in experimental work by the grass stations and entomological division is not accurately known to the writer, but reaches probably not less than \$20,000, making the total expenditure by the Department of Agriculture for experimental work in round numbers \$800,000. In regard to the particular amounts expended by the Department of Agriculture in direct co-operation with the experimental work in the several States, the following list will be found reliable: For entomological work—Nebraska, \$600; Iowa, \$600; Ohio, \$1,500; Michigan, \$1,000. For botanical work—Texas, \$700; Arizona, \$700; Colorado, \$1,000; Utah, \$500; South Dakota, \$500; Wyoming, \$500; North Dakota, \$500; New Mexico, \$500; Louisiana, \$750; Florida, \$250; Georgia, \$500; North Carolina, \$500; Mississippi, \$1,600.

In addition to this the State and pri-

vate contributions to this work amount to fully \$200,000, making in all the sum of \$1,000,000 devoted annually to the cause of the experimental promotion of agriculture. Five hundred persons are employed actively in this work. Among these are 71 directors, 120 chemists, 47 agriculturists, 50 horticulturists, 30 botanists, 36 entomologists, 22 veterinarians, 14 meteorologists (excluding all employed by the Weather Bureau), 4 biologists, etc. During the year 1891, excluding publications coming directly from the department, the stations published forty-nine annual reports and 255 bulletins. The mailing list of the stations (exclusive of the department lists) now contains 350,000 names. About 40,000,000 pages devoted to information on agricultural subjects were printed and distributed during the year, not counting the department publications. This does not include the hundreds of newspapers which publish accounts of the work. It is safe to say that at least 10,000,000 of our reading people read more or less of this work every year. In addition to this add the number reached directly by the department, and the vastness of the interests of this work, measured by the number of people directly benefited, is at once apparent.

Aside from the printed records there is a volume of special correspondence which can hardly be estimated. Each one of the stations receives and answers many thousand letters in a year. The number of letters written by the Department of Agriculture to those interested in agriculture probably reaches 500 a day.

The whole rural population of our country is thus brought into active sympathy and touch with the experimental world. The whole experimental agricultural research of the world will not compare in magnitude, in expense, nor results, with that of our own country alone. And the beginning has only just been made. There is no prophecy of the future which can be too sanguine. There is not one of us to-day who has any adequate conception of the value of this work during the coming quarter of a century. Let every young farmer paste this article in his scrap-book. Turn to it in March, 1917, and compare it with his own observations at that date.

Mid-Summer Wheat Preparation.

The preparation of the wheat bed should begin in summer, the time varying between July and the latter part of August, for the best crops of wheat are raised on land where the ground is broken from five to seven weeks before the seeding time. The press of farm work, at this busy season of the year, is very apt to influence farmers to the postponement of this important work until a more convenient season. One thing follows another on the farm in the summer season, and it is a great temptation to devote all of the time and attention to the growing crops and neglect those that are to come in the future.

But we cannot afford to do this with our wheat crop. Of all cereals this is the most important, when we consider the vast difference between bad and good cultivation of fields and the relative amount of yield from the two. Wheat farms are contracting in size to-day and increasing in productive power. Five acres of to-day are yielding more than eight or ten did years ago. This is due to better cultivation and superior methods of work. Moreover, the wheat on the highly productive field will command more, bushel for bushel, than that grown on the thinly growing fields. The difference is in the quality of the wheat, which is of a much higher order on the well cultivated fields. In the grading of wheat in large markets the prices vary as much as 5 and 7 cents per bushel, and it is to get these top prices that we should aim after in growing wheat. Because we have ten acres of land to use for wheat, we should not be led into temptation to sow it all with wheat, if we feel that we can not do justice to the whole of it. Better let half of it remain idle and give proper attention to five acres.

On sandy and loose loam black soil it

is quite essential that the ground should be broken at some depth from the surface, although it must be remembered that the wheat plants are shallow feeders, and they do not run far down into the ground. But to get the most out of the soil every part of it that is rich in fertilization must be reached by the roots. On porous soils the roots must consequently penetrate deep, while on stiff clay soil this is not necessary. Four inches or so will answer for the latter, while the loose, porous soil should be broken from six to eight inches down. We roll and pack the soil at seeding time for this same reason. If the soil is not rolled the plants are apt to grow right down and up, the roots striking deep into the soil and the stalks shooting upward. The roots penetrate downward to find sufficient food to nourish them, and the stalks always grow as the roots do. Now, every farmer knows that the roots of wheat should grow laterally, and also the top part of the plants, for in this way they pass through very cold winters without being injured.

But after all, the great secret in growing large wheat crops is to pulverize the soil thoroughly, so that a good tilth is obtained. This pulverization makes the soil cool and moist through hot weather, and brings every particle of fertility within the reach of the plant roots. We can save on our fertilizers, if we will, but give more time and labor to the plowing, harrowing and rolling of the soil. It is by this working up of the soil that we set free certain elements that go a long way toward making the wheat plants develop and thrive. Every clod of earth left unbroken in the field will hold a certain amount of fertility that can not be used by the plants. But if crushed into small pieces the roots of the plant will readily reach it. It is to get the soil into this growing condition that mid-summer preparation makes possible. No soil can be prepared like this a week before planting; besides, the soil improves by being turned up to an exposure to the air and elements for a few weeks before seeding time.—W. E. Farmer, in *Agricultural Epitomist*.

Winter-Killing of Clover.

We are receiving many reports concerning the winter-killing of clover, and in almost every instance inquiry elicits the fact that the clover was cut first for hay and then for seed. Under such circumstances it could do nothing else than die. We learned this fact over forty years ago from a wise old grandfather who was a very successful grower of clover. He claimed at that time that farmers kill their clover, and not the hard winters. Our own observation since has confirmed this opinion in the great majority of instances. The medium red clover is a biennial plant. That is, if unharmed it lives two years, seeds and then dies. If we wish to keep the clover alive it must not be allowed to seed. Cutting it twice, and if need be three times, in a season, just before the seed forms, will most generally result in a strong field of clover, even in an unfavorable winter. Here is where a study of botany would help the farmer. Beale's splendid book on grasses should be in the library of every farmer, as much as works of anatomy should be in every physician's library. The physician is dealing with no deeper mysteries than is the farmer. Both of them must understand the principles of the life they deal with.—W. D. Hoard, in *Inter-Ocean*.

July Notes.

Do not let the oats get too ripe.

It is usually poor economy to pasture new meadows.

If the hay is stacked outside put up in large ricks.

Use the scythe if necessary to do clean work in the meadows.

Newly set trees should be mulched the early part of this month.

This is one of the best months for cleaning up the fence corners.

Be sure that the pastures are not eaten down too close this month.

A little extra care is necessary this month if the stock is kept comfortable.

Have plenty of help to stack the wheat and oat straw in good condition so that it

Jas. Boss Filled Watch Cases

are all gold as far as you can see. They look like solid cases, wear like solid cases, and are solid cases for all practical purposes—yet only cost about half as much as an out-and-out solid gold case. Warranted to wear for 20 years; many in constant use for thirty years. Better than ever since they are now fitted, at no extra cost, with the great bow (ring) which cannot be pulled or twisted off the case—the

Non-pull-out

Can only be had on the cases stamped with this trade mark.

All others have the old-style pull-out bow, which is only held to the case by friction, and can be twisted off with the fingers.

Sold only through watch dealers. Ask to see pamphlet, or send for one to the makers.

Keystone Watch Case Co., PHILADELPHIA.

WONDERFUL Country this, with Vacuum Leather Oil; 25c, and your money back if you want it.

Patent lambskin-with-wool-on swob and book—How to Take Care of Leather—both free at the store.

Vacuum Oil Company, Rochester, N. Y.

will keep. What is not needed for feed can be used for bedding.

Generally, the sooner the plowing for fall wheat is commenced, the better.

Be prepared to sow a good patch of turnips by the middle of the month.

Frequent but shallow stirring of the soil will help it to retain moisture.

The less feed that is stacked outside the less the loss by leaching and evaporation.

If rye is sown among the corn when the last cultivation is given it will afford a good fall pasture.

After the ground is plowed is a good time to haul out and apply manure for the next crop of wheat.

If wheat is threshed out of the shock, as a rule it will be better to market direct from the machine.

Clean out the granaries thoroughly before threshing. In many cases it will pay to fumigate thoroughly.

Sweet corn makes one of the very best feeds for the milk cows at this season, should the pastures begin to fail.

If the work teams are turned out on the pasture for a short season of rest do not leave off the grain ration entirely.

If the oats are to be used for feed it is not good economy to thresh them. Use a feed-cutter in preparing them for feeding.

In many cases it will pay to purchase good seed wheat, as good seed is one of the essentials necessary to the growing of a good crop.

Better let the hogs or sheep eat the fallen fruit than to allow it to rot under the trees, as by this plan both the stock and the trees will be benefited.

Fatten and market all matured stock. Young, growing stock pays a better profit for the feed supplied, with the exception of the milch cows, the work teams and the breeding animals. No matured stock should be kept any longer than is necessary to fit for market.

Have two shares to each plow and you will then neither have to stop work in order to go to the blacksmith's nor have to continue using a dull tool. You will save the cost of the extra share every season.

Vegetable matter is nature's fertilizer, and all that cannot be used to purpose in feeding should be turned under. The time spent in turning under weeds and refuse will bring back much more than it cost.

Most folks believe an old mower runs harder than a new one, but this view of the case was not borne out at a recent experimental test. The draft of an old machine oiled and with nuts tightened was slightly less than that of a new one in perfect order.

It depends much upon the farmer's location whether he should keep this or that breed of sheep. If he is near a good city market the mutton breeds will be profitable. Others will find it best to keep sheep for both wool and mutton, but all farmers should keep sheep.

The Farmer's Forum.

This department is devoted to the discussion of economic questions and to the interests of the Alliance, Grange and kindred organizations.

CAPITALIZATION AND VALUATION OF RAILROAD PROPERTY.

A recent report shows the total capitalization of the railways of the United States is \$9,829,475,015, or \$60,942 per mile of line. This shows an increase in outstanding capital of \$602 per mile of line as compared with the 1890 report. An analysis of the changes in capital outstanding shows that income bonds have increased from \$76,933,818 to \$324,288,690. A considerable portion of this increase is probably due to a conversion of stocks into income bonds. It is significant because it shows an increase in that form of property for the management of which directors are not held to strict responsibility. Equipment trust obligations have also increased from \$49,478,215 to \$54,755,157. A few years ago the opinion prevailed among railway men that the leasing of equipment by railway companies was fast disappearing. This opinion is not supported by the facts.

EARNINGS AND EXPENSES.

The gross earnings from operation during the year ending June 30, 1891, were \$1,096,761,395, or \$6,801 per mile of line. Operating expenses were \$731,887,893, or \$4,538 per mile of line, leaving the net earnings from operation \$364,873,502, or \$2,263 per mile of line. The net earnings per mile of line were less than the net earnings of the previous year by \$37. An analysis of gross income shows that freight traffic gave rise to \$736,793,699, or 67.17 per cent. of total earnings; and that passenger traffic gave rise to \$281,178,599, or 25.64 per cent. of total earnings. The amount received from carrying mail was \$24,870,015, and the amount received as rentals from express companies was \$21,594,349. The analysis further shows that \$133,911,126 were received by railways as income from investments. The assignment of operating expenses shows that 34.08 per cent. is chargeable to the passenger service, and 65.92 per cent. to freight service. The percentage of operating expenses to operating income was 66.73 per cent. The number of passengers carried during the year was 531,183,988; the number carried one mile was 12,844,243,881. The number of tons of freight carried was 675,608,323; the number carried one mile was 81,073,784,121. The total number of miles run by passenger trains was 307,927,928, and the number of miles run by freight trains was 446,274,508. The average journey per passenger was 24.18 miles, and the average haul per ton of freight was 120 miles. The average number of passengers in a train was 42, and the average number of tons of freight in a train was 181.67. The average revenue per passenger per mile in 1891 was 2.142 cents, and the average revenue per ton per mile was .895 cent. The average revenue per train mile, passenger trains, was \$1.06111, and the average revenue per train mile, freight trains, was \$1.63683.

RAILWAY ACCIDENTS.

In narrating the statistics of accidents, the report continues its dreary tale of numbers killed and numbers injured, and shows that casualties during the year ending June 30, 1891, are greater than any previous year covered by reports to the commission. The number killed during the year was 7,029, and the number injured was 33,881. Of these totals, the number of employees killed was 2,660 and the number injured was 26,140. The number of passengers killed was 293, and the number of injured was 2,972. A classification of casualties according to the kind of accident shows 415 employees were killed and 9,431 injured while coupling and uncoupling cars; 598 were killed and 3,191 injured falling from trains and engines; 78 were killed and 412 were injured from overhead obstructions; 303 were killed and 1,550 were injured in collisions; 206 were killed and 919 were injured from derailment of trains; 57 were killed and 319 were injured from other accidents to trains than collisions and derailments already mentioned, 20 were

killed and 50 were injured at highway crossings; 127 were killed and 1,427 were injured at railway stations; the balance, which makes up the total of 2,660 killed and 26,140 injured, is due to accidents which do not naturally fall in the classification adopted for report. Referring to passengers, 59 were killed and 623 injured by collisions; 49 were killed and 837 injured by derailments; 2 were killed and 34 injured by other train accidents; the balance, making up a total of 293 killed and 2,972 injured, being assignable to accidents at highway crossings and at stations and to other kinds of accidents.

This report emphasizes more strongly than previous reports the necessity of legislation compelling railways to adopt train brakes and automatic couplers, and also suggests that some steps be taken besides the adoption of the train brake to prevent the frequency of casualties from falling from trains and engines. The large number killed and injured from collisions also brings prominently into notice the necessity of some extensive use of the block system in the handling of trains and a more perfect application of the principle of personal responsibility in the case of accidents. An investigation into the matter of handling trains is recommended by the report. Not only are the accidents of the year covered by this report greater than those of previous years, but when compared with the increase in employees, it is observed that they are relatively greater than those of the previous year. Thus, during the year ending June 30, 1891, 1 employee was killed for every 296 employees, and 1 employee injured for every 30 men in railway service. The corresponding figures for the previous year are, 1 man killed for every 306 employees, and 1 man injured for every 33 employees. This same fact is also presented in another manner. The increase in the number of employees killed during the year covered by the report over the previous year is 9 per cent., and the increase in the number injured is 17 per cent., while the increase in the number of men taken into employment is less than 5 per cent. The corresponding comparison for casualties to passengers shows that, while there has been a relative decrease in the number of passengers killed, the number of passengers injured shows a much greater increase than the increase in the number of passengers carried. On the whole, the comparison of accidents for the two years leaves a very unsatisfactory impression, since it shows that liability to accidents was greater during the year covered by report than during the previous year.

RECOMMENDATIONS.

The report concludes with a recommendation for certain amendments to the inter-State commerce act, which, it is asserted, are necessary to render the statistics of the business of transportation complete and satisfactory. Thus, it is recommended that express companies and water carriers engaged in inter-State traffic be required to make reports to the Inter-State Commerce Commission similar to those now made by railways, and that persons, companies or corporations owning rolling stock used in inter-State traffic should be obliged to make annual reports so far as may be necessary for a complete statement of the kind of rolling stock used by railways.

Why the Grain Pit and Not Monaco?

Prince Albert of Monaco, hitherto the proprietor of the world-renowned gambling casino at Monte Carlo, has, it is announced, decided to give up the \$250,000 of yearly rental and gambling privilege payments which the casino brings him, stop gambling in his little territory and turn the building into a free hospital for consumptives, the climate being specially favorable for those suffering from that disease. It is a good big income to give up—not far from \$700 a day. It will throw out of employment the proprietor of the hell, who was the prince's tenant, together with a host of dealers, croupiers and other attaches of the once splendid establishment. Perhaps this fact explains a proposition, said to have been made recently to the management of the Columbian Exposition at Chi-

cago. The proposition was to pay \$1,500,000 for the privilege of erecting a fac simile of the Monaco casino on the Exposition grounds and running it on the same splendid scale as at Monte Carlo, the exhibitor of the building to have the exclusive gambling privileges of the great exposition. The proposition, we are told, was rejected without a second thought in spite of the splendid bribe offered.

At first glance this seems only the natural and proper course to take, yet, upon more mature consideration there appears to be an inconsistency in it. The city of Chicago maintains in its midst, in its Board of Trade, a gambling hell of far greater proportions every day in the year than the Monte Carlo institution which it is proposed to put there during the exposition period only. In the Board of Trade gambling hell hundreds of millions of options and futures are handled annually by single operators. What, then, must be the gigantic aggregate! The splendor of the Monaco casino and the glitter of its endless heaps of coin pale their ineffectual fires in presence of the vast gambling transactions of the Chicago grain and provision pits and the monster sums at stake there. Why should there be a virtuous spasm in Chicago repulsing the offer of a million and a half for permission to run a Monte Carlo casino during the exposition, when the every-day virtue of the place is so easy that it permits gambling on even a much more magnificent scale all the time—on a scale that would bewilder and confuse the imagination were an attempt made to express the annual aggregate of its stakes in figures? It looks as though the refusal to admit Monte Carlo while tolerating the Board of Trade, as at present constituted, was a repetition of the ancient hypocrisy of straining at a gnat and swallowing a camel.

