

KANSAS FARMER

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Spring crop of pigs by Wren's Model, What's Wanted Wilkes and Tanner by Hiderstretcher. Dams by Black Corwin, Wren's Medium, Protection Boy, Moss Wilkes Tecumseh, Hadley M. Washington. Get a Corwin Sensation, Darkness 1st, or Moss Wilkes Maid boar before my sale this fall. Some extra fine gilts for sale now. Tanner pigs are marked perfectly and have fine finish. Write me for particulars. **J. R. WILLSON, Marion, Kas.**

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

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For Ready Sale Thirty Poland-China Bred Sows

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

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Herd boars, Victor Hugo 41799 (sire imp.), Barkis 30040 (weight 800 lbs.), Prince Jr. 17th, from World's Fair winner. Choice pigs from five different strains. Also bred Shropshire sheep, M. B. turkeys and B. P. Rock chickens. Write. **Allen Thomas, Blue Mound, Linn Co., Kas.**

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Herd Boars are Grand Sons of J. H. SANDERS and SHORT STOP, the World's Fair Prize Winners. Bred to 20 large mature sows of Corwin Black U. S. and Black Bess blood. We aim to produce the money-makers, not sacrificing size and feeding qualities to fancy points. Choice young stock for sale at reasonable prices. **M. L. SOMERS, Altoona, Kas.**

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For sale, King Perfection 4th 1874 S. and Lambing Ideal 14060 S. Also sows bred to above boars or Dandy U. S. by Frazur's U. S. by Frazur's Black U. S., dam Black Beauty by Ben Harrison, sire Charley F., brother to Look Me Over. Write for particulars. Address either **W. E. JOHNSON, Colony, Kas.** or **E. A. BRICKER, Westphalia, Kas.**

SWINE.

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Boars and gilts for sale. **S. W. HILL, Hutchinson, Kas.**



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



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

Standard Herd of Poland-Chinas

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

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



T. A. HUBBARD, Rome, Kansas, Breeder of POLAND-CHINAS and LARGE ENGLISH BERKSHIRES. Two hundred head. All ages. 25 boars and 45 sows ready for buyers.

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Two hundred head, four herd boars, 160 spring pigs. An extra lot of September boars and gilts for sale. Prices reasonable. Farmers and Stock Hog Raisers cordially invited to write or visit us. **WAIT & EAST, Altoona, Wilson Co., Kas.**

Wamego Herd Imp. Chester Whites and Poland-Chinas.

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

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

—Breeders of— **Short-horn Cattle and Poland-China Swine Of the Best Strains.**

Stock for sale. Correspondence and inspection invited.

C. H. CLARK, —BREEDER OF—

Poland-China Hogs and Mammoth Bronze Turkeys. What Judge Rhodes says of my turkeys: This is to certify that I have this day scored Mr. C. H. Clark's bronze turkeys, some eighty birds, and find them among the very best I have handled. They are strong in color of wing barring, breast and tail quite free of chocolate color. I find them strong of bone, and recommend Mr. Clark as a reliable breeder. **C. H. RHODES.**

Nation's Poland-Chinas.

Fifty boars and gilts for this season's trade. My herd boars consist of Darkness Quality 14361, Princeton Chief 14543, Col. Hiderstretcher 37247 and Standard Wilkes. My sows are splendid individuals and of the right breeding. Personal inspection and correspondence invited. **LAWRENCE NATION, Hutchinson, Kas.**

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Young boars old enough for service, also sows and gilts bred and unbred for sale. Sired by 2d Seven Oaks, Col. Mills 45718, Prince Majestic 45600 and others. Write for prices, or come and inspect stock. **MANWARING BROS., Lawrence, Kas.**

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Scotch and Scotch-topped, with the richly-bred Champion's Best 114071 in service. Also high-class DUROC-JERSEY SWINE. Can ship on Santa Fe, Frisco and Missouri Pacific railroads. **J. F. STODDER, Burden, Cowley Co., Kas.**

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BERKSHIRE, Chester White, Jersey Red & Poland China Pigs. Jersey, Guernsey & Holstein Cattle. Thoroughbred Sheep, Fancy Poultry, Hunting and House Dogs. Catalogue. **S. W. SMITH, Cochranville, Chester Co., Pa.**

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Five Poland-China boars for sale at prices lower than we have ever offered. Two by Highland Chief, he by C. T. 2d, one by Knox All Wilkes, two by Silver Chief 2d. Anybody wanting a boar write at once. **DIETRICH & SPAULDING, Richmond, Kas.**

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

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

MAPLE LAWN HEREFORDS.

E. A. Eagle & Son, Props., Rosemont, Osage Co., Kas. For sale, five young pure-bred bulls of serviceable age. Also one car-load of high-grade cows and one car bull calves.

Geo. Groenmiller & Son,

Centropolis, Franklin Co., Kas., Breeders of Red Polled Cattle and Cotswold Sheep, Buff and Partridge Cochins, Light Brahmans, Brown S. C. Leghorns and Golden Wyandottes. A few seven-eighths Red Polled bulls for sale.

CLOVER CLIFF FARM.

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

D. P. NORTON, Breeder of Registered Shorthorns,

COUNCIL GROVE, KANSAS. 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.

DEER PARK FARM.

H. E. BALL, Proprietor. Registered Jersey cattle. Young bulls and heifers for sale. Registered Poland-China swine. Young boars for sale. Farm two miles east of Topeka on Sixth street road. **T. P. CRAWFORD, Mgr., Topeka, Kas.**

RIVERSIDE STOCK FARM.

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

AMERICAN GALLOWAY BREEDERS' ASSOCIATION.

Composed of breeders of Galloways in all parts of the United States and Canada. **Stephen M. Winslow, President, Oskaloosa, Mo.** **Frank B. Hearne, Sec'y-Treas., Independence, Mo.** For any information relating to the breed, write to the Secretary.

JACKS FOR SALE.

I have for sale twelve Jacks, aged 3 and 4 years next spring. Their breeding is from Spanish Kentucky and Tennessee bred Jacks and Jennies, black with white points. **L. O. HINGSTON, Richmond, Okla.**

Agricultural Matters.

EARLY OR LATE CORN, WHICH?

Editor Kansas Farmer:—A writer in Kansas Farmer, under date of September 6, 1898, asks: "Why do not Kansas farmers grow more early varieties of corn? Our late native varieties are obliged to run the gauntlet of July or August drought or hot winds, while early varieties are matured ahead of drought and hot winds. At least they are so far advanced toward maturity by July 1, that, even with severe drought thenceforward, a fair to good crop is generally secured from them. This year early varieties are yielding 20 to 30 bushels per acre in Kansas, while the native corn in the same fields is yielding less than five bushels per acre. It was just so last year, and it is so as a rule. In a really good corn year, which comes in Kansas as often as once in ten years, our large native varieties will yield more corn to the acre, and many farmers gamble on that chance." In an article in Kansas Farmer the past summer, written by Mr. Geo. L. Clothier, assistant botanist of the Kansas Agricultural Experiment Station, he says: "I believe a majority of Kansas corn growers are well enough acquainted with Kansas climate to expect a drought some time during July or August." While the large-growing native varieties will outyield imported early varieties during a wet summer, yet wet Julys and Augusts come so seldom that it is better to accept the somewhat smaller yield of the early corn in such a year, in order to secure much higher yields from it in the much more frequent dry summers.

In all countries which have been invaded by civilized man the native varieties of cereals have been superseded by highly bred imported varieties. At the present day we see that many British, German, French, Russian and American varieties of grain have been introduced into, and almost entirely occupy, the grain growing lands of Argentina, Australia, New Zealand, and other Oceanic countries. On the Island of St. Helena, naturalized plants have almost entirely superseded the native varieties. In some cases an imported variety of grain is at its best only after it becomes acclimated, while other varieties or other species, best fulfill the purpose intended, as regards yield, texture, value, etc., during their first year's growth in their new home, thereafter annually deteriorating in yield, texture, etc., as they become acclimated. In order to grow the noted Kansas hard milling wheat most successfully, importations of unacclimated seed must frequently be made from the Black Sea country. The truck growers of the cotton States, in order to produce their very profitable cabbage crops, are compelled to often renew their seed stock from the cold North, for when cabbage has become thoroughly acclimated in the South, it has then degenerated into the sprangley, loose-headed collard.

The largest growing latest maturing varieties of Northern corn yield much the best in Kansas during droughty seasons. On the other hand, varieties of wheat and oats from States further south, yield best in Illinois, and other Northern States. The much larger yield obtained from Texas Red Rust-proof oats, in a comparative test of many Northern and Southern varieties of oats, at the Illinois Experiment Station, Urbana, Ill., helps bear me out in this assertion. I could give many more such instances along this line, but suffice it to say that every country under the sun is deficient in some manner, and in certain years, as regards crop production, and man is to a great extent meeting and supplying these deficiencies by his ingenious experiments. In this connection, I will here mention what a great boon it is to the farmers of the Northern States and Canada, that the large-growing, succulent and abundant fodder-producing dent corns from the cotton States have been so generally adopted there to fill the gap of their naturally deficient forage production. It is a boon that is annually worth many millions of dollars to the cold northern country, with its short growing seasons.

