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Imp. British Lion 133692 and Imp. Lord Lieutenant 120019 in service. Sixty breeding cows in herd. Lord Lieutenant sired the second prize yearling bull at Texas State Fair, 1898, that also headed the second prize herd of bull and four females, any age, and first prize young herd of bull and four females.

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Registered Galloway Cattle. Also German Coach, Saddle and Trotting-bred horses. World's Fair prize Oldenburg Coach stallion, Habbo, and the saddle stallion, Rosewood, a 16-hand, 1,100-pound son of Montrose, in service. Visitors always welcome. Address **BLACKSHERE BROS., Elmdale, Chase Co., Kas.**

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

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Fifteen White P. Rocks, 15 Silver Wyandottes, 20 Brown Leghorns, 10 Light Brahmas, 10 S. S. Hamburgs, 10 Black Langshans, 5 Black Javas, 12 Pekin drakes. All strictly first-class. Some are scored by Hewes and others.

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H. T. FORBES L. C. FORBES.

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THOROUGHbred BUFF COCHINS

Eggs and stock from prize-winners at Kansas State Poultry Show, January, 1899. Write for description and prices. Address
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PRIZE-WINNING LIGHT BRAHMA CHICKENS

...EXCLUSIVELY...

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

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Five Pens—Three Barred, Two White.

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T. E. LEFTWICH, Larned, Kans.

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If you want anything in this line, from a leg-band to an incubator or brooder, I've got 'em—it's a part of my business. Write me for prices, or better, send ten cents (silver or stamps) for my Guide to Poultry Culture, catalogue and price list. It may be worth dollars to you. I also breed first-class poultry, and am now selling EGGS AT HALF PRICE. Send for circular giving varieties and matings for 1899—it's free for 1 cent stamp.

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O. L. THISLER, Chapman, Kas.

SEEDS AND POULTRY SUPPLIES.

Seeds, bulbs and poultry supplies, T. Lee Adams, 419 Walnut street, Kansas City, Mo.

Agricultural Matters.

RELATION OF WATER SUPPLY TO ANIMAL DISEASES.

About three-fifths of the animal body is water, and while water is not strictly a food in itself, no food can be assimilated without the aid of water, large quantities of it being required to carry on this process. According to a bulletin of the Indiana Station—

"The horse requires from 64 to 80 pounds, or 8 to 10 gallons per day, a gallon of water weighing 8 pounds. During the months of February and March five horses drank from 48 to 60 pounds per head when not at work, and from 62 to 84 pounds while at work. Forty-four per cent of the water was drunk in the forenoon and 56 per cent in the afternoon.

"Cattle drink more than horses. During the period above referred to, cows not giving milk drank 78 pounds and cows in full flow of milk drank 112 pounds per day. The largest drink was 122 pounds and the greatest amount taken by one animal in one day was 176 pounds. The Utah Experiment Station found that steers feeding upon dry feed required 83 pounds of water per day, while those fed upon green food consumed only 33 pounds per day. Cattle drank 72 per cent of water in the morning and 28 per cent in the evening."

Pigs fed corn and skim-milk (3 pounds per day) drank 2.65 pounds of water per day; those fed wheat and skim-milk, 5.2 pounds; those fed corn, wheat, and skim-milk, 3.9 pounds; those fed soaked wheat and skim-milk, 5.3 pounds. These figures indicate, as in the experiments with steers at the Utah Station, that the amount of water drunk is influenced to a considerable extent by the character of the food.

"No attempt has been made to determine the quantity of water needed daily for sheep. . . . They drink comparatively little water while upon pasture. They can endure privation as regards water far beyond other domestic animals. This has led to the belief common among farmers that sheep do not need water and that dew is sufficient. This is a serious mistake, and accounts for the loss of many hundred lambs in this State every year.

"The number of times an animal will drink during the day, when allowed full opportunity, is not known, but is indicated in a general way by the stomach. The stomach of the horse is small and, as might be supposed, does not require much water at a time, but often. The stomach in cattle is very large, and rumination (chewing the cud) is performed. This necessitates saturating the food with water before rumination can take place, and probably explains why so much water is drunk in the morning."

The above facts make it clear that we may expect a close and important relationship between water supply and disease in domestic animals, and this fact is most strikingly demonstrated when the supply is insufficient or is contaminated with matter which causes disease.

"The diseases which arise as a result of supplying water in insufficient quantities or not providing water in accessible places are sporadic in character; that is, affect only an occasional animal, or a few in a herd or flock. Probably the most serious disease having such cause is mad itch in cattle. This occurs especially in the fall of the year, when the cattle are upon dry pasture or when turned in upon a dry stalk field. It may occur at other times, and also be due to other causes, but without doubt 90 per cent of the cases occurring in this State are directly traceable to this cause. Sheep also suffer from impaction and constipation, and large numbers die for want of proper water supply. Hogs, especially young ones, often succumb from like treatment. Horses probably suffer least loss, because they receive the greatest care in this respect, but no doubt many cases of colic, impaction, and constipation are traceable to this source."

The losses that arise from an insufficient water supply are small compared with those caused by water of an improper character. Water which comes from deep wells, properly protected, is free from disease germs; that, however, which comes from ponds, ditches, and streams may contain such germs. "Not all surface waters are dangerous, but all are more or less exposed to infection, and may become dangerous at any time."

Careful investigation has shown that hog cholera has been largely disseminated in Indiana by contaminated streams, thus bearing out the conclusions from investigations by the Bureau of Animal Industry of this Department that "perhaps the most potent agents in the distribution of hog cholera are streams. . . . The first step to be taken in the prevention of hog cholera is the securing of a wholesome water supply."

There are numerous parasitic diseases to which all animals are subject. Water is necessary to the growth of these and is

an important carrier of them. Such parasitic diseases as twisted stomach worms, nodular disease, paper skin, liver fluke, and lung worm of sheep, and worms in hogs, horses, and cattle, are largely due to surface water. "Pure water from deep wells is the preventive."—Experiment Station Work.

One-Crop Agriculture.

One of the usual fatalities of farming in a newly-settled country is the almost universal disposition to depend entirely upon some one crop. If the conditions are at all favorable to wheat this finest of all cereals is almost sure to engross all efforts. This is the case to an unusual degree in western Kansas. The editor of the Graphic, of Oakley, Logan County, Kansas, is constantly and ably urging his readers to diversify, especially by taking the cow and other live stock into their calculations. Secretary Coburn contributes a valuable article to the Graphic, seconding the editor's efforts. This contains forceful suggestions valuable everywhere, and they are here reproduced for the benefit of Kansas Farmer readers.

SECRETARY COBURN'S COUNSEL.

"It is a pleasure to note that you keep hammering away on the proposition that the people of western Kansas should more and more develop the cow, poultry, and similar industries instead of all the time making wheat their sole or main reliance. I believe you are preaching the true gospel of their salvation. Exclusive cotton-raising in the South, with its resulting poverty and ignorance—virtual slavery—affords a striking example of what a one-crop agriculture leads to.

"No community anywhere ever did or ever will grow rich by adhering exclusively to wheat-growing. For farmers in this State to risk, year after year, all their prosperity in any one crop while persistently ignoring so many other possibilities of income that crowd up to their very door-sills is simply insanity and suicide. Saying this does not argue that wheat should not continue to be a great staple crop in Kansas, but the wise farmer who would prosper must be mindful that there are various other products of his lands besides wheat as steadily and surely profitable, often, too, in those inevitable seasons when wheat fails.

"In any section of the country where wheat-raising is the main dependence there is generally an air of thriftlessness, dilapidation, and poor farming, but I have yet to see a region where improved live stock, and especially the cow, was highly developed and pushed to the fore that did not show thrift, tidiness, and the best types of rural life. Whatever else she may be, nature made Kansas a stock country, and the Kansas farmer who shuts his eyes to the fact is blind and stumbling because unwilling to see.

"The abundance of nutritious grasses, with alfalfa, the sorghums, barley, and the wind-power pump make easily possible in every western county the dual-purpose cow, the beef-steer, growthful shote, helpful hen, the hardiest of horses, and the golden-hoofed, wool-bearing, meat-yielding sheep, every one a money-maker. Good stock, home grown and properly handled, whether horses or hens, never lost their producer any money in Kansas, while a failure to make animal husbandry a factor in his operations keeps many a worthy man poor.

"A right appreciation of the cow early leads to a demand for the creamery, where her product, instead of making 6-cent unpalatable grease and a drudge of the housewife, becomes a fancy staple, wanted everywhere at fancy prices. A country of prosperous creameries invariably becomes a country where comfortable, pleasant homes, live churches, commodious schoolhouses, and big red barns abound, none of which are conspicuous in any landscape where a wheat-field is the all-dominating feature.

"A moderate diversity that doesn't scatter, intelligently guided, leads towards prosperity, but adherence to one uncertain, soil-robbing crop which gives its grower employment but two months of the year is cutting cross-lots to the poorhouse."

The Wheat-Drill Experiments.

Editor Kansas Farmer—Possibly I can give Mr. Werner, of Colby, some points concerning the wheat drill that he mentioned in the Farmer of June 22. Something like fifteen years ago, Mr. John Fletcher, of Carthage, Ill., built and patented a drill that seemed to embody the essentials of the drill Mr. Werner describes. Mr. Fletcher is a practical man and close observer, and he honestly believed that he had made a discovery of great value. Parties in Wichita, Kans., of whom I know nothing, became interested in it, and great things were hoped for its use, but so far as I know it did not make its way in the field. It seems to have dropped out.

A Mr. Claassen, near Newton, Kans., has a drill of similar construction, which may be Fletcher's patent. Having noted

the work done by Mr. Claassen's drill for some years, I decided two years ago to buy one, but, on inquiring of Mr. Claassen, I found he only gave it a qualified endorsement on account of difficulty in its manipulation. I learned, also, from the Follette Hardware Company, of Newton, Kans., that the drill Mr. Claassen has is no longer manufactured, for the reason that Mr. Claassen objected to it.

It seems to me that the present wheat failure in Kansas teaches a lesson that every farmer in the winter wheat territory may read as he rides his binder over so much of an unprofitable field as he saved from the plow in the spring, because he hoped—vainly, it seems—that a diminished yield would insure a more remunerative price. Where is Mr. C. Wood Davis?

To illustrate: A Mr. Henry Wiebe, near Whitewater, Kans., plowed 40 acres last July, and by repeated harrowings had his soil in fine condition to receive the seed in September. It was planted with an old-style tooth drill, as any careful farmer would plant it, and will yield between 30 and 40 bushels per acre. On account of last year's long-drawn-out harvest most wheat ground was plowed late—plowing as a rule continuing up to seeding time, with the result that most of the late plowing was plowed again for other crops in the spring, while the remainder will yield from nothing to 20 bushels, according to date of plowing and preparation of soil, but with the average much nearer the former estimate. My present crop was planted with a Superior drill, which left the ridges between the rows so loose that they flattened down and protected the wheat less than when planted with old-style drill.

Twenty-five years' experience in Kansas wheat-raising has convinced me that increased acreage at the expense of thorough preparation of soil is not "the way out," and that, while a good substantial ridge between wheat rows—the higher the better—gives better average results, more depends on thorough preparation of soil than on the method of planting. My best yield, 43 bushels per acre, was sown broadcast, but broadcasting has not averaged a success.

J. M. FOY.

Brainerd, Kans.

Oklahoma Wheat Experiments.

The experiment wheat plats at the Oklahoma Experiment Station were cut, with few exceptions, June 12-13. The wheat was grown on medium upland prairie soil, without special preparation aside from manuring a part of the plats and green manuring others by plowing under cow-pea stubble. Thirteen varieties averaged 22.6 bushels per acre, only one yielding less than 20 bushels. The largest yield of any of these plats was 27.9 bushels. Eleven of these varieties have been grown for four years on the station farm, giving average yield of 28.5 bushels. Sibley's New Golden, Missouri Blue-stem, Nigger, and Early Red Clawson have given slightly largest average yields for the four years.

In the time-seeding trials early sowing gave best results. Twelve plats sown in September gave average yield of 28.7 bushels; eight sown October 5-15 yielded average of 21.5 bushels; 12 sown in November gave average of 5.4 bushels of low-grade wheat. All these plats were sown with the Red Russian variety.

Plowing in July gave average yield 6.3 bushels greater than plowing early in September.

Plowing four inches deep gave slightly less yields than plowing eight inches deep. No gain came from subsoiling land plowed eight inches deep.

Manuring with stable manure greatly increased yield in all cases. Four manured plats gave average yield of 27.5 bushels, while four under like treatment except with no manure gave average yield of 14.5 bushels. On an acre in wheat continuously for seven years, the half manured in fall of 1898 yielded at the rate of 30.6 bushels; the half unmanured 12 bushels per acre. Improving the physical condition of the soil rather than adding plant food is believed chief value of the manuring.

Fifty-eight plats, including every plat on the farm except those sown late in the season, gave an average yield of 22.67 bushels per acre, or about 10 bushels more than the average wheat yield of the United States for a series of years.

An International Congress of Agriculture.

There are, especially in the United States and in England, many organizations for the consideration of subjects connected with agriculture. But there is no permanent international congress of agriculture, and the Paris Exposition authorities have entrusted the organizing of such a congress to the International Commission of Agriculture, which the French Government has formed with a view to the work of 1900. Twenty of the French members of this commission were chosen as a committee of organization of the proposed congress, among them being M. Loubet, who has since been elected President of the French

Republic, and M. Meline, former Prime Minister, who is active president of the committee.

The sessions of the congress will be held from the 1st to the 8th of July, 1900, in the Exposition Palais des Congress. Its work is to be divided into seven sections, each of which has a committee charged with drawing up the questions to be submitted to the congress.

First section.—Rural economy (credit agricole—farmers' loans—agricultural associations, legislation, state surveys, agrarian questions, etc.).

Second section.—Agricultural teaching (agronomic stations, experiment grounds, and demonstrations, etc.).

Third section.—Agronomy (applications of sciences to agriculture, improvements of arable and grazing lands).

Fourth section.—Cattle questions.

Fifth section.—Rural engineering, industrial cultivation, and agricultural industries.

Sixth section.—Special to the south and colonies.

Seventh section.—Parasites, protection of useful animals (international measures).

A Man of Many Licenses.

An English farmer enumerates the many licenses he has to take out in order to carry on his business and concludes that the farmer is the most licensed man in the Kingdom. His shepherd dog requires a license, and his spaniel a different one. In order to shoot the rabbits which annoy him he must take out a gun license, and still another if he shoots the pheasants he has raised. He must also secure a license if he catches his own trout. He must get a license for his two-wheeled trap and another for a four-wheeled vehicle. His traction engine requires an expensive license. He sells a little surplus milk and must have a license for that. He keeps swine and this calls for several licenses. If he sends his sow to a neighbor's boar he must have a license for that purpose; if he sends his pigs to another pasture across the road he must first get a license; if he kills them at home he must have a slaughter-house license. We mention these things that some people may better appreciate the privilege of living in a country where they can own their farms, need pay no tithes or rents, and take out no troublesome and costly licenses to carry on their business.—National Stockman and Farmer.

Sand Roads.

From Farmers' Bulletin No. 95, United States Department of Agriculture.

The more one improves the drainage of a sand road the more deplorable becomes its condition. Nothing will ruin one quicker than to dig a ditch on each side and drain all the water away. The best way to make such a road firm is to keep it constantly damp. Very bushy or shady trees alongside such roads prevent the evaporation of water.

The usual way of mending roads which run over loose sandy soils is to cover the surface with tough clay or mix the clay and sand together. This is quite an expensive treatment if the clay has to be transported a great distance, but the expense may be reduced by improving only 8 or 10 feet or half of the roadway.

There is more Catarrh in this section of the country than all other diseases put together, and until the last few years was supposed to be incurable. For a great many years doctors pronounced it a local disease, and prescribed local remedies, and by constantly failing to cure with local treatment, pronounced it incurable. Science has proven catarrh to be a constitutional disease, and, therefore, requires constitutional treatment. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, Ohio, is the only constitutional cure on the market. It is taken internally in doses from 10 drops to a teaspoonful. It acts directly on the blood and mucous surfaces of the system. They offer one hundred dollars for any case it fails to cure. Send for circulars and testimonials. Address, F. J. CHENEY & CO., Toledo, O. Sold by all Druggists, 75c.

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OCTOBER 19—Thos. W. Ragsdale, Shorthorns, Kansas City, Mo.
OCTOBER 20—John Burrus, Shorthorns, Kansas City, Mo.
OCTOBER 28—E. E. Axline, Poland-Chinas, Oak Grove, Mo.
NOVEMBER 1—W. T. Clay, Shorthorns, Kansas City, Mo.

LIVE STOCK ON THE RANGES.

Excerpts from a bulletin issued by the Secretary of the National Live Stock Association, under date June 27.

Conditions affecting live stock on the ranges and ranches of the West during the past six months have been extremely unfavorable. Following the unusually severe winter came a cold and unseasonable spring. Cold, dry winds ate up the moisture from the snows as rapidly as it melted, and in some sections no fresh grass has yet appeared. While the season was unusually late in the Northwest, taking in Montana, Idaho, Utah, Wyoming, and the Dakotas, and while there was some drought reported in this section early in the season, there has recently been sufficient rains in greater portions of these States to guarantee plenty of feed, though the grass is late in all sections. That section of the country lying south of a line drawn from Los Angeles, Cal., through central Nevada and Utah and close to the northern line of Colorado, through Rawlins, Wyo., and then southwest taking in all of Colorado and western Texas to the Gulf, has been suffering from the worst drought known in years. Colorado and southern Utah and all of Arizona and New Mexico have been almost completely without moisture or rainfall since March. To make matters worse, there has been constant cold, dry winds, which dessicated the ground, and what little grazing there was has been badly covered by drifting sands. In mountain districts conditions have been somewhat better but the continued cold nights far into June have not helped conditions. In the extreme East plenty of rainfall is reported; while in the corn States of the Mississippi valleys an excess of moisture has been the rule. While these conditions have insured an abundance of hay and pasturage it has in a few limited sections endangered the corn crop to a considerable extent.

The estimated winter loss of stock, including the early spring loss of 6 per cent made in a former bulletin has not been materially changed by later returns, information from all sections of the West showing the losses to have varied from 2 to 15 per cent, 6 per cent being considered a conservative estimate of the whole. Some indication of the number of losses may be derived from authentic reports that 145,000 hides have been received at Victoria, Tex.; 14,500 at Liberal, Kans.; 5,000 at Las Vegas, N. M., and 3,500 at Panhandle, Tex., during the past six weeks.

All sections report a light calf crop and considerable loss, owing to the cold nights and the poor conditions of the cows. In some portions of the Panhandle of Texas, Oklahoma, Indian Territory, New Mexico, and southeastern Colorado the losses from this cause reached as high as 25 per cent.

The spring movement of cattle has been lighter than usual. The movement from the South was late starting and the bulk of the cattle moved went to the Northwest, the movement that way showing an increase over last season of fully 30 per cent, but a falling off in the Missouri Valley States of fully 60 per cent. This movement, however, is fully 75 per cent below that for many years prior to 1898. Prices have ranged lower than a year ago on this class of cattle. The drought in the South and rather crowded ranges induced more liberal selling on the close of the season. All the cattle moving consisted of yearlings and a few 2-year-olds, there being nothing in sight above those ages.

The movement from the West was very light. This was due to two causes. In the first place there were less cattle in the country to be moved, and in the second, the scarcity of cattle on the Pacific Coast has made such a strong demand at home that not only are the cattle on the coast remaining at home this season, but the demand is drawing on supplies in Montana, Idaho, and Utah. The result has been a strong demand for this class of cattle at prices rather higher than a year ago, and the outlook for the fall is not considered good for anything like an average run. The supply of feeders for the fall will come from Colorado, Utah, and the Panhandle of Texas. There will be a few feeders from New Mexico and a few from Wyoming, but the first named sections will supply the big end of the demand.