The people of the whole United States seem to be afflicted with the same kind of moral strabismus. They will applaud the Exposition management for its action as to the Monte Carlo proposition, but calmly and unblinkingly contemplate the continuance of the far greater and far more injurious gambling hell. Only a little while ago they clapped hands in virtuous delight when it was thought that Congress had tied the hands of the Louisiana lottery, a very great evil, no doubt, but a very small one in comparison with grain and provision gambling, which they permit to go on, and which they encourage with tender sympathy for gamblers who "go broke" in the game. There is reason to believe, however, that more and more people are every day getting their eyes open to the inconsistency of condemning poker, faro, roulette and baccarat, while permitting dealing in options and futures, and when next Congress is urged to do its duty and set its seal of condemnation on the giant wrong by passing the option bill, the opposition to it will neither be so numerous nor so effective as it was in the last Congress.

Free Coinage Convention.

A meeting is hereby called to convene in Representative hall, in the city of Topeka, on Thursday, July 20, at 2 o'clock p. m., of the council and members of the American Bimetallic League and of all persons of Kansas, without regard to party, who are in favor of equal bimetallic coinage of silver and gold as it was before 1873, to take such action as may be thought best to advance the cause of free and unlimited coinage of silver at the ratio of sixteen to one.

Come, all bimetallicists, and counsel with us in this day of our country's peril.

Application has been made to all Kansas railroads for excursion rates on the certificate plan, and they will be announced in the papers when granted. Take receipts when you buy your tickets to Topeka.

A. C. SHINN,
Vice President for Kansas, American Bimetallic League.

Live Stock and Western Farm Journal: The Jersey breeders picked out the fifty best cows in the country and took them to Chicago in January. From these they selected the best twenty-five to compete with the other breeds in the great test. It is worthy of note that although those cows that have become so famous by their performances when tested at home were in the first fifty, they are not in the twenty-five competing.

A FEW RECENT VICTORIES

Of Pe-ru-na, the Tonic, Restorative, Nerve Invigorator and Blood Purifier.

Are you afflicted with any chronic disease? If so, read the following testimonials, selected from the great multitude of testimonials constantly pouring in from all parts of the land. Further particulars can be obtained by writing them and enclosing stamp for reply:

Nervous prostration: "Pe-ru-na cured me perfectly"—Mrs. C. C. Filler, 174 East-Rich St., Columbus, O.; neuralgia of the stomach cured, Mrs. N. Richey, Pine Apple, Ala.; chronic female complaint cured at last, Mrs. M. J. Gales, Vernon, Tex.; Bright's disease of the kidneys cured, Mrs. Mary A. Shear, Jennings, La.; cured of consumption, Mrs. Anna Harmenting, Mazo-Manie, Dane Co., Wis., also Mrs. Sarah Ellis, New Plymouth, Vinton Co., O.; cured of catarrhal deafness, W. D. Stokes, Baton Rouge, La.; cured of catarrh in the head, Chas. Lemen, 180 West St., Madison, Ind.; cured of chronic diarrhoea, Chas. Betts, Burr Oak, Mich.; cured of dyspepsia, W. W. Strasler, Hortons, Pa.

The above are only a few of the many cures made by Pe-ru-na. Pe-ru-na is a reliable household remedy at all seasons of the year. As a tonic it is adapted to all varieties of weakness. Those recovering from the effects of acute or prostrating diseases, overwork, business worry and sleeplessness find Pe-ru-na a valuable tonic. Nervous prostration, in its various forms, is also a class of affections to which Pe-ru-na is admirably adapted.

An excellent treatise on medicine, describing the causes and cures of the various ailments to which humanity is subject, is being sent free to any address by the Pe-ru-na Drug Manufacturing Company, Columbus, O.

Adam's Portable Granary.

One of the most ingenious devices for storing grain is an invention of Mr. W. J. Adam, of Joliet, Ill., which he styles Adam's Portable Granary. There has been for years a demand for something in this line. The granary can be erected in the field adjoining the thresher or sheller, thus avoiding the necessity of having a large number of teams at hand to haul away the grain as it is being threshed or shelled. It is desirable for wheat, oats, barley, corn, rye, in fact, anything in the small grain line. By using the granary threshing or shelling can be carried on at a great saving of labor and the grain marketed to the great convenience of the farmer. Oftentimes the fact that grain has to be sold on an unfavorable market for want of storage causes the farmer to lose more money than the cost of one of these granaries. The granaries are con-



structed with a view to durability and convenience, and, being circular in form, will hold 25 per cent. more grain than a rectangular building using the same amount of material. The fact that they are circular makes it possible for them to stand the force of the wind to a greater extent than a square building. These granaries are constructed of the very best material, of good workmanship, and perfectly fitted so as to avoid leakage, and, in fact, they are the only practical portable granary on the market. They are constructed on the most approved scientific principles. The sides are made of matched lumber one inch thick, each section being about two and one-half feet wide. They are easily adjusted and can be moved without difficulty, and can be stored away in a small space when not in use. The roof is made of closely jointed lumber with a peculiar groove on both sides of the joint, which collects all the water and prevents it from running or being blown into the joint. It is constructed something like the roof of a car. Our Chicago manager advises us that Mr. Adam is making an exhibit at the World's Fair, and those visiting the fair should be sure to see his exhibit. Full instructions regarding the erection of the granary accompanies each one, and he will mail a circular free, giving fuller explanation, to any one applying.

It is said that in the Province of Manitoba creamery and cheese factory buildings and machinery are exempt from taxation. That is a very practical way to encourage and build up the dairy industry.

The Horse.

Horse-Breeding by the Western Farmer.

The last issue of the *Breeder's Gazette* contains a splendid exhibit of the Western horse industry. The *FARMER* reproduces the *Gazette* summary as well as the detailed Kansas report, which is as follows:

"That there has been a marked falling off in the demand for stallions of the various draft breeds during the past few years is the testimony of all leading importers and breeders. Importations have practically ceased and sales of pure-bred horses—except for those of outstanding merit—have been slow and at a materially lower range of values than were current a few years ago. That service fees should have fallen to a low point as a result of the wide distribution of entire horses—good, bad and indifferent—seeking the patronage of farmers, is not a matter for surprise, and with a view toward determining to what lengths the demoralization of rates had extended and to ascertain also the general feeling in regard to the style of horses most in request this season the *Gazette* put out a short time since a query calculated to bring out the facts.

"Several hundred good farmers and stockmen in the States of Illinois, Iowa, Missouri, Kansas and Nebraska were asked to advise us as to the kind of horses most generally patronized by owners of farm mares this season, and to indicate the range of service fees. Their replies, arranged by States, and alphabetically by counties, are herewith appended and will doubtless be scanned with considerable interest by many horsemen. It is clear that service fees have fallen to a figure where the stallion-keeper has to do some close figuring to "pay out." Those who have been seduced into paying a big price for a poor horse are of course in an unenviable position. The man who pays a long figure for a really tip-top horse of fine quality and choice breeding will come much nearer making a profit in the long run than he who brings in a "pelter" simply because he could buy him cheap and stand him at a nominal fee.

"Big horses with style and quality are still commanding remunerative prices; as are also fine drivers, trained saddlers, and choice coach and carriage stock; it is the great mass of weedy stock, unsound, blemished, poorly-built, and undersized horses, devoid of finish and quality, such as result from patronizing cheap, mongrel, or grade sires, that are a drug on the market.

"It will be observed, if we may be allowed to perpetrate 'an Irish bull,' that the kind of horse most in favor in many sections this spring is the mule. Jacks have done a big season's work in many counties; and we must confess that those who have patronized them have, generally speaking, shown more sense than those who have bred good mares to scrubby, mongrel or nondescript stud horses. The jack is a purely-bred sire at least, and one knows just about what is to be expected from his service; and the mule is by no means the worst-selling animal of the day. From the scrub stallions you do not know what will come. As between them and the ass the jack is to be preferred every time. Our reports follow:

KANSAS.

Brown county.—More mules raised than formerly; not so many draft horses; trotters and coachers receiving more attention than formerly. From another correspondent: The county is full of horses; heavy horses selling fairly well; common light not selling for enough to pay for their feed for the last two years; breeding mostly to drafts at from \$8 to \$15.

Cherokee.—Lots of young horses and not much sale, but a good many breeding draft horses; few breeding trotting stock and quite a number breeding mongrels; the majority breeding to jacks; service for draft horses, \$12 to \$15; trotters, \$15 to \$25; mongrels, \$5 to \$8. From another correspondent: A good per cent. are breeding to the best draft stallions; trotting horse-men are sticking to their first love, while probably a higher per cent. are trying the coacher, mongrel or jack; service fee runs from \$15 down to \$5, except standards, which run from \$15 up to \$100. Men are considering quality in the stallion more than ever before, except that class that breed to the cheap stallion. They never consider much of anything but price.

Clay.—Mongrel horses scarce; mostly Percherons and a few Clydesdales, all purely-bred; there will be more mares bred to jacks than all others combined; service fees, \$7 to \$12 to insure on stallion; \$6 to \$10 for jacks.

Cloud.—Mostly draft horses. All good ones have all they can do at from \$10 to \$20; mongrels from \$1 up.

Decatur.—Horses dull sale, but nevertheless there have been a good many shipped here for draft purposes in the past year. There have probably been fifty stallions brought to this county in the past year, and as there were too many of the same class before, none of them are doing a big business. I do not know of more than a dozen regular draft stallions, two standard-bred

stallions, one thoroughbred, and no registered coach or Hackney in this county. The balance are largely grade drafts, with a good sprinkling of grades of all breeds, and one can find from two to twenty-five in each township the county over. The large draft grades appear to be doing the most business. Registered draft stallion fees are \$10 to \$12; saddlers, \$5 to \$8; standard-breds, \$20 to \$25; thoroughbreds, \$8; non-standards, \$8 to \$15.

Ellis.—Horses low in price on account of the failure in wheat. Very good Clyde and Percheron horses around here to which the farmers breed their mares at \$10 to \$15 for colt insured. Jacks stand at the same rate, and my neighbors, Eldridge & Beach, have a couple of very fine ones on their large ranch.

Ford.—We have some good stallions in this county and plenty of mongrels; a great many want a cheap horse. Fees for pure-breds, \$10 to \$12; mongrels, \$6 to \$8; a good many patronize the mongrel.

Franklin.—Not as many breeding as usual; good draft horses and jacks are doing most of the business at \$7 to \$15; coachers stand second; hundreds of mongrels have been castrated this spring and put on wheels for market and other service than the stud. It is to be hoped a few more will go.

Harper.—Farmers are generally taking quite an interest in the improvement of the horse, which can readily be seen on our roads and streets. The improvement in drivers and trotters is also quite on the boom in our county, and it will be but a short time when the mustang or Texas horse will be a thing of the past.

Harvey.—Heavy draft horses and trotting-bred stallions are being mostly used—French Drafts, Shires and Clydesdales; draft stallion fees range from \$10 to \$15; trotting-bred stallions from \$25 to \$50.

Jefferson.—The horse market has been mean here for some time; breeders are mostly breeding to trotters and jacks; trot-

other correspondent: Majority of horses are cheap stuff for which there is no market on earth. Good draft stallions get the best mares at an average fee of \$10 to insure colt to stand and suck; no coachers nor Hackneys here now; trotters, alas! little cat-hammed, spurring diggers go squealing around; owner recites the pedigree with great cheer, confident that when the season closes they will all make a record below 2:30; but they never have fulfilled the expectation. Price of service from \$25 up. It is getting to be cold for a trotter that cannot trot, and the trotter's service fee must come down to an equality with others or retire.

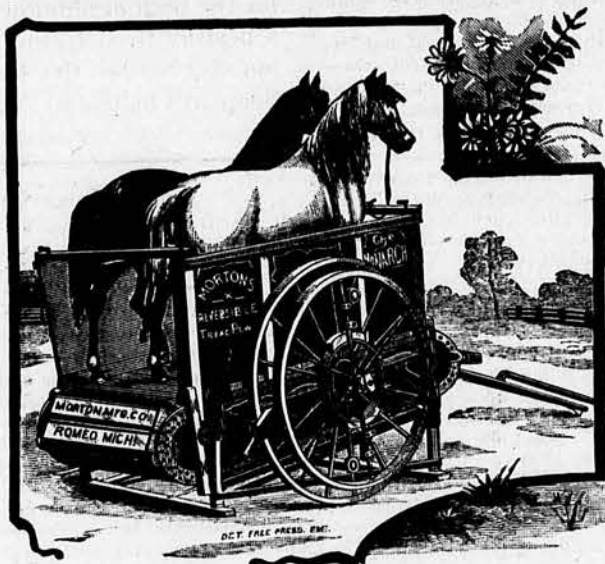
Nemaha.—All kinds used, mostly drafts; many mares bred to jacks, and think tendency is not to breed many at all, as we cannot raise colts at present prices; very few mongrels; fees, \$8 to \$12 for live foal.

Osage.—Fewer mares being bred than usual; the tendency seems to be in favor of drafts, yet stylish drivers of good size are in demand; standard-breds from \$15 up; drafts, \$10.

Reno.—Mainly drafts; fees, \$9 to \$12; a few trotters, fees, \$25 to \$30; some mongrels, fees, \$2 to \$5. The latter get a large patronage owing to the low fees. The country will be flooded in a few years with a class of horses that will not be worth the cost of raising.

Rooks.—We have a great many stallions of all kinds. Where farmers have good mares they generally breed to heavy draft horses. There are a great many pony mares here. Parties are not so particular what they breed to. There is more interest taken in draft horses this season than ever before.

Russell.—There are three classes of stallions; for drafts the Percheron is mostly used; also French Coach (full-blooded); service from \$10 to \$15. A great many are breeding to half-bloods; service, \$5 to \$7. A few trotting horses are standing over the county; service fees, \$30 to \$35; not many are breeding to them.



MORTON TREAD HORSE-POWER.

ters from \$10 to \$25; there are quite a number that are not breeding any mares this year.

Labette.—A general disposition to breed to better stallions of both drafts and trotters, but pure-bred Percherons are more largely patronized; stallion fees \$5 to \$100; most mares bred to \$10 and \$15 stallions, which fees secure the services of good pure-bred draft and some standard-bred stallions; horse buyers have, bought and shipped from points in this county over \$150,000 worth of horses within the last year.

Linn.—There are a great many poor horses; very few good stallions; a few drafts and coachers in use; quite a good many trotters; plenty of mongrels; fees from \$5 to \$15. From another correspondent: Mostly mongrels at \$5 to \$10 to insure, some trotting stock at \$15 to \$25 to insure. It has been too wet for farm work since the 18th of April; we plow in the mud.

Lyon.—Draft and trotting horses are doing the most of the work; service fees from \$10 to \$25; a good many are raising mules; service fees of jacks, \$10.

Marshall.—There is little interest manifested in horses; but few good draft stallions; the low service fee of the mongrel is having a telling effect; \$7 and "guarantee the colt to stand up and suck and walk once around the mare" will catch a number of breeders when horses are cheap. The Shire and trotting stallions are being more liberally patronized at from \$12 to \$20; people should remember that there is always a demand for good horses; scrubs are not wanted.

Miami.—Drafts, trotters and mongrels; fees are from \$5 to \$10; one-half the mares of last year bred.

Morris.—Horses cheap, but fairly well sold out except plugs; draft stallions mostly used; service fees from \$10 to \$12 to insure, except one Brilliant colt that serves for \$18; some few trotting horses here standing for \$10 to \$15 to insure; good many scrub jacks; service from \$5 to \$10 to insure. From an-

Sedgwick.—Draft horses and trotters are taking the lead, and every one that has a mare is breeding, the farmers to the drafts and the city people to the trotters.

Shawnee.—Plenty of horses and cheap; draft and coach, \$10 to \$15.

Smith.—Fifty per cent. drafts; fees, \$8 to \$10. Twenty-five per cent. trotters; fees, \$7 to \$25. Twenty-five per cent. mongrels; fees, \$5.

Sumner.—We are getting overstocked with horses; draft stallions most in use at a fee from \$10 to \$15; a large number have turned their attention to mule-raising. From another correspondent: We have lots of horses of the mongrel stripe with no sale for them. We have all kinds of stallions except the Hackney and coach; very few pure-bred drafts; mostly grade drafts and a few so-called trotting horses; prices for service range from \$5 to \$15 to insure a living foal.

Trego.—Horses slow sale; too many pony mares are bred here; mostly draft stallions used here; the Clydes lead; service fees, \$8 to \$12.

The H. H. Brown Manufacturing Co., of Decatur, Ill., have made a number of improvements on their dehorner and are now better than ever prepared to meet the demands of the trade in this direction. Their last year's business was very satisfactory and their dehorner in every instance proved most successful. They perform the usual feat of cutting hickory sticks nearly as large as your wrist with greater ease than ever before. Even the small No. 1 dehorner which is intended for dishorning calves, will cut hard hickory sticks of an inch and a quarter dimension without injury to the dehorner and with perfect ease to the operator. Our Chicago manager states that in order to meet the demands of their increasing business, they are obliged to enlarge the capacities of their factory and increase the facilities for production.