An otherwise great west and south agriculturally, is in very many years greatly hampered in the matter of corn production by the oft-recurring hot winds and early droughts. What an equally great boon it is to the corn growers of Kansas, that early maturing varieties of corn from Illinois are to a large extent displacing the cultivation of the large native corn. It is a boon, indeed. A no less valuable one financially than is the importation of southern corn and southern-grown millet seed for northern forage production.

The writer having noticed that there

has been a lively discussion in several southern agricultural journals during the past year, regarding the relative value of northern corn and southern native corn, for beating hot winds and early droughts with, and that some experimenters had not met with the fullest measures of success in growing northern corn, I will here state that "there is a right way and a wrong way of doing everything." The farmers who have met with poor success have taken the wrong way. They have planted "run out" extra early northern corn. If the same farmers hitch to the wrong end of their reapers it will not cut their wheat. If you practice the right way success is yours, but if you practice the wrong way failure is surely yours. Having had a large correspondence with many enterprising Kansas farmers during the past few years, I therefore am in a position to condense in this article some facts bearing on the subject. Since it was discovered by enterprising Kansas experimenters that northern corn transported to Kansas would work wonders, many grain dealers, as well as uninformed northern seed dealers, have taken advantage of the situation in recommending and supplying the very earliest eight-rowed flint corns, and extra early dent corns from the far north, and poorly bred "run out" dent corns from the middle north, as the best sorts to beat the hot winds and early droughts with. Early corn is what you want. But it must not be too early. As "too much of anything is often good for nothing." If the northern corn is too early, then too much of your growing season is wasted between the time of its maturity and the beginning of the hot winds and drought. According to most reliable Kansas authority, the largest varieties of corn that can be well matured in Illinois, when grown in Kansas matures a good yield of corn fifteen to twenty-five days before the horrid hot winds or death-dealing droughts catches and ruins the late-maturing Kansas native corn.

These are facts in the truest sense of the word, and are substantiated by reports of comparative tests of large numbers of northern and southern varieties of corn at several southern experiment stations and large numbers of intelligent farmers throughout the cotton States and in Kansas. Facts gathered from indisputable sources assure me that northern corn to best succeed in the south and in Kansas must not be too early, and it must by all means be well bred—not "run out." The result of a comparative test of sixty-two varieties of northern and southern corn at the Texas Experiment Station, College Station, Texas, in 1896, helps bear me out in this statement. The early maturing corn from Illinois has enabled the farmers of Kansas to out-general the oft-recurring horrid hot winds and death-dealing droughts. By their cultivation he now secures fair to good yields grown alongside of the Kansas native corn that often makes little or nothing. In many localities in Kansas, the growth of the large-growing late-maturing native corn is very often cut short while it is forming its pollen and silk, its pollen often being prematurely dried up during the process of its formation by hot winds or extremely hot atmosphere, and as there naturally can be little grain formation unless preceded by abundant and mature pollen in the tassel of the corn plant, the product of the Kansas native corn is often sadly deficient. Thoroughbred, early northern corn, with its inherent flexible and plastic organization, and which often yields (at least in the vicinity of the home of the writer, which is a locality of almost exclusive corn production) 80 to 100 bushels per acre over large fields with ordinary good cultivation, when transported to Kansas carries its prolificacy and early maturity with it. It has the great advantage of maturing its pollen and ripening its ears fifteen to twenty-five days sooner than the large-growing late-maturing native corn planted on the same day. Thus it to a great extent escapes the withering rays of "Old Sol" during the most critical period in corn production, thereby producing a fair to good yield of corn of a good quality per acre, while the native corn begins to form its pollen and silk so much later that it is caught by the hot winds and drought, and in consequence yields little or nothing.

Even within fourteen days often proves to be the critical period of ear formation and maturity, and the whole crop is either ruined or made, just as you plant, native or northern corn. Illinois corn to succeed best in Kansas must also be thoroughbred. Highly bred varieties of cereals, especially the most thoroughbred of these, whose organic relations are so harmonious and plastic, and whose flexibility, prepotency and vigor of organization have been so highly developed by ingenious breeders, are being continually transported from

one part of the world to another, with the most gratifying results. Plant breeders have molded, by systematic mating and selection, an extraordinary inherent flexible constitution, which yields gracefully and prepotently to changed conditions of soil and climate. The greater or less force of organic flexibility and vigor determining how productive or profitable an animal or plant will be when transported to a different soil or climate. If the seed or plant be a common "run out" cheaply grown sort, the possessor of a weak impotent organization in which atavism or reversion is continually outcropping, it will more or less suffer under changed conditions of soil and climate. Its organization being too weak to withstand the shock of so great a change in conditions of soil and climate.

Short corn crops from Kansas native corn, caused by hot winds or severe droughts, are of too frequent occurrence. By planting the largest well-bred varieties of Illinois-grown corn, the farmers of Kansas are assured of a fair to good yield, when the large-stalk, late-maturing Kansas native corn makes little or nothing. Even during the most favorable years for the Kansas native corn, just as good yields can be secured from Illinois corn grown alongside, from the fact that corn which yields from 80 to 100 bushels per acre over large fields here in Illinois, can, and should be grown just as thickly in Kansas as it is grown in Illinois (three stalks per hill), the soil of Kansas maturing three stalks and three good ears of corn grown from Illinois short stalk seed just as easily as the usual one or two large stalks of the Kansas native corn per hill.

There are many Kansas farmers who harbor the idea that Illinois grown corn must be acclimated in Kansas before the best yields can be secured from it. But the writer's experience (supported by many Kansas experimenters) is directly the reverse. The right kind (thoroughbred) of Illinois corn produces its best yield in Kansas during the first year of its growth there. Thereafter annually decreasing in yield as it becomes acclimated. For while it is becoming acclimated, it gradually acquires the large stalk and late maturity of the Kansas native corn, until it loses its great value as a drought beater. The southern native corn also gradually loses its great value as a fodder producer in the far north, during the process of its acclimatization to the cold northern climate. We are accustomed to saying that nothing is impossible with God. But little has man hitherto known of the gigantic possibilities that lie hidden under some of His most natural laws, and of the mighty forces that are everywhere awaiting the quickening touch of human ingenuity.

To summarize I will again say that northern corn to be successfully grown in Kansas must be of the latest thoroughbred sorts that can well be matured in Illinois. And as the stalks of our largest corn here grow so much smaller than the stalks of your native sorts, our Illinois corn can be grown three stalks per hill there, and bear its full sized ears. Champion White Pearl, Champion Yellow Dent, Golden Beauty, Hickory King, St. Charles White, Blount's Prolific, Dugan's White Prolific, Cuban Giant, Improved Leaming and Improved Early Golden Dent are some of the best varieties for the southern States and Kansas.

The writer has ascertained these facts by many years of experimentation and through much correspondence with reliable and enterprising Kansas corn growers, and will take pleasure in answering the letters of all seekers after further information pertaining thereto who will send self-addressed stamped envelope for reply.

J. C. SUFFERN.

Voorhies, Ill., December 23, 1898.

Possibilities in Corn Improvement.

Press Bulletin Kansas Experiment Station. That corn is the king of American grains admits of no dispute. That its composition is such that it is far from a perfect grain food for any of the purposes for which grain is fed is recognized by most thoughtful feeders. That its defective composition may be, at least partly, corrected by intelligent selection of seed has probably occurred to comparatively few. The composition of a grain, or indeed of any plant product, cannot, as a rule, be inferred from any physical signs. The selection of seed with a view to improvement is thus limited to a consideration of yield chiefly, though some physical characteristics are given more or less attention by the more thoughtful. Selection based on composition requires the co-operation of a chemist, as a rule, at least until his investigations have discovered some physical accompaniment of certain composition. The experiment station at the Agricultural College has in progress an

Food Caused Pain

Catarrh of the Stomach Cured by Hood's Sarsaparilla.

"I was taken sick about a year ago with catarrh of the stomach. At times I would have a ravenous appetite and at other times could not eat. My food caused me excruciating pain. I was running down so fast I had to stop work. My friends urged me to take Hood's Sarsaparilla. I did so and soon began to feel better. The disagreeable symptoms of disease gradually passed away and flesh and strength returned. I owe it all to Hood's Sarsaparilla." MARY L. CUMMINGS, North Brookfield, Mass. Remember

Hood's Sarsaparilla

Is the best—in fact the One True Blood Purifier. Sold by all druggists. \$1; six for \$5.

Hood's Pills cure Liver Ills; easy to take, easy to operate.

investigation which has for its object the discovery of the varieties of corn which are richest in protein, and the production from these of new varieties still richer in protein.

The protein of feeds includes the nitrogenous constituents. It is for these that feeders purchase oil cake, gluten meal, wheat bran, etc., at a high price to balance the rations fed their milch cows, their young stock, or even their fattening animals in some cases. Corn is rich in starch and other carbohydrates and in fat, but is correspondingly poor in protein, its average amount of the last being about 10 per cent. Wheat has about 12 per cent of protein, wheat bran 16 per cent, and oil meal 33 per cent. While the average amount of protein in corn is 10 per cent, it may fall as low as 8 per cent or rise to over 12 per cent. If we could raise the average to the height of the best it would be equal to wheat, if of equal digestibility. Analyses made by the chemical department of the experiment station, of single ears of thirty-three varieties of corn, showed a variation in protein from 8.78 to 12.71 per cent. This does not really make a fair showing in respect to the varieties, as but one ear was used in each case as the source of the sample, and other analyses of additional ears of two of the varieties showed as great or greater variation in the composition of different ears of the same variety. One of these varieties has been grown for thirty years by the same man without intermixture of any other variety. It would seem that, if possible, a fixed type should have been reached in this time, but analyses of ten different ears showed a minimum of 8.60 and a maximum of 12.6 per cent of protein. Such great variations indicate the possibilities in seed selection if some means can be discovered by which the rich in protein can be distinguished from the poor. The department has gone further, and has examined individual kernels from the same ear. These showed a considerable variation also, but the difficulties attending the work are such as to make any general statement, as yet, premature.