Reports from northern ranges are to the

effect that grass fat cattle will be late in moving and will be fewer in numbers than in previous years. Estimates of the decrease in supply vary from 40 to 80 per cent. In eastern Colorado, western Kansas, and Nebraska; there are more young cattle grazing that a year ago, but few of them are expected to be fit for beef but will rather go to market as feeders. All sections report almost no steers above the age of 2 years, and the bulk of the feeders are expected to be young cattle.

SHEEP.

Reports as to winter losses on sheep are rather more definite than on cattle, and indicate a loss of from 12 to 30 per cent. Probably 15 per cent would be a conservative estimate. Cold nights were bad on lambing in nearly every section and losses have been heavy, few sections reporting over 50 per cent of a crop, and some as low as 40 per cent. Idaho, Wyoming, and Montana report most successful lamb crop; Utah only fair; New Mexico, Colorado, and Arizona, and the extreme western Texas, very bad. In the Southwest the drought left so little feed for the ewes, that in many sections the lambs were killed to save the mothers; and the herds are kept alive only by cutting down brush and young trees along dry creeks or the foothills for them to browse upon. A heavy loss will result to the Utah sheepmen by the action of the Government in excluding them from forest reservations, where heretofore they have found summer range. They are now thrown upon the desert, which, at this season of the year, will cause the destruction of thousands of animals from heat and lack of water. Reports from Arizona and New Mexico indicate less than half a lamb crop and heavy losses in ewes. Movement of lambs to feed lots from the South will be late, and lambs will be poor. Western lambs will be in better demand for the feed lots than southern stuff, owing to the fact that there has been better feed in the Northwest.

FEEDING-IN-TRANSIT.

Since the adjournment of the annual meeting of this association in January, the trans-Missouri lines have ordered the abrogation of the feeding-in-transit privilege, which order went into effect on May 25, notwithstanding this and every other live stock association west of the Missouri River protested in strongest terms against such action.

At a meeting of the Trans-Missouri Traffic Association, on the 6th of June, President John W. Springer, of the National Association was granted the privilege of making an argument in favor of the restoration of this rate, and presented resolutions bearing upon the subject from the stockmen of Texas, Utah, Colorado, South Dakota, Montana, and other States interested. He also asked for a lower rate on range horses to the Missouri River and Denver markets. No final action was taken by the transportation companies on the feeding-in-transit proposition, but we have been unofficially informed that the association is inclined to grant some concessions to the shippers, which probably will be two local rates from the original point of loading to the river markets, the sum of which will not exceed the old feeding-in-transit with the switching charges added. The request for a range rate on horses was granted.

Experience in Dipping Sheep.

Kansas feeds many thousands of sheep annually that are brought in from adjoining Territories, consequently sheepmen have much concern as to the details of the dipping problem.

Peter Jansen, of Nebraska, is one of the most successful of the pioneer sheepmen of the West, and on this subject he gives the following practical information:

"My experience in dipping sheep is confined to the feed lot. I have used lime and sulphur and several of the proprietary dips, and have finally arrived at the conclusion that a manufactured dip is the best and safest. Of course lime and sulphur is sure, but it not only kills the scab but also the wool and very often the sheep. The great trouble in dipping is that people are not thorough enough. They think a little colder or weaker will not make much difference and if a few sheep escape from the vat without being thoroughly soaked and put under three times, head and all, or if they are kept in one minute instead of two, it does not matter. The fact is that the secret of success in dipping sheep lies in these very items. You may leave almost anything else to hired help with less loss than this part of the feeding operation. One dipping will not cure scab when it is well established in a flock. Where sheep show no signs, or very little, one dipping may carry them over the feeding season and again it may not. Supposing you have figured to feed three or four months and have dipped once and the market acts like it did this spring, then where will you be if the scab breaks out when the weather gets warm? You will be in the 'hole,' that

is all. The only safe plan is to dip ten or twelve days apart, not more or less. Have your dip at 110° to 115°, keep your sheep in the baths two minutes by the watch, not by guess; douse them under three times; use a well-established dip made by a responsible firm, and if you have bought your sheep right and the packers do not form a 'trust,' by spring you are liable to lose but little money in the feeding. Be careful not to make your vat too wide on top. Sixteen inches is plenty. The matter of temperature is very necessary. It is imperative that the wash be kept at a uniform temperature."

Quarantine Against Tuberculous Cattle.

It is expected that at to-day's meeting of the Kansas Live Stock Sanitary Commission a proclamation will be issued quarantining Kansas against cattle from Iowa, Illinois, Indiana, Ohio, Michigan, New York, Pennsylvania, and all other north-eastern dairy States. It is in these States that tuberculosis is most prevalent, and all of them have declared a quarantine on Kansas cattle.

A letter was received last week by Taylor Riddle, secretary of the Kansas board, from C. P. Johnson, secretary of the Illinois live stock board, announcing that Illinois had proclaimed quarantine against cattle from all States and Territories that are not accompanied by a certificate showing that they have been tested with tuberculin and found free from tuberculosis. This proclamation is effective after July 1. The matter was deemed of sufficient importance to warrant calling the Kansas live stock board together. It was decided that Kansas should quarantine against all of the tuberculosis-infested States around Illinois, but formal action in the matter was deferred until the next meeting of the commission, on July 6.

Chairman Campbell was in Illinois recently and witnessed the official examination of some of the herds. He says in the Elgin district, the greatest butter district in the world, the diseased cattle averaged 23 per cent of the entire herds, and the Chicago post mortems showed a condition almost as alarming. Campbell says Governor Tanner was "amazed" at the disclosures.

The States against which Kansas proposes to quarantine send very few cattle into Kansas except for dairy and breeding purposes. The beef all goes to Chicago for slaughter. Tuberculosis is more prevalent among cattle that are kept confined than among range cattle.

Breeders' Annual Report.

The Kansas Improved Stock Breeders' Association has just issued from the press of the Kansas Farmer its first published Annual Report in book form. It contains an introduction by Secretary Coburn, of the State Board of Agriculture, a history of the live stock organizations in Kansas by Secretary H. A. Heath, the full proceedings of the ninth annual meeting of the Kansas Improved Stock Breeders' Association, and the consolidation of the other live stock organizations of the State with it, together with the addresses, papers, and discussions as to the various branches of the animal industry of Kansas and live stock husbandry in general.

It is the first distinctive live stock report ever issued for Kansas and is a veritable live stock manual for the State. The Report also contains the Association's Kansas Breeders' Directory for 1899. As the Association receives no State aid, but is supported entirely by its membership fee of \$1 per year, it has been decided to charge a nominal price for the annual report, as follows: Single copy, 25 cents; 10 copies, \$1.50; or 100 copies, \$10. Address all orders, or applications for membership to H. A. Heath, Secretary Kansas Improved Stock Breeders' Association, Topeka, Kans.

A Lesson in Usury.

Peter Cooper, the great philanthropist of New York, was one of the most successful, careful, and prudent business men of his time. He was strongly opposed to the methods of many merchants who launched out into extravagant enterprise on borrowed money, for which they paid exorbitant rates of interest. The following anecdote illustrates the point very forcibly:

Once, while talking about a project with an acquaintance, the latter said he would have to borrow the money for six months, paying interest at the rate of 3 per cent per month.

"Why do you borrow for so short a time?" Mr. Cooper asked.

"Because the brokers will not negotiate bills for longer."

"Well, if you wish," said Mr. Cooper, "I will discount your note at that rate for three years."

"Are you in earnest?" asked the would-be borrower.

"Certainly I am. I will discount your note for \$10,000 for three years at that rate. Will you do it?"

"Of course I will," said the merchant.

"In Union There is Strength."

True strength consists in the union, the harmonious working together, of every part of the human organism. This strength can never be obtained if the blood is impure. Hood's Sarsaparilla is the standard prescription for purifying the blood.

Hood's Sarsaparilla
Never Disappoints

"Very well," said Mr. Cooper. "Just sign this note for \$10,000, payable in three years, and give your check for \$800, and the transaction will be complete."

"But where is the money for me?" asked the astonished merchant.

"You don't get any money," was the reply. "Your interest for thirty-six months at 3 per cent per month amounts to 108 per cent, or \$10,800. Therefore, your check for \$800 just makes us even."

The force of this practical illustration of the folly of paying such an exorbitant price for the use of money was such that the merchant determined never to borrow at such ruinous rates, and he frequently used to say that nothing could have so fully convinced him as this rather humorous proposal by Mr. Cooper.—Pittsburg Dispatch.

Paint Talks, XVIII.

HOW TO SELECT A PAINT.

The many inquiries received from consumers since the publication of these "Paint Talks" was begun, show not only that the public are interested in the subject, but that information upon the matters discussed was much needed. Buyers appear to have learned, by costly experiment, that "strictly pure white lead" is not a durable paint material; but beyond that point they are all at sea.

Many correspondents who have followed the series and are persuaded of the reasonableness of the arguments advanced, write to inquire who manufactures the kind of paint described. As I have shown in preceding articles, it would be obviously unfair, in such a series, to mention one manufacturer at the expense of all the rest. The fact is that all the leading paint manufacturers produce combinations of zinc and white lead, zinc and barytes, zinc and silica, or mixtures of zinc, lead and barytes, silica or gypsum, which answer all the requirements of a lasting and economical paint and are in every respect superior to straight lead.

Unfortunately, as already pointed out, the old-time lead corrodors got the trade into the bad habit of calling all white paint "white lead," and all the old combinations which have made their reputations under that designation still come upon the market as "lead."

Manufacturers generally are glad to inform buyers as to the components of their products, and if the buyer knows what he wants the nearest manufacturer can probably furnish it.

In selecting a white or a tinted paint, therefore, the consumer should primarily demand a paint containing a fair proportion of zinc white (say from one-third to three-fourths), pure linseed oil, and no alkali. With such a specification to start from he can open correspondence with the manufacturers in his vicinity and receive full information as to quality, price, quantity required, etc. For as soon as manufacturers are convinced that buyers are informed regarding the comparative usefulness of the several paint materials and know that the inquirer is unprejudiced, they will frankly give full information and valuable advice. STANTON DUDLEY.

The great Rock Island Route has issued a folder giving information, official and other, as to Kaffir-corn, alfalfa, and stock-raising. It contains an interesting summary presented in a picturesque way. It calls attention especially to what is done and to what may be done with Kaffir-corn, alfalfa, and stock, especially in Meade, Kiowa, and Pratt Counties in Kansas. Copies of this folder are sent free to every applicant. All that is necessary is to write a postal card to John Sebastian, General Passenger Agent, Rock Island Route, Chicago, Ill., and on it say: "Send your Kaffir-corn and alfalfa folder," and give your name and address.

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

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

HORTICULTURAL PRODUCTS OF THE PHILIPPINES.

Excerpts from a paper by Frank H. Hitchcock, Chief of the Section of Foreign Markets, United States Department of Agriculture.

VEGETABLES.

Among the varieties of pulse cultivated, there are several species used as food by the natives that never appear on the tables of the European settlers. There is first the mongo, which resembles a lentil; then come several kinds of beans, such as the batingue, the zabache, the Abra bean, and the Patami bean. These suit the natives much better than the "garbanzos" (chick-peas) that are so highly prized by the Spaniards.

Tuberous roots also constitute a valuable source of food. Among these the sweet potato occupies first rank, with an annual production of about 700,000 piculs (98,000,000 pounds). The common or white potato, although of a rather inferior quality, comes next in importance. Then follows the camoteng-cahoy or manihot (cassava), the root of which is made edible by the removal of its poisonous juice after the same manner as in the West Indies. When the juice has been pressed out, the pulp forms a sort of coarse-grained flour that is very

to act as an efficacious digestive. The juice of this fruit furnishes an extract that is used as a medicament under the name of papaine, or vegetable pepsin.

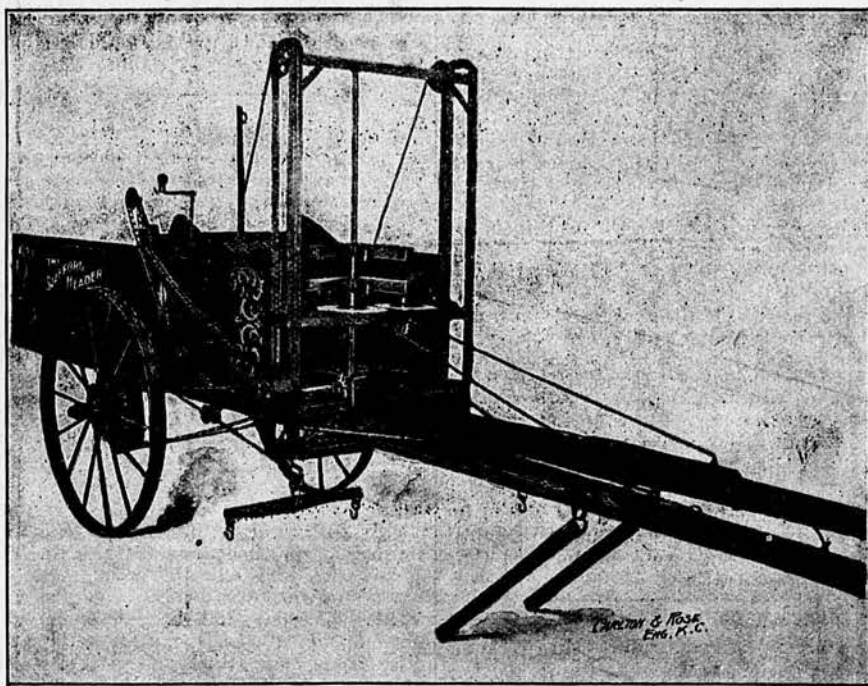
The banana grows abundantly in the Philippines. This fruit is a great boon to the poor people, supplying them at little cost with a delicious and exceedingly nutritious article of food. There are numerous varieties, but the most highly esteemed are the following: The saguing, the bongulau, the lacatan, the obispo, the tondue, the gloria, the letondol, the pepita, the morado, and the saba.

INDIGO AND OTHER DYE PLANTS.

Years ago indigo was one of the important products of the islands. In quality the Philippine article compared favorably with the best grade of the Guatemalan product. It used to bring from 80 to 85 pesos per quintal (61 to 65 cents per pound), but in 1875 the price fell to 30 pesos per quintal (23 cents per pound). At present it fluctuates between 40 and 45 pesos per quintal (30 to 35 cents per pound).

The decline in prices was brought about by a deterioration in quality that resulted in a greatly lessened demand. The cause of this deterioration in quality is easily explained. Years ago the native grower knew and practiced only the most primi-

THE STAFFORD HEADER FOR KAFFIR-CORN AND CANE.



The Stafford Header for Kaffir-corn or cane is the only complete machine on the market. It is quickly adjusted to any height of corn or cane. The team straddles the row and the corn is unloaded simply by dumping. The header is operated by one man and a team, a saving of a dozen men over the old way. The machine has a range of cutting from two to seven feet above the ground. The illustration herewith shows the machine complete. The manufacturers are delighted with the reception and sale of their header so far, and say: "It has been in use in a limited way for the past three years. It has been thoroughly tested, and with a few improvements is put upon the market by us this year with that confidence born of knowledge, as the only machine that will head Kaffir-corn or cane satisfactorily. It has no weak points, and will take care of ten acres per day with one man and one team. To do the same work by hand requires twelve men, and even their board for one day is a greater expense. You can head your neighbors' corn and pay for this machine in one season. The construction is simple. A boy can handle it. Picks up the corn if leaning sideways and cuts the heads, putting them in the box. When the box is full, you dump it at the windrows and go ahead. We use no knife, the cutting is done by two solid steel revolving disks easily sharpened when they become dull. Kaffir-corn when headed with this machine, can be threshed 300 per cent cheaper than when cut in any other manner."

Made and for sale by Western Mfg. Co., Kansas City, Mo.

nutritious, pleasant to the taste, and easy to digest.

Besides the three tubers just mentioned, numerous other plants are cultivated in the fields of these islands for the sake of their edible roots, among them being the ubi, the togui, and the gabi.

Other edible vegetables that occur are the following: Calabashes, melons, water-melons, cucumbers, carrots, celery, parsley, tomatoes, egg-plants, peppers, including the very piquant chile pepper, capers, cabbages, lettuce, endives, mustard, leek, onions, asparagus, peas, and even strawberries, the last-mentioned, however, at only a few points in the districts of Abra and of Benguet.

FRUITS.

Fruits grow in great abundance, and the reputation of some of them is established even abroad. This is true of the mango, for example, which is the best representative of its class. Other fruits of the islands are the ate (the cinnamon apple of the French colonies), the mangosteen (found only in the Sulu Islands and the southern part of Mindanao), the pineapple, the tamarind, the orange, the lemon, the jack, the jujube, the litchi (the king of fruits according to the Chinese), the plum, the chico-mamey (the sapodilla of the West Indies), the breadfruit, and the papaw. The papaw is eaten like a melon, and is said

tive methods of preparing indigo; but with the arrival of large numbers of Chinese in the Philippines, he gradually abandoned the original processes and began to imitate the Chinese practice of adulteration. It was found that by the admixture of a small quantity of lime with the indigo, the coloring matter could be precipitated and the product prepared for the market in a much shorter period. While the more rapid process proved a source of temporary profit, the effect upon the quality of indigo was soon discovered by the purchaser and the Philippine product, owing to the extensive use of lime, fell into discredit in foreign markets. If the practice of intermixing lime should be abandoned and a pure grade of indigo again produced, higher prices would, undoubtedly, be restored.

Indigo is produced in the provinces of Bulacan, Nueva-Ecija, North Ilocos, South Ilocos, Pangasinan, La Laguna, Batangas, Tayabas, Capiz, Bohol, also in several other provinces. The best kind is said to grow in the vicinity of Bayambang in the province of Pangasinan. Most of the indigo exported from the islands goes to China; shipments are also sent to Europe and to the United States.

Other Philippine dye plants that should be mentioned are the sibucan, or sapan wood, the biri, or safflower, the achuete, used as a substitute for saffron, and the quilite, furnishing a red color.

Gossip About Stock.

Hugh A. Hodgins, Topeka, Kans., has 20 head of high-grade Hereford and Shorthorn bulls, from 12 to 20 months old, that he wishes to dispose of at once.

More calves are lost by overfeeding than from any other cause, is the conclusion reached by the Kansas Experiment Station. It is important for beginners to bear this in mind.

At St. Louis, so far this year, there have been received 275,000 cattle, 985,000 hogs, and 190,000 sheep. As compared with last year this indicates a loss of 17,000 cattle, and a gain of 164,000 hogs, and 11,500 sheep.

Considerable inquiry is being received at this office for sheep of the different breeds. Those of our readers who have sheep for sale may find it decidedly to their advantage to advertise such stock in the Farmer.

East Lynn Stock Farm, Tampa, Marion County, Kansas, is owned by W. H. Rhodes. Hereford cattle and Poland-China swine are the pure-bred animals raised. Mr. Rhodes reports stock in excellent condition. At present he will sell a few heifers and gilts.

In another column we give the report of the hog cholera test made by Dr. J. H. Snoddy, of Alton, Ill., at Monroe, Nebr. Readers will do well to look up the report and investigate it. This remedy looks more like a genuine hog cholera cure than anything heretofore reported.

Steele Bros., Belvoir, Kans., breeders of Herefords, write: "Our customers are all well pleased with the high quality of our stock. The serviceable bulls we are now offering for sale are all good, big lusty fellows of the quick maturing, beefy sort. Parties in quest of choice, good bulls will do well to make us a visit and inspect our herd."

Manwarring Bros., Lawrence, Kans., write: "Our Berkshires are looking fine, especially the little fellows. Spring trade with us was very good, and we have the first complaint to receive from stock we have sent out. We look for a good fall trade and are preparing our stock to satisfy our customers. We expect to be out with the boys at the fairs this fall and show them what we have got."

Last winter the firm of Murray & Adams, of Fort Collins, disgusted at their experience in lamb-feeding, stocked up with calves to feed as an experiment. A dispatch from there says they sold 74 head to a Denver firm Monday at 5 cents per pound. The yearlings weighed about 760 pounds, and it is said the firm has announced its experiment in "pony beef" feeding a success and will go into the feeding on a higher scale next season.—Journal-Stockman.