Beecham's Pills instead of sloshy mineral waters.

Morton Tread Horse-Power.

For a number of years the Morton Manufacturing Company, of Muskegon Heights, Mich., have been devoting almost their entire attention to the production of a line of tread horse-powers that would fill the wants of the many farmers who require light yet steady and efficient power to accomplish such work as cutting hay, straw and ensilage, grinding feed, sawing wood and, if need be, turn a grindstone or pump water. The main objection to the old-fashioned tread horse-powers was the inefficient means provided to regulate the motion. With the old-fashioned tread power, if the belt happened to run off or feeder stop work for a minute, the power would instantly start up and run at a furious rate, causing great danger both to horses and machine. No doubt many of the readers can remember these difficulties of the old tread power and the excitement caused by a run-away. Another great disadvantage of the old-fashioned tread powers was the difficulty in raising and adjusting the elevation of the horses to suit the various kinds of work required, and when the machine was to be moved from place to place, it required from four to six men to get it in position so that it could be moved about. Yet, considering all these disadvantages, there were many tread powers used for the simple reason that they were the best there was on the market at that time. It will be observed, from an inspection of the cut, that the Morton Improved Tread Power presents many novel features. The first to be noticed is the large mounting wheels, on which the power stands. These, instead of being at the end of the machine, are placed in the center, so that both ends of the machine are on a balance. This permits the machine to be tilted from either end by means of cross-bar and rack. By simply giving a crank a few turns, the elevation of the horses can be changed from a level to any desired pitch required for the work. At the same time, when the elevation is changed, the machine being swung in the center and the main shaft running through the inside of the hub and mounting wheels, the elevation being changed, it does not change the tension of the belt. This is a very great advantage, as the elevation of the horses can be graduated just as circumstances require. Another claim which the Morton Tread Power has over any other is the automatic governor. This is fully guaranteed to control the motion at all times, and should the belt run off, even when the machine is running at its fullest capacity, this governor is guaranteed to hold the motion under perfect control, so the horses will not be started off from a walk. The company lays such force on this guarantee that they are willing to stake the price of the machine on the efficiency of this governor. The main boxes of the machine are what is called the swing box. This permits the boxes in which the shafts run to adjust themselves to any strain or twist without binding, thus insuring the machine at all times to run with perfect ease and without heat or cutting. The traveler wheels, which support the floor on which the horses walk, are provided with oil pockets, in the bottom of which is placed a piece of sponge. When these pockets are filled with oil, the sponge permits the oil to flow through on the shafts, thus gradually insuring perfect lubrication and greatly increasing the wearing qualities of the power. The cross-roads are made of steel, turned up perfectly true, and case-hardened on the bearings, giving the hardest and smoothest bearing possible to attain. Each part is thoroughly made, carefully put together and in every way built for durability and efficiency. In comparing this improved tread power with steam or gas engines, the manufacturers claim the following advantages: There is no cost for coal or wood; no trouble and annoyance in providing water; no extra insurance on account of fire; no boiler explosions; requires no skilled help or an engineer to run it; requires no driver, and all that is necessary is to put the horses in and start the machine. The automatic governor will keep the motion under perfect control, and give as steady a motion as an engine. In comparing it with wind power, there is no mill or derrick to be torn down by storm; no imperfect or irregular motion to contend with. The power is moved to where the work is being done, instead of the work being carried all to one place, as is the case with the windmill. This is a very important feature, as it is often found necessary to move the power from place to place, especially where the buildings and barns are scattered on the farm. In comparing it with a sweep power, it has the advantage of the small space required. No muddy track to contend with, as the machinery can all be placed inside of the barn and the work done on stormy days, which otherwise would be entirely lost; no driver is required, and two horses on a tread will do as much work as from four to six on a sweep power, with much more satisfactory results, as the motion is always steady. For grinding feed, sawing wood, pumping water, running a cream separator, and elevating grain in a grain house, there is no power superior to the tread power on the market, as the price comes within the reach of all who have this class of work to do. For address and further particulars see advertisement in this paper.

The Home Circle.

To Correspondents.

The matter for the HOME CIRCLE is selected Wednesday of the week before the paper is printed. Manuscript received after that almost invariably goes over to the next week, unless it is very short and very good. Correspondents will govern themselves accordingly.

The Two Ages.

Folks were happy as days were long
In the old Arcadian times,
When life seemed only a dance and a song
In the sweetest of all sweet climes.
Our world grows bigger, and, stage by stage,
As the pitiless years have rolled,
We've quite forgotten the Golden Age,
And come to the Age of Gold.

Time went by in a sheepish way
Upon Thessaly's plains of yore.
In the nineteenth century lambs at play
Mean mutton, and nothing more.
Our swains at present are far too sage
To live as one lived of old;
So they coupled the crook of the Golden Age
With a hook in the Age of Gold.

From Corydon's reed the mountains round
Heard news of his latest flame,
And Tityrus made the wood resound
With echoes of Daphne's name.
They kindly left as a lasting gauge
Of their musical art, we're told,
And the Pandean pipe of the Golden Age
Brings mirth to the Age of Gold.

Dwellers in huts and in marble halls,
From shepherdesses up to Queen,
Cared little for bonnets and less for shawls,
And nothing for erinoline.
But now simplicity's not the rage,
And it's funny to think how cold
The dress they wore in the Golden Age
Would seem in the Age of Gold.

Electric telegraph, printing, gas,
Tobacco, balloons and steam
Are little events that have come to pass
Since the days of the old regime;
And spite of Lempriere's dazzling gauge,
I'd give, though it might seem bold,
A hundred years of the Golden Age
For a year of the Age of Gold.

—Henry S. Leigh.

THE AGRICULTURAL COLLEGE.

By W. J. Yeoman, the closing address of the Commencement exercises of the class of '93.

The middle of the nineteenth century marks the awakening of the people to a realization of the most important, and at the same time most neglected, vocation known to man.

This era is marked by the establishment of the agricultural college. Quite a number were located in the leading European nations and the British Isles. They are purely agricultural, teaching mechanical operations merely, and pay scarcely any attention to the student's intellectual development. About the same time (1862), the "Morrill bill" was passed by the United States Congress, providing that each State should be granted, from the public domain, 30,000 acres for each Senator and Representative in Congress, by the apportionment of 1860, for the establishment of colleges in agriculture and mechanic arts.

In 1887, Congress passed the "Hatch act," which appropriated \$15,000 annually for the organization of agricultural experiment stations in connection with the agricultural colleges.

The "College aid bill" was passed in 1890, appropriating \$15,000 to each agricultural college for that year. This was to be increased annually \$1,000 until the appropriation became \$25,000 per annum.

Besides these provisions by the federal government, the States have donated liberally to the agricultural colleges.

The State of Michigan, having established such a college in 1837, was the first to reap the benefit of the "Morrill act" of 1862. Closely following were many other States, and at present every State in the Union has an agricultural college of some kind.

We need not leave the great Sunflower State to find a model school of this class. The unparalleled advancement of the Kansas State Agricultural college is in no small degree due to the very efficient services of the men who have held the executive reins since it started in the race for doing a glorious work. These are the men who have written an answer in deeds to the contemptuous query of a quarter of a century ago, "Who would attend an agricultural college?" The objects and results of this college are no longer theoretical and expectant but practical and realized. While the course of instruction gives a good general knowledge, such as every citizen of a free nation should have, the discipline, putting the thought in the act and cultivating the disposition to act, is really what makes such a college the place for the sons and daughters of a progressive State.

The admirable combination of work and study is the one great union that has produced the unprecedented results of the agricultural college. It involves a principle that is vital to the ultimate success or failure of any system of schooling in giving a nation a large per cent. of her educated people the industrious inclination and ability instead of a theoretic throng of Lilliputian aristocrats. Think of it. How could a young person be expected, after a four or five years course at a purely scientific or classical institution, without taking more than recreative exercise, although he had been raised on the farm and acquired habits

of industry, to return to his home with anything like his former disposition and ability to do manual labor, or become an industrial producer? Nor should the dim-eyed granger look over his glasses with an air of disappointed surprise at the sleek-haired, sickly, soft-handed, bleached dude that his son may have developed into after four or five years at such a college. The difference between the agricultural college and the university or other classical school is that the former makes the best products possible of all her material, while the latter sifts out the best material for her products and the balance flies off like chaff.

If a large per cent. of agricultural college students follow some other profession than farming, do not think for a moment that it is entirely a matter of choice. Remember that the great majority who graduate are young men whose fortunes lie in their head and in reach of their hands. They follow some other occupation than farming because it requires no capital to start with. If every graduate had a piece of land and working necessities at his disposal, ninety-five out of every hundred would be numbered with the peaceful, happy tillers of the soil. But, let the agricultural college graduate work at whatever he will, there will always be a genuine interest in and fraternal feeling for the farming and industrial classes. This is the very sentiment that will bridge the chasm of uninterestedness which exists between the capitalist and laborer, a result worthy the support and applause of a nation.

The agricultural college gives farming a dignity which it could not possibly have gained in any other way. The student learns by a comparison of the various vocations, that in farming there is by far the greatest independence; by his own deductions, that farming of the first-class requires ability of the most varied order; and, other things being equal, that the farmer's income will vary in proportion to his keenness of observation and accuracy of judgment; that a good farmer may draw a larger income than a good lawyer and live a quiet, happy life without the fret, worry and nervous derangement that accompany the continual hard mental work.

The student also learns that farming is not necessarily a life of drudgery, as many make it. That much of the hard labor done by farmers can be reduced or entirely obviated by a little intelligent foresight and ingenuity; and thus we see eradicated deeply-rooted prejudices which have driven thousands of youths from the farm.

That the agricultural colleges are doing a great and noble work cannot be doubted. They are a comparatively new class of institutions. Time must be given them to inscribe their character upon our nation's supporting fabric—her intelligent working men and women. What our republic needs is more of such schools. Every county should have a high school in which a course in agriculture, horticulture, floriculture and their associated sciences could be given. Such a course would stimulate thousands of young people in our own State alone to attend school at least six months of the year for several years longer than they do under the present school system. In fact, such changes should be made with special considerations for the farmers' sons and daughters, since they so largely preponderate over the young people of other classes. The branches pursued in such a course would prove much more interesting than Latin, literature and higher mathematics. First, because it would involve the natural sciences instead of abstract studies; and second, because the element of utility—the direct application of knowledge to everyday affairs would be introduced. The experiments that would be carried out by each student during the summer on the home farm, and the observations that might be required, would introduce a living interest and create a zeal for farming that would completely stop the tide of young men continually rolling from the country to the cities.

The cry is sent up everywhere about the young man leaving the farm, and the old folks at home pray "Tommy don't you go," and yet what is there to stay for? A young man don't mind work if he can put his spirit into it. But the most of farm work degenerates into mere drudgery—work that stimulates no interest more than a meager remuneration. Give the boy of sixteen or seventeen, just as he has completed the common school branches, such a course of training, and the wail for the young man leaving the farm will die away to a whisper, and the youth at maturity will be an active, interested, enterprising farmer. And again, such a course would sift out such as have not the ability to become successful agriculturists, and thus lessen the ratio of failures. When our nation is farmed by such farmers, then will the golden harvest and luxuriantly cheerful homes fill the land with peace and contentment, while our glorious republic marches on to greater perfections and grander purposes.

The plain truth is good enough for Hood's Sarsaparilla. No need of embellishment or sensationalism. Try it this season.



If you are an experienced camper, you select your outfit for its compactness, discarding everything bulky and superfluous; but, cut the list as you may, there's soap—that you can't do without.

Ivory Soap will answer for all purposes and be the best for each, for the dishes, pots and pans, for the clothes, but above all—for the bath at sundown, when, after a hard day's tramp, you have a healthy tired feeling, not enervation, but that which makes the muscles harder, the lungs stronger and the brain quicker. Ivory Soap will help, and—It floats.

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Moth Medicine.

In case the house or closet is infested with carpet bugs or moths, corrosive sublimate should be used. It is poisonous, but if care is used in preparing it no harm will result. The best way to prepare it is to build a fire out of doors and hang a pail of boiling water over the fire, placing one ounce of corrosive sublimate in the pail for each gallon of water. Cover the pail quickly and get away from the pail, so as not to inhale the fumes. After boiling for awhile allow the solution to get cold and then apply it freely with a brush, sponge or rag to every board in your closet, the floor included, and let it soak into the cracks and crevices. Also wet every crack with benzine to which carbolic acid has been added in the same proportion as the corrosive sublimate was added to the boiling water.

Moths have a dislike to newspapers, and it is well to lay them on the shelves and in the bottom of the drawers. Packing boxes and trunks should be carefully lined with them, care being taken that they are pasted air-tight, or you may provide by leaving loose, a place for some insect to nest in winter where you little suspect.

The use of tarred paper is very disagreeable to most people, and clothes packed with it retain the repulsive odor for a long time after they are removed from contact with it or with the ill-smelling tablets sometimes used. Newspapers, paper bags and cloths are just as beneficial in keeping the moths away as are the obnoxious odors caused by such agencies.

Moths prefer garments that are filled with dust, and for this reason every house-

keeper should use extra care in thoroughly brushing everything and in throwing away all discarded articles which would otherwise afford nests for the pests.—Good Housekeeping.

Remember in Making Coffee:

That the same flavor will not suit every taste.

That the time for "steeping" should be regulated by the coarseness of the grains.

That every one can be suited to a nicety by properly blending two or more kinds.

That equal parts of Mocha, Java and Rio will be relished by a good many people.

That a mild coffee can be made dangerously strong, and still retain the mildness of flavor.

That the enjoyment of a beverage and slavish devotion thereto are quite different things.

That the flavor is improved if the liquid is turned from the dregs as soon as the proper strength has been obtained.

That where the percolation method is used, the coffee should be ground very fine or the strength will not be extracted.

That if the ground coffee is put into the water and boiled, it should be rather coarse, otherwise it will invariably be muddy.

That a good coffee will always command a fair price; but that all high-priced coffees are not necessarily of high quality.

That in serving, the cups and cream should be warm; the cream should be put in the cup before the coffee is poured in, but it is immaterial when the sugar is added.

That a level tablespoonful of the ground coffee to each cup is the standard allowance, from which deviation can be made in either direction according to the strength desired.—Good Housekeeping.

The Quickest, Purest

and the

Best of all the

Baking Powders is

Dr. Price's Cream Baking Powder

While other brands have

Deteriorated and will not

Raise the old amount of flour

Dr. Price's has been brought steadily up to greater perfection; is richer in Cream of Tartar, and higher in leavening power, hence does immeasurably better and finer work than any other Baking Powder known.

The Purity of Dr. Price's Cream Baking Powder has never been questioned. Pure as the driven snow.

The Young Folks.

Leedle Yawcob Strauss.

I haf von funny leedle poy
Vot goomes schust to mine knee,
Der quereest schap, der createst rogue
As efer you dit see.
He runs und schumps und schmasches dings
In all barts off der house—
But vot off dot? He vos mine son,
Mine Leedle Yawcob Strauss.

He gets der measles und der mumps,
Und eferding dot's out;
He shills mine glass of lager beer,
Poots schnuff indo mine kraut;
He fills mine pipe mit Limburg cheese—
Dot vos der roughest chouse—
I'd dake dot vom no oder poy
But Leedle Yawcob Strauss.

He dakes der milkben for a dhram,
Und cut mine cane in dwo
To make der sticks to beat it mit—
Mine cracious, dot vos drue!
I dinks mine hed vas schplit abart,
He kicks oup sooch a touse—
But nefer mind, der poy vas few
Like dot young Yawcob Straues.

He asks me questions such as dose:
Who baint mine nose so red?
Who vos it cuts dot scumouth blace out?
Vrom der hair upon my hed?
Und where der plaze goes vrom der lamp
Vene'er der glim I douse?
How gan I all dose dings eggablain?
To dot schmall Yawcob Strauss?

I somedimes dink I schall go vild
Mit sooch a grazy poy,
Und vish vonce more I gould haf rest
Und beaueful dimes enshoy;
But ven he vas ashleep in ped,
So quiet as a mouse,
I prays der Lord, "Take anydings,
But leat dot Yawcob Strauss."
—Charles Follen Adams.

A Problem Solved.

Pray what is the use of striving for good,
If all ends in woe and distress?
Why work in vain hope, when 'tis well understood
There's no such a thing as success?

The answer is simple when I am concerned—
I've studied the case through and through.
The lesson I've found to be easily learned—
The "if" and the "when" are not true
—John Kendrick Bangs, in Harper's Weekly.

Prof. Bell on the Air-Ship of the Future.

"Of course the air-ship of the future will be constructed without any balloon attachment. The discovery of the balloon undoubtedly retarded the solution of the flying problem for over a hundred years. Ever since the Montgolfiers taught the world how to rise in the air by means of inflated gas-bags, the inventors working at the problem of aerial navigation have been thrown on the wrong track. Scientific men have been wasting their time trying to steer balloons, a thing which in the nature of the case is impossible to any great extent, inasmuch as balloons, being lighter than the resisting air, can never make headway against it. The fundamental principle of aerial navigation is that the air-ship must be heavier than the air. It is only of recent years that men capable of studying the problem seriously have accepted this as an axiom. Electricity in one form or another will undoubtedly be the motive power of air-ships, and every advance in electrical knowledge brings us one step nearer to the day when we shall fly. It would be perfectly possible, to-day, to direct a flying machine by means of pendant electric wires which would transmit the necessary current without increasing the load to be borne. Perhaps a feasible means of propelling such an air-ship would be by a kind of trolley system where the rod would hang down from the car to the stretched wire, instead of extending upward. This is an idea which I would recommend to inventors."—McClure's Magazine.