The station intends to continue its work until a variety or varieties rich in protein have been established, and if possible a means has been discovered whereby, through simple observations or processes, the farmer may select seed without the assistance of a chemist and get that which is of high protein content. In the meantime, attention is drawn to the fact that the germ is richer in both protein and fat than any of the other parts of the kernel, and by choosing ears for seed in which a large germ is found in the kernels the chances are greatly in favor of improving the quality of the crop. Taking as a basis the present relative cost of carbohydrates and protein, could we increase the latter from 10 per cent to 11 per cent, at the expense of the former, the actual cash value of the average corn crop of Kansas would be increased at least 1 per cent, or \$380,000. A greater increase in protein would increase the value proportionately, and that a considerably greater increase is possible there can be no serious doubt.

The Empire Manufacturing Co., Sterling, Ill., offer our readers their \$17 Disk Harrow and other good farming implements at the usual fair prices which have always been characteristic of this firm. Interested parties should correspond with the manufacturer.

BLOCKS OF THREE.—Two new subscriptions for one year for \$2, and, in addition, a renewal for one year free to any old subscriber who sends two new subscriptions and \$2 in one order. Kansas Farmer Co., Topeka, Kas.

The Stock Interest.

FEEDING PIGS OF DIFFERENT GRADES.

Editor Kansas Farmer:—This paper gives a summary of the principal facts contained in Bulletin No. 60, Section No. 3, relating to the feeding of cross-bred swine. As everybody knows, the question of bacon pork is a burning one at the present time. Ever since the famous utterance of Secretary Wilson, bearing upon the Tamworth pig, many of our people have been up in arms to combat the idea of the possible introduction of Tamworth swine.

On the bacon question, the writer has had no two opinions for a long season. It has been my settled conviction, for years past, that the transformation of the lard hog into the bacon hog was only a question of time, even in the corn belt. This conviction is based on experience. Our American breeders deserve great credit for evolving several breeds of hogs of great excellence, so far as easy keeping qualities are concerned, but in an over-anxiety to get these easy feeding qualities, they have so far overstepped the mark that they have impaired stamina and also the breeding qualities of their favorites, and to so great a degree have they done this that the profits from swine husbandry are becoming much less than they would otherwise be. These waning properties must be restored, and in restoring them the evolution found necessary will result in the production of the bacon hog. The American farmer will further be compelled to grow this animal because of the sensible growing demand for leaner meat.

In my experience in growing the bacon hog, I have found both the Tamworth and the Improved Yorkshire breeds possessed of a high adaptation for the same. All in all, I have obtained the most satisfactory results from the Improved Yorkshire, but the number of these experimented with has been larger. Bacon hogs, however, may be grown in good form from Berkshire, Cheshire, Chester White, Duroc-Jersey and even from Poland-China blood, through a proper system of breeding and feeding, but this can not in all instances be done with some of those breeds just at once. Some time must elapse before the resultant change would be made. A quick way of making it would be to secure Yorkshire and Tamworth sires, if they could be got, and to cross them upon the sows of the grades of those breeds. If the farmers of the corn belt only knew what they would gain by this cross, they would never again say an unkind word about the Improved Yorkshire and Tamworth swine.

This experiment began July 13, 1896. It ended November 2 of the same year. It thus covered 112 days. The following were chief among the objects sought:

(1) To ascertain the relative merits of swine of the first and second crosses from Improved Yorkshire sires in producing growth and for fattening. (2) To ascertain the relative values of corn and barley respectively, as food for swine when fed as in the experiment. (3) To ascertain the financial outcome under the then existing conditions.

The animals used in the experiment were chosen from two litters, designated respectively as the first and second Yorkshires. Six individuals of each cross were fed. Those of the first cross were from a good pure-bred Improved Yorkshire boar and a grade Berkshire sow of somewhat heavy build. The pigs of the second cross were by the same Yorkshire sire and out of a first cross Yorkshire dam. This dam was the progeny of the sow referred to above. Both crosses were practically the same age when the experiment began, that is to say, 108 days, and both had been fed and managed similarly. The conditions, therefore, under which they entered were eminently fair. The pigs were divided into four lots of three animals each. Lots 1 and 3 comprised pigs of the first cross, and lots 2 and 4, pigs of the second cross. Lots 1 and 2 were given a corn diet with adjuncts, and lots 3 and 4 were given a barley diet with similar adjuncts. Lots 1 and 2 were fed oats and corn during the first period of 28 days, in the proportions of 3 and 1 parts by weight. During the second period of equal duration, these were changed to 1 and 2 parts, during the third period to 1 and 3 parts and during the fourth period corn only was fed. The pigs in lots 3 and 4 were fed similarly except that barley was used instead of corn. The grain was ground and soaked, and green food, such as rape, clover and cabbage was fed. The relatively large amount of oats fed was doubtless responsible for the very moderate gains that resulted. The gains

continually increased with the reduction in proportion of the oats fed.

The food was charged at average market values in the State. These were as follows: Oats per bushel, 14 cents; barley, 16 cents, and corn, 18 cents. Grinding added 2½ cents to the cost per bushel. The green food was charged at 75 cents per ton. The swine were valued at \$3 per 100 pounds when they entered the experiment, and were sold to the supply department of the School of Agriculture for \$3.15 per 100 pounds. Mr. A. Boss, who supervised the dressing of the pork, pronounced it superb in quality, owing to the large amount of side meat which it contained, and to the admirable blending of the fat and lean in the same.

The following is a summary of the principal results:

VALUE.	
1. Estimated value per 100 pounds when the experiment began.....	\$3.00
2. Value per 100 pounds when the experiment closed.....	3.15
3. Advance in value per 100 pounds.....	.15
WEIGHTS. Lbs.	
1. Average weight of the pigs of the first cross when the experiment began.....	82
2. Average weight of the pigs of the second cross.....	92
3. Average weight of the pigs of the first cross when the experiment closed.....	188
4. Average weight of the second cross.....	195
INCREASE IN WEIGHT.	
1. Average daily increase in weight of the pigs of the first cross.....	.94
2. Average daily increase in weight of the pigs of the second cross.....	.92
3. Average daily increase in weight of the pigs which were fed corn.....	1.02
4. Average daily increase in weight of the pigs which were fed barley.....	.93
FOOD CONSUMED.	
1. Average daily consumption of food by each of the pigs of the first cross.....	4.70
2. Average daily consumption of food by each of the pigs of the second cross.....	5.00
3. Average daily consumption of food by each of the corn fed pigs.....	5.21
4. Average daily consumption of food by each of the barley fed pigs.....	4.50
COST OF INCREASE.	
1. Average cost of making 100 pounds of increase with pigs of the first cross.....	\$1.73
2. Average cost of making 100 pounds of increase with pigs of the second cross.....	1.92
3. Average cost of making 100 pounds of increase with the pigs to which corn was fed.....	1.77
4. Average cost of making 100 pounds of increase with the pigs to which barley was fed.....	1.90
PROFITS.	
1. Aggregate net profit from feeding twelve pigs for 112 days.....	\$17.55
2. Average net profit from feeding one pig.....	1.46
CONCLUSION.	
1. A diet in which oats is a predominant factor is not the most suitable one that can be fed to pigs while being grown and fattened.	
2. The free use of barley long continued in growing and fattening pigs tends somewhat to weaken the appetite.	
3. A barley diet long continued is not quite so well fitted to make increase as a corn diet.	
4. This experiment favors the view that the pigs of the first cross were a little more easily fed than those of the second cross.	
5. The experiment does not prove that one cross, as such, has any superiority over the other in capacity to make gains.	
6. With the prices of food and pork as in the experiment, 100 pounds of pork may be produced at a cost of \$1.83, and yielding a profit of \$1.32.	

THOS. SHAW,
University of Minnesota.

Dehorning Cattle.

Editor Kansas Farmer:—Although dehorning cattle has been quite popular, especially with those who keep large herds, yet it seems a cruelty to the dumb animals which ought to be avoided.

In looking over the advertisements in the farm papers we find pictures of dehorning shears which are represented to take the horns off with little or no pain. Yet we are not ready to take it in, and still look for some better way. Although it be claimed to be an act of mercy, yet a forced peace only lasts so long as the force is applied. Peace that must be fought for is not the most satisfactory when viewed from a Christian standpoint.

The question, "What would Jesus do if he were in my place," is one that every Christian farmer might well ask himself before using the dehorning shears.

Is it not a fact, that the necessity for dehorning, in order to prevent the cruel horns of cattle from goring their neighbors, originates with the herdsman himself, who often, in reckless rage, lays on the blow when the cattle disobey his wish? How often, if he would observe the result, he would see the animal that had received the blow proceeding to impart like cruelty on another, just as, during the storm, one wave imparts its fury to the next, and thus, the anger of the keeper is passed through the herd. Otherwise, if the spirit of kindness and mercy were controlling the heart of the keeper, that spirit would be imparted to the herd. Then the horns

could be safely left on, to be an ornament as God designed.