The Chicago Drovers' Journal says that dealers in stock cattle are at a loss to know why there isn't a stronger demand for feeding cattle of all descriptions. The volume of the outgoing business has been remarkably small for a month or more, yet shippers from all directions who bring in fat cattle report a smaller number of cattle on feed than usual. There is no doubt but what many young cattle are wanted in various parts of the country, but until recently prices for the best feeders have been relatively high. A decline of 40 to 50 cents within the past two weeks, and an advance in the market for fat cattle, many dealers think, ought to stimulate a better inquiry in this department.

Mr. C. A. Stannard, proprietor of Sunny Slope Herefords and Berkshires, was a caller at Topeka last week. He reports that sales of Herefords still continue lively, and that among the late representative sales of Berkshires are the following: Sow, Miss M III. 49581, to S. J. Meek, Hope, Kans. Sows, Lilly D. 51082, and Daisy IV. 51080, and Rosy D. —, to R. Frank Stenson, Phillipsburg, Kans. Boar, Randolph 51081, to John H. Pasman, St. Marys, Kans. Sows, Belle 51079, and Sally Girl 51083, to R. H. Norton, Hereford, Texas. This Berkshire herd is one of the largest in the country, consisting of 240 head of pure-breds, sired by such great boars as Longfellow IV. 33611, Prince Broadback 42837, and Royal Blue IV. 48957. Longfellow IV. 33611, when 2 years old, weighed 1,025 pounds and his style, finish, and size are in keeping with his excellence in breeding. Mr. Stannard has recently erected a new hog barn, 20x140 feet. Sunny Slope has for ready sale 100 Berkshires and about the same number of Herefords, both sexes.

Dr. J. H. Snoddy writes the Farmer as follows about his experience with Nebraska cholera hogs: "I have cured the Gerrard & Zeigler herd of cholera hogs. It was a severe test, but I saved 97 per cent of the herd. Fifty had died before I got there, and there were over 150 sick when I began the treatment. This is about an average of what I do when I give personal attention to the treatment. I have many calls like this but I can only be at one place at a time, hence many who want me will



The Amen! of marriage is always a baby. Without it, wedlock is a summer field that never blooms, a flower that never buds, a night without stars, a sermon without a benediction, a prayer without an Amen.

There never was a husband worthy of the name, who did not aspire to be the father and the grandfather of healthy, capable children to hand down his name and the fortune accumulated by the sweat of his brow, from generation to generation. There never was a wife fit to bear that noble title, who did not wish to wear womanhood's most glorious crown, the sceptre of motherhood. Thousands of wedded couples, otherwise happy, fall short of wedlock's greatest happiness because they are childless. In the majority of cases, this is because the wife, through ignorance or neglect, suffers from weakness and disease of the organs distinctly feminine. For women who suffer in this way there is one great medicine that does not fail to accomplish its purpose. It is Dr. Pierce's Favorite Prescription. It acts directly on the delicate organs concerned and makes them strong, healthy, vigorous, virile and elastic. It allays inflammation, heals ulceration, soothes pain and tones the shattered nerves. It fits for wifehood and motherhood. It quickens and vitalizes the distinctly feminine organism. It banishes the maladies of the expectant months and makes baby's introduction to the world easy and almost painless. It insures the little new-comer's health and nourishment in plenty. It is the best supportive tonic for nursing mothers.

Mrs. Jennie Parks, of Marshall, Spokane Co., Wash., writes: "I am glad to tell of the good results of your great medicine,—Dr. Pierce's Favorite Prescription. I was benefited by your medicine in confinement. It gives me strength. I have no tired feeling and my baby is the picture of health. I feel better than I have in ten years."

In cases of constipation Dr. Pierce's Pleasant Pellets should be used as an adjunct to the "Favorite Prescription," they are extremely simple, perfectly natural and insure prompt and permanent relief.

not get me. I am giving the public all the time I can spare from my office and then can not respond to more than 10 per cent of the calls I get. Any practical farmer can stop the disease in his herd if he will follow directions. It is a safe reliance for the average farmer to protect his herd against disease. The Nebraska Farmer will have the full report next week. We are now offering to protect hogs for the cattle-feeders for half the gain, and if we let some die, so that there will be no gain we will not get anything. If a few feeders will club together and put in enough hogs to justify us to put a man with them we will carry them through safe. Notice report in next week's Nebraska Farmer. It will be worth thousands of dollars to your readers to get the facts about the remedy. They depend on the papers for reliable information of this kind and you will be serving their best interest to give the facts."

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

Fruit Farming Along the Frisco.

An attractive illustrated and thoroughly reliable 64-page booklet, devoted to fruit culture along the Frisco Line in Missouri, Arkansas, Kansas, Oklahoma, and Indian Territory, just issued. A copy will be sent free upon application to Bryan Snyder, G. P. A., Frisco Line, St. Louis, Mo.

THE STRAY LIST.

FOR WEEK ENDING JUNE 22, 1899.

Wilson County—C. W. Isham, Clerk.
HORSE—Taken up by Geo. W. Woodyard, in Verdigris tp., May 17, 1899, one dapple brown gelding, about 7 years old, 16 hands high, weight, 1,100 pounds, right hind foot white, fresh wire cut on right fore leg, left hip capped—slipped.

FOR WEEK ENDING JUNE 29, 1899.

Mitchell County—Chas. E. Ewing, Clerk.
COW—Taken up by Theodore Poelma, May 23, 1899, in Solomon Rapids tp., (P. O. Beloit), one dark brown cow, about 8 years old, with white spots on legs, dehorned; valued at \$25.

Marshall County—James Montgomery, Clerk.
HOGS—Taken up by T. L. Harper, in Noble tp., June 1, 1899, three black hogs, about 9 months old, weight, about 100 pounds, two sows and one barrow; valued at \$13.

FOR WEEK ENDING JULY 6, 1899.

Cherokee County—S. W. Swinney, Clerk.
HORSE—Taken up by Wick Aubert, June 5, 1899, in Pleasant View tp., 1 roan horse, 16 hands high, 9 years old; valued at \$50.
MARE—Taken up by W. H. Vickers, June 6, 1899, in Spring Valley tp., 1 black mare, 15½ hands high, 7 years old, no marks or brands; valued at \$15.

Labette County—E. H. Hughes, Clerk.
HORSE—Taken up by G. A. Madison, June 15, 1899, in Elm Grove tp. (P. O. Edna), 1 gray horse, 4 feet 8 inches high, marks of medicine on both shoulders, no brands.

WEEKLY WEATHER-CROP BULLETIN.

Weekly Weather-Crop Bulletin of the Kansas Weather Service, for week ending July 3, 1899, prepared by T. B. Jennings, Section Director:

GENERAL CONDITIONS.

A fine growing and harvesting week. Light showers visited nearly every county, with good rains from Kingman north, and from Gove and Sheridan eastward to Pottawatomie and Nemaha.

RESULTS.

EASTERN DIVISION.

Early corn is generally being laid by, and in the central and southern counties is tasseling and silking. Late corn is being well cleaned. The corn in general is in very good condition. Wheat harvest has begun in the northern counties, and is nearing completion in the central; threshing has begun in the southern. Oats are unusually fine, some counties reporting them the finest in five years. Flax is fine, and is turning in the south. The second crop of alfalfa is ready to cut, and in many places is being cut. Clover and timothy are fine crops. New hay is being marketed in Coffey and Osage.

Allen County.—Wheat and oats harvested; much haying done; corn being laid by; flax ripening; rain badly needed.

Atchison.—A fine week for work; farmers very busy cutting hay and cultivating corn; corn being laid by, and looking very fine.

Bourbon.—Corn mostly laid by, in average condition; oats promise a larger yield than for five years, and of good quality; clover and timothy promise larger yields than for several years.

Chase.—Wheat being stacked, threshing begins 3d; oats about half harvested, crop light, bugs injured it; corn silking and

corn by; oats about all in shock; wheat threshing begun, is yielding well on bottom lands.

Morris.—Oats harvest begun, small acreage, good quality; corn cultivation almost finished; corn tasseling and shooting.

Osage.—Good week for cultivating corn, and for harvest, which has begun; corn being laid by in fine condition; new hay of good quality on market, the crop will be large; early apples of good size on market.

Pottawatomie.—Good week for securing wheat crop and second cutting of alfalfa; corn doing well and quite clean; pastures good.

Riley.—Corn has made a fine growth, mostly well cleaned, and is being laid by; second crop alfalfa ready to cut; oats harvest will begin next week; potatoes very fine; some promise of a few good apples.

Shawnee.—Wheat harvest about over, wheat being stacked; corn has grown rapidly and is being laid by in fine condition; oats the finest in five years, well headed and ripening rapidly; early potatoes very fine; clover being put up, crop good, some damaged by rains; early apples ripening.

Wilson.—Good week for killing weeds; corn growing rapidly, some tasseling; wheat all in shock.

Woodson.—Corn doing well, some tasseling, much laid by; need rain.

MIDDLE DIVISION.

Wheat harvest has begun in the north and is well under way in the central counties, is nearing completion in the central and southern counties. Early corn is generally being laid by in good condition; late corn is being rapidly cleaned; early corn is tasseling, and in the south it is silking. Oats are ready to cut in the south, and in some places harvest has begun. The

in corn-fields next to wheat; second crop alfalfa ready to cut; early apples abundant, fair prospect for later varieties.

Rush.—Harvest progressing favorably; oats and barley promise large yields; corn looking fine; potatoes good; some wheat will not be cut on account of weeds.

Russell.—Harvest in full progress; fine growing week; corn needs cultivating; some complaint of chinch-bugs.

Saline.—Harvest general, some of the first wheat cut was damaged by rain in the shock; apples not falling in central part; corn growing rapidly and beginning to tassel; some are cutting Kaffir, expecting to get two crops; second crop alfalfa ready to cut; threshing begins next week.

Smith.—Wheat harvest begun, and the yield will exceed expectations; corn unusually fine for season of year; pastures very good and hay crop doing well.

Stafford.—Corn fine; harvest progressing, wheat very weedy and crop poor; all other crops doing well, but will need rain soon.

Sumner.—Wheat light and weedy; corn growing rapidly; peaches ripe.

WESTERN DIVISION.

Wheat harvest is progressing in Ford, Ness, Norton, and Trego, and begins in Thomas on the 5th. The late rains have done much good to all crops. Wheat and barley are filling well, though the wheat is thin on the ground. Corn and forage crops are growing finely. The range grass is generally very good, though in Thomas and Morton it needs rain. Cattle are fattening on the range. Potatoes are in blossom in Trego. Norton reports grasshoppers being destroyed by disease.

Decatur.—An all-round very favorable week; ground moist; everything growing rapidly; wheat now estimated about a half crop; corn in fine condition.

Finney.—A growing week; forage crops and alfalfa growing rapidly; range grass fine; cattle fattening rapidly; grasshoppers becoming numerous along the river and alfalfa left for seed has been cut for hay.

Ford.—Wheat harvest began on 26th; wheat is thin but heads have filled remarkably well; corn and fodder looking well; cattle in fine condition.

Gray.—Wheat filling out since the rains; better prospects for crops; grass on range good; stock doing well.

Haskell.—Grass looking fine and cattle and horses are in very good condition.

Hamilton.—Late rains have done much good and changed the aspect of nature; they were too late for some crops and such pieces are being plowed up to be replanted.

Kearny.—A fine growing week; all crops growing rapidly; ample moisture for heavy crops of forage and hay; corn growing finely.

Morton.—Light showers in portions of the county, not enough to start the Cimarron; good grass in spots, others brown and crisp.

Ness.—Very warm and seasonable; ground in excellent condition; all crops doing nicely; harvest begun; grass fine; stock fat.

Norton.—Good growing week; small grain not an entire failure; harvest has begun; corn is fine; some disease is destroying the grasshoppers in large numbers.

Scott.—Wheat, oats, and barley filling well on very short straw, but needs more rain for late grain; cane and millet fine; grass good; stock doing well.

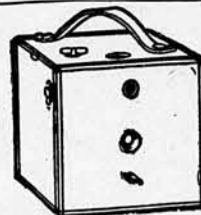
Thomas.—Good week for cleaning corn and laying it by; early corn tasseling; wheat harvest will begin 5th; late wheat suffering; oats and barley short; corn growing finely; range grass drying; rain needed.

Trego.—Harvesting general, wheat thin on the ground, berry large; fine growth in corn and fodder crops; barley a good crop; potatoes in blossom.

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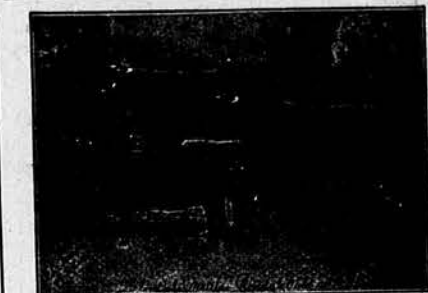
Sire—A son of Ida Marigold (sweepstakes World's Fair cow), 25 lbs., 2 1/2 oz.; sired by a son of Ida of St. Lambert, 30 lbs., 10 butter in seven days.

Dam—Lady Grace of Upholm, 25 lbs., 5 1/2 oz. (an inbred St. Heller cow), dam of three cows with weekly tests of 20 lbs.

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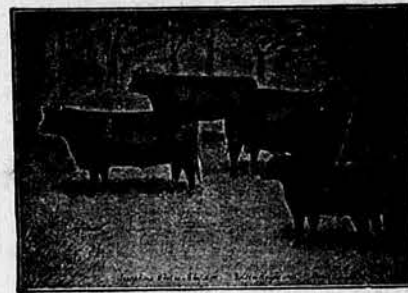
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Golden Knight 108086 by Craven Knight, out of Norton's Gold Drop, and Baron Ury 2d by Godoy, out of Mysle 50th, head the herd, which is composed of the leading families. Young bulls of fine quality for sale.

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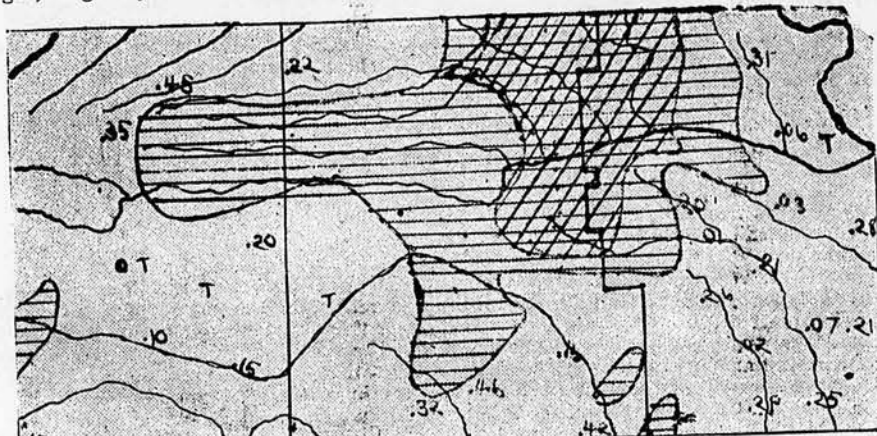
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Scale in inches. Less than 1/4, 1/4 to 1/2, 1/2 to 1, 1 to 2, 2 to 3, over 3

ACTUAL RAINFALL FOR WEEK ENDING JULY 1, 1899.

tasseling, needs rain; second crop alfalfa fair; pastures good; prairie hay fine.

Chautauqua.—A good week; wheat harvest finished; oats being harvested; alfalfa being cut, a heavy crop; threshing going on, wheat crop light, quality good; oats a good average yield; corn doing well.

Coffey.—Fine week; corn doing well; early corn will need rain soon; flax turning; threshing begun, yield better than expected, some pieces turning out 30 to 35 bushels per acre of plump grain; new baled hay on market.

Doniphan.—No wheat in north part, poor in central and southern, harvest has begun; corn growing finely and is being laid by in good condition; some corn damaged by wire-worm; oats look fine; potatoes fair.

Elk.—Another dry week; needing rain badly; flies bad on stock.

Franklin.—Considerable hay put up; oats and flax ripening rapidly; rain needed for growing crops.

Greenwood.—Crops doing fairly well; corn clean; rain wanted.

Jackson.—Corn being laid by, most of it in good condition; oats ripening, promise good crop; wheat all cut, shrivelled and poor.

Jefferson.—Fine week for cultivation; corn fine and clean; wheat cut; flax and oats fine; getting dry; hay fair.

Johnson.—Good week for harvest; oats, flax, and corn looking well; timothy and clover a good yield.

Labette.—A fine growing week; wheat-stacking and oats harvest well advanced; threshing begun.

Leavenworth.—Chinch-bugs in wheat and Kaffir; late potatoes mostly planted; dry week, rain needed.

Lyon.—Upland corn in tassel and promises heavy crop; oats very light; second alfalfa cutting in progress.

Marshall.—Good week for cultivation; corn has grown rapidly, and fields all in good condition; harvest begun under favorable conditions; hay crop will be good.

Miami.—Gardens and pastures suffering for moisture; corn not hurting much; favorable for tame haying.

Montgomery.—Good week for laying

oats are fair in Barber and McPherson, and good in Cowley, Harper, Jewell, Marion, and Rush. The second crop of alfalfa is ready to cut in Cowley, Reno, and Saline.

Barber.—Corn, cane, and Kaffir making very fine growth; some corn in silk; potatoes good crop; oats and rye fair; cattle on range in fine condition.

Barton.—Harvest general; corn doing finely.

Butler.—Corn doing fairly well, but needing rain; wheat all harvested; oats being cut, about half a crop.

Cloud.—Wheat harvest well under way; corn doing finely.

Cowley.—Corn growing rapidly, looks fine, and is tasseling; good week for harvesting; second crop alfalfa ready to cut; oats turning out well; early apples falling some.

Harper.—Very favorable week for harvest, wheat nearly all cut, some pieces too weedy to cut; oats good; corn fine, some in silk; fruit good.

Jewell.—A fine week; corn growing rapidly and is being laid by; oats very promising; millet has grown rapidly.

Kingman.—Fine growing week; all crops doing well; corn mostly laid by and in fine condition.

McPherson.—Harvest nearing completion; corn could hardly look better; oats will be fair crop; new potatoes abundant; grass fine; stock fattening.

Marion.—Oats very heavy and will give a large yield; corn very good; grass fine.

Ottawa.—Wheat harvest general; corn and oats doing well, though many corn-fields still weedy; grass fine; millet about ready to cut for hay; early potatoes a good crop.

Pawnee.—A little wheat will be cut; chinch-bugs destroying much oats and barley; grasshoppers abundant, doing some damage; spud-bug doing much damage.

Phillips.—Harvest progressing; corn tasseling; growing week; all crops doing nicely.

Reno.—Wheat harvest progressing rapidly, many have finished, generally a good crop; oats turning; corn growing finely, much laid by, tasseling; chinch-bugs bad

The Home Circle.

SAY, SHALL SHE GO?

At her fair hands how have I grace en-
treated
With prayers oft repeated.
Yet still my love is thwarted!
Heart, let her go, for she'll not be con-
verted.
Say, shall she go?
O, no, no, no, no, no!
She is most fair, though she be marble-
hearted.
How often have my sighs declared my
anguish
Wherein I daily languish,
Yet still she doth procure it!
Heart, let her go, for I can not endure it.
Say, shall she go?
O, no, no, no, no, no!
She gave the wound and she alone must
cure it.
But if the love that hath and still doth
burn me
No love at length return me,
Out of my thoughts I'll set her:
Heart, let her go, O heart, I pray thee,
let her.
Say, shall she go?
O, no, no, no, no, no!
Fixed in the heart, how can the heart
forget her?
But if I weep and sigh and often wail me
Till tears, sighs, prayers fail me,
Shall yet my love persevere?
Heart, let her go, if she will right thee
never.
Say, shall she go?
O, no, no, no, no, no!
Tears, sighs, prayers fail, but true love
lasteth ever. —Robert Jones (1608).

FACTS ABOUT CIRCUS ELEPHANTS.