A Mighty Hunter.

It is the custom in France for all the fashionable world to go shooting in the autumn. Every possessor of a landed estate invites his friends from Paris to visit him at this season, and every visitor is expected to distinguish himself with the gun.

When Adolph Thiers, the petit bourgeois statesman of France, became President of the republic, he was invited one autumn to take part in the sports at the country estate of M. Casimir-Perier. He accepted the invitation, and consequently had to appear on the hunting field in shooting dress and armed with a gun. The whole entertainment was really in his honor.

M. Casimir-Perier was aware that his old friend, now the President, knew nothing whatever about hunting. But he instructed his gamekeeper to follow M. Thiers about and see that, in one way or another, the great guest of the occasion "bagged" more game than any other person. The gamekeeper led the President to a certain spot and said to him: "Your excellency, the game will all be driven past this place. You have nothing to do but to remain here, and if you shoot at all you are bound to kill something."

But the President, to his credit, declined this opportunity, and insisted upon traveling about with the other hunters—except that he never went to the right place, and never got a shot at all. The gamekeeper

was in despair. The distinguished guest kept him hopping about from place to place, but always out of range of the game. Nevertheless, by collusion with others, the gamekeeper so managed it that when the day's sport was over M. Thiers, who had not discharged his gun all day, found a large pot of game at his feet, which was declared to be his "bag."

"This mine?" said the President, in astonishment.

"Certainly, your excellency."

"Ah! I see," he said. "I never shot anything before I became President, so I suppose this was killed by the office, not by the man!"—Youth's Companion.

A Fight With a Lynx.

One of the rare cases in which a California panther or lynx has attacked a human being occurred last week near Murietta, in San Diego county. Tom Tower, a young man of that village, was the most interested party in the affair next to the panther himself.

Tower went hunting with a companion in the rough Temecula country, and after reaching the hills they became separated. His companion, meeting indifferent success, returned home to Murietta. After Tower had been absent a couple of hours his friends became uneasy and decided to search for him.

Guns were fired and a great hubbub made with no response. A careful search in the brush in a fearfully wild portion of the hills at last revealed Tower lying bleeding and unconscious, with his clothes torn to shreds and horrible gashes in his face, arms and legs. A terrific struggle had evidently taken place and some distance away the prone body of the panther told the tale.

Tower was taken up and bathed with cold water and stimulants and he slowly revived. He had been lying unconscious for several hours and was very faint from loss of blood. His wounds, particularly in the limbs, were intensely painful, and it was only by the greatest good fortune that he did not lose an eye.

When he revived he told a thrilling story of a hand-to-hand combat with the wild beast lying at his feet, which he had overcome only by his great pluck and nerve. In the agony of death, after having received a wound in its vitals, the infuriated brute had clung to the bleeding hunter, and only by a tremendous effort could Tower free himself before falling unconscious. The skin of the brute was obtained, and it is safe to say that the young hunter, who is now rapidly recovering, will not part with the tawny hide at any price.—San Francisco Chronicle.

Horses in Spectacles.

Horses, it appears, are taking kindly to spectacles. The Optician, which has made special investigation into the subject, gives the case of a shortsighted horse whose owner ordered for him a pair of spectacles. They were made to fasten firmly into the headstall, so that they could not be shaken out of place. At first the animal appeared startled by this addition to his harness, but he soon got used to his glasses and liked them so much that when he was turned out to pasture he felt uneasy and uncomfortable without his goggles, and one Sunday hung around the barn and whinnied so plaintively that the owner put the headstall and goggles on him, and the horse was so glad that he rubbed the man's shoulder with his nose as the only method of returning thanks. Dogs who suffer from shortsightedness have also been provided with spectacles, and have been able thereby to recognize their canine acquaintances much further off than before. If the system is not carried much further no great harm will be done, but suppose "upish" horses and dogs insist upon discarding goggles for the pince nez or even the monocle. Puppies in eye-glasses would be intolerable.—London Telegraph.

Coin Disappearance.

Nobody ever stops to find out what becomes of all the pennies annually coined by the government, but as a matter of fact, they are being continually turned out at the rate of several millions a month. Being of such small value, very little care is taken of them, and the government is called upon for more. The demand is a source of profit to the government, as it buys the pennies in blank form from a Connecticut firm at the rate of 1,000 for \$1, and merely has to coin them at the mint in this city. Among the millions of small coins which have mysteriously disappeared are 119,000,000 old copper pennies, 4,500,000 bronze 2-cent pieces, 3,000,000 8-cent nickel pieces and 800,000 of the old copper half-cents, of which not one has ever been returned to the government. Samples of these coins turn up once in a while, but they are extremely rare.—Philadelphia Record.

"Some of you," said a political orator in the late municipal campaign, "remind me of Johnny Bizim, who undertook to break the yearling calf, and to make sure he did not get away tied the rope around his waist.

The breaking process angered the yearling and he split a crack in the atmosphere toward the swamp. John only hit the ground in the high places. In their mad career they passed a neighbor, who yelled to John: 'Where are you going?' 'Blanked if I know,' he replied, as he sailed through the air. 'Ask the calf.'"

A Pennsylvania farmer, who had been to town and made several purchases, was relating his adventures to a friend. "See," he said, "I bought those gaiters in Change Alley." "Why, then," said his facetious friend, "they must be alligators." The farmer laughed loud and long and went home in haste to retail the joke. "What a funny fellow Jack Armstrong is," he said to his wife. "I told him I bought these gaiters in Change Alley, and he said, 'Then they must be crocodiles,' and he went into roars of laughter. But his provoking wife insisted that she didn't see anything funny in it.

From the St. Louis Republic we clip the following:

The first expedition of Columbus cost \$7,300 of our money, which included the equipment of the three vessels whose duplicates have just visited our shores. Columbus received as Admiral \$320 a year; his captains \$16 a month—in our money of to-day—and the sailors received \$2 to \$2.20 a month. Other expenses were in proportion.

From this it would seem that it didn't pay extremely well in those days to be an Admiral—not much more than an ordinary harvest hand now-a-days can command. And Columbus was smart, too, yet it is doubtful if he ever knew "where he was at," as he labored under the delusion that he had simply arrived at the East Indies by way of the Atlantic ocean. Wouldn't it surprise the old gentleman if he could be told now that he had discovered us?

Almost Inside Out.

The stomach that is not turned thus by a shaking up on the "briny wave" must be a well fortified one. The gastric apparatus can be rendered proof against sea sickness with that stomachic so popular among travelers by sea and land—Hostetter's Stomach Bitters. It defends the system against malaria and rheumatism, and subdues liver complaint, constipation and dyspepsia.

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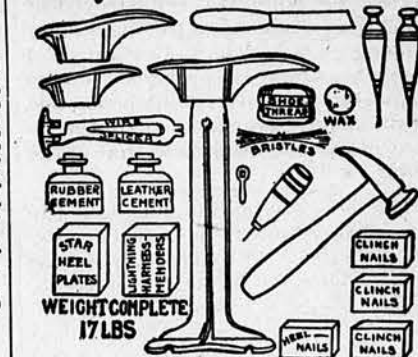
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The sooner land is plowed after harvest the better, if it is to be sown to wheat.

There have been many reminders during the last few weeks that the man who is out of debt is always in luck.

The so-called visible supply of wheat was on June 24, 1893, 63,081,000 bushels, being the largest ever noted for this time of year.

Congress is to convene August 7. The avowed purpose of calling the solons together is to secure the repeal of the Sherman law.

The pardon of the three anarchists who were confined in the Illinois penitentiary has brought down immense maledictions upon the head of Governor Altgeld.

The receipts of wheat at the principal primary markets for the week ending June 24, 1893 were 2,066,000 bushels against 4,061,000 for the corresponding week last year.

The FARMER has been unremitting in urging its readers to secure and apply Prof. Snow's chinch bug remedy free of charge, and yet we have continual inquiries as to how to save the corn from this pest. Once more we will say, send a small box of live bugs to Prof. Snow and ask him to send the chinch bug disease in exchange.

The full remonetization of silver would clear the financial sky as quickly and as effectually as its demonetization. It is the uncertainty of the present situation that destroys confidence. Confidence constitutes about nine-tenths of the trading capital of this country, and when this is destroyed by uncertainty this part of the machinery of commerce is lacking. Certainly, let Congress act, and act promptly, but remembering that honest legislation and honest money look as much to the interest of the borrower as to that of the lender.

"The money situation has taken 10 cents of this wheat," is remarked by George J. Brine, of Chicago, who was formerly engaged in the grain trade, but now otherwise interested. He continues: "Two years ago, when we had a prospect of over a 600,000,000 bushel wheat crop, the price was 20 cents above present prices. Then we had a big advance to about \$1.14, and, on the decline which followed, prices did not get within 15 cents of the present mark. It is all nonsense to talk about getting a demand by forcing prices down. Other markets go down with us. If Chicago will make a bull market the country will follow. Nothing can keep this wheat down when the financial situation improves. There will be no further slump, as the trade has had as much as it can have."

THE NATIONAL BIRTHDAY.

The national birthday is celebrated this year of 1893 with feelings as diverse as ever existed in this country since the issuance of the great declaration in 1776. The small boy is perhaps the only unalloyed patriot. He believes in the Fourth of July because it is a free-for-all day to make a noise, to blow things up, to go to the picnic, to witness the fireworks, or at least to shoot firecrackers.

But it is well for older people to remember that one hundred and seventeen years ago this country was indifferently governed by a King—the King of England—and that our laws, our liberties and our customs were sought to be controlled from the little island across the water. Our forefathers thought these were cast in the interest of the King and people of the mother country rather much, and they thereupon declared they wouldn't stand it, but would establish a separate government, even if they had to fight for it. The remark of one of the patriots of that day that they must "hang together or they would hang separately" was not too strong a showing of the usual consequences of defeat in a revolt of a colony of England.

But while our fathers succeeded in their fight for separate government, they wisely availed themselves of the experience of the mother country and undertook to retain the good and reject the bad in the system from which they had separated themselves. The diverse feelings with which the present anniversary is celebrated, arise largely from diverse opinions as to what is yet English in our institutions and to greater or less favor in which essentially English influences are held. It is charged in prominent journals (the *Chicago Inter-Ocean*, for instance,) that so great is England's hold upon the finances of this country and people that in this respect we are again a colony of Great Britain. From whatever source we got the influence which brought about the present financial condition, it is certain that nobody is satisfied with it. Congress has been called to meet in extraordinary session at the unusually early date of August 7, for the avowed purpose of securing change in our financial legislation. As was the case one hundred and seventeen years ago, there are those who favor a surrender to the authority of England, this time by the complete and final demonetization of silver. There are also those who believe that this country is big enough, and old enough, and rich enough, and knows enough to manage her own finances in her own way in the interest of her own people, and that we should declare our independence and fight it out on that line.

Perhaps never before has there been in this country so large an element of dissatisfaction with the organization of society. The inequalities of condition are in this country as well as in others charged against the system on which society is organized. In some cases this dissatisfaction goes no further than a general discontent, in others it calls for the destruction of existing systems without much reference to what shall take their place, and in others it demands the substitution of systems believed to be more adapted to conserve the general prosperity.

But it should not be forgotten that while by our continual changing and patching, and by our persistent and universal demand for new legislation, we admit that we are not quite satisfied, yet our system places it within the power of the people to make such changes as our enlightenment enables us to determine to be desirable. It is our patriotic duty to use this ability to so reform abuses, to so introduce new features, to so conserve the ends of justice and the equality of which we boast.

Financial writers claim that the present stringency has destroyed hundreds of millions of wealth in this country. It should not be forgotten, however, that the land is all left and is just as fertile as ever. The cattle, horses and swine have not been destroyed. The old wheat on hands and the new wheat just harvesting are as nutritious as of old. The cotton fibre is just as

strong and the wool is just as warm as if there were no financial troubles. The wealth lost is in the estimation of values and in the destruction of credit values. The man who is out of debt, who don't want to sell his land and is in no hurry to dispose of his produce is just as wealthy as ever. Wall street's effort to scare the country into acquiescence in her schemes has resulted more disastrously to the wealth represented by Wall street interests than to any other property.

WILL CHEMISTRY SUPERSEDE AGRICULTURE?

PART VII.

In view of the increase of the population of the earth, and considering that there is a limit of agricultural production which cannot be surpassed, a humane writer on social science only a generation ago came unwillingly to the conclusion that war, pestilence and famine are necessary means by which the race is kept from overcrowding the earth.

More modern statisticians have made fairly definite estimates, based on the constancy of the increase of the bread-eaters and the limited possible extension of the bread-producing areas, and have concluded that the last half of this, the last decade of nineteenth century, must see the world's demand for bread so nearly equal to the probable supply as to considerably enhance the price of the bread grains and to render the competition for grain-producing lands such as to considerably increase their market value.

These conclusions of economists, based on the hard foundation of statistics, are pessimistic indeed when compared with the apprehension alluded to in the first paper of this series which, speculating on the possibilities of manufacturing directly from the elements the provisions for human sustenance and comfort, saw visions of abolition of the race from the necessity for work, or at least the cessation of all agricultural employments. To complete the latter picture of ease and opulence, the imagination may easily suppose the necessary manufacturing establishments to be almost automatic in their operation and the methods of distribution and locomotion so perfected as to scarcely require human attendance.

Between the two pictures, the one drawn from cold statistics of a world in which starvation and perishing from cold and nakedness are averted only through the intervention of the sword and pestilence, the other from the optimism of advancing science, the conquest of man over the forces of nature, the distance is so great that it is almost inconceivable to sensible men holding the one view that there can be rational adherents to the other.

Statisticians have found that the proportion of the people who are employed in towns greatly increases as the arts are developed in any country. This tendency is often deplored, but is apparently inevitable. Indeed, the proportion of the race engaged in shop and factory in the preparation of materials for human comfort continually increases.

A few weeks ago the writer made a tour of one of the great packing houses in Kansas City. The work done here by the hundreds of men, aided by the best modern appliances, was formerly distributed over thousands of farms. The economies of the great establishment are such and the perfection of the work is so great that no ordinary farm butchering can compete with the packing house. Indeed, the professional butcher is practically driven out of business in Kansas City and many surrounding places. Perhaps the most interesting process observed was the preparation of oleomargarine or artificial butter. The description of the process is too long for this place. Present purposes are sufficiently subserved by remarking that in the preparation of oleomargarine the contributions to knowledge from the laboratory of the chemist are freely used and the product is such as commands a distinct place in the market in which it displaces large amounts of the poorer grades of country-made butter.

Farm products are sometimes con-

sidered in two divisions: Those which contain no nitrogen and those which contain this element. The reader of these papers has seen that a start has been made at the production of the first class without the aid of agriculture. Until recently scientists even were in despair as to the world's supply of nitrogenized food. Every season's production appeared to be at the expense of a greater portion of the available supply than could be replaced. It was the discovery that by a particular kind of agriculture the stock of this essential element available for the production of food supplies can be and is in practice replenished that gave a new impetus to the discussion of the possibility of superseding agriculture.

The indications of our present knowledge of the subject point for the present and the immediate future to an improved and constantly improving kind of agriculture as likely to keep up with the requirements of the race. This agriculture will be aided and perfected by the aid of the knowledge of the chemist, the physicist, the biologist—it will indeed draw on the entire realm of knowledge for its means of development, and is not unlikely to stand in much the same relation to the farming of the present as the farming of the present occupies to that of the American aborigines. While this process of perfecting the farmer's art is progressing, science will also contribute to the development of other industries. Products of the factory may well be expected to so supplement those of the farm, possibly to so gradually supplant them that while the enervation of idleness on account of the ease of production need not be feared on the one hand and the necessity for starvation for lack of enough food in the world need not be apprehended while there is standing room.

MONEY AND CREDIT.

The most frequent item of news for several weeks has read something like this:

"The — bank suspended to-day. Assets \$250,000. Liabilities \$225,000. Cause, stringency in the money market making it impossible to realize on securities. Depositors will be paid in full."

Another item of frequent occurrence reads:

"The banks at — are threatened with a run, but having anticipated it, they are fully prepared to pay all depositors on demand."

Notwithstanding these assurances, failures continue and the distrust grows more intense. The extent to which business is done on credit, the utter impossibility of the simultaneous discharge of the debts owed by the people or even of the payment of the money due from the banks to their depositors, is not new and is not more alarming now than formerly, but at times of financial distrust it appears to be more generally realized than under the circumstances which ordinarily prevail.

Everybody seems to feel called upon to explain the failures which occur at a time like the present, and the assurance with which "financiers" ascribe them to what they desire to have understood to be the causes, is equal to that with which the politicians ascribe all misfortunes to, the acts or influence of the opposite party.