Now, the conclusion of such logic would be that the "lion and the lamb could lie down together," with the lamb remaining outside.

Now, I do not mean a sentimental kindness that will fail to control the animals placed under our care, but wisely chasten when we must, not in the spirit of anger, not too severely.

The Lord said to Adam, "Have dominion over every living thing that moveth on the earth." "Blessed are the merciful, for they shall obtain mercy." At least, let us not dehorn the whole herd because some are incorrigible.

Spain upheld bullfighting and cock-fighting, till her sense of mercy to the dumb animals was so obliterated that they go further and send a Weyler to Cuba, to practice cruelty so excessive that God is compelled to raise up a nation to dehorn her.

Let us beware lest we fall in like manner.
C. A. SEXTON,
North Topeka, Kans.

National Live Stock Association.

The last great national live stock convention of the nineteenth century will be called to order in the Tabor Grand opera house, Denver, Col., January 24, and continue in session during four days. When this convention shall have adjourned it will take its place in history as the fourth great meeting of this character since the inauguration of Thomas Jefferson as President of the United States, in 1801. Then the industry was confined to the States east of the Territory of Ohio, and its value was less than the present worth of the live stock in the State of Kansas. To-day the business is prospering in every county of the nation, and represents 50,000,000 head of cattle, 40,000,000 of sheep, 50,000,000 swine and 18,000,000 horses and mules, valued at \$2,100,000,000, a sum incomprehensible. Representatives of this vast wealth will make up the personnel of the gathering at Denver.

In the history of no nation has an industry of such magnitude neglected to form a central organization for mutual protection and advancement as have those engaged in the growing of live stock. In 1884 an attempt was made to combine the various branches of the industry into a national body, but after two years politics worked its destruction. No further attempt was made in this direction until the fall of 1897, when Messrs. B. Frank Hunter, Geo. W. Valery, John W. Springer, Geo. L. Goulding, F. A. Keener, H. H. Metcalf, S. K. Hooper, A. E. de Ricqlès, and Geo. W. Ballantine, prominent stockmen and railway officials of Denver, Col., issued a call for a meeting to be held in that city on January 25, 1898, for this purpose. The result was a most agreeable surprise to the gentlemen who conceived the idea, and on that date over 1,200 delegates, representing the stock interests of nearly every State and Territory in the Union, were present. The meeting was a most successful one and resulted in a permanent organization with Hon. John W. Springer, of Colorado, as president. Mr. Springer being one of the largest stock owners of Texas, Montana, and Colorado, entered upon the work of making the organization permanent and successful with all his spirit. This work has been kept up unceasingly during the year, until now the association has a membership of several thousand, representing more than 8,000,000 head of stock, worth in the neighborhood of \$200,000,000. It is now powerful enough to command the respect of other organized interests, as well as that of every legislative body in the Union, and under wise and judicious management may in time become one of the most powerful associations in America.

The present indications are that the coming convention will be much more largely attended by delegates from all sections than was the last one. Subjects of the utmost importance to breeders, shippers, and dealers will be acted upon. Among these are: The quarantine regulations; the dipping of cattle to prevent Texas fever; cession of the arid lands; reciprocity with Mexico; the abrogation of terminal charges at the Chicago market; a uniform bounty law; the extension of what is commonly known as the twenty-eight-hour law; prohibiting the importation of animals physically unsound; and many other matters of equal importance. Resolutions on these will be adopted and the necessary steps taken to secure the proper legislation upon them.

The citizens of Denver have subscribed over \$15,000, which will be spent in entertaining the delegates and visitors, and everything will be done to make the occasion beneficial as well as enjoyable.

Would You Like to Exchange Your Organ For a Piano?

If so, write at once to the leading music house of the United States, **Lyon & Healy, Chicago**. They will make you an offer, and send you catalogs and also a copy of their Bargain List of Pianos and a Table of Freight Rates giving freight on a piano from Chicago, if you mention that you saw this notice in this paper. Write to-day.

How to Feed and Water Before Shipping.

Editor Kansas Farmer:—Will some one who has had experience please answer the following questions through the Farmer?

How should fat cattle be treated just before shipment? Should they be allowed all the feed and water they want, or would they shrink less on scant feed? How long before loading should they be taken from feed and water, and what kind of feed is best to feed before loading? Also, how should they be fed and watered when arrived at the yards?

Would like to have some one tell me how to get rid of rats in a cellar. Have tried to get rid of them by trapping and using poisoned bait, but with little success.
SUBSCRIBER.

Herrington, Kans.

Galloway Herd Book.

Editor Kansas Farmer:—Volume IX of the "American Galloway Herd Book" will be ready for delivery January 15. Price, to members, free, by prepaying 15 cents postage; to non-members, \$1.15.

During the past year the interest in Galloways has increased very much over previous years and is only just beginning. The breeders who are keeping their cattle recorded and handling them well are beginning to reap good prices for their push. It is impossible to starve a Galloway, and it is equally as hard to down them, as some have thought they could.

No breed ranks ahead of the Galloway, and if our breeders will all push their cattle, and keep everlastingly at it, the good times of a few years ago will be fully realized. More Galloways have been shown in the past year, and they were accorded more recognition than for many years. I want to urge every breeder who can to show next year, but be sure to have your cattle in good show fix, and have them well broken. It will not pay you to go into the show ring with cattle only half conditioned. We hope to have better premiums offered at the leading fairs in 1899 than were offered in 1898.

A pamphlet containing some well-written articles on Galloways is about ready for free distribution, and if any reader can use some of them to good advantage advise me and they will be sent him.

Entries for Volume X are now being received, and I trust all cattle eligible will be recorded at once. If you need entry or transfer blanks they will be sent you free.

FRANK B. HEARNE,
Independence, Mo. Secretary.

Help is wanted when the nerves become weak and the appetite fails. Hood's Sarsaparilla gives help by making the blood rich, pure and nourishing. Get only Hood's.

Hood's Pills are easy to take, easy to operate. Cure indigestion, sick headache.

BLOCKS OF THREE.—Two new subscriptions for one year for \$2, and, in addition, a renewal for one year free to any old subscriber who sends two new subscriptions and \$2 in one order. Kansas Farmer Co., Topeka, Kas.

Gossip About Stock.

On Tuesday, January 17, 1899, W. S. James, of Concordia, Kans., will sell at public sale 13 head of pure Jersey cattle and a number of Poland-China hogs. Notice the advertisement elsewhere in this issue only.

The Grant Hornaday Live Stock Co., of Fort Scott, Kans., informs the Farmer that it will join with T. F. B. Sotham, of Chillicothe, Mo., in holding a public sale of registered Hereford cattle, at Kansas City, Mo., on March 3, 1899.

The Farmer acknowledges receipt of an invitation to attend the thirteenth annual meeting of the stockholders of the Standard Poland-China Record Association, to be held in Maryville, Mo., on Wednesday, February 1, 1899, also a ticket to the banquet to be given by the Nodaway County Breeders of Poland-Chinas on the evening previous.

Albert Dillon, of Hope, Dickinson County, Kansas, breeder of Hereford cattle, in a recent letter to this office, reports that his stock is in excellent shape and business generally promising. Those of our readers who contemplate doing business with Mr. Dillon can be assured of reliable stock and honorable dealings in every way.

Kirkpatrick & Son, Connor, Kans., well-known breeders and advertisers in the Kansas Farmer, have been successfully breeding Golden Wyandotte poultry for two years. Their selections were made from high-scoring prize-winners and they are now prepared to offer a number of very choice cockerels for sale, as will be seen by referring to their advertisement.

Breeders of poultry who advertise in the Kansas Farmer seem to be enjoying splendid results. Mr. C. H. Clark, of Delphos, Kans., ran a small advertisement of turkeys for a few weeks, which proved a profitable advertising investment for him. He is the champion turkey raiser of Ottawa County. At the recent poultry show held at Beloit he was successful in carrying away most of the first prizes for which he had entries. Men who breed first-class stock are usually of the kind that advertise in the Farmer.

Rocky Hill Herd of Shorthorn cattle, owned by J. F. True & Son, Newman, Kans., is again represented in our Breeders' Directory, in which they offer to close out 50 head of very high-grade Shorthorn cows and heifers, most of which have been bred to their Scotch bull. Also a very choice lot of 25 high-grade Hereford cows and heifers, including a splendid aged bull, who has given great satisfaction as a sire. Stockmen desiring cattle of this class will certainly be well pleased with the high character and quality of the offering.

C. F. Wolf & Son, owners of the Glendale farm of Shorthorns, Ottawa, Kans., writes: "During the past week we have made four sales of very good Shorthorns, one to F. E. McKenzie, Colorado, Tex. He has been using Shorthorn bulls on his range for years, but is now laying the foundation for a full-blood herd. We sold him seven Shorthorn heifers. To head his pure-bred herd he secured a bull calf from V. R. Ellis, of Gardner, which was sired by Godwin and out of his Harris-bred Lavender cow. We sold to J. S. Warren, Hillsboro, Tex., three bull calves, one of them being a Violet of straight Scotch breeding. Mr. Warren has handled Shorthorns for over twenty years, consequently nothing but the best suited him. Our third sale was made to A. M. Smith, Wellsville, who purchased two cows. He secured his herd bull from Mr. V. R. Ellis. He is starting a pure-bred herd of Shorthorns. We closed the week's sales with that of a bull to Geo. Kapp, a representative farmer and stockman of Franklin County. Our stock generally is in good, thrifty condition, including the crop of bull calves that we have that will do for spring service."