The elephant-men have to mind their charges every hour of the day and night. The "bull," to use circus slang, sleeps only about two hours, and often does that on his feet. One fool African elephant—they can't be taught to do anything, and the commonest saying about a show is that they are not worth the hay they eat—has been known to go three weeks without lying down at all. The elephant is always fidgeting about, always swaying that ridiculous hulk of his, which seems to be clad in his big brother's cast-off breeches, always stirring up strife, and always picking at something with his trunk. He might loosen his stake and run wild. He must have something to occupy his mind, and so bales of hay are always at hand to be doled out to him. He must be always scolded and talked to and told to keep out of that or get back there or come out where he can be seen. When he isn't being talked to he is being rapped on the nose with a "bull-hook." An elephant has a hide about an inch thick, a temper that is as uncertain as the toss of a coin, the cruelty of an Apache, and the destructiveness of a tornado. Some wise and kind-hearted men in New York who couldn't bear to see a poor dumb brute suffer, decreed that the "bull-hook" must not be used. They didn't have to be with the elephants all the time. The men who did, either hid the hook part in their hands while the agents of the S. P. C. A. were around, or displayed broomsticks that would bring an elephant to time about as soon as a feather duster would stop a cyclone. The bull-hook is shaped like a boat-hook. It has a straight point. This is to jab in where the skin is tenderest, near the root of the tail. It is a sight well worth seeing to witness Patsy Forepaugh (his name is Mears, but he was with Addie Forepaugh so long that people hardly know what his right name is) get the elephants to bunt the wagons up from the basement of the Madison Square Garden. He is the boss of all the herd, a short, stocky little man with a quick eye—he needs it in his business—and something about his looks which says that if you want to get into a fight with him you had better make arrangements to spend about six weeks in the hospital. The workmen get the wagon slewed around, so that it will go up the inclined plane. Then they scatter like trash before a broom. Here comes Patsy walking along with two elephants, their attitude seeming to say: "We don't want to," while Patsy seems to say: "This one right here. All together now." They make curious noises. Sometimes they whine so that you can locate the very spot it comes from, and other times not so unlike the last pedal key of a church organ. Oftenest it is like an amateur trying to blow a cornet for the first time. They shuffle up to a wagon, put their foreheads against it, and up it goes. Patsy trots behind them, making vicious downward jabs with the hook, while he shouts, "Hooyah! hooyah!" They scull their way along the inclined plane and toddle down again for more. Once I saw a wagon half way up come rolling down while the elephants turned tail and ran trumpeting with terror. A lion inside, angry at having his sleep broken, roared. That was all Roney and John wanted to hear. They fled, Patsy after them with his hook, and though they snuffed and breathed hard, they had to come and push that wagon up. Perhaps they will treasure that up and some day—well, some day they are sure to get him.

The performance in the tent is drawing

nearer and nearer to the end. The boys see this with a sinking heart. A man makes an announcement that surely betoken a time when all this glory must pass away. In sharp staccato tones he declaims aloud, "The performance ces not yet half ovah. The gentlemanly agents will pass around the ring with tickets for the concert." What he says about its being on a real stage with scenery falls dully upon the ears of the boy that has not "the smole sem of a daime, tain cents."

The fireworks at the end dazzle and delight him, but half their glory is spoiled by the thought that the blissful dream is o'er, and to-morrow returns the tedious round of life. As he clambers down the steps he notes that at the farther end of the tent from the stage, the quarter poles are being taken down and loaded into wagons, and when all is over at last, there is nothing but the seats just vacated, the quarter poles which stay up the canvas directly over them, and the centre poles remaining. Outside the main tent all is gone. At 8:45 the work began. As fast as anybody got through with his turn, the properties were all taken apart and put each in its numbered place in the wagon. Every bit of wardrobe for which each performer was responsible went into the little compartment of which he had the key. In their regular order each wagon moved off to the train waiting on the side track for it.

The circus stands alone. The gasoline chandeliers hang in the center till all the properties are removed. Last and most difficult of all to get out is the spiral up which the man stands alone. The gasoline chandeliers hang in the centre till all the properties are removed. Last and most difficult of all to get out is spiral up which the man propels the globe. Then the stars are lowered and extinguished, and flaring torches light the place with their yellow smoky blaze. A stentorian voice calls out: "Get—ready—ay!" and presently sinks to the ground, the last of the Canvas City of Enchantment. The lacings are quickly undone, the pieces rolled up and put in the wagon, and the show is gone.

Next day the boys playing around Vandeman's lot see only the litter and the places where the rings were dug.

Don't you remember how Schumann's "Gipsy Life" ends?

"But when in the East dawns the first light of day

The visions of dreamland have vanished away.

The mule's tramp is heard through the gray, misty air;

Away rides the gipsy, but who can tell where?"

—Eugene Wood, in Ainslee's for July.

Kansas Girls at the Front.

When the deeds of courage and valor in the Philippines have become a part of familiar history one of its brightest pages will be given to the wives and maidens who bore a part so nobly with the Kansas troops. They were present in the trenches, ready with their bandages to give first aid to any stricken soldier, and about the hospitals their cheerful presence and deft nursing gave comfort to many a wounded boy. In the letters written to home folk by the Kansas wounded we find mentioned the names of Mrs. Funston, wife of the general; Mrs. Schlieman, wife of the chaplain; Mrs. Buchan, wife of the Kansas City captain; Mrs. Whitman, wife of the junior major, and perhaps more frequently yet the names of Miss Bradner and Miss Ollie O'Brien. Miss Bradner went from Kansas City to India several years ago as a missionary. With the breaking out of the Spanish war she proceeded to Hong Kong, and then, after Manila had fallen, to the Philippine capital, where she at once installed herself as a nurse in the Twentieth Kansas. She kept at the front with the boys all through the late campaign, and applied the first relief to all the wounded that came within her reach. It is related by one Kansas boy that during one of the fierce engagements this young woman sat by his side in the trenches, coolly passing cartridges to him as fast as he could fire.

Miss Ollie O'Brien is a Topeka girl who went to Manila last summer on pleasure bent. She accompanied Mrs. Stotesen, wife of a regular army officer who served as colonel of Nebraska volunteers, and was killed in battle during the month of May. When the wounded commenced to come from the front she volunteered to go into the hospital as a nurse, and she attended to her duties faithfully and well. Miss O'Brien is naturally of the army. When a bit of a babe she was adopted into the family of Capt. M. O'Brien, and the people of Hays City remembered well the pretty little girl who used to flit about their town when the Captain was stationed at the near-by fort.

Miss O'Brien is taste for the first time in her life the delight of being something in the world besides a social favorite. She writes to friends that there is no other

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word but "glorious." She is learning to be thrilled by the crash of guns, the tramp of men, and the blast of bugle. The flag is no longer a pretty rag fluttering in the whilom breezes—it is the soul of a nation, speaking its serious thoughts. When she wraps the wounds of patriots she feels that she is soothing the hurts of her country, and the strength and broadness of it is coming to her like a great light out of darkness. All of this Miss O'Brien tells in her letters, and she says she is not shocked nor grieved, but happy—fiercely happy.—Kansas City Journal.

Miss O'Brien, since the above was first printed, has returned to Topeka.

Josh Billings' Philosophy.

If a man haz real merit, modesty bekums him best; if he haz no merit, it seems to be almost necessary that he should be impudent.

It seems to me that the plan ov modern edukashun iz to make the yung learn more and kno less.

Misers cheat themselves, and never seem to diskover the fraud.

Nobility doesn't cum bi birth enny more than buty duz.

Knolledge is very glib at making truisms, but experience iz the author ov all the lasting precepts.

Novelty and truth combined, iz the grate art ov amusing and instrukting the world.

All evils are easily managed if they are nipt in the bud. If you give Kanada this-sells or blakberry bushes a three years' lease they will chase enny man off from a good farm.

It iz a kurious fakt that the more a man haz to do the less time he kan do it in.

Old age may have no pleasures ov its own, but it haz the satisfackshun ov knowing that most ov the delights ov youth are a fraud.

The excentricities ov grate men have more imitators than their virtues have.

The poorest kompliment yu kan pay enny man iz to immitate his oddities.

If you want to find out a man's true karakter, watch him when he froliks.

The chief end ov most men's lives is to earn three meals a day, and eat them.

The happiest people I have ever known in the world, hav been the biggest phools.

A pedant seems to be a karakter who haz found a mare's nest sumwhere, and kan't keep from talking about it all the time.

Pills will sumtimes akt on the liver, but sawing wood will allwuss do it.

I think the best way to go thru this world iz to go bakward; yu kan't see ahead if yu try ever so hard.

He who leads a live ov pleasure sows wheat and reaps tares.

About one-half the folks go thru life az driftwood floats on the surface ov the stream, without knowing or careing mutch whare they are going to land.

Politeness, even when it iz not the result ov enny real goodness ov heart, is an agreeable fraud.

Thare seems to be this difference between the foolish and the wise—the phools kan deceive themselves, but they kan't deceive others; the wize kan deceive others, but kan't deceive themselves.

Thare is no one more often wrong than the one who thinks that he iz allwuss right.

It iz very eazy to mistake cerimony for politeness, and the vulgar are allwuss making the mistake.

Human Eyes as a Camera.

The popular notion that the eyes of the dead sometimes retain complete images of scenes that have been enacted before them at the moment of death has received fancied confirmation of late years by experiment, and there are some who, from reading careless or exaggerated accounts of these experiments, might get an impression that science had placed upon the notion the stamp of approval. The following note from

the Lancet (London) gives us the very small modicum of truth that is the basis of such stories. It says:

"Under the title of 'In Dead Eyes' an evening contemporary recently made a statement which carried its own confutation with it. It is to the effect that a physician and enthusiastic photographer, being desirous of testing the amount of truth in the theory that dead eyes retain complete images, had carefully examined the eyes of hundreds of dead people, and, though he had never seen anything like a distinct picture mirrored, he had certainly distinctly traced both letters and objects on the iris of the eye, and that when the photographic test was applied these images became visible. In one case a capital letter of peculiar form was shown which could be traced to a Testament held in the hands shortly before death. In another case a numeral was distinctly pictured which was traced to a clock face in the room. The article in question continues: 'The chief scientific paper of France only the other day gave full particulars of a case where a woman, who died in one of the hospitals, had two numbers, 10 and 45, mirrored in the iris of her eyes.' Those absurd stories originate in the well-known experiments of Kuhne on the visual purple of the retina, in the course of which he showed that by making special arrangements the cross-bars of a window focused on the retina could be brought into relief. The enthusiastic photographer, if he be not misquoted, ought to have known that no well defined images of the external world are cast upon the iris, and none, therefore, could be preserved. The surface of the iris is far too uneven to act as a mirror. Moreover, as no arrangements were made to prevent the further action of light after death, they would, if formed, be certainly obliterated, as the image on a photographic plate would be if permanently exposed. The only mode in which an image impressed on the retina could be rendered visible would be to adopt the method of Kuhne, namely, by exposing the eye previously kept in the dark for a minute or two to an illuminated object, then extirpating it, opening it, and immediately plunging it into a solution of alum. The image develops in the course of twenty-four hours." —Literary Digest.

Lye Hominy.—Take three gallons of strong wood ashes, pour boiling water on them. Stir well, let settle, pour lye off the top. This should make a gallon of lye. Take five quarts of shelled corn, pour lye over corn and boil until little black ends rub off easily. Then wash until all little black specks are removed. Soak in buttermilk about one day, the buttermilk draws out the lye taste. Wash out the milk, then boil until done. Keep in a cold place and it will keep a long time. To prepare for table: Put a liberal quantity of meat fryings in a spider, put as much hominy in as is wanted for a meal, season with salt and pepper and fry for about ten minutes. For a pint of hominy take about a tablespoonful of flour, thin with a teacup of milk, pour over hominy, let boil a few minutes, then serve. So many make a failure by not having the lye strong enough. It should be strong enough to bear up an egg. —National Stockman.

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The Young Folks.

AT THE STILE.

Adown the grassy lane she came
And loitered at the stile
(Her grandmama did just the same
There many years erstwhile)—
The sole stile hereabouts, I wis,
For now are walls to climb;
Yet such a goodly style as this,
Why did it change with time?

No satin slippers then she wore,
No green calash, no shawl,
No fishu primly crossed before,
No powdered wig at all;
Yet still she dimpled on the stile
As grandmama did, they say;
Tho' styles may change, a maiden's smile
Is just as sweet to-day.

Then Marjorie looked up at me
And I looked down at her,
The while upon the stile sat we
As once her grandfolks were.
And then I spoke their old, old phrase
And named a sweet, fond name—
Tho' styles have changed since ancient
days,
One style remains the same!
—Able Farwell Brown, in the Woman's
Home Companion.

A REGIMENTAL DOG.

The incident which follows is an excerpt from a narrative taken from the diary of Sergeant Bourgogne, of Napoleon's Old Guard. There are lively descriptions in the volume of the burning of Moscow and the memorable retreat. And though there have been other accounts of the horrors and the awful suffering of man and beast, there are few that so vividly portray them or put us so closely in touch with the rank and file of Napoleon's devoted followers:

I now heard cannon and musketry fire. It was the rear guard leaving the town of Wilna, with Marshal Ney in command, engaging the Russians. Those who were no longer able to fight ran as fast as they possibly could. I tried to follow them, but my frozen foot and bad boots prevented me; then the colic, which came on repeatedly and forced me to stop, hindered me, and I found myself always in the rear. I heard a confused sound behind me, and I was hustled by several men of the Rhine Confederation running off as fast as they could. I fell full length in the snow, and immediately several others passed over my body. I raised myself with great difficulty, for I was in great pain; but I was so accustomed to suffering I said nothing. The rear guard was not far off—if it passed me I was lost; but the Marshal called a halt, to give the other men still leaving the town time to join us. To hold the enemy in check the Marshal had with him about 300 men.

In front of me was a man whom I recognized by his cloak as belonging to the regiment. He was walking very much bent, apparently overwhelmed by the weight of a burden he was carrying upon his knapsack and shoulders. Making an effort to get near him, I saw that the burden was a dog, and that the man was an old sergeant named Daubenton. The dog he carried was their regimental dog, though I did not recognize it. I told him how surprised I was at seeing him carrying the dog, when he had trouble to drag himself along; and, without giving him time to reply, I asked him if the dog was to eat—if so, I should prefer the horse.

"No," he answered, "I would rather eat Cossack. But don't you recognize Mouton? His paws are frozen and now he can't walk any longer."

"Now I do," I said, "but what can you do with him?"

As we walked, Mouton, whose back I had patted with my bandaged right hand, raised his head to look at me, and seemed to recognize me. Daubenton assured me that from 7 in the morning, and even before, the Russians had occupied the first houses of the suburb, where we had lodged; that all that remained of the guard had left it at 6, and that it was certain that more than 12,000 men of the army, officers and soldiers who were no longer able to march, had remained in the hands of the enemy. He had just missed submitting to the same fate himself through devotion to his dog. He saw very well that he would be obliged to leave him on the way in the snow. The evening of the day when we had arrived at Wilna—at 28°—the poor dog had had its paws frozen, and this morning, seeing that he could walk no longer, he had made up his mind to leave him; but poor Mouton got an idea that he was to be deserted, for he began to howl in such a way that in the end he decided to let him follow. But hardly had he taken six steps along the street when he saw his unfortunate dog fall upon his nose, so he fastened him across his shoulders over his knapsack, and it was in this fashion that he had rejoined Marshal Ney, who, with a handful of men, formed the rear guard.

While still marching we found ourselves stopped by an overturned wagon barring part of the way. It was open and contained canvas bags, but all these were empty. This wagon had probably left

Wilna the preceding evening or in the morning, and had been pillaged by the way, for it had been laden with biscuits and flour. I proposed to Daubenton to halt a moment, for my colic had come on again. He consented willingly, especially as he wished to rid himself of Mouton in one way or another.

We had hardly stopped when we saw at the back of a ravine a troop of about thirty young Hessians, who had formed part of the garrison of Wilna, and had left there at daybreak. They were waiting for Marshal Ney, about thirty paces away from us, and ahead of us to the right. At the same moment we saw on our left another troop of horsemen, about twenty in number. We recognized them at once for Russians. They were cuirassiers in black cuirasses over white coats, accompanied by several Cossacks, scattered here and there. They moved on so as to cut off the Hessians and ourselves, and a vast number of other unfortunate men who had just caught sight of them, and who turned back to rejoin the rear guard, crying out "Beware of the Cossacks!"

The Hessians, under command of two officers, who had probably caught sight of the Russians before we did, put themselves in order of defense.

At this moment we saw a grenadier of the line pass near to us, running to take rank among the Hessians. We prepared to do the same, but Daubenton, hampered by Mouton, wished to put him in the wagon. We had not time, however, for the cavalry came at a gallop alongside the Hessians. There they halted, singing to them to lay down their arms. A musket shot was the reply. It was that of the French grenadier, followed by a general discharge from the Hessians.

At this report we expected to see half the troopers fall, but, to our astonishment, not one did so, and the officer, who was in advance, and who ought to have been shot in pieces, seemed to be whole and sound. His horse simply leaped to one side. He turned round again instantly toward his men. They all thundered upon the Hessians, and in less than two minutes they were sabered. Several took to flight, but the cavalry pursued them.

At the same time Daubenton, wishing to rid himself of Mouton, called out to me to help him, but three of the men in pursuit of the Hessians passed close by him. So as to defend himself better, Daubenton thought of retiring under the wagon, where I had taken refuge, suffering terribly from colic and cold, but he had not time, for one of the three horsemen was on the point of charging him. Daubenton was fortunate enough to see the man in time, and get ready for him, but not so well as he could wish, for Mouton, barking like a good dog, hampered him in his movements. Meanwhile, although nearly dying of cold, I felt rather better, and had arranged my right hand to make use of my weapon the best way possible, having hardly any strength left to speak of.

The man wheeled continually around Daubenton, but at a certain distance, fearing a musket shot. Seeing that neither of us attempted to fire, he no doubt thought that we were without powder, for he advanced upon Daubenton and hit him a blow with his sword, which the latter parried with the barrel of his musket. Instantly the man crossed to the right, and gave him a second blow upon the left shoulder, which struck Mouton on the head. The poor dog howled enough to break one's heart. Although wounded and with frozen paws, he leaped off his master's back to run after the man, but being fastened to the straps of the knapsack he pulled Daubenton down, and I thought all was over with him.

I dragged myself on my knees about two steps ahead and took aim, but the priming of my gun did not burn. Then the man, shouted savagely, threw himself on me, but I had had time to get under the wagon and present my bayonet at him.

Seeing that he could do nothing to me, he returned to Daubenton, who had not yet been able to rise on account of Mouton, who all the time dragged him sideways, howling and barking after the cavalry. Daubenton was dragged against the shafts of the wagon, so that his enemy on horseback could not get near him. This man faced Daubenton, his sword raised as if to split him in two, appearing all the while to mock at him.

Daubenton, although half dead with cold and hunger, his face thin, pale and blackened by the bivouac fires, still seemed full of energy; but he looked odd and really comical, as that devil of a dog was barking all the time and dragging him sideways. His eyes were shining, his mouth foamed with rage at being at the mercy of such an enemy, who in any other circumstances would not have dared stand up one minute before him. To quench his thirst, I saw him fill his hand with snow and carry it to his mouth, and instantly seize his weapon again. Now in his turn he threatened his enemy.

By the man's shouts and gestures one

could see that he had no command over himself, and seemed to have drunk a great deal of brandy. We saw the others passing, repassing and shouting round some men who had not been able to reach the side where the rear guard would come; we saw them thrown into the snow and trampled under the horses' feet; for almost all who followed were without arms, wounded, or with frozen feet and hands. Others, who were stronger, as well as some Hessians, escaped from the first charge, were able to withstand them for a little, but that could not last, either—they must be relieved or captured.

The cavalryman with whom my old comrade was doing business had just passed to the left, when Daubenton shouted out to me: "Don't be frightened; don't stir, I'll finish him off!" Scarcely had he said these words when he fired. He was luckier than I. The cuirassier was struck by a ball which entered under the right arm first and passed out again on the left side. He uttered a savage cry, moved convulsively, and at the same moment his sword fell with the arm that held it. Then a stream of blood came from his mouth, his body fell forward over his horse's head, and in this position he remained as if dead.