But at times like the present it is interesting to inquire as to our monetary system, and to ascertain the situation without reference to the establishment of any theory, or fixing responsibility on any political culprit.

The Comptroller of the Currency, in his last report, for September 30, 1892, shows that the deposits subject to check in the banks of the United States were:

In national banks.....	\$1,765,422,984
In savings banks.....	1,712,769,625
In State banks.....	648,513,809
With loan and trust companies.....	411,869,946
In private banks.....	93,091,148

Total, subject to check.....\$4,631,466,933

The total amount of money, both coin and paper, "in circulation" in the United States on December 1, 1892, as reported by the Secretary of the Treasury, was \$1,614,790,266, so that if the banks had in their vaults all the money in circulation and depositors were all to withdraw their deposits, there would be in existence only

money enough to pay a little more than \$1 for every \$3 deposited subject to check, and the shortage would amount to \$3,016,666,697. But so far from having in their vaults the entire amount of money in circulation, the banks had, according to the showing of the Comptroller, in round numbers, cash as follows:

National banks.....	\$400,000,000
Savings banks.....	33,000,000
State banks.....	130,000,000
Trust companies.....	22,600,000
Private banks.....	12,000,000

Total cash in banks.....\$597,600,000

So that, if suddenly called upon for the full amount of the deposits, the banks would be able to pay about \$1 in \$5.

There need be no more forcible statement than contained in these figures of the fact that, while banks are, to some extent, dealers in money, they are, to a far greater extent, dealers in credits. But the same fact is strikingly illustrated by the analysis of the receipts of the national banks of the country for a single day, that selected by the Comptroller being September 15. The receipts of the banks on that day were \$331,205,213, of which 90.61 per cent. was in checks—not money at all.

A further analysis shows that the receipts of that day were as follows:

	Per cent.
Gold coin.....	0.88
Silver coin.....	0.41
Paper currency.....	8.10
Checks, drafts, etc.....	90.61
Total.....	100.00

So that almost 99 per cent. of the business of the banks was done with credit and credit money, and less than 1 per cent. was with gold, the money of final redemption according to Wall street theories.

It is generally assumed that such an analysis of the business of the banks is representative of the business of the entire people, and the assumption is doubtless nearly correct.

Now, when distrust takes the place of confidence, the credit, on which nine-tenths of our exchanges are effected, disappears very rapidly. The depositor demands his money from the bank and hides it away, or if in a large city, places it in a safety deposit vault where no one but himself can touch it. The bank then cannot extend credit to the borrower, because it must gather up its money to meet the demands of the depositor. The would-be purchaser cannot pay his bills, because he cannot sell for cash and cannot collect what is due him.

Whether we shall ever have a system under which the use of private credit for so large a part of our transactions will be displaced by something less evanescent, is a question for the future. The effort of "financiers" is to still further reduce the actual money, thus rendering necessary the still more extended use of the precarious substitute for money, private credit, in effecting the distribution of the products of industry.

TO EXTERMINATE COYOTES.

When Prof. Snow, some years ago, suggested the idea of exterminating chinch bugs by spreading a fungous disease among them, the proposition was hooted at and declared preposterous. Yet late experience tends to the conclusion, even if it does not absolutely prove, that chinch bugs may be kept in check and possibly in time practically exterminated by the artificial dissemination of disease.

Down in Texas they are trying this disease method of extermination, but on larger game. Wolves and coyotes are as troublesome to the sheep-grower as are chinch bugs to the wheat or corn-raiser, and their extermination no less desirable. Nearly a year ago J. M. Campbell, operating a large sheep ranch near Del Rio, conceived the idea of killing the coyotes by spreading mange infection among them. Neighboring ranchmen laughed at the idea, just as Prof. Snow's chinch bug remedy was laughed at, but Mr. Campbell determined to give the method a trial. He secured a mangy dog and penned it up with seven coyotes. In three weeks each one of the seven had become infected with the disease and all were turned loose to spread it among their fellows. Within

two months it became apparent that the remedy was, in some measure, at least, a success, for mangy coyotes became very common.

The sentiment among ranchmen immediately changed, as did the sentiment with regard to the chinch bug remedy at the first evidence of success. Now it is generally admitted that killing wolves and coyotes by spreading mange among them is quite within the possibilities. In Montana, where, according to the report of the last State Stock-Growers' Association, 25 per cent. of the calves, 10 per cent. of the colts and immense numbers of sheep are killed each year by wolves and coyotes, stockmen have taken the matter up and propose to test the mange remedy extensively. In Texas a movement is on foot to have the State establish several stations for the propagation and distribution of the mange infection, by the aid of which it is hoped to wipe out the whole wolf tribe.

This is a matter in which Kansas farmers may well interest themselves. At the January meeting of the State Board of Agriculture, the evidence in regard to the Kansas sheep industry was all to the effect that the greatest hindrance to its successful prosecution is the prevalence of coyote enemies. Every farmer who took part in the discussion of the question agreed that sheep are the most profitable of farm stock if they can only be protected from the depredations of coyotes. This mange remedy promises to afford that protection, and is worthy of investigation and trial.

The action of the mange is not rapidly fatal to its victims. It puts a most effectual stop to breeding, however, and in time causes the death of the affected animals. No dog affected with mange has ever been known to breed, and there is no reason to believe that the same does not hold true in the case of the coyote. This of itself would exterminate the race in the course of a few years, even were the disease never directly fatal. But mange kills its victims in the course of two or three months, and thus the work of extermination would be greatly hastened.

Weather Report for June, 1893.

Prepared by Prof. F. H. Snow, of the University of Kansas, from observations taken at Lawrence.

A delightful summer month. The temperature was below the average, the days on which the mercury reached 90° being only half the average number. The rainfall was ample and remarkably well distributed. The highest wind was fifty miles an hour and continued for ten minutes only at the time of the Williamstown tornado, ten miles distant from the University.

Mean Temperature was 72.74°, which is 0.56° below the June average. The highest temperature was 92.5° on the 21st, the lowest was 56° on the 6th, giving a range of 5.65°. Mean temperature at 7 a. m., 67.80°; at 2 p. m., 81°; at 9 p. m., 71.12°.

Rainfall was 5.07 inches, which was 0.22 inch above the June average. Rain in measurable quantities fell on nine days. There were six thunder showers. The entire rainfall for the six months of 1893 now completed has been 20.46 inches, which is 2.79 inches above the average for the same months in the preceding twenty-five years.

Mean cloudiness was 42.20 per cent. of the sky, the month being only 0.89 per cent. cloudier than usual. Number of clear days (less than one-third cloudy) thirteen; half clear (from one to two-thirds cloudy) eleven; cloudy (more than two-thirds) six. There were two entirely clear days and none entirely cloudy. Mean cloudiness at 7 a. m., 47.50 per cent.; at 2 p. m., 47 per cent.; at 9 p. m., 32 per cent.

Wind was southwest twenty-three times; southeast, twenty times; south, eighteen times; east, twelve times; north, ten times; northeast, four times; west, twice; northwest, once. The total run of the wind was 9,210 miles, which is 664 miles below the June average. This gives a mean daily velocity of 307 miles, and a mean hourly velocity of thirteen miles. The highest velocity was fifty miles an hour, on the 21st, from 6:35 to 6:45 p. m.

Barometer—Mean for the month, 29.034 inches; at 7 a. m., 29.053 inches; at 2 p. m., 29.018 inches; at 9 p. m., 29.026 inches; maximum, 29.315 inches on the 7th; minimum, 28.732 inches on the 1st; monthly range, 0.583 inch.

Topeka has in a few years become a leading horse center, both for the light harness and the draft horses. The progress made in the general improvement of horse stock has been decidedly encouraging. Local breeders report excellent sales as well as a generous patronage of their studs.

OUR FINANCIAL DILEMMA.

[From the Rand-McNally's Bankers' Monthly.]

With our catechism we have been taught that the precious metals were provided for the use of mankind as money, that the automatic theory was something sacred, that human intelligence and honesty were all insufficient to regulate or restrain human authority in providing society with a medium of exchange, and that the limitations of nature could and should be trusted with the greatest of functions. When, in the fifteenth century, darkness covered the world and civilization was about to perish, it was providential interposition that inspired Columbus to open the way to the metallic treasures of the new world.

Again, when from the same cause, in the first half of this century, poverty, suffering and discontent opened the bloody gates of revolution upon Europe, divine pity directed men to the golden store of California and Australia, and hope returned to the hearts of the people; civilization, with its science, art and literature, received a mighty impetus, and the world laughed.

Allison, alluding to the discovery of the silver mines of Mexico and Peru in the sixteenth century, and of the gold mines of California and Australia in this, says: "If ever the benevolence of the Almighty was clearly revealed in human affairs, it was in these two decisive discoveries made at such periods, and he who, in considering them is not persuaded of the superintendence of an ever watchful providence, would not be convinced though one rose from the dead." Predicting the great output of gold, he says: "Before half a century has elapsed prices of every article of commerce will be tripled, enterprise proportionately encouraged, industry vivified, debts and taxes lessened," and "we can now contemplate with complacency any given increase in mankind; the growth of their number will not lead to the aggravation of their sufferings." Hardly, however, had these hopeful words been written, when a new gospel was discovered and preached. It was found that this "happiness of mankind" was about to interfere with the interests of a small but powerful class, debts were being paid too rapidly and too easily, "the financial world was becoming saturated with gold" (Chevalier), the debtor was about to escape, and human intelligence and honesty (?) were now invoked to stop the flow of God's beneficence. But the memories of revolution were too fresh; as Mr. A. Allard (delegate of Belgium to the Brussels conference) says, "We have just left 1848 behind us." Besides, prophets of good and evil were disappointed and the stream of gold gradually diminished. The numbers and needs of mankind continued to increase, however, and 1860 to 1870 found half the civilized world on a paper basis; the arts and natural loss depleting the accumulated stock more, the strain and stress again began to be felt, when lo! a miracle! In the west the dawn of light appeared! A third time (according to the automatic theory) God turned again his face towards his creatures, and from the frowning heights of our Western mountains a silver rivulet began to descend. The parched and thirsty earth was gladdened at the sight and mankind rejoiced. Here in our own country, we inexpressibly exhilarated—saved from the reaction of a great war, a new field opened for the bold and active, the road to resumption made plain and easy, the great debt of the nation to be paid as no other had ever been—we girded up our loins, and full of hope, and courage, and patriotism, we started on our great work. But we reckoned without our host! A new power now essayed to dominate the world; somewhat timid in 1857, it had grown great in the world's misfortune or mistakes. The bondholder now asserted his right to limit the means of the debtor to pay, and the "financier waved his glittering wand before the eyes of the people, and from the rosy mists of confidence evolved castles of credit currency upon the steadily thinning foundation of gold, and claimed that under the modern art of exchanges (swapping checks) so much metallic money was a burden, a relic of barbar-

ism, cumbrous and to be abandoned; and so the work was done; this time, silver the selected victim."

Here it was "done in the night," no man daring openly so avow the full design, nor to this day has any party dared to face an indignant people with a frank avowal of such a purpose.

The two great parties have

Paltered with us in a double sense, Keeping the word of promise to our ear, And breaking it to our hope.

Grudgingly they have been forced to concede various palliative measures, all alike unfairly and dishonestly administered. The last (the Sherman law) a compromise forced upon us; a monstrosity, a violation of every principle, and, as administered, an open dishonoring of silver as a money metal, and yet to-day it, instead of gold leaving us, is to the extent to which silver certificates have been issued, standing between us and panic.

Gold is leaving us. Why? Because the world is trying to keep warm under a blanket all too small, and each nation is tugging for a part of it. Austria is paying a premium (4 per cent. bonds at 95½ or less); the Baring failure started a lot of our bonds home, to save the gold-based English credit system from a collapse not yet ended, an unfavorable balance of trade, in spite of high tariff—if not caused by it—and a determined effort to scare the nation from its purpose are the causes, and in no way to be prevented or cured by going in debt or issuing bonds. "We are all like children who make a shadow on the wall, and we are as alarmed as if it was a reality." Had we never demonetized silver, "the shadow would never have existed, and we would be in that era of prosperity which we regret to-day."—Allard.

If the flow of gold is a misfortune, which I do not believe, why not check it, as would England, France or Germany, when demanded for export? The law gives Mr. Carlisle the option in payment of treasury notes, to coin silver and use it. The "honest dollar" is the dollar of the contract, no more, no less.

Open the mints, coin dollars "of the present weight and standard of fineness." Establish parity by parity of use. To expect the bullion values of gold and silver to approach equality, with one sustained by an increased demand originating in legislative action and an open mint with its fixed price, while the other is made a commodity to be purchased at its lowest bid, is an absurdity and a sham.

Give both an equal treatment and fixed mint values; then, if in due time there should be any inequality, exercise the constitutional right "to regulate the value thereof" in the interest of the great plain people of the country. But, says some bright genius, "the silver miners will be benefited." Why should we hate the silver miner, or love him less than the man who with a minimum of cost washes the gravel placers for gold? Shall we freeze because the coal miner might make a profit on coal?

Let no one think that there is unjust prejudice against the legitimate and well-guarded use of bank credit currency, but no one will deny that it is the most subtle and dangerous form of inflation known to the world, and capable of being used to the greatest injury of mankind, especially when the reserve of money of redemption is admitted by all to be inadequate, as is the case with gold.

With all the gold and all the silver the world will still be scantily supplied and the arts will more and more encroach on the stock accumulated.

If, at the coming session of the international conference, England, Germany or France also agree, well and good. If not, let us lead the way alone and the world will follow. Otherwise, the metallic base for money, or automatic theory, will be forever destroyed by the calamities which will follow and overwhelm us in the attempt to do the business of the world on bank credits resting on the basis of diminishing gold, for the benefit of "financiers."

Linwood, Kas. W. A. HARRIS.

The watering trough is apt to be neglected and become more or less foul during the hot weather. See that it is clean and the water pure.

Horticulture.

HORTICULTURE AND HEALTH.

By Mrs. A. Chandler, read before the Missouri Valley Horticultural Society, May 20, 1893.

The subject given me was "Horticulture and Health." It seemed to me that I could have done more justice to almost any other subject, for as yet we are only amateurs in horticulture. What could I write, where begin, so much has already been written? What new idea could I advance? I went to the dictionary and looked up the word "Horticulture," hoping to find some voluminous definition, as Webster sometimes gives, that would set my dormant mind to thinking. What definition did I find? Simply this—the cultivation of a garden.

The subject is so comprehensive and far-reaching that it extends far, far beyond the limits of a garden, and indeed I think it can justly be said its limit has not yet been found. Some one has defined it as a "fine art to agriculture." And so it is. But especially horticulture brings to my mind fruits, flowers and vegetables.

It is conducive to health in many ways. There are three thoughts in this connection that I felt sure of: First, physical labor, which is a health-giving power. Second, food for the body, as pertains to nourishment, and third, but not least, food for mind. When I refer to the first, physical labor, as a health-giving power, I do not refer to that class of country folk that count the accomplishment of their day's work by the number of hours they put in, rising before daylight, get the good housewife up, breakfast by lamplight, or else lose their good reputation as farmers. Breakfast over, sit around and wait for daylight, then saunter out and in that slow, easy-going way get in their full sixteen hours labor. Supper by lamplight, then go to bed, to let tired nature have its rest. And thus repeat from day to day, with no thought of recreation or cultivation of the mind, until the back becomes bent and joints stiffened. Nor do I refer to that class of farmers who spend half of their time going to town, standing on the street corner talking politics with a smothered hope that they might in some unexpected way be elected to some county office.

There is a golden mean, and we must all admit that a judicious amount of exercise is essential to health, and there is no employment so well calculated to strengthen the muscles, broaden the shoulders and build up a strong, healthy body as that of horticulture.

As food for the body, some one has said, "Horticulture is as necessary to health as sunshine is to plants." Its products are not only adapted to the strong, but to the invalid, as well. A famous physician of New York city was such an enthusiast on the subject of fruits that it was his custom to terminate his spring course of lectures with a strawberry festival. "I must let the class see," he said, "that we are practical as well as theoretical." The health-giving properties of fruits are becoming more generally known and appreciated. This we know from the increasing demand, and in almost every paper we pick up we see some paragraph recommending more fruit, less meat. Hence, if we made more use of fruits and vegetables we might become quite independent of the butcher, patent medicine and the doctor.

Right here is presented another thought—health to character. But for fear my essay will grow too lengthy, I will not classify it, only make a mention of one thought: Our diet helps to form character. For example, take the savages. Their food is chiefly meat; their nature warlike and bloodthirsty. And those nations that have a vegetable diet are peaceable and harmless.

Third, but not least, is food for the mind. "To him who in the love of nature holds communion with her visible forms she speaks a various language." Who is there that has ever gone into an orchard laden with luscious fruit and not been electrified with feelings of enthusiasm, and in ecstasy

proclaimed their wonder and delight? And if this feeling is produced by an occasional visit to a farm of horticulture, what must be the influence upon those that are in constant contact with such handiwork of a Supreme Being? Is it not elevating and uplifting? And is there not such a thing as living in a higher plane than the average man does? I believe there is. To a thoughtful person that sees and admires God in every work of nature, and thus beholding his grandeur, might and power, he forgets the trivial things that perplex, the little worries that are so wearing and making deep furrows in the once placid brow. The mind will become more tranquil, and as I believe the condition of the mind more or less affects the health, the body will grow stronger and life more beautiful.