The Farmer is in receipt of a letter from W. P. Goode, at Lenexa, Johnson County, Kansas, in which he says: "When we lost Hadley Jr. we felt very much like the little boy that the calf ran over—did not have much to say, but just endured the loss as best we could. We kept a sharp look-out for some animal suitable to fill his place, and after considerable time and research finally succeeded by the purchase of a son of old Tecumseh 2d, admitted to be the greatest son of this sire. The greatness of his breeding on his dam's side, namely, Black Queen 91168, the greatest and best-bred sow that was ever bred to the old Chief, is proven by her having more World's Fair prize blood than any sow living. This boar is proving a great and sure breeder and his get will be the strongest arm of the Chief Tecumseh 2d family for breeders

to use for line breeding, because of the great Hadley, One Price, Black U. S., combined with the great Queen Klever, Quality, and Success blood on the dam's side. Colonel Sparks and Colonel McCracken, who have made so many Poland-China sales, regard him as the best yearling boar they have ever seen.

The Farmer notes with pleasure the success of the recent public sale of Poland-Chinas held at Enid, Okla., by C. S. Williams & Son. It was one of the best sales of the season. Nothing was spared in trying to make it a success, and while the number of breeders was not so large as in the older swine States, this omission was overbalanced by the spirit and enthusiasm of the breeders present. The offering was not large, only 37 head, 19 of which were spring and summer pigs, and yet the general average was \$18.68. Eighteen of the tops, including three spring pigs, averaged \$26.17. The highest price paid was for a spring gilt, by Midway Chief 13624, one of their show herd. The following are the principal purchasers: A. J. Henthorn, Oklahoma City; L. E. Leonard, Perry; J. M. Ryan, Karoma; S. D. Steffey, Delnort; Dr. Hall, Medford; M. F. Dimick, Hennessey; J. M. Lemon, Pond Creek; J. L. Little, Lexington; H. D. Lacey, Mr. Romig, R. E. Oldsberry, Kremlin; J. K. Glasgow, Wildwood; Noah Fink, J. B. Ferguson, Geo. Noyes, M. E. Elliott, J. D. Cunningham, S. J. Henthorn, Mr. Cropper, J. H. Jackson, Edmond Frantz, Enid; Isaac Regier, R. A. Tefft, Mr. Benke, North Enid; and Kirkpatrick & Son, Connor, Kans.

Mr. D. P. Norton, of Council Grove, Kans., evidently has had a prosperous year's business with Shorthorns, as evidenced by the increase of space in his new advertisement. One of our field men recently called at his breeding farm, and writes at length concerning his visit to the Neosho Valley Herd, owned by Mr. Norton and consisting of 100 head, and headed by Lord Lieutenant 120019. He was bred in Canada and imported by Mr. Norton, and is of medium size, good red color, and as a breeder shows strong masculine appearance, broad chest, straight lines, extra good in loins, level quartered, well down in the twist, and his get is sought after by many of our best breeders. One of his sons was a great winner at the Texas State Fair. Mr. Norton's cows are of Bates breeding, topped with both Scotch and Booth blood, and are a good, strong lot, broad-ribbed, good color, and altogether a good working herd. Among those that deserve special mention is Josephine, a 12-year-old cow, as fresh as a 5-year-old and a regular breeder. Five of her heifers have been retained in the herd. Then there are several others sired by the great imported Buccaneer. They are of the kind that have made Shorthorns famous. The writer also remembers a very handsome bunch of heifer calves, sired by Lord Lieutenant. They are an extra good lot and are offered for sale at a very reasonable price. There are also 25 bulls, ranging in age from 18 months and younger, several of which are sired by Gold Finch, of the Golden Drop family of Colonel Harris's breeding. The remainder are sired by Lord Lieutenant. Mr. Norton has recently purchased a young bull in Canada to assist Lord Lieutenant, which he calls Imported British Lion 133692. His sire is Isabella's Heir 130673. His dam is Britannia 37th by Baron Evenlode 129045. Mr. Norton has great expectations of his new bull, especially in crossing on the get of his older sires now in the herd.

The Cattle Business.

Editor Kansas Farmer:—Every true cattleman and tiller of Kansas soil is interested in every article in your pages that will be a benefit to our business. Especially are they interested in such articles as come from pens of your subscribers who have had experience, for they belong to our great family. What might do in other States may be a howling failure in Kansas, and what might be a success here in Kansas, with its changeable climate, different soils and different people, may be a failure in other States, so you see Kansas is the "center," and we are going to make it the hub of the United States. We are truthful enough to acknowledge that we have made mistakes while trying to work with nature and old Kansas, but we are learning to apply common sense to what God made it for, and we are finding things out and adapting ourselves to the situation, and we shall forge ahead, and Kansas will ring out success from one end of the earth to the other.

The cattlemen feel very sore and down-hearted because Grant Gillett went off and did as he has done, and we also believe he is suffering. We wish he would

come home and face the trouble, as every nery cattleman should and must to belong to us and our business if he expects any sympathy and respect. No true cattleman who has shoved his feet in the stirrups and been on the plains and with nature, could do as he has done. There are thousands of men in other business who do that kind of crookedness, but we are proud to say, few cattlemen do it. We are what the world calls rough. But we are not real estate agents who have influenced Eastern men to loan money on lands that were not in the first place worth one-half of the loans, and thereby ruined the reputation of Kansas. Such men try to go into the cattle business when they could not tell a 2-year-old steer, if dehorned, from a 6-year-old. They must stay in the cities, for they would get run over if they should go out on the range. I am not talking about old cattlemen who go to the cities to partially retire, but they never do so in full. I wish Grant would come home, and I hope he will, as all others do.

Cattle in Barber County are not in as good shape as at this time last year, on account of so much rain washing out half of the cane, and it is full of frozen juice, and takes a great deal of thought to feed successfully this winter, for feeds have to be proportioned to keep the cattle from being weak. Everyone who loses an animal calls it blackleg. It is not blackleg; it is sour stomach.

ELI C. BENEDICT.
Medicine Lodge, Kans.

Composition of Feeding Materials.

Prof. J. Q. Stone, Ithaca, N. Y.

The same four groups of substances found in animal bodies, viz., water, ash, fat and protein, are also found in the food they consume and in addition the food of herbivorous animals contains a class called carbohydrates.

WATER.

All food stuffs, no matter how dry they may seem, contain a considerable amount of water. In grains and dried fodders it ranges from 8 to 15 per cent of the material, in green forage and silage it is about 80 per cent, while in some roots it amounts to 90 per cent. While water is essential to animal life and the water in the food fulfills the same function as that drunk by the animal, we do not value food materials for the water they contain, and computations are based upon the water-free or dry matter.

ASH.

When a food stuff is burned till the organic matter is all driven off the residue is the ash. It is composed largely of lime, magnesia, potash, soda, iron, chlorine, and carbonic, sulphuric and phosphoric acids. The ash of the food is the source of the mineral matter of the animal body and as such is of great importance. Ordinary combinations of feeding stuffs, however, contain an abundant supply of mineral matter for the use of the animal, so it is not a matter of practical concern except as it has a bearing on the mineral elements of fertility in the manure.

FATS.

This group embraces the materials which may be dissolved from a feeding stuff by ether. It includes, besides the true fats, wax and coloring matter. Fat in the food may be either stored in the body as fat, or burned to produce heat and energy.

CARBOHYDRATES.

This term includes two groups, nitrogen-free extract, such as starch, sugar, gum, etc., and fiber or the woody part of plants. The former are quite freely digested, the latter much less so, though fulfilling the same function to the extent it is digested. The carbohydrates constitute the largest part of vegetable foods. They are not stored in the animal body as such, but are converted into fat or used (burned) to produce heat and energy.

Since the carbohydrates and fat serve nearly the same purpose in the animal economy, they may, for convenience, be grouped together. Experiments, however, have shown that fat is about two and one-fourth times as effective as a food as are the carbohydrates. Hence it is customary to multiply the amount of fat by two and one-fourth to reduce it to a "starch equivalent" before adding it to the amount of the carbohydrates.

PROTEIN.

The protein of foods, like that of the animal body, is characterized by containing nitrogen. It, therefore, is frequently termed "nitrogenous matter." The term albumenoids is sometimes used to designate this group, though it more correctly implies a certain class of protein substances. The function of protein in the food is, first of all, to build up and repair the working machinery of the body, and to supply protein for the pro-

Figures Don't Lie.



It doesn't take much knowledge of mathematics to figure out the facts about that dread disease—consumption. Statisticians long ago demonstrated that one-seventh of all the deaths in Christendom each year may be safely attributed to consumption and allied diseases. There is an almost certain cure and a positive preventive for this fatal disease if taken in time. The story of what it will do is told in the following letter:

"About two and a half years ago, when I was at Flat Lick, Ky.," writes J. W. Jordan, Esq., of Corbin, Whitley Co., Ky. "I was taken with severe pains in the chest, after which I began to spit up blood and was also troubled with night-sweats. I was so short winded that I could hardly walk half a mile at once, and if I got the least bit wearied, I would have an attack of phthisic (asthma) and almost die for about two or three days. I concluded to try Dr. R. V. Pierce, and I related my case to him. He wrote me that I should take his 'Golden Medical Discovery.' I began using it and used about six bottles. I began to see that it was helping me, so concluded to continue its use. I did so and have improved both in strength and in weight. I have not had the phthisic, nor spit up any blood since last spring."