Hardly was Daubenton rid of his enemy and free from Mouton so as to seize the horse, when we heard behind us a great noise, then cries of "Forward! Fix bayonets!" I came out of my wagon, looked toward the side from which the cries came, and saw Marshal Ney, musket in hand, running up at the head of a party of the rear guard. The Russians, on seeing him, took to flight in all directions. Those who rushed to the right on the side of the plain found a large ditch filled with ice and snow, which prevented them from crossing. Several flung themselves in it with their horses, others stopped still in the middle of the road, not knowing where to go. The rear guard seized several horses and made their riders walk on foot among them. Afterward they were left on the road. What else could one do? One could barely look after oneself.

I shall never forget the Marshal's commanding air at this moment, his splendid attitude toward the enemy, and the confidence with which he inspired the unhappy sick and wounded round him. In this moment he was like one of the heroes of old time. In these last days of this disastrous retreat he was the savior of the remnant of the army.

All this took place in less than ten minutes. Daubenton had rid himself of Mouton, so as to get hold of the horse, when a man, emerging from behind a clump of pines, threw the cuirassier off the horse, seized the animal by the bridle and made off. Daubenton shouted to him: "Stop, rascal! That is my horse. I killed the fellow!" But the other escaped with the horse among the rabble of men who were hurrying forward. Then Daubenton called out to me: "Look after Mouton. I am going after the horse; I must have him, or there will be the devil to pay." The last word was hardly out of his mouth when more than 4,000 stragglers of all nations came on like a torrent, separating me from him and from Mouton, whom I never saw again.

This seems to be the place for giving a little biography of the regimental dog.

Mouton had been with us since 1808. We found him in Spain, near the Bonaventura, on the banks of a river where the English had cut the bridge. He came with us to Germany. In 1809 he assisted at the battles of Essling and Wagram; afterward he returned to Spain in 1810-11. He left with the regiment for Russia, but in Saxony he was lost, or perhaps stolen, for Mouton was a handsome poodle. Ten days after our arrival in Moscow we were immensely surprised at seeing him again. A detachment composed of fifteen men had left Paris some days after our departure to rejoin our regiment, and as they passed through the place where he had disappeared the dog had recognized the regimental uniform and followed the detachment.—From the memoirs of the Sergeant Bourgogne, compiled by Paul Cottin. (Doubleday & McClure.)

Paw Elucidates the Transvaal Question.

Maw was readin the paper last nite and Purty soon she ast paw what all that Fuss was about Between England and the Bores. "Oh," paw says, "the Bores has Been sassin the inglish becoss they want to run the dynamite factreys."

"And Don't the inglish want to Let the Bores run them?" maw ast.

"No," says Paw, "and it's a Good thing the Don't. Sposen old Oom Poll went around thair smokin His pipe what you spose would happen. They wouldn't be a pound of dynamite left fer the forth of July and the Loss mite Be turable."

"Well," maw says, "I spose people that has a pipe in their mouth all the Time ot-tent to Be allowed to Run things where they was Danger, but it Says Here that the

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Brittish govament wants to exercise soozerainty."

"Of course they Do," says Paw. "They got a rite to do it, too, if They want to."

"What do they want to for?" maw ast.

"Oh, it's a long story," says Paw. "You wouldn't understand it if I told you. But you kin Bet if they ever git at it the Bores won't be able to stop Them no more Than you could stop a Fat man from fallin' off a Slate roof after He got a good start."

"What is this here soozerainty?" says maw.

"If I was running the Brittish govamunt I wouldn't stand it fer a Day," paw says. "I'd Taik old Oom Poll by the Whiskers and tell Him if He couldn't git along without no Dinamite He would Half to move over into some other country, that's all."

"But what about Soozerainty?" says maw.

Paw loked at Her Purty sad fer about a minit. Then He says:

"Well, if I was you I'd Hait to show my ignorancy by astin Sich questions. You Better go and Look in the Dickshenary. Gee, I'd like to be over thaire to See the fun if they ever git to fitin'."

"Do you think England could win?" says maw.

Paw Had to Burst out Laffin.

"Could England win?" He says. "Say, Don't you know that England has the Biggest navy on erth. Why, the inglish would blow the Bores clear offen the map Before they knowed what ever Happened to Them. If I was Chamberlain I wouldn't stand no more foolen, neither. I'd Send a Fleet Down thair and shell their Blamed old capital till you couldn't tell it from a picture of New Richmond after the sicleone."

Then maw showed Him a map what was in the paper and says:

"My! they must no lots about Bildin Ships in England if they Got Them so they can Go over mountains and Up thru the Valleys like a Drove of mules."

Paw looked at the map a minit and Then He Begin to Scratch His Hed, and I says:

"Mebby they want to exercise Soozerainty so she'll Git Her mastle up and Help them pull the Boates across."

"Say," paw hollered, "if you Don't git Over Your Habbit of Speekin Befor you git Spoke to I'm agoin' to Git the trunk Strap some Day and Lurn you a Few Things what your mother Hasen't never ast no fool questions about Yit."—"Georgie," in the Chicago Times-Herald.

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FOURTH OF JULY.

The average American parent experiences a relief from anxiety as he looks upon his small boy after his escape from the perils of another national anniversary.

Fire-cracker day is observed further around the world than ever before. To be sure, General Emilio Aguinaldo is not yet reported as enthusiastically with the American brand of fireworks, neither has he asked his stenographer to furnish the press with advance sheets of any speech of his on the glories of the American eagle. In fact, Emilio and a few million of his dusky Philippine countrymen manifested some reluctance about joining in the celebration, and they seem to hang back some about throwing their thousands of islands into Uncle Sam's lap.

But the little darkies in Cuba are said to take to our kind of noise about as rapidly as our make of bacon is doled out to them by Uncle Sam's commissaries.

Porto Rico—well, General Miles went to Porto Rico and found a brand of patriotism that is satisfactory.

Fourth of July rockets have been used in Hawaii for several years, and will shoot higher each year as the natives imitate the "good Indians" of this country, by betaking themselves to the land of the hereafter without leaving many descendants to obstruct the way of Anglo-Saxon enterprise.

Uncle Sam stands several feet taller this year than two years ago in the estimation of the other nations of the world. He appears to them more robust than a year ago when they were just hearing that he had landed Cervera's fleet at the bottom of the sea in the vicinity of Santiago de Cuba.

The world's interest in Uncle Sam just now is directed not to his mailed hand, for that is known to be powerful, but to his heart and to the part of his brain wherein wisdom resides, to discover whether the superiority of strength, of resource, of power to destroy, is accompanied by similar superiority of power to guide the energies of those who must in future depend upon us, into channels of peace, prosperity, enlightenment. By our next national holiday the world's verdict on this point will have been made up.

FREE SPEECH.

In a vein intended for irony the *Kansas City Star* delivers itself of a few paragraphs which strongly recall the German Emperor's fashion of imprisoning some of his wisest subjects on the charge of "lese-majeste," that is, for giving expression to some doubts as to the possession of transcendent wisdom by the crown, or of saying something out of harmony with the general fawning flattery which is by some mistaken for loyalty. Any such "lese-majeste" is punished by despots as high treason. One of the *Star's* sarcasms says:

"It is well known that General George Washington cheerfully endured the hardships and sacrifices of an eight years war in order to place upon an enduring foundation the right and privilege of his humble countrymen to call him an old fool and a natural-born tyrant, who aimed to make himself a king at the first practicable opportunity."

It is not very hard to remember that General George Washington took a great deal of care to so discharge his official trusts as to render absurd any such charge as is here suggested. It is quite conceivable that General George Washington found in the liberty of speech which he helped to

establish a ready weapon with which to keep the selfish ambitions of his day within due bounds. It will be a long time before the American people will surrender, or cease to use the right to say what they think on public questions. "The king can do no wrong" is good orthodox political doctrine in monarchical countries. When it is remembered that in the Government which General George Washington did so much to establish the sovereignty is in the people, and this sovereign's judgment on public questions is the composite of the opinions of the individual citizens, the importance of free, fair, and unbiased expression of these opinions, even as General George Washington is represented to have fought to have them expressed, is apparent.

But the particular object of attack in the aforementioned sarcasm is the Chicago University, of which it is stated that it "has declared in favor of free speech on the part of its officers and faculty." Now this Chicago University is a rich institution which has been endowed with many millions by one of the multi-millionaires of the country. It has been expected in some quarters that the board of control of this university would dictate the thoughts of the able men employed by the institution. It is pleasing to note that, while endowed by one of the greatest money-making magnates of any age, the Chicago University recognizes the fact that it would have the benefit of the unfettered thought of only one man were it to attempt to dictate to own—the views expressed by its professors and officers.

"As he thinketh in his heart so is he," is a proverb whose truth may be applied to the nation as well as to individuals. "As is the thought of the people so is the nation." But to be effective in shaping the nation the thought of the people must be uttered. Therefore did General George Washington and others establish the right of free speech.

WHAT IS A TRUST?

The new anti-trust law of Michigan defines a trust to be, "A combination of capital, skill, or arts for any or all of the following purposes: To create or carry out restrictions in trade or commerce; to limit or reduce the production, or increase or reduce the price of merchandise or any commodity; to prevent competition in manufacture, making, transportation, sale, or purchase of merchandise, produce, or any commodity; to fix at any standard or figure, whereby its price to the public or consumer shall in any manner be controlled or established, any article of commodity or merchandise, produce or commerce intended for sale, barter, use, or consumption in the State."

The Michigan definition of a trust may by some be considered rather drastic. It seems to cut in several directions. It may be denominated a preserver of competition. Possibly the farmer may be pretty much the only individual who will be thoroughly satisfied with its workings. But the farmer, since he must, from the nature of his calling, compete with his fellow farmer in every part of the world, is likely to be satisfied with a law intended to give him the advantages desired from competition of everybody else in producing and in selling what he must buy.

Readers of the *Kansas Farmer* have expressed great interest in the series of letters on "Plant Breeding," written for the *Kansas Farmer* from Cornell University, by Mr. Geo. L. Clothier. The value of these papers is such that a reprint has been made, bringing the letters together into a neat pamphlet of twenty-four pages. The *Kansas Farmer* Company has a limited number (400) of these which it will sell at 10 cents per copy or will send free as long as they last to each subscriber who, on renewing his subscription, requests a copy of "Plant Breeding."

Manhattan and the Kansas State Agricultural College want the tenth annual meeting of the Kansas Improved Stock Breeders' Association to be held there next January.

The Nickel Plate Road

will sell tickets from Chicago to Lynn, Mass., on July 10 and 11 at one fare for the round trip, good for return to and including July 12 to 20, inclusive, account meeting Y. P. C. U. Vestibuled sleeping cars and excellent dining-car service. Address J. Y. Calahan, 111 Adams St., Chicago. (21)

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A FARMERS' BANQUET.

On Friday evening of last week a banquet was given at the spacious rooms of the Topeka Club by Col. Guilford Dudley, of Topeka. Colonel Dudley is not a stranger to *Kansas Farmer* readers, and yet for the benefit of new subscribers it may be well to remark that he was one of the early pioneers of Kansas; that he did his part in the early contests; that he has by industry, energy, intelligence, and frugality acquired large interests in milling, in banking, in farming, and in other directions; but while his investments in other directions are greater than those in farming yet he realizes that Kansas prosperity depends upon the farmer. For this reason, and because in the problems of modern farming he finds scope for the activities of his mind, Mr. Dudley has become one of the most progressive and up-to-date students of the sciences on which the successful agriculture of the present is based.

The banquet brought together 50 prominent men from various parts of the State. These were not all farmers. The purpose seemed to be to bring together progressive thinkers, representative people, so that a good understanding might be promoted and everybody should become impressed with the modern aspects of the basic industry of the race.

Mr. Dudley had just completed the fattening of 100 steers. All but one of these were sold for export. The one was dressed for the occasion and formed a fitting foundation for a farmers' banquet.

After the several courses of the banquet had received due attention, Attorney-General Godard, toastmaster for the occasion, arose and addressed the banqueters.

THE TALK BEGINS.

BY ATTORNEY-GENERAL A. A. GODARD, TOASTMASTER.

Gentlemen: I think the time has come when we should proceed to the other part of our program for this evening. Since I came down here to-night I have been approached by several gentlemen who have had more or less bulky manuscripts protruding from their inner pockets, who have suggested to me that the program is long and therefore the toastmaster had best cut his services short. I had expected to deliver myself at this time of divers and sundry jokes which I had supposed would be very laughable and entertaining. I had expected also to get rid of some axioms of agriculture and things of that nature, but in view of the suggestions to which I have just referred, and in view of the fact that I am always disposed to give the other fellow a show, we will proceed immediately with the program of the evening.

We have the pleasure of having with us to-night the head of the greatest institution conducted by the State of Kansas, a gentleman who has, through his many years of service in behalf of the State of Kansas, and in behalf of the institution of which he has charge, rendered most valuable service, not only in the line of his duty, but also along the line connected with which are the interests of those who meet here to-night. He is to talk to us to-night on the subject upon which I apprehend all of us have some little—more or less—of a smattering of knowledge, and yet he is so familiar with this theory and this doctrine that he can tell us more of the growth, adaptation to environment, and survival of the "fittest" than any of the rest of us have ever thought of. [Laughter.]

I have the honor, gentlemen, of introducing to you Chancellor Snow of the State university. [Applause.]

EVOLUTION.

BY CHANCELLOR F. H. SNOW.

Mr. Toastmaster, Gentlemen—Farmers, Stock-raisers, Grain Men, Professors, and Friends: I appreciate the honor conferred upon me while being called upon to start this grand march of oratory, which, if continued to the end of the line, must undoubtedly prolong this session to a late hour. I will try, however, to do my best to secure a "balanced ration" so far as my own contribution is concerned.

The subject assigned to me is a vast one; a subject of immense proportions; a subject which involves every phase of human life; a subject which, in modern times, has taken precedence of other subjects to such an extent that churches have been divided, communities have been put into antagonism, section against section on account of modern views with reference to it. I remember some twelve years ago that one of my students came to me privately and informed me that there were those in the community who were criticizing severely my own position upon the great doctrine of evolution, and, as a friend, this student, who was then and is now a very warm friend of mine, advised me to avoid speaking upon the subject. While this doctrine of evolution is by no means a modern doctrine, it has assumed great prominence in modern times. As to the method in which God created the earth and all the living things upon the earth, or that have been

upon the earth, and that are locked up in the crust of the earth, a great revolution has taken place. Twenty-five years ago the mere mention of the name of evolution was sufficient to cause a shudder. The fear was cherished that this doctrine of evolution would lead to the overthrow of our most cherished ideas in religion, especially. Such people were afraid of the doctrine, but at the present time there is a great change. Twenty-five years ago I myself was a strong opponent of the theory of evolution, but as my scientific studies progressed, as I studied the structure of plants and of animals, the organic law by which living things have evidently been created impressed itself upon my mind so that I myself gradually changed my views and came to see that God created all things that are by slow process. No one believes that the earth was created in an instant, and yet some people did believe that fifty years ago. Perhaps in the backwoods some people of to-day might believe it, but it is only when I go out in the backwoods communities that there seems to be a shiver at the suggestion that this earth was not created in six twenty-four-hour days. We have come to believe that it occupied long periods of time in the making. There is no basis for the theory that this earth was instantaneously created, or that any species, so-called, of animal or plant life upon the globe was instantaneously created, but species, as well as individuals, have been slow in their evolution. We know that every individual animal and human being upon the globe at the present time was slowly produced from a little germ so small that it takes a microscope to see it, and there is no reason to believe that the cereals were produced in any other way. Professor Drummond has written a beautiful book couched in elegant language, in which he goes on to say that man himself has been gradually uplifted from the dust of the earth by slow process, and if you remember that verse in Genesis which speaks of the creation of man (Gen. 11:7, I think it is) you will remember that the Lord God formed man out of the dust of the earth and he became a living soul. I studied Hebrew, and the word "formed" means to fashion; it doesn't mean instantaneously to make out of nothing, but it means to fashion, as if it were a slow process. I say it is true that a few of the intelligent men have been revolutionized in the past twenty-five or thirty years, or since Darwin's immortal work was first given to the world in 1859. Only forty years have elapsed since that time, but that work was a revolutionary work as well as an evolutionary work. Now what is the bearing of this subject upon us farmers and stock-raisers? I suppose that our friend Colonel Dudley, as he got out this program, came to the conclusion that his work and our work is based upon the principles of evolution. It would take all night to state those principles, but what do I want to do with those principles? Why, one of them is that heredity is a very important factor in the development of organic life. Now we are raising cattle, we are raising corn, we are raising hogs, grain of all kinds, and what is the acknowledged method of securing the best results? Is it not in the first place to secure stock which has a good heredity? We believe practically in inheritance of qualities, and if we want to raise good cattle for beef we select stock which has the right qualities, believing that the offspring from that stock will inherit the qualities of the parents and we shall gain the desired result, and so we shall gain the desired result, and so we have had the lean kind transformed into the fat and juicy kind. We have had the razor-back hogs revolutionized. The difference between the old slab-sided hog that I used to see when I was a boy, and the modern Berkshire is a difference almost as great as between darkness and light. The great work of the stock-raiser is to secure in the first place those qualities in the breeders which will be communicated to the offspring in the line in which improvement is desired. He who would have a trotting horse who would make any time gets the offspring of a well-known stock. A good pedigree is exceedingly important. I understand that our friend and host of the evening is interested in these matters; that he has experimented in various lines, and that he has experimented in the way of improving the quality of corn in the field by seeing to it that the best qualities of corn are communicated to the growing crop, by selection of seed, by the transferring of pollen of the best plants to the fertilization of the ears of corn, and by controlling the environment. When we have the best seed, when we have the cross-fertilized seeds that have come from the best stock, we must secure the right environment. When there is an absence of rain we must so cultivate the soil that the upper two or three inches may be kept pulverized. The crop may be saved in dry time, we have learned, by giving it the right environment. And so it is everywhere; so in the human race. We hope

some time to see the day when there will be some means of preventing the production of offspring of certain kinds of parents. We hope that some time it will be impossible to produce such families as the family, low characters, inheriting their low qualities. There ought to be some way to prevent the production of children of those whose qualities are such as will bring harm to the State.

It is a very interesting subject. As I said, it is an immense subject. I have been interested in looking up my genealogy, and last summer when I had to go East to spend my time as a nurse to my wife I found out a lot of things about my ancestors. One of those family names was Kendall. It was a good family, but there is one physical peculiarity—it was a very common thing for the children to have six toes. I have a cousin who was interested to see the result of my labors last summer, and I gave him the results. He looked over my work and reported to me the next day that the most interesting thing that he had discovered was that in this particular family of Kendalls there were frequently six toes, and that he had a grandson, a little boy 4 or 5 years old, who had been born with six toes, and now he understood why it was. Now the great object is to weed out these defects, whatever they may be, physical, mental, moral, by careful selection, and that is the great hope of the world to-day.

The evolutionist is an expansionist; he believes in the improvement of the race, and of the nation to which he belongs. He believes that the world to-day is better than it was one hundred years ago. He believes that there is great hope in looking forward to the advancement which is bound to come in the future; to believe that from small beginnings there may be great endings.

I heard a little story the other day of a little boy who was sitting on his father's knee, and looking up into his father's face (his father was not a very handsome man), said: "Did God make you, papa?" "Yes, my boy." "Did God make me, too?" "Yes, my boy." "Well, isn't God doing a better job now than he did?" [Laughter.]

So we evolutionists believe that God is doing a better job as the world goes on. In other words he has inaugurated a system by which, through the lines he has ordered, there is a continual tendency to the survival of the best, to the triumph of good, to the overthrow of the weak, and to the defeat of bad; and we all look forward to this progress with joy in our hearts, and we believe that there is no place, no way, for the pessimist who holds that things now are going to the demerit bow-wows as they never went before, and that we had a better nation one hundred years ago than we have to-day. I believe, and the belief of every good patriotic evolutionist is, that we are on the line of progress, and this nation which we believe to be the chosen nation of the Lord is destined to extend until possibly some time we may take in the whole earth. [Applause.]