The influence that horticulture has in the education of the young is not only beneficial, but refining. When I think of little children it always seems to me that they should naturally be associated with country life, where they can have freedom, pure air, wholesome fruit and all the beauties of nature, and then if the laws of nature are observed and there is no hereditary disease, what reason that they would not develop and mature healthy bodies?

Then, as age creeps on, and we know to a certainty that "Life is real, life is earnest," our minds will naturally turn backward, and if our childhood has been one of pleasant surroundings, there will be rich food for the mind, a happy reflection, and, perchance, a solace.

I close my random thoughts by quoting from E. P. Roe's book, "Success With Small Fruits," which more forcibly expresses my idea than I can possibly do it myself. Thus he writes: "One of the sad features of our time is the tendency of young people to leave their country homes, and too often one does not need to look far for the reason. Life at the farm-house sinks into deep ruts and becomes weary plodding. Nature demands that young people should have variety, and furnishes it in abundance. The stolid farmer too often ignores the nature and the cravings of youth, and insists on the heavy, monotonous work of his specialty early and late, the year around, and then wonders why, in his declining years, there are no strong young hands to lighten his toil. The boy who might have lived a sturdy, healthful, independent life among his native hills is a bleached and shallow youth measuring calicoes and ribbons behind a city counter. The girl who might have been tenderly sheltered under the tree-shadowed country home often disappears under much darker shadows in town. But for their early home life, so meager and devoid of interest, they might have breathed pure air all their days." Again he writes: "A farm without a fruit garden may justly be regarded as a proof of a low state of civilization in the farmer. No country home should be without such simple means of health and happiness."

Immediate Effect of Cross-Fertilization.

EDITOR KANSAS FARMER:—The article from Fred. W. Card, which you quote in a recent issue, presents a very practical view of cross-fertilization; a view upon which enough stress has not been laid. In the popular mind the object and end of cross-fertilization is to produce hybrids and new varieties. How uncertain and unsatisfactory are the results in this direction has not been better emphasized than in Prof. L. H. Bailey's recent work on "Cross-Breeding and Hybridizing." But people are beginning to understand that there is an immediate effect of inter-pollination more useful and more reliable than the mysterious possibilities of producing new varieties. The example of the pear orchard cited by Mr. Card is a striking example of this fact that foreign pollen often invigorates a blossom to the production of more and better fruit.

When Mr. Card's paper was first published in the report of the Western New York Horticultural Society, I wrote to Judge F. Wellhouse, of Kansas, asking him if he had ever made similar observations. In his reply he mentioned the case of a row of Mis-

souri Pippins adjoining a row of Cooper's Early apples, which bore a third more every year than other trees of the same variety. This was true as long as the Cooper's Early were in bearing; but since the Cooper's Early were killed the same row of Missouri Pippins have borne no more than other trees of the same variety. Judge Wellhouse remarks that he is not prepared to say that the increased yield in question was due to cross-fertilization with the Cooper's Early, but he has always thought it was. Again the Judge says: "We have had trees in the interior of blocks that have failed to bear some years, but I am not able to say that it was for the want of proper fertilization, though it may have been."

Some of the most striking results are reported by an experimenter no less able than Charles Darwin. In Table F, Chapter IX., "Cross and Self-Fertilization in the Vegetable Kingdom," he summarizes comparisons of cross-fertilization with self-fertilization in thirty different species and varieties of plants, giving the "relative fertility of the flowers on parent plants used in his experiments, when fertilized with pollen from a distinct plant and with their own pollen, fertility judged of by the number of seeds per capsule," or by weight of seeds.

In the table the ratio of fertility crossed compared with in-bred flowers, range from 100:14 to 100:150. However, there were only three sorts in which the fertility of in-bred flowers was greater than that of cross-bred, and six others in which the fertility seemed to be equal. The remaining twenty-one sorts gave better results from cross-fertilization. There is no logical justification in taking a simple average of all the ratios, but it is an interesting thing to do. I have computed this average and find that it is 100:77.5. If this measures, even roughly, the fact, we conclude that cross-fertilization gave an average increase of fruitage amounting to 33 per cent.

It is well to note the wide range of ratios and see that certain species give especially good results under this treatment. Thus, while tobacco gave 50 per cent. more seed under self-fertilization, the common wild flower, known as "Butter and Eggs" (*Linaria vulgaris*), gave 714 per cent. increase of seed when cross-fertilized. In actual practice one would not need to encourage crossing with a species to which that process seems repugnant. On the other hand, it might be one of the most practicable of cultural operations to induce cross-fertilization with fruits which shall be shown to thrive by it.

F. A. WAUGH.

Oklahoma Experiment Station.

Bureau of Information.

"The Burlington" has recently established in a convenient quarter of its elegant and commodious passenger station at Chicago, an office designed to afford travelers information on the thousand and one things they need to know, with regard to routes, rates, connections and accommodations. It has been placed in the hands of an experienced man, supplied with all railway guides, maps and time-tables, and is known as the "Bureau of Information."

It is a place to which all travelers may apply for information and receive a full and correct answer. This is the only office of the kind west of the sea-board cities; and it cannot but prove a convenience to the traveling public. All trains of the "Burlington" enter and depart from this station, and the intelligent and valuable service of the bureau may be enjoyed by all patrons of this line.

A special pamphlet will be issued by the "Burlington" in the near future, giving accurate information as to "How to get to the World's Fair Grounds." How to secure rooms and board at the various hotels, boarding and lodging houses.

Trustworthy agents will be at the C. B. & Q. depot in Chicago to impart all information to visitors. Arrangements will probably be made by which some trains will be run direct to the World's Fair grounds without change or delay.

As an outsider, the greatest need of Kansas in my judgment is a good, healthy "fool-killer," and have him enter upon his duties and follow it up until there is a large amount of vacant land left for men who are willing to farm and not be statesmen.

Farm Loans.

Lowest rates and every accommodation to borrowers on good farm loans in eastern Kansas. Special rates on large loans. Write or see us before making your renewal. T. E. BOWMAN & Co., Jones Building, 116 W. Sixth St., Topeka.

Entomology.

Conducted by Prof. E. A. Popenoe, State Agricultural College, Manhattan, Kas., to whom queries about insects and specimens for determination may be sent, with request for reply in this paper. Answers will be published as soon as possible, and unless of immediate importance no other reply will be made. Always send several specimens, where possible, with statement of habits observed and, with the plant-feeders, parts of the plant attacked, where its name is not certainly known. Specimens may be packed, if small, in a quill; if larger, in a tight tin or other box, strong enough to prevent crushing in transit, and never loose in a letter. The package, addressed and marked with the name of the sender, without other writing, is mailable at the rate of 1 cent per ounce, prepaid.

I have enclosed to you a plant which I have introduced on my farm in clover seed. I would like you to tell me through the KANSAS FARMER what it is and what you know of it as a weed. Stock eat it in pasture and in the hay. It seems very aggressive.

Maple Hill, Kas. L. A. KNAPP.

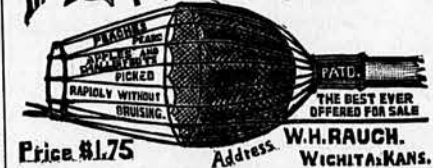
Answer.—The weed in question is the rib-grass or lance-leaved plantain (*Plantago lanceolata*), a native of Europe, but extensively naturalized in our country, being introduced into new localities usually in clover seed, as its seed is so nearly the size and weight of that of red clover that their separation is difficult. Although, as found by our correspondent, it is readily eaten by stock, its nutritive value is small and it spreads so rapidly that few will knowingly sow its seed. It has a perennial root, and except in small grass plots, where it may be dug out plant by plant, there is no feasible method of ridding the field of it except by planting to cultivated crops. The seed of the plantain is not at all like that of red clover in shape and color, being oblong, convex on one side and concave on the other, shining, brown or amber colored. Samples of clover seed, in which this pest is also found, should be rejected by the planter.

"German Syrup"

"I have been a great sufferer from Asthma and severe Colds every Winter, and last Fall my friends as well as myself thought because of my feeble condition, and great distress from constant coughing, and inability to raise any of the accumulated matter from my lungs, that my time was close at hand. When nearly worn out for want of sleep and rest, a friend recommended me to try thy valuable medicine, Boschee's German Syrup. I am confident it saved my life. Almost the first dose gave me great relief and a gentle refreshing sleep, such as I had not had for weeks. My cough began immediately to loosen and pass away, and I found myself rapidly gaining in health and weight. I am pleased to inform thee—unsolicited—that I am in excellent health and do certainly attribute it to thy Boschee's German Syrup. C. B. STICKNEY, Picton, Ontario."

Strawberries -- Wanted: To let berry-growers know that our new Robinson strawberry is the ideal for market purposes. Is large, strong, staminate, firm as Captain Jack. 700,777 plants of other well-known varieties for sale. Send for price list. B. F. SMITH, Box 6, Lawrence, Kas.

The Royal Fruit Picker.



Price \$1.75

Address W.H. RAUCH, WICHITA, KANS.

FAT PEOPLE reduced by new process, safe, sure and lasting. No drugs. No cure, no pay. Advice free. Perrine & Co. Boston, Mass.

CLUB FOOT Dr. Hartman's treatment for Club Foot. Book free to all afflicted. Address SURGICAL HOTEL, Columbus, O.

CANCER Can be cured by Drok Method. No knife, no pain. Book free. Address PINGREE & TREAKLE, 241 Wabash Ave., Chicago.

In the Dairy.

GILT-EDGE BUTTER FRAUD.

For several years the farmers of the country have been tempted to invest in various secret nostrums which it was claimed would increase the yield of butter. In the annual report of the department for 1891 an analysis of a sample of this kind and a description of its effect in increasing the apparent yield of butter were given. The report was as follows:

Mr. H. J. Fish, Superintendent of the Producers' Dairy Company, 324 B street southwest, Washington, D. C., brought to me a sample of genuine butter, together with a sample of artificial butter, prepared by taking equal parts, by weight, of the genuine butter and milk and churning them together, with the addition of a small quantity of the substance known as "gilt-edge butter compound," from the Planet Manufacturing Company, of Wichita, Kas. The directions for the use of this compound are to take a pint of fresh unskimmed milk and as much of the compound as you can heap on a silver 10-cent piece, and thoroughly mix the compound and milk together in the churn with as much salt as is necessary to salt one pound of butter. Add to this one pound of soft butter, and churn until the whole mass has come to butter, when you will have two pounds of butter and no milk. It is directed that the genuine butter should not be melted but made very soft and pliable, so that the churn-dasher will easily go through it. The milk should be warmed to the temperature at which it is taken from the cow. The churn should always be scalded or warmed sufficiently to prevent chilling the milk, plenty of salt added, and butter color, if used, before churning. It is particularly enjoined that the butter should not be worked, but should be made into rolls and put into jars and set away in a cool place to harden.

The sample of genuine dairy butter which was furnished with the compound was found to contain—

	Per cent.
Water.....	15.92
Butter fat.....	80.53
Ash.....	.38
Curd and undetermined.....	3.17

This represents a fair sample of butter, with the exception that the water and curd are a little higher than the average. In the premium butters obtained at the Chicago Dairy Show in 1889, the percentage of moisture varied in ten samples from 8.69 per cent. to 11.86 per cent.

The artificial butter prepared from the above by the Producers' Dairy Company was subjected to analysis, and the following numbers were obtained:

	Per cent.
Water.....	49.55
Butter fat.....	45.45
Ash.....	1.34
Curd and undetermined.....	3.66

It would appear from the above that the artificial butter had been made by churning the pure butter with a very dilute milk.

There was no doubt at all that the gilt-edge butter compound would do what was claimed for it, inasmuch as Mr. Fish had made the butter himself according to the directions.

The compound was also submitted to a practical test in the laboratory of this department, and it was found that with one pound of butter, one pint of milk and about one gram of the butter compound two pounds of material could easily be made, which resembled very closely a first-class article of butter, except that it was considerably softer.

It was at once suspected that the compound contained some emulsifying substance, either of a mineral nature or some organic ferment. On subjecting the butter compound to analysis it was found to contain 70.48 per cent. of anhydrous sodium sulphate and 29.52 per cent. of organic matter. This organic matter responded perfectly to the test for pepsin, and part of it was undoubtedly pepsin; whether a pure pepsin or a crude form was not determined. Having established the fact that this was pepsin, experiments were made with pepsin and other digestive ferments, viz., pancreatin and trypsin. These bodies act as pepsin,

and produce an emulsion which enables butter to incorporate an equal weight of milk in its substance without materially altering its appearance. The experiments were also tried with rennet, and it was found to act in the same way; whence it may be concluded that all the digestive ferments, when beaten up with milk and butter in the manner indicated, will produce an emulsion, apparently causing the milk to entirely disappear.

The gilt-edge butter compound is colored pink, with some organic coloring matter, in order to obscure its real nature. The anhydrous sodium sulphate seems to be added simply as a carrying material, and it is not supposed to produce any active effect in the emulsifying process; in fact, pepsin, pancreatin, trypsin and rennet used without anhydrous sodium sulphate produce exactly the same emulsifying effect as the gilt-edge butter compound.

By this simple device the unprincipled dealer could easily impose upon his customers, furnishing them with an article of butter containing only half of the portion of that substance without greatly diminishing its price. The keeping properties, of course, of the emulsified butter would not be very great, but for rapid home consumption this would not be noticed.

The Poultry Yard.

Poultry Raising.

EDITOR KANSAS FARMER:—Last winter I wrote to the KANSAS FARMER, asking the sisters for their experience in the use of incubators, but no one responded. We concluded to try the old hen another year, with the following results: We had 200 hens. We sold \$13 worth of eggs during the winter. The hens laid but little until March. We now have 650 young chicks and forty turkeys. If any of the sisters have had better "luck" let us hear from them.

We have no elaborate hen-house, but have an orchard of one acre fenced tight for a run for small chickens.

We will be pleased to hear of the success of the FARMER sisters.

KANSAS HOUSEKEEPER.

Incubators and Brooders.

Before the general introduction of incubators and brooders, the farmer who kept any of the non-sitting breeds was sometimes at a loss to know how to get his chicks hatched in the spring. Many felt this to be a misfortune, for it was easy to demonstrate that the non-sitters were among the most profitable breeds to keep, as they kept on laying during the whole season, while the sitting breeds got broody in the spring, and if allowed to sit lost three months in hatching and rearing a dozen chicks, or if prevented from sitting loafed for from one to two months before getting ready for business again. Now that the skill of our inventors has succeeded in getting incubators so perfect that any one with ordinary intelligence can use them successfully, and so low in price that any one who keeps a hundred chicks can afford to purchase one, there has arisen a great demand for the non-sitting varieties. The argument used is that Leghorns or Hamburgs will lay more eggs on less food than the sitting breeds and sell for just as much a pound in the market, and are therefore more profitable and the ones that should be kept.

Brooders are used by thousands who use hens to hatch their chicks, because it has been found less trouble to raise fifty chicks with a brooder than a dozen with a hen, and the chicks do better. The artificial method is gaining in favor and we shall have more to say about it in the future.—M. P., in *American Farmer*.

The Poultry Trade.

This is a very interesting subject and closely rivals the cattle interests of the United States in volume and in dollars and cents, as reference to the United States statistics show; in many of the Eastern States the poultry business exceeds the cattle business in amount.

Highest of all in Leavening Power.—Latest U. S. Gov't Report.

Royal Baking Powder

ABSOLUTELY PURE

There are, no doubt, more pounds of poultry sold on the market square in Kansas City than there are of beef, to say nothing of eggs. There are car loads of dressed and live poultry shipped from Kansas City and other parts of Missouri, and from the State of Kansas to New York and other markets. There are many firms in large cities that do nothing else but handle poultry and send out poultry cars built for this purpose, so arranged that the fowls can be put into separate compartments and watered and fed at pleasure. One of these cars holds about 5,000 chickens, at an average weight of 35,000 pounds.

The large breeds are most valuable for shipping purposes, as they are sold by the pound; it costs no more to produce a good fowl than it does an inferior one that you are compelled to take half price for. There is a chicken raiser inside the corporate limits of Kansas City who has made \$30,000 in the chicken business within the past six years. Many of the Western farmers pay for all their groceries and store bills with eggs and fowls; others make more money off of fowls than they do on their farms, while in the Eastern States they make fortunes on farms too poor for any other purpose.

A hen lays many times her own weight in a year, and pays for herself five times over, and is ready for the market at the end of the year.

To the World's Fair.

Save time and avoid the crowd in the city by buying tickets over the "Great Rock Island Route" and stop off at Englewood near the World's Fair gate. Electric line from the "Rock Island" depot direct to the gate. Time, ten minutes. Fare, 5 cents. You can check your baggage to Englewood and avoid trouble and save expense, as Englewood is in the great suburban hotel district near the fair, and you can have your baggage sent to your quarters at once.