This great remedy—Dr. Pierce's Golden Medical Discovery—cures 98 per cent. of all laryngial, bronchial, throat and kindred affections which, if neglected lead up to consumption. It strengthens the stomach and makes the appetite keen and hearty. It invigorates the liver and aids the natural processes of secretion and excretion. It makes the assimilation of the food perfect. It is the great blood-maker and flesh-builder. Honest dealers will not urge you to take a substitute said to be "just as good." Send for Dr. Pierce's Common Sense Medical Adviser. FREE. Enclose 21 one-cent stamps to cover mailing only, to the World's Dispensary Medical Association, Buffalo, N. Y., for a paper-covered copy. Cloth binding ten cents extra. It is a thousand page book with over seven hundred illustrations; formerly sold for \$1.50. For limited time can be had for cost of mailing.

B. & B.

Ladies' Stylish, Service-able Mackintoshes

\$3.00.

—plain navy or brown, or neat brown and black check cloth—plaid lined—with double breasted full size, plaid lined cape finished with velvet collar.

No woman's wardrobe is complete without a mackintosh—this is such splendid money's worth as will make the investment of financial importance. Best we've ever sold for the money.

All lengths, 54 to 62 inches—when ordering state length wanted.

Extra Good Mackintoshes

For Misses \$2.50.

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FOR 1899

duction of milk, wool, etc. No other food constituent can fulfill this function.

The importance of a sufficient supply of protein in the ration is therefore apparent. If in excess of the amount required to build up and repair the waste of the body the protein may be converted into fat and deposited as such or used to produce heat and energy. Its efficiency for these purposes is about the same as the carbohydrates, but as it is usually far more expensive to supply than the carbohydrates, economy would dictate that only so much should be supplied to the animal as will suffice to repair the wastes of the animal machinery and build up new growth in case of growing animals, or for the production of milk, wool, etc.

Cotton Seed as Feed.

Bulletin No. 52 of the Arkansas Experiment Station, at Fayetteville, shows an experiment conducted by R. L. Bennett.

Three lots of cattle were fed, 5 to each lot, the feeding lasting ninety days. They were ordinary steers weighing 700 to 900 pounds. They were all fed under the same conditions. All the cattle had cow-pea hay as a rough ration, and the experiment was for the purpose of finding out which was the best to feed cattle with—

- (1) Cotton meal and hulls,
- (2) Whole cotton seed, or
- (3) Ground cotton seed.

The 5 steers fed on cotton meal and hulls averaged 760 pounds when put on feed, gained 118 pounds in first sixty days, gained 67 pounds in last thirty days. The total gain during the entire period was 185 pounds per steer. The average gain per head, per day, during the first sixty days was 1.9 pounds and the average gain per head per day during the last thirty days was 2.2 pounds, and the daily average gain per head during the entire period was 2 pounds.

The 5 steers fed on whole cotton seed averaged 761 pounds when put on feed; gained 122 pounds in the first sixty days, gained 50 pounds in the last thirty days. The total gain was 173 pounds per steer. The average gain per head per day during the first sixty days was 2 pounds, and the average gain per head per day during the last thirty days was 1.6 pounds, and the daily average during the entire period was 1.9 pounds.

The 5 steers fed on ground cotton seed averaged 765 pounds when put on feed; gained 126 pounds in the first sixty days, gained 45 pounds in the last thirty days. The total gain was 171 pounds. The average gain per head per day during the first sixty days was 2.1 pounds, the average gain per head per day during the last thirty days was 1.5 pounds, and the average gain per steer during the entire period was 1.9 pounds.

The first lot consumed 2,189 pounds of meal, 2,900 pounds of hulls, and 6,252 pounds of cow-pea hay.

The second lot consumed 4,609 pounds of raw cotton seed and 6,591 pounds of cow-pea hay.

The third lot consumed 4,630 pounds of ground cotton seed and 6,535 pounds of cow-pea hay.

The steers were all good Arkansas grade, under 4 years old, but were unsatisfactory feeders. The average weight when put up was 762 pounds, and when finished average 938 pounds. The average gain was 176 pounds. If they were put up at 3 cents per pound and sold at the home lot at 3½ cents per pound the gain was worth \$9.97 per head, or \$49.85 for each lot.

Anyone figuring on cost of feed at home and of similar cattle at home prices can find out whether any profit would remain from fattening any reasonable number of cattle under similar conditions.

The experiment shows that the cattle fed on meal, hulls and hay made the most gain and they gained the most per day during the last thirty days. It does not follow that they were the most profitable to the feeder, because the main feed had to be bought, paid for, and hauled from the mill.

The steers fed the whole cotton seed and the ground cotton seed did well for sixty days and then fell off.

The experimenter recommends that the feeding might commence on the raw cotton seed and finish up with meal and hulls, and he suggests also that during warm weather when cattle need something to sharpen the appetite, that corn or bran would be excellent substitutes to help out the cotton-seed ration.

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The Apiary.

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

Transferring, Uniting, Etc.

Apiary Department Kansas Farmer:—I have some swarms of bees in box hives that I wish to transfer to frame hives next spring, and would be pleased to know how it should be done. Where colonies are weak would it be advisable to unite two weak colonies in the new hive, saving as much of the brood combs as possible? Please answer through the Kansas Farmer. J. W. MARTIN. Leon, Kans.

You can do a successful job of transferring your bees by observing the following rules closely: Do not attempt to do the work too early in the spring, but let the bees get well to work and have some brood in hive, as well as some honey. If your colonies are very short of honey in the hives it is best to feed them a little occasionally, beginning as early as the weather will permit. By thus feeding a little early in the spring, and following this up for some time, you can have your bees in condition for transferring much earlier than they would otherwise be.

The time to do this work depends something on the weather, but is ordinarily during the month of April, or at about the time of the closing of fruit blossoms and after the bees have stored some honey, and have some brood in the hive, and in a good healthy condition every way. By thus feeding the bees almost every colony can be built up strong enough so that no uniting is necessary, but in some cases they will be found so weak that it is impossible to build them up, and in such cases it is best to unite them.

To get along successfully in transfer-

also be brushed off the same into the new hive, or at the entrance of same.

Care must be taken to get all the combs containing brood in a compact form in the center of the hive, and to occupy the center combs. If there is not enough comb to fill all the frames for the hive we should have foundation comb to supply them. The bees will go to work at once and fasten all the combs to the frames, so that we should remove the twine in a day or two afterward.

When colonies are extremely weak it is best to put two of them together, but if they are strong enough to have some brood in the combs I would not unite them, but let them build up into a colony. We should select a warm, bright day to do this work, and if at a time when the bees are gathering a little honey so much the better.

Mammoth Remains in Kansas.

In 1894 I discovered the largest deposit of bones and teeth, ever found in Kansas, of the hairy mammoth or *Elephas primigenius*. The locality was in the southwestern corner of Lane County. Prof. S. W. Williston, paleontologist of the Kansas State University, mentions it in his article on the pleistocene of Kansas: "From a small area not more than two or three rods in diameter portions of a score or more of these animals were obtained, together with others of *Equus excelsus*, and a small dog. The deposit was in a basin in a small ravine that had been hollowed out of the Niobrara chalk and considerably below the Loup Fork beds." The Professor is conservative in his estimate of the number of animals found by myself in this small basin, about 20 feet in diameter and 5 feet deep in the center. I left at least a carload of 20,000 pounds of the broken up bones, too friable to save. I spent a couple of months in the work of excavating, as there was from 2 to

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ring bees we should provide ourselves with the necessary tools, and have the new hives all in readiness. Implements that we need are a saw, a hammer, a cold chisel, a knife with long blade, a ball of hard twine, a good bee smoker, a few large wing feathers from a turkey or goose to brush the bees off the combs, and a good supply of dry, spongy wood for smoker fuel. In preparing the new hives we should use only the standard variety, and not put our bees in hives that, perhaps, are no better than the old boxes they are already in. The new hive to receive the bees should be placed on the identical spot where the one to be transferred to it is sitting, that the entrance may be in the same place. This may be done by moving the box hive a little to one side. Bees only know their own hive by the location, so if you change the location the bees will not go to it, but will return to their former location, hence the importance of having each hive occupy the same location it is accustomed to.

The bees must be smoked thoroughly before beginning operations, and this can only be done with a good bee smoker. Raise one side of the box hive and blow in smoke directly under the bees, and continue to smoke them for a minute, and then, after giving them a short rest, smoke them again. Now turn the box hive bottom up and blow some more smoke down on the combs and bees. Especially if the bees begin to boil up over the combs drive them down, and thus keep them down for a short time, and you may begin work with perfect safety. Pry off two sides of the old box and thus lay the combs bare. Drive the bees back off the first combs and cut them out, brushing the bees off them with the feather brush, and cut the combs to fit the frames, and fasten them in by wrapping the frames with the twine, tying them in several places to insure the comb to stay in place. When completed place it in the new hive, and when the next combs are cut out brush the adhering bees from them into the new hive, and so on until you get all the combs and bees thus into the new hive. The bees remaining on the old box may

15 feet of the pleistocene and recent formations on top.