The other speakers were appropriately introduced by the toastmaster. These introductions are omitted here to save space. There were twenty-one speakers on the program. Seventeen of these responded. The Kansas Farmer is able to obtain copies of only a few for this issue, but hopes to present the others next week.

SYSTEM IN FEEDING.

BY J. D. SMALL.

There are in Kansas about 2,750,000 cattle. Of these about 700,000 are milch cows, and of the remainder, about 1,300,000, are being fattened for food. Like every other human occupation, the cattle trade is undergoing evolution. Experience is teaching new methods by which the greatest profit can be secured by the least outlay of labor and cash.

When we look at the capital that is represented in our State by almost 3,000,000 cattle, which is some \$100,000,000; when we have studied into the scientific production of beef, and, having just partaken of the same that has been fed on a balanced ration of corn, hay, bran, oil-cake, etc., and been convinced that there is a scientific principle involved in the production of good beef, we will have to admit that, in order to produce the best results, there must be certain systematic principles followed out by which we can obtain the most profit by the least labor and cost.

Against gross profits in any kind of business there always stands the expense of labor. And in computing labor, we must not look at the simple cost per day or month of the man or machine that produces the results, but at the net profit to be derived from a certain amount of labor, be the cost much or little.

If we can produce \$1.50 from a man's labor at \$1.00 a day, we are the gainers by 50 cents. Employing ten men at the same rate, we would gain ten times as much. But our idea in feeding cattle is by the use of machinery, to so utilize the labor of

one man that he may do the work of several. In other words, where, in the old way, it used to require one man and team to care for one or two hundred cattle, feeding them corn in its crude form in the ear, we now, with two men and two teams, feed from 1,200 to 1,500 steers a day, and with two more men prepare the feed in the most scientific manner. This brings us to our method or system of feeding.

Our system in producing beef is, first, to endeavor to not have the first cost of the steer too much. It is at this point that the most profit is made. If your stock in trade costs too much you can not, in the natural course of events, expect to make it up.

A system that will produce the least amount of profit from the greatest amount of labor must evidently be wrong. So we endeavor to produce the greatest amount of profit from the least amount of labor. And in order to do this we, by a series of elevators and machinery, have so arranged that corn (we grind all our feed) is handled but once from the time it enters our mill until it reaches the feed boxes in our feed lots.

In feeding hay we do not feed in hay-racks, to be trampled and wasted on the ground, but cut it all and mix with the ground corn. By the above arrangement we not only save much hay, but find our cattle do much better. While all this

costs labor, the saving overbalances the cost, besides giving better results.

Our system of watering our stock is by pumping the water into large tanks, and piping to small tanks that are provided with automatic floats, which control the flow of water and always give the stock a fresh supply; and let me say right here, that fresh, pure water is a great essential in fattening cattle, and without it scientific principles and balanced rations will be of no avail.

In winter, when the weather is cold enough to freeze, we have our tanks provided with a heater that keeps the water above the freezing-point. By our system, the average cost of labor and power for feeding and grinding does not exceed one-half cent a day for each steer. To be sure, we feed 1,000 to 2,000 at a time, and if the supply falls below 500 or 600 it costs a trifle more, unless you can employ your men at something after they are through feeding.

I believe that our system of grinding all feed, and cutting the hay, with plenty of pure, clean water, combined with Mr. Dudley's balanced rations, will produce as fine beef as ever graced the table of any epicure, and be conducive of wealth, health, and happiness to the producer, while stagnant pools of water, with muddy banks, green on top, the home of the festive frog, and ear corn, fed in boxes that are never cleaned out, with musty hay, from top or bottom of stacks, that can not be sold, will as surely lead to losses.

A balanced ration of well-prepared feed,

WALTHAM WATCHES

The best and most reliable timekeepers made in this country or in any other.

The "Perfected American Watch," an illustrated book of interesting information about watches, will be sent upon request. American Waltham Watch Co., Waltham, Mass.

mixed with good bright alfalfa or clover hay, will always make the steer come smiling up to the feed trough, will make the buyer smile when he sees him on the market, and will make the owner smile and smile again when he receives the price.

You no doubt have all heard of the Irishman who fed his hog all the corn he could eat one day and the next day gave him none, and, being asked his reason, replied: "Sure, I wish to have a streak of lean and a streak of fat when I kill him."

Now, while we have not done this in Pat's way, we have, by feeding full rations of balanced food to our steers every day, produced the streak of lean and streak of fat in our marbled beef, and the progres-

for he ascribed to Dan characteristics which could have been obtained nowhere save from his male progenitor.

At a later period in history, Dan's offspring and some of their relations got tired of tyranny and went against the king. They afterwards had a variegated experience of conquests, captivities, and removals; but they managed to scatter their name pretty well over a considerable part of Europe. Thus we have the Danube, the Dniester, and others among rivers. We have Denmark and Danes, the city of Danzig, etc. Wishing to go further back in their ancestral line, a settlement is said to have claimed the honor of being Isaac's sons, a name easily contracted to Saxons.

Presently these Danes, these Saxons, and

EAGLE-HART KAFFIR-CORN HEADER.



The illustration herewith represents a machine attached to an ordinary farm wagon, which will top or head Kaffir-corn or sorghum one row at a time. This machine attaches to any ordinary wagon-bed, is simple in construction, easily operated, and has been satisfactorily tested during the season of 1897-'98 in the Kaffir-corn district. This machine will cut and elevate into a wagon about eight acres per day. It is adjustable to the will of the driver; can be raised or lowered to suit the height of uneven corn while in motion. This machine is furnished to the farmers with a positive assurance that it will do the work here represented. It is on sale with most of the implement dealers, but where it is not on sale it may be secured from the makers, the Eagle Mfg. Co., Kansas City, Mo., who will be pleased to hear from our readers interested in such a machine.

sive cattle-feeder of to-day who, by these methods, produces this kind of beef should receive recognition from our great packers by being awarded the highest price for his beef when he goes to market.

THE NEW FARMER.

BY E. B. COWGILL.

The first new farmer of whose operations an authentic account has been written, was a gentleman by the name of Jacob, who, some thirty-six and a half centuries ago, took his journey towards the east in search of a wife. He got more wives than he had originally contemplated. But, he gave a practical demonstration of the breeders' art, which greatly astonished a certain other gentleman with whom he did business, and also enriched the breeder with profitable herds of ring-streaked and spotted cattle of excellent constitutions and growthy habits. Men have come and men have gone, and the record of this success has been read reverently for all these centuries; but, like many other excellent pieces of information chronicled in the same unparalleled literary work, this wisdom has been deemed more worthy of reverence than of practice.

This man Jacob had something of a record other than as a "new farmer." He was one of Isaac's sons. He was also the father of numerous sons, one of whom was named Dan by a near friend of his mother. Dan's father once told him what he thought of him. The old man here again displayed some of the knowledge of the new farmer,

others took possession of England, and, after they had settled some questions of public policy, it came into the minds of certain of these descendants of the original new farmer, to whom I have referred, to practice some of the breeding arts of their ancestor, to the improvement of breeds of cattle and other domestic animals. Whether this was a case of atavism of ideas, or whether the thought of improvement by breeding came to John Bull on account of reading of Jacob's profit from the application of the principles of ancestral dynamics to his father-in-law's herds, is a question of less importance than the fact that, by applying thought and knowledge to the stock business, the men who did it grew rich, and have benefited the world with better and more profitable domestic animals than could have been otherwise produced. The American descendants and the disciples of these men are putting intensified thought into their work, and are bringing forth results proportioned to the thought and knowledge applied.

But the plant-breeder now disputes the stock-breeder's claim to first consideration. The opportunities which open before the new farmer, in this line of improvement, are bewildering in their redundancy. The life-work of an energetic, studious man, like our friend Clothier here, devoted, as his is to be, to the production of plants possessed of superior excellencies, will show that Jacob of old is credited with having practiced only a fraction of the breeder's art.

The new farmer, who has appeared and
(Continued on page 12.)

Horticulture.

THE PROFITABLE STRAWBERRY BED.

Press Bulletin, Kansas Experiment Station.

The strawberry is one of the most profitable crops ever introduced on Kansas soil. The mention of a case or two will make the truth of the statement more impressive. Last spring a gentleman set in his garden, in Manhattan, 1,025 strawberry plants of the following varieties: Warfield, Parker Earle, Robinson, Beder Wood, and Bisel. The plants grew in matted rows and covered one-fourth of an acre. The plants grew well, the ground was cultivated frequently, and during the winter a mulch of clean straw was kept on the bed. The yield to this date has been 2,400 boxes, and will reach 3,000 boxes by the time the crop has ended. The setting of the plants, the cultivation, and the picking have mostly been done by the family, so that the only outlay was for the plants and berry crates and boxes. The first 400 boxes sold at 12½ cents per box, the remainder at 10 cents. The following is the record:

RECEIPTS.	
400 boxes berries at 12½ cents.....	\$ 50.00
2,000 boxes berries at 10 cents.....	200.00
Total receipts.....	\$310.00
EXPENSES.	
Cost of plants.....	\$ 3.00
Crates and boxes.....	9.00
Commission.....	54.00
Total expenses.....	\$ 66.00

The pickers who were hired were paid at the rate of 1 cent per box. Estimating at this rate for the whole crop and allowing \$15 for labor of setting the plants, cultivating, and mulching the bed, we still have left \$199 for the quarter acre, or a very handsome rate of 79¢ per acre. No irrigation was employed.

The other case is as follows: The bed covers one-sixth of an acre. Two-thirds of the bed is 2 years old and is bearing its second crop; one-third is 1 year old and is bearing the first crop. The plants have had good attention. They were cultivated well during the summer, irrigated when necessary, and mulched during the winter. The following varieties compose the bed: Shuster's Gem, Barton's Eclipse, Cumberland, Chas. Downing, Warfield, and Parker Earle. The plants were raised by the owner, who also did most of the labor of cultivating and picking. The following statement gives a record for this year:

RECEIPTS.	
635 boxes at 12½ cents.....	\$ 79.37
829 boxes at 10 cents.....	82.90
Plants sold from bed.....	24.50
Total receipts.....	\$186.71
EXPENSES.	
Cost of crates and boxes.....	\$ 3.00
Cost of water.....	5.00
Cost of cultivation.....	11.50
Labor in picking.....	15.00
Commission.....	18.20
Total expenses.....	\$ 52.70
Net profit.....	\$134.07

Rate of net profit per acre, \$804.42.

The soil upon which these crops grew is a rich, deep, black loam, well suited to strawberries, but not better for the purpose than thousands of acres in other sections of the State. The fruit was all sold upon the local market; and, being of excellent quality, was but little affected by imported berries, which sold regularly at from 1 to 2 cents per box lower than home-grown berries.

Almost any portion of the State will produce berries of excellent quality providing water can be supplied artificially, and there is no part of the State but what will now and then require irrigation for the best results in strawberry-growing. Speaking generally, the most favorable location for strawberries for the local market is right in the city on vacant lots, where the city waterworks provide sufficient water for irrigation of small tracts. Besides having a water supply, the berries are near the market and the cost of delivery is small.

Intensive culture is the only profitable method of culture in strawberry-growing. Try the recommended varieties until you have found the best, and then discard all but three or four. Give the ground thorough preparation and have the soil rich. Use good, strong plants in setting the bed, and after that cultivate well, and water when the plants indicate the necessity of it. During winter, cover the whole bed with a mulch of clean straw. In the spring this can be mostly removed from the plants and placed between the rows. On the whole, the best success comes from setting a new bed each year. Old beds can be renewed, but the labor required is often greater than that required to set the new bed, while the greater profit nearly always comes from the new bed.

Plants sent by mail are free from soil and packed in damp moss. If properly handled by the receiver there is very little danger of loss, unless they have been de-

layed in transportation, frosted, or were improperly packed. If the plants are in bad condition when received no time should be lost in notifying the firm who shipped them, and generally others will be sent in their place. But there is a great deal of dormant vitality in plants, and unless frozen or badly frosted, they may generally be saved. As soon as the plants come to hand don't be in a rush to open the package. Get the soil and the pots ready first. Take out the plants, one at a time, potting each as taken out. If they seem dry or wilted, lay them in water from which chill is taken, and let them remain a couple of hours, then pot them. If they are to be set in the open ground and the weather is not favorable, pot them, and shift to the border when the right conditions are present. If too numerous for this, keep the box or package unopened, in a damp place, or "hid in" in a sheltered place. In setting, shield from the sun for a couple of days.

Orchard Treatment.

A paper by J. A. Thompson, of Edwardsville, Kans., read before the thirty-second annual meeting of the Kansas State Horticultural Society.

The care of an orchard begins with the planting. The moment the orchard is planted the owner has a care, if he never had one before—and if care brings gray hairs he may expect to have enough to be noticed. In case of want of care, then the orchard will show it. I know of nothing that so plainly and quickly shows the presence or absence of care as an orchard. Starting in the spring, the newly planted trees must be cultivated, for without cultivation they will make but a sorry growth; the cultivation should last four or five years continuously, when clover may be sown. The length of time an orchard may stand without plowing will depend largely on the character of the soil. Trees on rich land will remain in thrifty condition for a long time; but growth on the land should be mowed often enough to keep the grass and weeds down. Pruning should be done when the tree is small, and consists in trimming up to desired height and training a central stem, removing chafing branches, and keeping the tree properly balanced. The borers must not be forgotten; I know of no better way than to dig them out with a knife, and the sooner it is done the better. September is a good time to look for them, and if they are looked over again in the spring some will be found that were missed in the fall.

Where rabbits abound something must be done. One neighbor wrapped his trees with grass; we used the wood tree-protectors; both were effectual. While the wood wrapper is useful it can not be depended on to take entire charge of the tree. For mice, keep the ground clean around the tree. The foregoing relates mostly to young trees. The bearing orchard should have a separate chapter. Rabbits, mice, and borers will still be with you.

Broken branches should be cut out. If a tree dies, dig it up promptly and take it away. The mowing-machine should be used freely. In the cultivation of orchards a crop is usually grown. For the best results, the crop which requires the most plowing and hoeing should be chosen. Corn will do, not planting too close to the trees, but cabbage or potatoes are better. If you want to make an orchard look sick, sow oats.

If the orchard is making a poor growth, and the foliage is light in color, plow it, either in the fall or early spring; then, with a spreading harrow, cultivate until the middle of July. With this treatment is entirely satisfactory. As I am but one, of a committee of three, to make a report on the "Care of Orchards," I will make the report brief. I do not know of any kind of care that will give us a crop of apples every year: neither can I account for the failure this last season. Our trees bloomed freely, but bore no apples.

Spraying Potatoes.

Press Bulletin, Vermont Experiment Station.

No farmer can afford the loss of one-third of his crop. Yet potato-growers who do not use Bordeaux mixture often lose more than this. The results of the eight years' trial at the Vermont Experiment Station show average yields of 296 bushels an acre where sprayed and 173 bushels where not sprayed.

It pays to spray potatoes if done rightly. The practice of the Vermont Experiment Station is to use Paris green for the beetles during June. During July and August two or three applications are made of Bordeaux-Paris-green mixture. This mixture consists of six pounds copper sulphate, four pounds lime, one-half pound Paris green, one barrel (40 or 50 gallons) water. Slake the lime and dilute with about one-half the water; dissolve the sulphate in the other half, then pour this vitrol solution into the lime water, meanwhile stirring thoroughly. Add the Paris green and the mixture is ready for use.

Spraying of early potatoes is begun about

She Was Pale as Death

Miss Cordelia Moore, of Malone, N. Y., until recently, has been a life-long invalid from palpitation of the heart and weakness of the blood.

Physicians were puzzled over her case, their most skillful efforts were baffled. Various remedies were tried without avail. The proverbial "change of climate" was advised, but the constant change wore upon her until, to quote her mother's words, "she became a living ghost." Miss Moore said: "Upon advice of a friend I began taking Dr. Williams' Pink Pills for Pale People and before the first box was used I noticed a great change. I began to regain my appetite and felt better generally. After finishing the first box I took six more. The effect was wonderful. I grew strong and gained in flesh. I never felt better in my life than I do now. I weigh more than ever before and I consider myself cured."

From the Gazette, Malone, N. Y.

Dr. Williams' Pink Pills for Pale People contain, in a condensed form, all the elements necessary to give new life and richness to the blood and restore shattered nerves. They are an unfailing specific for such diseases as locomotor ataxia, partial paralysis, St. Vitus' dance, sciatica, neuralgia, rheumatism, nervous headache, the after-effects of the grip, palpitation of the heart, pale and sallow complexions, and all forms of weakness either in male or female.

Dr. Williams' Pink Pills for Pale People are never sold by the dozen or hundred, but always in packages. At all druggists, or direct from the Dr. Williams Medicine Company, Schenectady, N. Y., 50 cents per box, 6 boxes \$2.50.

July 1, and of later potatoes about the middle of July. A second application is made two or three weeks after the first. A third application follows two or three weeks after the second, if needed. Some years this third application does little good; other years it saves the crop from late blight or rot.

How shall the mixture be applied? The object is to cover the upper surface of the leaves with a thin layer of the mixture. There is no danger to the vines from using too much, and most men make the mistake of applying too little. In a small field the mixture may be put on with a sprinkling can. For an acre or more a spray pump is desirable. There are many of these on the market. The simplest, and therefore, best, way to begin is to have a good strong pump mounted on a barrel which can be carried through the field in either a common one-horse wagon, or better, on a special two-wheeled cart (wheels six feet apart, to straddle two rows, while the horse walks between them). One or two hose with nozzles, run from this pump, can be directed by one or two men riding, or better, walking. In the latter case each hose should be ten feet or more in length.

A good spraying outfit is largely home made, and each man will soon modify the details of this method to meet his own conditions. The above suggests a good way to begin.

Spray promptly and thoroughly or not at all.

Smyrna Figs in California.

Something more than a year ago the United States Department of Agriculture, convinced that the fruiting of the Smyrna fig in California and the consequent production in that State of a fig which should equal the standard fig of commerce was dependent upon the introduction from south Europe and the establishment in California of a little insect which in Mediterranean countries fertilizes the Smyrna fig, began a series of experimental introductions of the insect. The question had been studied for some time by Dr. Eisen of the California Academy of Sciences, by Mr. George C. Roeding of Fresno, Cal., and Mr. John Rock of Niles, Cal. At Fresno and Niles numbers of Smyrna figs, as well as wild figs from south Europe, in which the fertilizing insect, known as Blastophaga, develops, had also been started. Dr. Howard, the entomologist of the Department of Agriculture, went to California in the spring of 1898 to look over the ground in California to ascertain the conditions, and to settle on the best points at which to attempt the introduction of the European insect. Another agent of the Department, Mr. Walter T. Swingle, was sent to south Europe partly

for the purpose of sending to this country cuttings of all varieties of wild figs which could be found, and to send over living specimens of the Blastophaga.

It was thought worth while to send to this country the fruit of the wild fig, or the Capri fig, as it is called, containing the living insects, and this was done on a number of occasions by Mr. Swingle. A Capri fig-tree was enclosed at Mr. Roeding's place at Fresno, and, on the arrival of the European figs, the insects which were found to be in good condition were liberated within the enclosure. The living insects had previously been obtained by correspondence by Mr. James Shinn, of Niles, and by Mr. Roeding, but the insects had died before reproducing. Mr. Swingle adopted a new method of packing for transportation, each fig being carefully wrapped in tin-foil and sealed with wax. The first specimens were received at Fresno in the early part of May, 1898, but, so far as could be observed, none of them laid eggs either from this or subsequent sendings. All through the intervening year wild fig cuttings have been received and started under varying conditions. It was realized that the attempts thus far described were very problematical in their results and that the chances of success were small. It was planned, therefore, to transplant Capri fig-trees into large tubs and carry them across the Atlantic in growing condition with their fruit and the contained insects; and one rather large tree has been sent over the present spring by Mr. Swingle.