Remember, the Chicago, Rock Island & Pacific is the World's Fair line for reasons given above. JOHN SEBASTIAN, Gen'l Ticket and Passenger Agent.

East from St. Louis via Pennsylvania Lines to Mountain and Ocean Resorts.

Advantages peculiar to the Vandalia and Pennsylvania lines make them the desirable thoroughfares from St. Louis to Bedford Springs, Altoona, Edensburg, or any of the delightful summer havens in the cool Allegheny mountains. By no other route can Cresson, the ideal retreat on the crest of that romantic mountain range, be reached, as the Pennsylvania is the only direct line to it, and the only one leading past the Pack Saddle and the Allegrippus, around the famous Horse Shoe Curve, and along the Blue Juanita, the richest of America's scenic gems. For reaching Atlantic City, Cape May, Asbury Park, Long Branch, Ocean Grove, Sea Girt, Elberon, Ocean Beach, Berkeley, Newport, Narragansett Pier, Martha's Vineyard, Nantucket, or any of the numerous watering places that dot the Atlantic seaboard, these lines are particularly desirable. For a trip to the Adirondacks, the Catskills and resorts in northeastern New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire and Maine, exceptional facilities for a delightful journey are offered via this direct route, over which three fast through trains run daily to the East from St. Louis as follows: 8:10 a. m., 8:40 a. m., 9:00 p. m. The service includes Pullman vestibule sleeping and dining cars. For details address Chas. E. Owen, Traveling Passenger Agent, Kansas City, Mo.

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and feed PREPARED CRUSHED OYSTER SHELLS. One pound will make shells for seven dozen eggs. 90 per cent lime in egg shells. 92 per cent lime in oyster shells. Natural result—more eggs, thicker shells, healthy chickens, longer period of laying. Ask any doctor, chemist or poultry fancier. They will endorse it. One hundred pound sack, \$3; fifty-pound box, \$1.75. H. C. NICOL, 515 Walnut St., Kansas City, Mo.

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And all other Diseases of the Rectum cured by Drs. Thornton & Minor, Kansas City, Mo., without knife, ligature or caustics—no money to be paid until patient is cured. We also make a specialty of Diseases of Women and Diseases of the Skin. Beware of all doctors who want any part of their fee in advance, even a note. In the end you will find them expensive luxuries. Send for circular giving names of hundreds who have been cured by us, and how to avoid sharpers and quacks. Office, No. 100 West Ninth Street. Rooms 30-31-32 Barker Building.

The Family Doctor.

Conducted by HENRY W. ROBY, M. D., consulting and operating surgeon, Topeka, Kas., to whom all correspondence relating to this department should be addressed. This department is intended to help its readers acquire a better knowledge of how to live long and well. Correspondents wishing answers and prescriptions by mail will please enclose one dollar when they write.

Unspoken Language.

"The dumb shall speak," said one of old. "Though he were dead yet shall he speak." Let a smoking thunderbolt crash through a protruded tongue and still a man may speak a mighty language. Let them be both deaf and dumb and yet men speak and hold high converse. We commune many times when lips and pen are silent as the grave. Let two strangers meet in a crowd, or drawing-room, and, though no word be uttered, they straightway begin communication in an unmistakable language, one saying, with the eye and general demeanor, "I would like to be acquainted with you; to throw off all the conventionality and social restraint that seeks to keep us strangers, and to be friends from this happy auspicious moment." And the other straight replies, in language uttered through the eyes, "So would I. Introduce yourself and we will be friends from this moment." Thus do children quick commune who never knew the formality of an introduction. And after the eyes have introduced them, the laggard tongues begin to wag. And when they part, hand gently touching hand, they declare, unheard, "Friends evermore we stand." That simple hand-clasp told what the tongue could not have framed to utter. In sooth, the tongue is the most laggard, sluggish oracle of all the faculties. In the few square inches of a human face may be read the weal or woe of an immortal soul. Nay, the whole body is but a bundle of tongues. The hairs on your head have a tale to tell. The walk, the pose, the poise, and equipoise, speak an unmistakable language. What can the hand not say? The uplifted finger awes a crowd to silence. The hand may fling defiance to an enemy who thereupon accepts or flies the challenge.

When Sir William Bell wrote his famous treatise on the human hand, he left out some of its most potent functions. Through the finger tips we may send messages that banish pain, that soothe and woo the inner man; may send the quaking frame to sleep and lull the keenest pain and tranquilize all fear, and bring so sound a sleep that limbs may be severed without pain. Between the touch of eye and hand maniacs and wild beasts are quelled.

Every movement of the body has something to say. You shall know whether a friend is glad to see you by the way he or she comes to greet you, though the face be wreathed in smiles and the tongue drip honey. Many say with tongue, "I am glad to see you," while every lineament else says "nay."

What mystery of mysteries the eye! More eloquent than tongues, more potent than a monarch's crown. It is the house of glass where dwells the soul, and through its lucent walls you see the tenant at his work or worship. Look at the madman's eye and see confusion in its chambers. You know and read the tenant at a glance. Some things that we dare not utter in a whisper, the eye will shout with the energy of a town crier. An eye can hit you harder than a base ball, and put you in more terror than a loaded gun. The keenest insult known in life springs leering from the eye. What power for weal or woe! It is the most uncompromising magnet known in life, holding like a loadstone to itself. It makes the heart to dance and sing with joy, or makes you wish your soul had fled and left its tenement of clay. The eye can give and take the measure of a man, soul and body, quantity as well as quality. It makes the last analysis where chemistry has failed. No shackles less than death can bind the eye. For, like an eagle, it can cleave and flash and lead the storm, and stir the tempest. It's light, like blazing sun, can scorch and wither. Like a great ship it may carry whole cargoes of thought and emotion from the open port of one soul to another. And what a nimble-tongued interpreter it is. It swift transcribes the thought of all mankind. Where diverse tongues are dumb or all confounded, as at the tower of Babel, the eye still holds communion unto man. It telegraphs from you to me when all the cables in the sea or air are mute. It plays detective and reveals at once who stole your heart before the sluggish tongue can sound the tocsin or accuse the thief. It runs on before and warns you that the tongue will later utter some defiance or bequest. When the soul lights up the adytum, your searching eye shall see the magi at the altar and it shall hear the oracles which your dull ears have missed. Within it shines "the light that never was on land or sea." Before Napoleon's gleaming eyes 30,000 outlaws of Paris became the most valiant troops of France. More terrible than an army with banners were the eyes of that Egyptian woman who, when men and sabres failed, still scaled the ramparts and cap Antony and Rome. It was

Portia's eyes that told Bassanio which casket he should choose, and Patrick Henry's blazing orbs rained greater consternation on the colonists than all the clarion tongues of war.

No wonder the Masons, in their beautiful symbolism, make "that all-seeing eye" the symbol of the judgment seat and God. Through the eye we front with Shakespeare on the printed page, and walk with Herschel through the vaulted sky.

New Books.

Still another new and useful book is "Outlines of Forestry," by Prof. E. J. Houston, and published by Lippincott, at \$1. The book treats of the elementary principles underlying the science of forestry. The book is well written, is comprehensive, and will be a valuable acquisition to every thinking farmer. The thinking farmer is a reading farmer, and the reading farmer, like the reading doctor, lawyer, merchant or mechanic, is a far more successful man than his haphazard neighbor.

Among the new books on our table, is one on "The Hawks and Owls of America," by Dr. A. K. Fisher, assistant United States ornithologist. The whole 210 pages are filled with pictures and interesting and instructive reading matter. From these pages we learn that hawks and owls are a great blessing to the farmer, instead of a curse, as he so often fancies. They do a great amount of good in their continual warfare on rabbits, field mice, gophers, moles and the really destructive birds that prey upon our crops and fruits. Any farmer can well afford to allow a hawk an occasional chicken in return for the great protective service he is to the crops and fruits about the farm. Every farmer ought to have a copy of the book, so he might become better acquainted with his friends.

"Forest Planting" is another book every farmer should have. It is written by Prof. H. N. Jarchow, and published by the Orange Judd Company, New York. The book discusses the relation of forests to government, to animal life, to rainfall and drouth, to fertility, to drainage, to cultivation to storms, floods, and the sanitary condition of the country. In these years of floods and storms, cyclones and drouths, thoughtful men all over the country are devoting far greater attention to forestry than ever before, and especially in the West, where we have most need of forests. All over our broad prairies and arid regions, timber and water are the crying needs of the people, and if as much time and money were spent on trees and water as is now spent in politics, the seeming need of a new political era would be forgotten in the bettered condition of our people. All over our plains we need wood and water. The one we can grow and the winds will raise the other if we put on them the proper harness and task. Every farm can have its grove of timber and its ponds or lake of water and a new salubrity.

Chicago, the Fair and the Fire.

One of the most remarkable facts noticeable among the great influx of visitors to the fair is their keen interest in the great city, her past history and present wonderful growth, and the marvelous rebuilding that has taken place since Chicago was swept away by the flames of the fire of 1871. This is nowhere more manifest than at the Cyclorama of the Chicago Fire, Michigan avenue and Madison street, where the beautiful effects that the artists have secured in painting the great conflagration are like nothing ever yet shown in cycloramic work; the burning embers, hurled through the air by the hurricane that was blowing on that memorable October day, the toppling walls, portions of which are shown in mid-air, blown there by an explosion of giant powder, clouds of ruddy hue, tinted by the flames, the shadows of which are dancing on the doomed buildings—all so realistic as to be startling in their effect, and one can almost imagine the work of destruction to be at the moment going on. The visitor to Chicago will find this one of the most interesting exhibitions in the city.

Weekly Weather-Crop Bulletin.

Issued by the United States Department of Agriculture, in co-operation with the Kansas State Board of Agriculture, for the week ending July 3, 1893; T. B. Jennings, observer:

The State in general has been well watered, the rains being well distributed in time and fairly well in area. The rainfall was heavy in Logan and Wichita counties, and eastward through the Smoky Hill and Saline valleys; it was very heavy from central Jewell southeastward to Allen; it was extremely heavy from Abilene, in Dickinson, to Westphalia, in Anderson, in which area it amounts to upwards of seven inches, but the most interesting feature of the week was the cloud-burst occurring between midnight and 4 a. m. of the 26th, extending from the head of Badger creek in Lyon county to the head of Hickory creek in Coffey, wherein upwards of eight inches of rain fell in three hours time. Light rains from Ford to Kingman, and in the extreme southeastern counties.

The temperature and sunshine were slightly deficient in the eastern counties, but normal in the central and western.

The weather has been decidedly beneficial, except in the Neosho valley and the southern part of Kingman and in Cherokee.

The wheat harvest is practically over in

TOBACCO HABIT

For sale by all first-class druggists, or sent by mail on receipt of \$1.00. Ask for HILL'S Tablets, and take no others. Particulars free. THE OHIO CHEMICAL CO., 51, 53, and 55 Opera Block, LIMA, O.

HILL'S CHLORIDE OF GOLD Tablets will completely destroy the desire for Tobacco in any form in from 3 to 5 days. Perfectly harmless, cause no sickness, and may be given in a cup of tea or coffee, without the knowledge of the patient, who will voluntarily stop smoking or chewing in a few days.

EASILY CURED

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MILWAUKEE STEEL JUNIOR No. 10



Has won for itself the reputation of being the lightest, easiest handled, and most perfectly balanced Harvester and Binder manufactured. Its single lever reel, raising and lowering device, and carrying spring has no equal. Never before has a Harvester and Binder met with such grand success. It has an end drive sickle, one lever self-balanced reel. A spring carries the entire weight of the machine. It has no side-draft, and weighs only 1250 pounds.

MILWAUKEE CHAIN POWER MOWER.

Its perfection is guaranteed. It is the strongest and lightest running Mower manufactured. No side-draft. No weight on horse's neck. Cutter bar can be raised by either hand or foot lever. Has a spring to float the bar.

We invite your inspection before purchasing. Catalogue mailed free to any address.

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H. P. DILLON, President.

ORGANIZED 1882.

J. W. GOING, Secretary.

Shawnee Fire Insurance Company

TOPEKA, KANSAS. A strong Western Company. Insures against fire, lightning, wind storms, cyclones and tornadoes. Losses paid, over \$105,000. Agents wanted everywhere in Kansas.

the southern counties east of Comanche, and threshing has commenced; further north it has progressed far towards completion, though through Coffey northwest to Mitchell but little could be done. In Riley wheat, cut and standing, is in bad shape on account of wet and hail; in Mitchell it is yielding from five to twenty bushels per acre; in Jewell it will not return the seed; in Cherokee rust has greatly damaged the crop; in Allen early wheat is fine but rust and bugs have greatly shrunken the late.

The corn is in very good condition in the eastern and central counties; it is tasseling in the southern; it is threatened by chinch bugs, which are leaving the small grain for the corn fields, north to Riley and west to Ford. In the western counties Jerusalem corn and broomcorn are in good shape.

The oats harvest is progressing in the south, and the flax harvest has begun; in Coffey the oats are greatly improved in spite of the immense rain; in Cherokee and Labette they are badly rusted; they are ready to cut generally in the eastern half of the State.

The grass goes on improving in the eastern half of the State, while in the western it is greatly changed for the better; in Gove the prairie is turning green for the first time this spring or summer; in the eastern part of Logan grass is starting in fine shape for the first time this summer.

The week has been a good one for fruits of all kinds. In Cowley early peaches are in market in abundance, quality fair. In Harvey early apples are in the market; in Coffey there are but few peaches while the apple crop will also be short, some trees being full, others in same orchard having but few or none. Riley reports no fruits but grapes.

Piles! Piles! Piles!

Not piles of worthless stuff, but Steketee's Ointment and Pile Remedy combined will cure the worst case of Piles in any form, and have plenty left to cure burns or any sores on man or beast. Was never known to fail to cure sore breast and scratches on horses. All for 35 cents. Do not pay \$1.00 when you can have this for 35 cents. For sale by druggists, or on receipt of 35 cents in U. S. postage G. G. Steketee, Grand Rapids, Mich., will send it. Cut this out and take it to a druggist first; 3 boxes for \$1.00.

Make Your Own Bitters

On receipt of 30 cents, U. S. stamps, I will send to any address one package Steketee's Dry Bitters. One package makes one gallon best tonic known. Cures stomach and kidney diseases. Now is the time to use bitters for the blood and stomach.

WHEATON, Ill., December 7, 1890. MR. STEKETEE:—Your Dry Bitters has no equal for kidney or liver complaint. Have been troubled for the past ten years. Find your bitters excellent. FRANK SCHUSLER.

Send G. G. Steketee, of Grand Rapids, Michigan, 30 cents, U. S. stamps, and we guarantee that he will send at once.

C MONEY \$20 for 1; \$50 for 2; \$100 for 3; \$200 for 5; \$500 for 10; \$1,200 for 20. Address P. O. Box 2, Huntington, N. Y.

WASHBURN COLLEGE,

TOPEKA, KANSAS. For both sexes. College and Preparatory courses—Classical, Scientific, Literary; also a Normal course, Vocal and Instrumental Music, Drawing and Painting, Oratory and Elocution. Twelve instructors. Facilities excellent. Expenses reasonable. Fall term begins September 13, 1893. Address PETER MCVICAR, President.



And School of Shorthand, Typewriting, Telegraphy and Penmanship.

A superior school. Broad courses and thorough work. Best place to master penmanship! First business branches. Reasonable tuition. Board \$1.50 and upward per week. Rooms 30 to 50 cents. Come, and you will not regret it. Elegant illustrated catalogue of particulars free, by mentioning KANSAS FARMER. PARKER & GOLD, Emporia, Kansas.

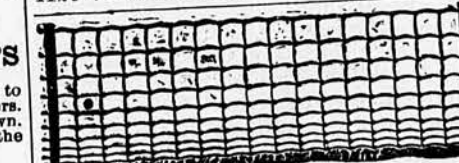
EPILEPSY OR FITS

Can this disease be cured? Most physicians say No!—I say Yes; all forms and the worst cases. After years study and experiment I have found the remedy. Epilepsy is cured by it; cured, not subdued by opiates—the old, treacherous, quick treatment. Do not despair. Forget past impositions on your purse, past outrages on your confidence, past failures. Look forward, not backward. My remedy is of to-day. Valuable work on the subject, and large bottle of the remedy—sent free for trial. Mention Post-Office and Express address. Prof. W. H. PEEKE F. D., 4 Cedar St., New York.

World's Fair.

Accommodations in substantial Stone and Brick buildings, both in the WORLD'S FAIR DISTRICT and just outside. We can suit ALL tastes and pocketbooks. 65 cents a day up; meals, 30 to 50 cents. Harvey Hotel receipts for \$3 or less, received as cash.

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All Men Equal before the law and "the Page"

A millionaire writes—"Perfect in every particular." An extensive breeder—"We shall build no lar." An abhorring man—"It keeps out my neighbors." A lady—"Gives dogs no dog fence." A ranchman—"The cheapest, reliable hog fence." A R. R. President—"The best fence we have ever used."

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

The Apiary.

Edited by REV. E. T. ABBOTT, St. Joseph, Mo., to whom all communications relating to this department should be addressed. Inclose a stamp if you desire a reply by letter. We invite questions and communications from any of the readers of KANSAS FARMER who may be interested in bee culture.