Professors Williston and Haworth, of the State University, who examined my fossil bed, both believed the animals became mired in a spring that was often resorted to, and their constant tramping upon those who had become lost in the mud had broken the bones to pieces. The matrix that inclosed the bones was composed of the material called "mortar beds" of the Loup Fork, a perfect name, as the material resembles old mortar so closely as to be noticed by the most casual observer. When I found the teeth and bones I was delighted, as I thought I had discovered the oldest elephant ever known, back in early Pliocene time. I wrote at once to the greatest paleontologist then living, Prof. E. D. Cope, of my discovery. He answered, "If it is Loup Fork it is not *Elephas*; if *Elephas* it is not Loup Fork." It was, therefore, a long time before I could account for the occurrence of the remains in Loup Fork material, but at last reached these conclusions. As the deposit was 100 feet below the Loup Fork beds, that showed their heavy escarpments at the head of the ravine, south, I was led to believe that the material had been carried such a short distance by water that it had not lost any of its characteristics.

Nearly all the tusks I found were broken into pieces from one to four feet in length. I uncovered one, however, that was fourteen feet long, recurved, eight inches in diameter at the base, but too friable to save. I found one large and nearly perfect skull, with base of tusks extending two feet into their sockets, which reached nearly to the eye-orbits. A number of nearly perfect sets of lower-jaws were found. The large bones were usually broken to pieces, and no two bones were found together. Remains in great abundance were found of all ages, from the young elephant to the full-grown bull. The largest molar I procured measured in length a grinding surface of seventeen inches. This, I believe, is the largest elephant tooth in existence. It is now in the Kansas State Agricultural College. Perfect bones and complete skeletons could not be procured. I

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got out about two hundred fine teeth, many of which are preserved in the Kansas University, as are also lower-jaws and teeth in the American Museum of Natural History in New York. I found a couple of remarkable examples of morbid anatomy in two large molars. They were in the shape of a horseshoe, the distal ends turned and pressed closely against the proximal ends in the jaws of fully matured animals. How these could have lived, and have done as much grinding with these powerful mills of theirs as they did, is a mystery.

In a bed of upper miocene fossils in Kansas occurred the bones of a species of rhinoceros which has been named *teloceras fossiger*, words that mean the final or perfect-horned pitbearer—the pit referring to sockets where the horns were planted. It differs from the living genus rhinoceros in having evidence of horns on the tips of the nasal bones instead of somewhat further back; also in the number of lower premolars. A skeleton has been mounted in the University of Kansas, and another in the American Museum at New York. The latter measures in length ten feet two inches, to bend of the tail; height, at shoulders, four feet one inch; greatest girth, nine feet two inches. The quarry in which these are found represents the deposit of some stream or small river along which rhinoceroses herded in great numbers. In this typical bone-bed are mingled individuals of both sexes and of all sizes.—Charles H. Sternberg, in the July Popular Science News, New York.

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ADDRESS

The Kansas Farmer, Topeka, Kas.

The Home Circle.

TWO LILIES.

On the bosom of a river,
Flowing onward to the sea—
On the ripples, laughing ever,
Bounding forward, gay and free—
Lay two lilies,
Spotless lilies,
Dancing always in their glee.

Sister lilies were these flowers,
Culled from off the same green stem.
Side by side, in hidden bowers,
Bloomed these lilies, scenting them.
Happy lilies!
Stainless lilies!
Purer far than many a gem.

But the water found them hiding
Near the willow on its shore;
And it clasped them, onward gliding,
Thro' the spray and water's roar.
Frightened lilies!
Falling lilies!
For they shall return no more.

Yet the wavelets grasped them tightly,
And they chased away all fear,
Till again they tripped on lightly,
Laughing in their gay career.
Dancing lilies!
Happy lilies!
Once so mournful, once so drear!

Thus does joy give way to sorrow;
Then again the day is bright:
Sad to-day is glad to-morrow,
Ere the sunshine comes the night.
As the lilies,
Trembling lilies,
Passed from darkness into light.
—Proctor Wadsworth Hansl, in the Victorian.

THE POOR CITY BOY.

A cultivated woman from one of our Western cities, after spending several months in New York in association with people prominent in society and finance, reluctantly gave it as her opinion that she doubted if such provincialism and insularity existed anywhere else in the United States to the degree noticeable in New York. She was alluding to the upper classes and not to those whose so-called advantages had been meager. The value of her remarks would have been lessened had she spoken with spleen, but her manner indicated a gentle regret, as though it were a national misfortune to which she was alluding; and those who heard her began to search in their minds for the reasons which would lead an outsider thus to criticize.

STARTS WITH THE NURSERY.

The trouble undoubtedly begins almost in the nursery. The baby years of boys, both in town and out, are spent in the delightful position of idol to a worshipping family, but later, restraint hampers the city boy and keeps him in one avenue of experience. He lives in a good neighborhood, and is permitted by his nurse or governess to associate only with boys of his own or a better social status.

Even when he is taken to the wide freedom of Central Park, his caretaker sees that he rolls hoop and spins top only with the children of prominent families. Don't ask how the nurse acquired this discrimination. Does not every daily paper repeat, ad finitum, the names of those prominent in society, and are not these things eagerly read below stairs? There is as much toadying and snubbing done among the babes and nurses in the parks as in society itself. And thus, with his games, the New York boy learns that he is born to a certain station, and seeks to know no other.

When school days come he is placed in a private school where all his associates are well bred and well to do, like himself. There may be varying degrees of wealth among the parents of the boys, but all are of the grade that permits good clothes and expensive sports.

In the matter of pleasure and diversions the boy is separated from the common herd as carefully as is royalty, perhaps even more so, for we Americans have no way of advertising our social status except by the company we keep. I am profoundly sorry for the healthy New York boy during his play hours. When he is let out from school early in the afternoon, what joyous, manly sport has he? The dangers of the town are so menacing to life and limb that his parents naturally demand that he come directly home to report his safety. Then after that? Really nothing but music lessons, dancing school or a brief and restricted play on the sidewalk. On Saturdays there is the matinee of the opera or the play, and in summer vacation there is a trip to Europe.

MUST BE A GENIUS TO SUCCEED.

Later comes business life, and what equipment has the man had for becoming a success in finance or a patriotic son of America? Our national constitution does not recognize classes, but the New York man born and bred has been kept in the narrow path of one class from his birth.

"I doubt," says a man of fine perception, "whether it is possible for a New York boy to make an immense success in a business way, and the reason is that

nothing seems to him worth while. Geniuses may be quoted against my theory, but genius is an exception and succeeds against any odds."

The dream of the country boy is to see New York. It is the most important city in his country, and he feels almost a proprietary interest in it. He is familiar with the Brooklyn bridge, the high buildings and street scenes through the illustrated papers, and he dreams of setting his joyous feet upon the domain that is his because it is America's. When he reaches the city at last, just as he enters manhood, he feels no strangeness as he walks Broadway or Fifth avenue, for they are not merely streets of New York, but streets of the nation, and his young heart pounds with patriotic pride in a country that can produce so much.

One such boy I knew arrived from the West at the time we were having processions as long as the city in honor of the Columbian quadracentennial. He spent of his hard earned dollars to procure a place to view the wonderful sight, and sat among a crowd of his countrymen feeling that he was living his country history. In the sunlight of the spring morning a regiment of men came up Broadway bearing two flags, one rent with shot and shell, the other strong and perfect as our Union.

The heart of the young man swelled, his head grew light with enthusiasm, and, taking off his hat, he shouted, "Three cheers for the Stars and Stripes!" Scarce a voice responded. What need was there to make a time about flags when they floated from every hotel and club house in the city every day in the year? But the young man from the West has never forgotten the shock of indignation he felt toward his apathetic fellow countrymen, the positive pain it was to suspect that New York's sons had but a perfunctory love for their country.

THE BROTHERHOOD IDEA SUPPRESSED.

The fundamental principle of our constitution is equality. The wise men who framed it probably knew as well as we do that individual differences make one man superior and another inferior, but by inspiring us with the idea of equal rights we were to find that broad, sympathetic brotherhood which unites the people of a country as nothing else can do. And it is this very sense of brotherhood that a New York education tends to suppress in a boy's character.

The country lad, whether from East or West it matters not, has from the very start that catholicity of association which is the very foundation of a harmonious and complete American education. The public school is where he learns not only his tasks but the valuable fact that to stand well he must study better than the blacksmith's son.

Another thing the country boy appreciates is the value of small money. He rarely has any, and when a little comes to his sinewy hand it is either an infrequently donated cent or it is the joygiving silver earned by such labor as commands a money value the world over. He earns it with a manly self-reliance and unconsciously learns its value as a concentrated force.

Look at the town boy and see the injustice to his financial future which town customs inflict. He learns from his earliest days that a 5-cent piece is only a car fare, and 10 cents daily—unheard of wealth to the country boy—but takes him to school and back. And thus he comes to reckon money only by dollars and later by thousands, and at last fails to succeed in life because of his intolerance of small beginnings.—New York Herald.

Ladies and More Ladies.