It now turns out, however, that by great good fortune some of the insects brought over in 1898 did succeed in penetrating the closed flowers of the Capri figs growing at Fresno, and that they laid their eggs and have practically established themselves in California. The first step of the experimental work is, therefore, a success. Since the insect has maintained itself for an entire year there is reason to suppose that it will continue to breed, and that California in the near future will be able to place a fig upon the market which will possess the same superior flavor as that which has given the imported Smyrna figs their pre-eminent commercial rank. This flavor seems without doubt to be dependent upon the number of ripened seeds within the fruit. This fact has been ascertained through experiments in the artificial fertilization of Smyrna figs grown in California. Experiments were made by Dr. Eisen and Mr. Roeding, both with the transfer of pollen from Capri figs by means of a tooth-pick and by means of a blowpipe. In this way a large number of seeds were fertilized, probably half as many as are fertilized by the work of the Blastophaga in Asia Minor, but already the characteristic flavor of the European figs was noticed.

Sample copies of Kansas Farmer sent free on application.

In the Dairy.

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

AN INTERESTING PARALLEL.

The cuts presented this week are those of two cows owned by the Kansas State Agricultural College, and which were fresh last December, Zarnica coming in December 4 and Zargola December 28. Their dairy record stands as follows:

SIX MONTHS' RECORD.

Name.	Products.			Cost of feed.	Value.			Receipts less cost of feed.		Cost of butter fat per pound.
	Milk, lbs.	Av'ge test, per ct.	Butter fat, lbs.		Butter fat.	Skim-milk 15c 100 lbs.	Total.	Gain.	Loss.	
Zarnica....	4,360	4.15	181.3	\$23.21	\$28.35	\$5.89	\$34.24	\$11.03		\$0.128
Zargola....	1,830	4.20	77.2	15.30	12.13	2.48	14.61		\$0.69	0.198

From the above table it will be seen that the test of these two cows is practically the same, but one of them is producing milk at a profit and the other at a loss. Neither of these cows is of the ideal dairy type, but one approaches it much more than the other. Zarnica is a fair milker and a fair feeder. What she eats above her body requirements is used for the manufacture of milk. She has produced milk at the average rate of 21 pounds per day and butter fat at the rate of .87 of a pound per day. We do not have her weight for December, but from February 6 to June 1 she gained only 40 pounds of flesh.

the standpoint of the cow, is gone. Soon will come the dry weeks of July and August. Pastures dry up, grass becomes woody and water poor. Flies get at their work and the poor cow has to suffer unaided by her owner, doing her best through these sultry days to earn a living for her owner, whose only thanks are in the poor accommodations afforded her. Next to her pasture stands a great field of corn, and, perchance, the fence is poor and she goes in to help herself to the succulent crop, only to be driven out by the dogs and reviled because she tried to satisfy the craving of her nature and demands of her sys-

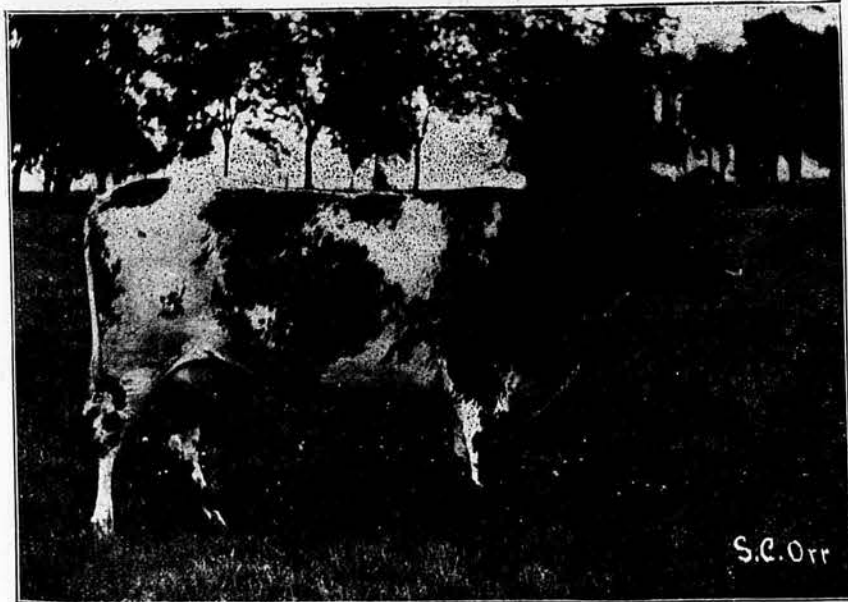


ZARNICA.

Zargola is a good representative of the beefy cow. She has a good appetite, but her feed goes to lay on flesh and not to make milk. Her rear udder has the appearance of a funnel with the front teats attached to the side. She has produced milk at the rate of 10 pounds per day and butter at the rate of .42 of a pound per day. From February 6 to June 1 she gained 109 pounds of flesh.

tem for the juicy green feed afforded by the crop.

The master notes daily the decrease in his milk sent to the creamery and inwardly thinks of the diminishing values of his milk checks at the end of the month. He will also note that butter fat is worth more in August than in June. Will he put these things together and ponder over them?



ZARGOLA.

The record of these two cows again emphasizes the necessity of keeping individual accounts with each cow. This may appear to be a big task, but in practice it requires but a few seconds to weigh and record a cow's yield, and the increased interest that a milker takes in his work when keeping a record will more than pay for the time.

First, the cow gives more milk in June when the grass is fresh and succulent, and begins to fail as soon as pasture gets poor. Second, the corn crop for which he expects to get 20 cents per bushel and run the cows on the dry stalks is in the best condition to produce a good flow of milk during these dry months before the fall

★ ★ ★ ★

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rains, and the cow is at just the point where she needs it most to keep up the June conditions.

Third, the butter fat will be advancing in value, the corn is in the field, the cow ready to turn it into account. Will her owner grasp the situation, help her out, increase his milk check, and lengthen the period of usefulness of his herd?

Every pound of milk lost during the summer months is just so much lost for the fall and winter months as well. Keep up the flow then, and good results will invariably follow.

It is not hard to cut the yield by bad management at this critical period, but it is exceedingly hard to gain what has been lost; in most cases it is almost impossible to make it up later by good feeding.

ED. H. WEBSTER.

A Problem in Keeping Milk Sweet.

J. W. S., of Medicine Lodge, writes: "Will you kindly give me a good method of sterilizing milk? I use a large refrigerator, but milk sours after taking out."

Our correspondent asks for a method of sterilizing milk in order to keep it. By sterilizing is meant the heating to the boiling point. This always gives milk a burnt taste and odor and is very objectionable for butter-making or direct consumption. However, milk can be pasteurized without injury and its keeping qualities materially increased. This consists in heating to 150° to 165° F. for ten to twenty minutes and then cooling down to 50° or 60° F. There are a number of pasteurizers

on the market, but as we have no facilities for handling them at present we can not speak of their relative merits.

When properly handled, milk can be kept sweet for a reasonable length of time without either pasteurizing or sterilizing. Especially is this true when one has access to a refrigerator. The reason Mr. S.'s milk sours so quickly after leaving the refrigerator is probably due to the entrance of a large number of germs into the milk before it reaches the refrigerator. While the milk is cold these germs do not develop very fast, but as soon as warmed they multiply at a rapid rate and sour the milk. In the healthy udder milk is practically sterile (free from germs) and our aim should be to keep it as near this condition as possible. For this purpose the agricultural college dairy scalds the milk cans and pails with boiling hot water just before milking and then washes and scalds again as soon as possible after using. To make the cow stand easier in fly-time we throw a blanket made of gunny-sacks over her back while being milked. A damp flannel cloth, previously sterilized, is used to wipe off any loose hairs or particles of dust adhering to the udder and sides of the cow. The milk is drawn into a sanitary milk pail through a 6-inch circular strainer that sets into the cover. The milk is again strained through a wire strainer on an upward pressure, which allows any solid particles of dirt that might chance to get into the milk to settle to the bottom of the strainer and not be forced through by the milk on top. The milk then passes through three or four thicknesses of cheese-cloth into a 40-quart

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The following are a few sample letters of what we are constantly receiving regarding the merits of the U. S.:

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MUSCATINE, IA., May 15, 1899.
I am very much pleased with the No. 5 Improved U. S. Separator. I have seen other separators work, but I like the U. S. better than any of them. It runs very easy and is easy to operate. I have a little girl eight years old and she can put it together, start it, and run it awhile. It separates clean, and I would not do without it if I had only two cows. It pays for every one who has cows to have a U. S. Separator.
AUGUST GRETE.



Takes Out Every Bit of Cream.

FRANKLIN, MINN., May 19, 1899.
We are well satisfied with the No. 5 Improved U. S. Separator we are using and want no other kind. It is easy to wash, is very simple—any one can operate it—and takes out every bit of cream. Can recommend it to any one wishing to buy a separator.
CHRIST THOMPSON.

The U. S. Sells Like "Hot Cakes."

ROCHESTER, MINN., May 10, 1899.
I am well pleased with the Improved U. S. Separator purchased last summer. They are selling like "hot cakes" in my neighborhood this season.
J. J. WOLSETH.

Write for our latest catalogues with hundreds like the above.

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can. As soon as this can is full the milk is taken to the dairy room, aerated, and cooled. By this treatment we have kept milk from thirty-six to forty-eight hours without ice during our hottest summer months. For a detailed description and illustration of how milk is handled at the agricultural college, see Kansas Farmer, November 10, 1898. D. H. O.

Dairy Notes.

A gunny-sack thrown over the cow while milking will afford much comfort, both to the cow and to the milker, and will cost but a trifle.

See that the cows have plenty of nice, clean water these hot days. The cows at the college prefer to get their water on the way to and from pasture, rather than in the yard.

A piece of cheese-cloth thrown over the can or strainer while milking will keep out the flies, and consequently many bacteria, as flies carry all kinds of bacteria around on their feet and legs.

Alfalfa proves to be better than oats for soiling purposes, the cows like it better, and it gives more feed per acre. On oats some of the cows at the agricultural college fell off as much as 5 pounds in that many days when changed from alfalfa to oats.

This morning while milking a cow whose milk we did not care to save, we took the strainer off of our sanitary pail. Although we had taken the usual precautions of wiping off the udder and flank with a damp cloth, still there was a good deal of dirt and a number of hairs that dropped into the milk. We are now wondering how much dirt gets into an uncovered pail whose top is 12 or more inches in diameter. J. A. CONOVER.

Shoo the Horn-fly.

J. W. P., Hoyt, Kans., writes: "Our dairy cows are suffering from swarms of the horn-fly. Have you any application that would give even temporary relief?"

The college dairy has tried the following preparation, recommended by F. A. Marlatt:

Fish-oil, 2 quarts.
Crude carbolic acid, 1 pint.
Oil of pennyroyal, 1 ounce.
Oil of tar, 10 ounces.
Kerosene, 1 quart.

This preparation may be applied with a brush, cloth, or atomizer, and will cause the flies to leave immediately. All of the ingredients, except kerosene, can be procured at the drug-store and will cost in the neighborhood of 85 cents per gallon. With the college herd of 13 calves, we find that one gallon of this mixture will make from 40 to 45 applications, and a single application will keep the flies off from two to three days. This will make the cost about 2 cents per application, or from 1/2 to 1 cent per day per head.

The Kansas Experiment Station is planning to make a number of tests with fly preparations and may have something cheaper to report later. D. H. O.

Publishers' Paragraphs.

The "divine art" has been coupled with entertaining and instructive literature in a new magazine called "Music, Song, and Story." It provides fine reading of both timely and permanent interest and is illustrated with the most beautiful half-tone pictures. The music is, however, the most striking feature of this magazine. There are 16 pages (sheet-music size) of lithographed vocal and instrumental music of the most tuneful kinds, all new, copyright pieces never before published. If published as separate sheet-music the prices would aggregate \$3. The magazine is issued monthly at 10 cents a copy or \$1 a year. The publisher is S. W. Simpson, 70 Fifth avenue, New York.

"To Throw Good Money After Bad will but increase my pain." If you have thrown away money for medicines that did not cure, now begin taking Hood's Sarsaparilla, the medicine that never disappoints.

Hood's Pills sure sick headache, indigestion.

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A FARMERS' BANQUET.

(Continued from page 9.)

prospered at remote intervals in the ages, is now reappearing in force of numbers. He devotes his attention not to beating the old man out of the best of his cattle by tricks of breeding, but he applies knowledge of the past, knowledge of the present, and is on the alert for knowledge yet undiscovered to use in his business. He applies the discoveries of science to his plowing, to his tillage, to his cropping. The new farmer is not experimenting to learn what has before been well determined. To learn this is a part, an essential part, of the new farmer's education at the agricultural college and the State university.

The new farmer does not always come upon the stage of action the possessor of a good farm, plenty of well-bred live stock, and abundance of modern implements. The young man alluded to in the beginning of these remarks, had not only to work for wages, but for a wife as well. But being of thrifty turn and frugal habits and well informed in his business, he accumulated a fortune and a family under adverse and somewhat discouraging circumstances.

I am not here to say that every new farmer of to-day is to become as rich and as prominent in history as he who operated in Paden-Aram. But it will not be disputed in this presence that the world is a good deal wider than it was then believed to be; that it is now more fashionable to apply thought to industry than it was then; and that the earning power of intelligent effort is now greater than ever before. The new farmer need not remain landless and destitute of flocks and herds. The new farmer is now in business and his power in production is rendering him a severe competitor for any who will not learn, for any who do not think as well as labor. The new farmer has come to stay. The less enterprising, the uninformed, the ease-loving, the traveler in ruts, may drop from the position of farmer to that of wage-earner; but the new farmer, alert to every advance in the science and art of agriculture, abreast with the times as to methods and markets, alive to what is being done by farmers in all parts of the world, applying his knowledge and his thought diligently to his every-day problems—the new farmer need not contemplate any other occupation on account of either pleasure, profit, or necessity.

Perhaps it may be charged that these remarks are much given to genealogy. But genealogy is the new farmer's sheet-anchor. By observing the laws of hereditary transmission, and of modification of characteristics by environment, animals and plants are made to assume the new farmer's ideals.

Of the amount of knowledge discovered and used by the ancients, but subsequently lost, the world will probably always remain in ignorance. By tradition the son learned from the father. The knowledge of the stock business possessed by Jacob was probably got from Isaac. One of Isaac's probable descendants—a Saxon prince—built Dudley castle, near Birmingham, England. Descendants of this prince left their mark on the history of England. One of them is to-day a new farmer in America, in Kansas. A few years ago he showed stockmen how to improve their steaks and roasts by the use of what had been almost a waste product—wheat bran. Later he showed practically on his farm the advantage of conserving moisture and warmth in the soil by cultivating according to the principles of soil physics. He has also manifested the recurrence of the breeding skill of his ancestors by applying the breeder's knowledge to corn. Again, this American son of a Saxon has demonstrated the power of man to modify the subtle excellencies of beef by feeding a ration so compounded as to produce the desired results. We have sampled the results here to-night and are unanimous in the verdict that our host is a master-builder of beef. True to his ancestral instincts, however, our host, while he may be called an experimenter, puts into his experiments such thought and such execution that they always show the balance on the right side of the financial account.

One more suggestion: We have all enjoyed this occasion and have profited by it. It can not be otherwise when a company of new farmers bring their thoughts together, especially if under the hospitality of one of their number. New farmers' meetings like this may become a permanent feature. The sentiment of the undersigned on this point is, "Barkis is willin'."

New Through Pullman Service Between Denver and St. Louis.

On June 18 the Great Rock Island Route inaugurated through Pullman Sleepers between Denver and St. Louis via Kansas City and the Missouri Pacific R'y. East-bound car leaves Denver daily at 2:35 p. m. on the "Colorado Flyer," arriving in St. Louis 6:15 p. m. the next day. West-bound car leaves Kansas City daily on "Colorado Flyer," at 6:30 p. m., arriving in Denver 11 a. m. next day. This is the fastest

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The Nickel Plate Road

will sell excursion tickets to Chautauqua Lake and return on July 28, at one fare for the round trip, with return limit of August 29, 1899, by depositing ticket at Chautauqua not later than July 31. Tickets good on any of our three daily trains. Cheap rates to other Eastern points. Van Buren St. Passenger Station, on the Loop. For further information, address the General Agent, 111 Adams St., Chicago. (24)

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Senator Harris has decided to close out the Linwood Farm flock of Shropshire sheep, consisting of 120 breeding ewes and their 170 lambs; 42 yearling ewes, and 55 yearling bucks, which will be sold at private sale during the next sixty days. The most desirable flock in Kansas. For further information call at Linwood Farm, or

Address PHILO D. JEWETT, Mgr., Linwood, Kans.

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MARKET REPORTS.

Kansas City Live Stock.

Kansas City, July 3.—Cattle—Receipts since Saturday, 3,450; calves, 278; shipped Saturday, 936 cattle; no calves. The market was strong, 10c higher. The following are representative sales:

DRESSED BEEF AND SHIPPING STEERS.			
No.	Ave. Price.	No.	Ave. Price.
34.....	1,381 \$5.35	44.....	1,190 \$5.25
69.....	1,321 5.17½	25 s. & h.....	955 5.10
5.....	1,190 4.90	21.....	1,141 4.85
1.....	970 4.70	2.....	730 4.50

WESTERN STEERS.			
36.....	1,354 \$5.25	31.....	1,344 \$5.25
43.....	1,307 5.25	23.....	1,382 5.25
31.....	1,328 5.25	32.....	1,330 5.25
9.....	1,318 5.25		

NATIVE HEIFERS.			
24.....	760 \$5.00	8.....	747 \$4.75
2.....	685 4.50	4.....	595 4.50
2.....	590 4.50		

NATIVE COWS.			
13.....	984 \$4.25	1.....	1,130 \$4.00
14.....	980 3.90	1.....	1,220 3.65
6.....	1,026 3.40	4.....	765 3.00
5.....	1,052 2.75	2.....	840 2.35

NATIVE STOCKERS.			
38.....	437 \$4.90	7.....	551 \$4.80
6.....	753 4.75	5.....	820 4.75
25.....	620 4.40	20.....	421 4.25
3.....	620 3.75	5.....	552 3.50

Hogs—Receipts since Saturday, 5,199; shipped Saturday, 1,222. The market was 5 to 10c higher. The following are representative sales:

77...273 \$3.97½	48...273 \$3.95	128...275 \$3.95
67...268 3.95	66...293 3.95	65...268 3.95
75...282 3.92½	68...224 3.90	69...270 3.90
80...263 3.90	79...247 3.90	66...237 3.90
80...233 3.87½	79...230 3.87½	106...214 3.87½
76...252 3.85	61...252 3.85	70...220 3.85
54...220 3.85	63...225 3.82½	75...196 3.82½
61...222 3.80	88...203 3.80	90...206 3.80
101...178 3.77½	38...226 3.77½	69...197 3.77½
55...174 3.75	42...261 3.75	74...182 3.75
85...163 3.72½	73...191 3.72½	44...171 3.72½
42...152 3.70	84...174 3.70	7...151 3.70
32...188 3.67½	123...147 3.67½	108...153 3.65
19...140 3.65	32...155 3.65	13...140 3.60
9...146 3.60	10...139 3.60	4...137 3.55
100...122 3.50	1...430 3.40	1...520 3.40
2...320 3.40	1...320 3.25	2...370 3.25
1...350 3.25	15...125 3.25	1...220 3.00

Sheep—Receipts since Saturday, 1,935; shipped Saturday, 284. The market was steady. The following are representative sales:

21 spg. lms. 69 \$6.75	118 spg. lms. 65 \$6.50
5 spg. lms. 48 4.50	15 lms. 49 3.50
62 C. W. 105 3.50	2 fdrs. 90 3.45
85 fdrs. 51 3.50	8 bucks. 124 2.25

Horses and mules—There was a fair supply of horses on sale for this season of the year. Prices ruled about steady, but there was little spirit in the trade. Mules are dull, but generally steady.