Successful Bee-Keeping Not all in Hives.

"Which hive had I best use in order to secure a large yield of honey?" is a question often asked me, just as though the honey crop was entirely dependent upon the hive used, while an hour's talk with beginners will show that many seem to think that large yields of honey are owing entirely to the style of hive used, but this is not so. Hives have something to do with the yield of honey, of course, but nothing as compared with a thorough knowledge of the location we are in, and an understanding of how to apply that knowledge so as to secure the bees at the right time, that the yield of honey may be gathered to the best advantage when it comes.

The securing of the maximum number of bees just at the time the honey harvest is at its best, counts more toward a paying crop than all else combined in apiculture, and explains why one colony in the yard will give a large yield of honey while many of the others which we supposed were better than this, give very little.

Again, the manipulation of hives has more to do with the surplus crop than the hives themselves, for no matter how good the hive is, if the combs are never touched or the surplus room put on at the right time, all may count for naught to the would-be bee-keeper, and the flowers bloom in vain so far as any profit to us is concerned. In order that others should not get the idea that the hives used and recommended by our best and most successful apiarists would give them thousands of pounds of honey without work, I have often said that if any one could not spend the time on the bees which they required, they had better keep out of the business.

I know of no hive by which a man can secure large results by simply folding his hands and letting the bees work. Such is not the economy of nature, and in order to succeed in any calling in life we must put energy, industry and perseverance into our work, if we would reap a harvest worth the gathering. To work hard from twelve to sixteen hours each day, at mere physical labor, is not all that is required, either, as many assert by their actions, if not by words; but there must be an energy and push, mentally, sufficient to grapple with all of the unsolved problems which are in the way of our success. If these are all combined, there is no reason why bee-keeping will not give as good results for what is expended upon it as any other calling in life, even though it is not so supposed by the majority of the world.

I wish to leave the impression on the minds of the readers of the *American Bee Journal* that large yields of honey can only be secured where there are large numbers of bees in time for the honey harvest, and the securing of the bees at that time is the secret of success.—G. M. Doolittle, in *American Bee Journal*.

Among the Ozarks.

"The Land of Big Red Apples" is the title of an attractive and highly interesting book recently issued. It is handsomely illustrated with views of south Missouri scenery, including the famous Olden fruit farm of 3,000 acres in Howell county. It pertains entirely to fruit-raising in that great fruit belt of America, the southern slope of the Ozarks, and will prove of great value, not only to fruit-growers, but to every farmer and home-seeker in other States looking for a farm and a home. Mailed free. Address J. E. Lockwood, Kansas City, Mo.

Get up a club for the FARMER.

Gossip About Stock.

The first four months of a pig's life determine whether he is going to be a paying investment.

The World's Fair live stock show will be like a serial story, continued from day to day from August 24 to October 30, 1893. One chapter will be devoted to horses, another to cattle, a third to sheep, etc., the various kinds of domestic animals following one another, and not being exhibited at the same time.

The enterprise manifested by Wm. Miller's Sons, proprietors of Brookdale farm herd of Red Polled cattle, at Wayne, Neb., is quite refreshing during these dull summer days. They have in their local paper three columns of matter descriptive of their stock. They announce to their friends that they will show at the World's Fair, as well as at some Western State fairs.

The Kansas State fair folks are to try a new innovation this year, in that they will not open the swine department to the world, but will confine the prizes to Kansas herds only. The object is to put a little backbone into a number of Kansas breeders who do not like to compete with the professional show herds from Illinois. All other live stock departments will be open to the world's competition.

W. L. Block, an experienced stockman of Texas, writes the FARMER as follows: "Unless something is done to check the shipment of cows to market there will soon be a more serious shortage in cattle than was recently shown to exist in hogs, and it will require several years to correct the error that our producers are falling into for the want of correct information relating to the supply and demand of cattle."

Regarding the hog market, Campbell Commission Co. state that they "look for the hog market to rule strong, we having generally had this week an active and healthy trade, within a small range of fluctuation. Quite a shipping demand is springing up, which we are glad to see, as, in a measure, it takes the control of prices from one set of buyers and gives us a broader field to work in, and as there seems to be quite a sprinkling of hogs in the country ready to come, any advance is likely to attract them in, therefore we cannot look for any advance to be permanently sustained, especially for the near present."

G. F. Miller, who is at Chicago participating in the World's Fair dairy test, writes: "Thinking the following would be of some interest to your many readers, I send it to you: The twenty-five days footings of the ninety-day butter test of the three breeds contesting, viz., Jerseys, Guernseys and Short-horns, are as follows: Jerseys have made 1,200.37 pounds of butter; Guernseys, 1,066.49; Short-horns, 900.49. So it still looks as if the Jersey is the butter cow, but the other two breeds need not be at all disappointed, as they have done finely and everything is moving along in fine shape, and the attendance is increasing every day."

A special report of the Kansas City stock market to the FARMER states that top price on cattle one month ago was \$5.45 for 1,600-pound cattle; a week ago tops were \$4.75 for 1,400-pound cattle; to-day tops are \$5.00 for 1,449-pound cattle. Cattle of this latter weight a month ago brought about \$5.25, which shows a decline of about 25 cents per hundred on best steers. The decline on lower grade steers is much more, as they come in competition with the cheaper grades of grass beef. The last thirty days has witnessed a much greater decline in hogs. A month ago tops sold at \$7.10; a week ago \$6.07½; to-day \$5.90. The run of hogs continues good and packers and shippers seem to have no trouble in getting what they want. It looks as if lower prices were ahead. The advancing gait of the Kansas City live stock market is indicated by the fact that last Wednesday Texas cattle brought better prices here than in Chicago.

The National Swine Breeders' Association will hold its annual meeting in Assembly hall, World's Columbian Exposition, on Friday, October 13. This meeting, occurring during the last and most important week of the swine exhibit, will be largely attended. The programme, consisting of papers from leading breeders and prominent scientists, and treating on practical rather than theoretical matters, will be interesting and instructive. Individual swine breeders, as well as swine associations, should not fail to attend or be represented at this meeting, or if unable to be present, secure membership in the National Association, so that they may receive the benefits

of its proceedings, papers, discussions, etc., which will be published for use of members. The officers of the association are: President, S. E. Morton, Camden, Ohio; Vice President, E. C. Rouse, Homer, Michigan; Secretary and Treasurer, Jno. G. Springer, Springfield, Ill. Executive Committee—N. H. Gentry, Sedalia, Mo.; S. H. Todd, Wakarusa, Ohio; H. M. Sisson, Galesburg, Illinois.

As usual, A. C. Moore & Sons, Canton, Ill., lead the country with 500 high-class Poland-China pigs. This season's crop in this old established herd is made up of the get of the following great sires: Romeo 16223, Enterprise 7219, Moore's Goodenough 12039, Moore's Sweepstakes 15037, Razzle Dazzle 15399, Excelsior 20703, Daylight 18275, Moore's Perfection 9015. This affords abundant variety for any one.

The Foreign Hay Market.

EDITOR KANSAS FARMER:—We confirm our respects of 26th ult. and beg to inform you that hay has shown a slight improvement. Fine weather continues here, and as we have already intimated, the crop will certainly be a small one. We quote for American, \$4 10s to \$5 (\$1.90 to \$2.43 per ton of 2,240 pounds) per ton, according to quality. THOMAS IRVINE & Co. Liverpool, June 20, 1893.

MARKET REPORTS.

LIVE STOCK MARKETS.

Kansas City.

July 3, 1893.

No grain market to-day—holiday. There will be no market to-morrow.

CATTLE—Receipts, 5,400. Shipments, 4,100. Market steady. Texas steers, \$2 40@4 40; ship-pers, \$4 20@5 25; Texas cows, \$1 50@3 00; native cows, \$1 40@3 75; butchers, \$3 40@4 30; stockers, \$2 50@3 75.

HOGS—Receipts, 2,000; shipments, 4,000. Market steady. Bulk of sales, \$5 40@5 60; heavy, \$5 30@5 60; packers, \$5 40@5 60; mixed, \$5 35@5 60; light, \$5 45@5 75; pigs, \$5 00@5 65.

SHEEP—Receipts, 1,000. Market steady.

Chicago.

July 3, 1893.

CATTLE—Receipts, 13,500. Market active, with slight option. Top prices, \$5 00@5 45; others, \$4 50@4 90, which includes fair to good steers.

HOGS—Receipts, 23,000. Market opened steady and closed 10 to 15 cents higher. Mixed, \$5 50@5 90; heavy, \$5 90@6 00; light, \$5 60@6 10.

SHEEP—Receipts, 11,000. Top sheep, 4 25@5 25; top lambs, \$5 55@6 00.

HORSES AUCTION.

Kansas City Stock Yards Horse and Mule Depot. W. S. TOUGH & SON, Managers.

Largest Live Stock Commission Company in the world. Hundreds of all classes sold at auction every Tuesday, Wednesday and Thursday, and at private sale during each week. No yardage or insurance charged. Advances made on consignments.

HALE & MCINTOSH,

Successors to Hale & Painter.

Live Stock Commission Merchants,

Kansas City Stock Yards, Kansas City.

TELEPHONE 1564.

Consignments solicited. Market reports free.

References:—Inter-State National Bank, Kansas City, Mo.; National Bank of Commerce, Kansas City, Mo.; Bank of Topeka, Topeka, Kas.

A. D. JOHNSON, President. G. L. BRINKMAN, Vice President.

JOHNSON-BRINKMAN COMMISSION CO.

Grain, Mill Products, Etc.

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Sheriff's Sale.

In the District Court, Third Judicial District, Shawnee county, Kansas.

P. J. Rau, Plaintiff,

vs. Squire Burvender and Maria Burvender, his wife, Defendants.

Case No. 14617.

BY VIRTUE of an order of sale issued out of the District court, in the above entitled case, to me directed and delivered, I will,

On Monday, the 17th day of July, 1893,

at a sale to begin at 10 o'clock a. m. of said day, at the front door of the court house, in the city of Topeka, in Shawnee county, State of Kansas, offer for sale at public auction and sell to the highest bidder for cash in hand, the following described real estate and appurtenances belonging thereto, to-wit:

Lots numbered 41 and 42 in Anderson's subdivision to the city of Topeka, county of Shawnee, as shown by the recorded plat, lying and situate in Shawnee county, Kansas.

Said real estate is taken as the property of said defendants, and will be sold to satisfy said order of sale.

The purchaser will be required to pay cash for said property at the time of sale.

Given under my hand, at my office, in the city of Topeka, Shawnee county, Kansas, this 14th day of June, 1893.

J. M. WILKERSON, Sheriff.

IRWIN TAYLOR, Attorney for Plaintiff.

WOOL

FUNSTEN COMMISSION CO., WOOL COMMISSION MERCHANTS

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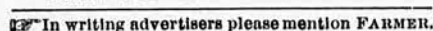
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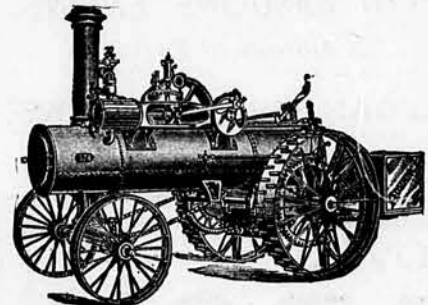
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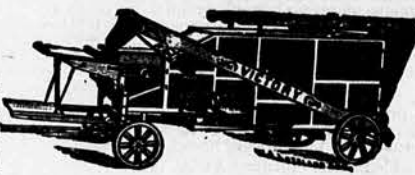
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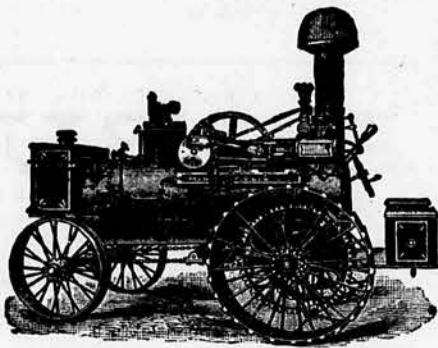


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FALL 1893

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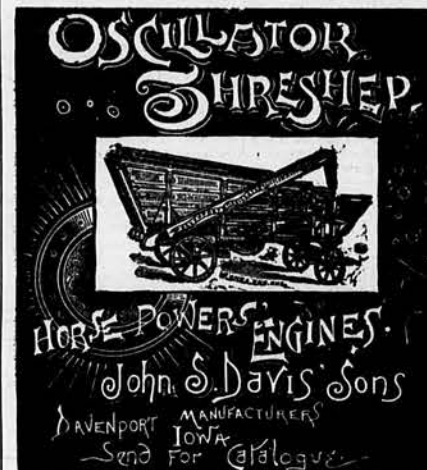
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at half price. Well improved, small fruits,
seven acres bearing apple trees; handy to school.
Address M. A. Walcott, Callista, Kingman Co., Kas.

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THE STRAY LIST.

FOR WEEK ENDING JUNE 21, 1893.

Sherman county—E. J. Scott, clerk.
PONY—Taken up by J. C. Denny, in Sherman tp.,
P. O. LaBanche, June 7, 1893, one bay horse pony,
branded XX, PP. T. O.

Chautauqua county—G. W. Arnold, clerk.
HORSE—Taken up by B. H. Veal, in Harrison tp.,
P. O. Hewins, one light bay horse, 10 years old, six-
teen hands high.

HORSE—By same, one light bay horse, 10 years
old, fifteen hands high, no marks or brands.
HORSE—By same, one light bay horse, branded
"R" on left shoulder.

FOR WEEK ENDING JUNE 28, 1893.

Barton county—R. P. Typer, clerk.

MULE—Taken up by Joseph Habiger, in Cheyenne
tp., May 1, 1893, one bay mule; valued at \$30.
Douglas county—W. A. Churchill, clerk.

COW—Taken up by John H. Byrd, in Wakarusa
tp., June 17, 1893, one red and white dehorned cow,
left ear cropped.

Rush county—W. J. Hayes, clerk.

MARK—Taken up by G. C. Mohr, in Pioneer tp.,
June 3, 1893, one bay mare, 4 or 5 years old, white
star in forehead, white spot on nose, right front foot
white, black mane and tail, fourteen hands high,
weight about 300 pounds, brand S on right hip.

PONY—Taken up by Byron Lynde, in Hampton
tp., P. O. McCracken, May 28, 1893, one dark brown
mare pony, with three white feet, white spot in fore-
head and white spot on nose, brand on left shoulder.

Riley county—Chas. G. Wood, clerk.

PONY—Taken up by Charles E. Gridley, in Center
tp., June 24, 1893, one dark bay mare pony, thirteen
hands high, no marks or brands; valued at \$25.

Franklin county—O. M. Wilber, clerk.

STEER—Taken up by J. M. Crawford, in Peoria
tp., June 23, 1893, one spotted red and white steer, 1
year old, no marks or brands; valued at \$12.

FOR WEEK ENDING JULY 5, 1893.

Bourbon county—G. H. Requa, clerk.

MARE—Taken up by Stephen Holeman, in Frank-
lin tp., one bay mare, 4 years old, small white spot
in forehead, black mane and tail; valued at \$40.

Shawnee county—J. M. Brown, clerk.

HORSE—Taken up by G. J. Coleman, in the city
of Topeka, June 22, 1893, P. O. address 511 east First
street, one dark bay or brown horse, about 3 years
old, about 14 hands high; valued at \$25.

BINDING TWINES

MANILA, SISAL
AND STANDARD.

COVERS

For Hay, Grain and Harvesting
Machinery.

GEO. B. CARPENTER & CO.,
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.. FARM WAGONS.
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World's Fair to best advan-
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have puzzled you. Avoid
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caponizing. They do the work right. Cause no deaths. A boy can do the work with them. Are simple,
plain, durable, practical and cheap. Will last a lifetime. Explicit instructions sent with each set.
Price, \$2.50 postpaid. Dow's "Capon and Caponizing," a book that tells you all about the work. The
advantages, tools required, how to do it, age, time, how to feed and dress a Capon. Everything. By
mail, paper, 25 cents; cloth, 50 cents.
Address **GEORGE Q. DOW, North Epping, N. H.** **CHICKENS.**

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Is in the interest of the producer and shipper. Exact weights are assured, honest practices compelled,
and convenience given shippers, commission men and buyers. Two-thirds of the hay firms in Kansas
City are doing business through the Exchange. See that your hay is billed to your commission man, care
THE HAY EXCHANGE, and thus given honest weights and honest sales. All hay so billed is insured
without extra cost. Mention this paper.

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GEO. W. CAMPBELL, President, Kansas City. **D. L. CAMPBELL, Vice President, Mahan.**
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(Successors to JAMES H. CAMPBELL CO.)

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And respectfully ask a continuance of their former patronage. Your business solicited.
Money advanced to Feeders. Market Reports sent Free on application.

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J. P. DAVIS, President. **JOHN E. MOON, Secretary.**

Issues all the most attractive policies of Renewable Term, Ordinary Life, Limited Payment Life
and Endowment Insurance. All, except the Renewable Term policies, have large guaranteed cash sur-
render values at the end of each year after the second from date of issue, and participate in annual divi-
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