St. Louis Live Stock.

St. Louis, July 3.—Cattle—Receipts, 1,200; market strong and higher; fair to choice native shipping and export steers, \$4.70@5.40, with fancy worth up to \$5.65; dressed beef and butcher steers, \$4.10@5.30; steers under 1,000 pounds, \$3.30@5.10; stockers and feeders, \$3.95@4.70; cows and heifers, \$2.25@4.85; bulls, \$2.85@3.65; canners, \$1.50@2.85; Texas and Indian steers, \$3.50@5.00; cows and heifers, \$2.50@4.25.

Hogs—Receipts, 4,500; market strong; pigs and lights, \$3.90@3.95; packers, \$3.85@3.95; butchers, \$3.90@4.00.

Sheep—Receipts, 1,800; market strong; native muttons, \$4.00@4.50; spring lambs, \$4.25@5.50; culls and bucks, \$3.00@4.00.

Chicago Live Stock.

Chicago, July 3.—Cattle—Receipts, 12,000; market strong; beefs, \$4.50@4.70; cows and heifers, \$2.00@5.00; Texas steers, \$4.00@5.15; stockers and feeders, \$3.75@4.85.

Hogs—Receipts, 35,000; market steady; mixed and butchers, \$3.80@4.00; good heavy, \$3.85@3.97½; rough heavy, \$3.60@3.75; light, \$3.80@4.05.

Sheep—Receipts, 15,000; market steady; sheep, \$3.00@5.25; lambs, \$4.00@7.00.

Kansas City Produce.

Kansas City, July 3.—Eggs—Strictly fresh, 10c per doz.

Butter—Extra fancy separator, 16½c; firsts, 14½c; seconds, 11c; dairy, fancy, 13c; store packed, 11c; packing stock, 10½c.

Poultry—Hens, 7½c; broilers, 12½c; roosters, 20c each; ducks, 5c; geese, 5c; turkeys, hens, 7c; toms, 6c; pigeons, \$1.00 per doz.

Berries—Gooseberries, \$1.35@1.50 per crate. Currants, \$2.00@2.25 per crate. Blackberries, \$1.00@1.75 per crate. Raspberries, \$1.50@2.00 per crate.

Vegetables—Lettuce, home grown, 15@25c per bu. Pieplant, 10c per doz. bunches. Spinach, home grown, 60@75c per bu. Asparagus, home grown, 25@40c per doz. bunches. Radishes, 5c per doz. bunches. Green beans, 15@30c per bu. Peas, 40@75c per bu. Sweet corn, 5@8c per doz. Tomatoes, home grown, 75c@1.00 per crate. Cucumbers, 10@30c per doz. Potatoes—Home grown, new, 20@30c per bu.

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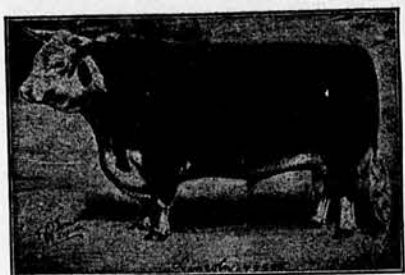
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Official Receipts for 1898	1,846,233	3,672,909	980,303
Sold in Kansas City 1898	1,757,163	3,596,823	815,580

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The Poultry Yard

POULTRY EXPERIMENTS.

Excerpts from Bulletin No. 60, Utah Experiment Station, by James Dryden.

The experiments in egg production outlined in Bulletin No. 51 of this station, were, in the main, continued during the year ending November 7, 1898. The results of this second year's work are reported herein. These experiments were designed to show:

1. The relative value of year-old hens and of pullets.
2. The effect of exercise.
3. The relative value of early and of late-hatched pullets.
4. The yearly food cost per fowl.
5. The average yearly production of eggs per hen.
6. The weight of eggs from different breeds.
7. The relative fertility of eggs under different treatments.
8. The relative fertility of fresh and of old eggs.
9. The merits of different incubators.
10. The effect of different methods in artificial incubation.

OUTLINE.

The following outline shows the arrangement of the pens:

WITHOUT EXERCISE.

2. Early-hatched Rose-comb Brown Leghorn pullets.
3. Early-hatched Rose-comb Brown Leghorn year-old hens.

WITH EXERCISE.

1. Early-hatched Rose-comb Brown Leghorn pullets.
4. Early-hatched Rose-comb Brown Leghorn year-old hens.
5. Late-hatched Rose-comb Brown Leghorn pullets.
6. Black Leghorn pullets.
7. Late-hatched Barred Plymouth Rock pullets.
8. Light Brahma year-old hens.
9. Light Brahma pullets.
10. Barred Plymouth Rock pullets.

CONDITION OF THE EXPERIMENTS.

During the year each pen contained five fowls, except in two cases—pen 6 of Black Leghorns and pen 8 of Brahmas, the former having three and the latter four fowls. During the previous year there were four fowls in each pen. An extra fowl was put in each of pens 3 and 4 at the beginning of second year; the one for pen 3 was taken from pen 2 (late-hatched pullets) of 1896-7, without exercise, and the extra fowl for pen 4, was taken from pen 6 (late-hatched pullets), with exercise, of 1896-7. Pens 3, 4, and 8 were continued from the first year, in order to contrast their egg records during their first and second years. The fowls of these three pens were pullets when the experiments of 1896-7 began. They were hatched in the spring of the year 1896, and were, therefore, at the beginning of the second year's experiments—November 7, 1897—about 1½ years of age. At the end of the second year's experiments they had completed two seasons' laying, being then about 2½ years of age.

Pens 1 and 2 were early-hatched pullets, from the same stock as pens 3 and 4. These were hatched about the same time of the year as those of pens 3 and 4. They began laying about the first of October, and had laid up to the date of the commencement of the experiments, forty eggs. These eggs are not counted in their egg record given herein. These two pens were fed practically the same ration and received about the same care as pens 3 and 4 during the first year. That is, pen 1 was fed as pen 4 had been fed, and pen 2 as pen 3.

Pen 5 was made up of late-hatched pullets, the date of the hatch being June 10. They were of a different strain of Leghorns from pens 1, 2, 3, and 4. They were from eggs furnished the station by H. E. Benedict, of Elmira, N. Y.

Pen 6, Black Leghorn pullets, hatched May 10. Placed in experiment May 30.

Pen 7 were late-hatched pullets, and were put into the experiment March 8.

Pen 8 contained the same fowls as in the previous year.

Pen 9 contained five Light Brahma pullets, which were purchased in Iowa. Their ages could not be learned; though as their weights will show, they had not matured when put into the experiment.

Pen 10 were Barred Plymouth Rock pullets, about fully matured when put in the experiment on January 10.

The station had made arrangements to have a thoroughly representative pen of Barred Rock pullets placed in the experiment so that a fairly accurate test might be made of this breed for egg production; but, through an unaccountable failure of the party with whom we had negotiated for a suitable pen, in carrying out his contract, we were left without any Barred Rocks until after the experiment had begun, and it was then impossible to get an even lot of pullets suitable for such an ex-

periment. Our breed test, therefore, during the past year, as during the first year, has little to commend it.

By way of further apology, and in justice to "the hen," two other unfavorable conditions should be mentioned. First, there was a change of feeders shortly after the experiments had been started, and a month or two later still another change was made. Second, from some cause, some of the pens—notably pens 1, 2, 3 and 4—during early winter contracted colds, which resulted in badly swelled heads in several cases. Could these two unfavorable conditions be eliminated, the record of these pens, though good, would certainly have been better.

THE PENS.

The pens are 5x7 feet, and are divided by wire partitions. Counting the time the males were in the pens, there were on an average five and one-third fowls in pens 1, 2, 3, 4, 7, 9, and 10. The floor space was, therefore, equal to about six square feet per fowl. In the case of pens 5 and 6 the male was in the pen throughout the year; so that in pen 5 there were 35 square feet for six fowls, and in pen 6, 35 square feet for four fowls.

THE EXERCISE.

The exercise consisted in making the fowls scratch for their grain food, which was fed in a litter of straw about six inches deep. This straw was renewed once a week in winter and twice a month in summer. The pens without exercise were fed in boxes. There was no floor in the pens, and of course the hens fed in the boxes had considerable exercise by scratching in the ground, and in the outside runs they had more or less exercise in summer.

METHOD OF FEEDING.

All pens were fed alike, except as to quantity. Subsequent tables will show what each pen was fed. A warm mash was fed every morning. This was composed of bran, two parts; ground oats, one part; and ground corn, one part. This was seasoned with salt and a little cayenne pepper. About 10 o'clock a little grain was fed, wheat one day and oats the next. Then in the evening, or late afternoon, wheat was fed, all they would eat up clean. Three times a week cut bones, or butchers' scraps, were fed. During the winter the green food consisted of lucern (alfalfa) leaves thrown in the pens, and in summer green lucern and clover were fed. In the early spring a section of the yards was covered with a good growth of rye, which furnished all the green food necessary for several weeks. After that was eaten down, green lucern and clover were cut and thrown into the pens. Coal ashes were kept in a box in each pen, most of the year, as were also ground oyster shells.

SHADE.

The shade for the fowls in midsummer was furnished by a growth of Russian sunflowers in a section of each pen. There was no other shade available. The building facing the south and sloping to the south, affords no protection against the heat of the sun. The temperature inside of the building was very high during the warm months. Throughout the summer the fowls suffered from the heat of the building when they were in feeding, as they must necessarily be a large portion of the day. Trees have now been planted in the yards, which will in time protect the building from the sun.

WEIGHTS OF FOWLS.

Each fowl was weighed every two weeks during the year. Pen 3 averaged as pullets 3.32 pounds per fowl; pen 4, 3.42 pounds, and pen 8, 6.7 pounds per fowl. Pen 3 averaged .22 pounds more during the second year than during the first; pen 4, .24 pounds more during the second year, and pen 8, .65 pounds more during the second year than during the first. The pullets of pens 1 and 2 of 1897-8, averaged slightly heavier than pens 3 and 4 as pullets. Pen 5, late-hatched Leghorns, averaged about three-fourths pound less than pens 1 and 2, early hatched. Pen 5 was of a different strain, as already noted, from pens 1, 2, 3, and 4, which latter pens were all from the same stock. The Black Leghorns weighed somewhat less than the Browns. Pens 7 and 10 were of the same breed but from different breeders. There is a remarkable difference in their weights. The pullets of pen 7 were underweight, and those of pen 10 overweight, the standard weight of a Plymouth Rock pullet being 6½ pounds. Of the Brahmas, the hens of pen 8, as well as the pullets of pen 9, were less than standard weights, the standard calling for 9½ pounds for the hen and 8 pounds for the pullet. Pen 8, as pullets, weighed 6.7 pounds.

CONSUMPTION AND COST OF FOOD.

Table I gives the food consumption per fowl for each of the pens. With three exceptions, it shows the food consumed during the year; the exceptions being pens 6, 7, and 10. Pen 6 was placed in the experiment on November 30, or three weeks after the beginning of the experiments. Pen 7

was put in on March 8, so that the record for this pen is for three-fifths of the year, only. Their food consumption for the year, therefore, would be about one-fourth greater than is shown in the table. Pen 10 was put in the experiment on January 10, or two months after beginning of the experiments; so that the food consumed by this pen and shown in the table was for only five-sixths of the year.

TABLE NO. I.—WEIGHTS IN POUNDS PER FOWL.

PEN.	Mash.	Wheat.	Oats.	Bones.	Corn.	Oyster Shell.	Total Food.	Dry Matter.	Cost of Food.
1.....	9.1	35.7	21.9	9.8	0.5	1	78.0	65.5	67.0
2.....	9.1	34.0	20.5	9.7	0.5	1	74.8	61.9	64.4
3.....	9.1	33.5	18.2	9.6	0.5	1	71.9	59.4	62.1
4.....	9.1	34.5	22.0	9.8	0.5	1	76.9	63.9	66.5
5.....	8.2	32.5	20.2	8.8	0.4	1	70.2	59.4	60.5
6.....	10.0	41.7	23.0	10.4		1	85.1	71.80	74.6
7.....	10.9	30.4	14.5	9.0		1	65.8	53.25	56.7
8.....	17.9	47.4	27.3	14.2	0.9	1.2	108.9	88.21	90.2
9.....	16.8	43.0	26.1	12.2	0.7	1.2	100.0	80.97	82.9
10.....	13.7	37.5	21.6	10.8		1.2	84.8	68.85	72.5

Pen 3 consumed about 5 pounds more total food as year-old hens than as pullets. Pen 4 consumed about 8 pounds more during the second year than during the first. The increase was mostly in wheat and oats, there being a decrease in the amount of mash, bones, and corn.

Pen 5, late-hatched pullets, consumed less food than any other pen. As will be seen, the cost of food ranged from 60.5 cents per fowl to 67 cents for the five pens of Leghorns, the average of the five being 64.1 cents. This slightly increased cost is largely due to the cost of the oyster shell fed. During the first year there was nothing charged for oyster shell, as there was practically none fed.

The cost of the different foods was as follows: Mash, 5-14 cents per pound; wheat, 1 cent; oats, ¾ cent; bones, ¾ cent; corn, 1 cent; oyster shell, 3 cents.

It will be noticed that wheat constituted the principal item of the rations. The food was all weighed each day, except the wheat and oats, which were weighed out weekly into feed boxes in each pen. Corn was fed for the first two weeks of the experiment and discontinued.

SUMMARY OF RESULTS.

A summary of the financial results is given in table II. This shows the food cost per fowl, the number of eggs laid per fowl, the value of those eggs at market prices, the food cost per dozen of eggs, and the per cent of profit on food.

Pen 5, it is seen, consumed the smallest amount of food, laid the largest number of eggs, produced eggs at the lowest cost per dozen, and shows the highest per cent profit on food. Pen 1 exceeds any other pen in the value of eggs laid. It also shows more profit per fowl, but in the per cent on food it falls slightly behind pens 2 and 5. Pen 1 gives a profit of \$1.24 over and above cost of food; pen 2 gives a profit of \$1.16½,

and pen 5, \$1.17½. But the food consumption was so much less for the latter two pens that the final result is against pen 1. Pen 8 produced eggs at greater cost than any other pen. This was the second year of this pen. As pullets they produced 147½ eggs each, at a food cost of 81¼ cents. Pen 7 consumed 56.7 cents worth of food per fowl during the eight months it was in the trial. The food cost would have been about a third more for this pen had it been in the experiment the full period, and the per cent profit would have been so much less. As explained elsewhere the records made by pens 8, 9, and 10, and, indeed, by all of the pens, are not what might be considered high averages. The treatment and feeding of the hens and the conditions of the experiments were not all that could be desired. No fair comparison can be made between pen 5 and pens 1, 2, 3, and 4, for the reason, already explained, that pen 5 was from a different strain and reared under different conditions. Pen 5 shows an excellent record, however, nearly equal to the best record made during the previous year, so far as financial results are concerned. When it is considered that they laid no eggs until January, when the price of eggs had fallen, the record is very satisfactory.

(To be continued.)

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TABLE NO. II.—SUMMARY.

	Cost of food.	Average number of eggs laid.	Value.	Food cost per dozen.	Per cent profit on food.
Exercise—	Cents.			Cents.	
1. Pullets.....	67.	160.2	\$1.91	5.	182
No Exercise—					
2. Pullets.....	64.4	157	1.81	4.9	185
No Exercise—					
3. Year-old hens.....	62.1	150.8	1.68	4.9	170
Exercise—					
4. Year-old hens.....	66.5	114.2	1.11	7.0	67
5. Late-hatched pullets.....	60.5	164.6	1.78	4.4	194
6. Black Leghorn pullets.....	74.6	130	1.33	6.9	77
Late hatched.					
7. Barred Plymouth Rock pullets.....	56.7*	105	1.11	6.5	97
Year old.					
8. Light Brahmas.....	90.2	97	.96	11.1	8
9. Light Brahma pullets.....	82.9	129	1.33	7.7	37
10. Barred Plymouth Rock pullets.....	72.2†	127	1.28	6.9	77

* For eight months. † For ten months.

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A Curious Aquatic.

The frog-bit, a rare and beautiful water plant, has as odd a way of providing for its own existence as the curled pond weed, whose peculiarity in detaching a portion of itself for renewal in spring was described recently. The frog-bit never roots, but floats freely about on the surface, allowing its long roots to hang down like streamers into the water. The short stalk is submerged, the leaves lie on the surface. Like most other water leaves which thus support themselves, they are almost circular in form, like the pads of the water lily. The reason why leaves assume this circular shape is easy to see; they need no stout stalk to support them, the water serving to float them on its surface; and as the surrounding space is free from competition, with no other plants to interfere with them, they spread freely in the sunshine. The round shape is that which foliage naturally assumes when there is no competition, no architectural or engineering difficulty, plenty of food and plenty of sunshine.

The flowers arise above the water and are extremely delicate and beautiful, with three papery white petals and a yellow center. Staminate and pistillate grow on different plants and aquatic flies act as their ambassadors. But, like other denizens of the pond, the frog-bit has to reckon with the winter, for which it makes curious provision.

After the flowering season is over it begins to anticipate the future. It then sends out slender runners, like those of the strawberry, on the end of which is a bud. These the plant fills with starch and other rich food stuffs, and about the time when the water begins to grow cool these buds detach themselves, like the winter shoots of the pond-weed, and slowly descend by their own weight to the bottom. All the living material is drained from the leaves of the plant into these winter buds. They do not root, but simply lie on the bottom of the pond, protected by a covering of close-fitting scale-leaves.

In spring, when the pond thaws out, these buds undergo a change in their structure—certain spongy internal alterations of structure, which lessen their specific gravity. Air-cells are developed in them, so that they begin to rise like bubbles to the surface. There they begin to grow and spread out their kidney-shaped leaves and send out runners which produce young plants, till the surface is covered with a network of tangled roots and plants. Then it flowers, and again sends out its runners bearing the winter buds.—From "Flashlights of Nature."

Great Age of Birds.

It is only possible at present to collect data from the duration of lives of birds in captivity; evidence otherwise must be very unreliable, and it is purely a matter of theory as to whether the natural possible life is greater than that under the unnatural condition of captivity. There are records of a nightingale having lived 25 years, a thrush 17, a blackbird that was still alive at 20½, a goldfinch 23, skylarks of 24 and 20. Ravens, owls, and cockatoos are popularly supposed to live to a very great age, and the following records appear to be authentic: Raven, 50; gray parrot, 50 and 40; blue macaw, 64; eagle owls, 53, and one still alive at 68. Some aquatic birds appear to live to a ripe old age, for we hear of a heron of 60, goose 80, mute swan 70. It is doubtful whether any of the foregoing ages are any true guide as to the longevity of the actual families the birds represent, or, indeed, whether the possible age of one family exceeds that of another, but the records are interesting, and form a step in the ladder of investigation of this most difficult question. The coloring of a bird in perfect health and the texture of its feathers are exactly the same at 50 as at 5, and those signs that are popularly put down to age, such as bleached and faded plumage and misshapen claws or beaks are attributable to unnatural conditions of some kind. The great tenacity of life some birds possess when deprived of food is marvelous, and the following instances are given: Golden eagle, 21 days; an eiderduck, 28; an albatross, 35, and a penguin (Aptenodytes), it is stated can live two months.—Ibis.

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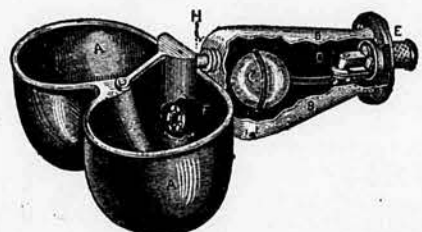
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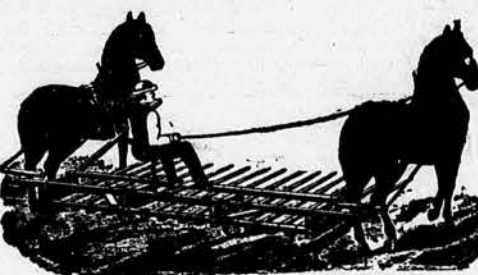
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