The word lady still has about it a certain halo which ought to prevent its indiscriminate use. In this country we can hardly expect to see social distinctions reflected in the use of the word; and yet we might, perhaps, expect to see it employed more equitably than it was by a certain dry goods store keeper in a Massachusetts town not very long ago.

The daughter of a Senator of the United States drove one day from her father's summer cottage to a store in a city near by and ordered some articles to be sent to the house.

When the goods were sent a mistake was made, and the Senator himself stopped at the store to correct it. The proprietor called the saleswoman, and, after consulting with her, apologized for the mistake.

"You see, sir," he explained, "the lady who took the order didn't quite understand what the girl said."

A somewhat similar story was told of a remark made by a Yankee servant of the family of John Lothrop Motley, the historian. On one occasion, when the historian was at home on the ancestral estate, near Boston, and when his brother,

Don't wear your working apron all the time—it's a sign of poor management. Do all your cleaning with

GOLD DUST Washing Powder

and you can change your working clothes for resting clothes early in the day. It saves time, work and worry. Largest package—greatest economy.

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James, was also there, an intimate friend of the family, who was sojourning at the house, came out from Boston on a late afternoon train. The family coachman met him with a carriage at the station. On the way to the house the guest said to the driver:

"Did any one come on the earlier train?"

"Oh, yaas," said the coachman, "the' was four; the' was John and Jim and two ladies."

The guest knew that "John and Jim" were the historian and his brother, and he wondered who the ladies were. Afterward he found out that they were a seamstress and a new chambermaid.

The most extraordinary use of the term that we are likely to find any record of is related from England. The house surgeon of a London hospital, we are told, was attending to the injuries of a woman who had been badly bitten on the arm. As he was dressing the wound, he said:

"I cannot make out what sort of a creature bit you. It was too small for a horse's bite and too large for a dog's."

"Oh, sir," said the patient, "it wasn't a animal—it was another lydy."—Youth's Companion.

Bismarck, the Man and the Statesman.

There is no better or more convincing proof of the value of "Bismarck's Autobiography," published by Harper & Brothers, than the fact that over three hundred thousand copies were sold in Germany within ten days after publication, and the appearance of these remarkable memoirs is an event that concerns not only Germany; it is one of vast importance to the world at large. It gives us, of course, almost a complete history of Europe during the last three-quarters of a century, but more than that it gives us a clear insight into the private and public life of the man who, perhaps more than any other, made this history.



By Courtesy of Harper & Brothers.

The sympathy of the world was with Bismarck when, a few years ago, he was forced to resign the chancellorship and retire to his country place at Friedrichsruh with nothing before him but the cheerless prospect of an idle and inactive old age. He had always been in the thick of events, and it goes without saying that the day of his retirement was the bitterest day of his long life. But as we now see it, that day was a most auspicious one for the world. For had the Iron Chancellor remained in public life, it is probable that his monumental autobiography would never have been written, and we would never have known the great diplomat as he really was. The idea of an autobiography was first suggested to Bismarck in 1889, but as he was still in active public service at that time, it was impossible for him to attempt such a task. But after he had surrendered

the reins of government and had retired to his peaceful retreat at Friedrichsruh, the thought became more and more pleasing to him. He was a man after Kipling's own heart. He liked to do things, and with his life behind him and the monotony of idleness before, it was with relief that he turned to the doing of his last great work, the fit telling of the story of his life. Like Napoleon on St. Helena with the memory of his past greatness, living over again Jena, Wagram, Waterloo, and Austerlitz, one may imagine Bismarck watching from afar the political arena and longing to be again at the helm, setting his course for the nation. And in telling this his own story, Bismarck is once again in the strife, he lives again in the old-time fighting days, and while in the old library at Friedrichsruh he dictated this wonderful biography to Lothar Bucher, the fire and vivid picturesqueness of his words prove beyond a doubt that the old statesman, in spirit, at least, was living again in the days when he had at last realized his ambition, when France was crushed and Germany united.

In short, we may say that it is the most important contribution to autobiographical literature during the last century, and that Bismarck as a biographer will rank with Boswell. The preparation of the book was the pleasure of Bismarck's declining years, and he put all his immense energy into the task. The result of his labors speaks for itself, and the German people have shown already that the book is a most notable one and of immense value as a true and complete record of the life and work of their national hero.

In all literature the work has not its fellow, unless one goes back to the Latin classics and finds in Caesar's Gallic war the same chance to be at a great leader's side and in his confidence while tracing the course of important events. The massiveness of Bismarck's thought has its full effect. The sentences march like an army, coming to the point with certainty, but from many sides at once. The reader is conscious of immediate contact with an epoch-making personality, and to know truly how the German Empire was created, we must study our Bismarck all over again. We must know Bismarck's life as he himself reveals it.

The book is an adequate expression of great themes, deliberate, full and judicial in style. It is a book of confessions, conscious and unconscious. There is nothing like it in literature. We have all, when bewildered in the state problems of their times, wished for the private notebook of Caesar or of Richelieu. But the greatest men are usually too reserved for the curious interest of posterity. Bismarck, however, gives us an unreserved insight both into his private and political life, and his style and tone reflect the greatness of an impersonal tribunal.

The London Times says: "In his 'Reflections and Reminiscences' Prince Bismarck presents himself in the more familiar garb of polite society, with the polished manner of a man of the world, keeping his tongue under control, a great and commanding figure, self-centered and self-restrained, a courtier and a statesman, filling not unworthily with his gigantic personality the world-stage on which he moved."

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The Young Folks.

UP GARRET.

What a world of fun we had,
You a lass and I a lad,
Up garret!
In the sweet mysterious dusk,
Redolent of mint and musk,
With the herbs strung overhead,
And the "peppers" stiff and red,
And, half hidden by dangling corn,
Grandpa's flask and powder-horn!

Such a store of treasures rare
We were sure of finding there,
Up garret.
Hats and coats of pattern quaint;
Dark old paintings blurred and faint;
Spinning-wheels, whose gossip-whir
Might have startled Aaron Burr;
Old lace capes of saffron hue;
Dishes splashed with villas blue.

You in trailing silk were dressed,
I wore grandpa's figured vest,
Up garret.
So we stood up, hushed and grand,
And were married, hand in hand,
While the tall-cased clock beheld,
As it doubtless did of old,
When at great-grandfather's side
Stood his blushing Quaker bride.

Furnished ready to our hand
Was the cozy home we planned
Up garret.
Chairs that any modern belle
Would pronounce "antique and swell,"
Chests and dressers that would vie
With the grandest you could buy.
Ah! they didn't know it then—
Save the little maids and men.

All day long in childish wise
We spun out life's mysteries,
Up garret.
In the fragrant, spicy gloom
Of that dear old raftered room,
Oh, that life in very truth
Were but sweet, protracted youth,
And we all might play our parts
With unwearied, happy hearts!
—James Buckham, in Harper's Bazar.

THE SCOUT'S RESCUE.

Polly Cunningham, living in a quiet country neighborhood, and nourished on Walter Scott's stories from the time she could read, had always longed for excitement and adventure; now she had a great deal more of them than she wanted. Her home in Culpepper County, Virginia, was near the very center of the battle-ground between the Union and Confederate armies; so near Brandy Station that the roar of the cannon echoed through the house, and the smoke of battle was plainly to be seen.

Her father and brothers were in the Southern army. But she and her mother remained in the old homestead. A few of their old slaves still clung to them, notably Polly's "mammy" and her husband, who, trusted and confidential house servants, had never felt the yoke of slavery as galling. What they could have done without mammy, Polly never dared to think.

She came into the dining-room, where Polly was washing the dishes, after the frugal dinner, a meal which her mother, suffering with an acute attack of neuralgia, was too ill to share.

"Well, honey," she said, "Yo' ma 'pears to be easy now. I give her a hot foot bath an' a mustard plaster, an' she went to sleep, so I put the bell whar she could tech it an' crep' out. I reckon I mout as well take my ole man his dinner." Mammy went to the window and looked out, craning her neck to catch a glimpse of the drive leading to the front of the house. "Great Marster," said she. "Here's a Yankee officer ridin' up to the do'. You keep still, chile, while I go see what he wants."

In a moment she was back, smiling, followed by a young man in the uniform of a United States lieutenant, whose "Hello, Polly!" startled her so that she dropped to the floor the cup she was wiping. She looked at it ruefully; then her face lit up.

"Why, Frank!" she exclaimed, "where did you come from?"

"Stuart's headquarters, of course; I want to find out what Sheridan is doing. I've a letter for your mother from the major. Can you get me a mouthful to eat?"

"It won't be much more," said Polly, as she set out the remains of the dinner as quickly as possible. "Mamma has one of her bad attacks of neuralgia. Oh, Frank, how are papa and brother Ned, and Jack?"

"All well and flourishing two days ago; why, this does famously, Polly," and he set to work at bread and butter, beef and potatoes with the hearty relish of a hungry traveler.

Mammy had taken the letter up stairs, sure that no other medicine would do Mrs. Cunningham as much good. Now she rushed back, ashy with fright. "For de Lawd's sake, Mars Frank, run out de back do'. Here comes a whole troop of Yankees."

"No, Frank!" said Polly, who had flown to the back window, as he started up, and seizing hat and overcoat made for the door. "They are coming that way, too. Quick! here! up stairs! I can hide you!"

The rear of the house was one and a half stories high, with sloping roof; and where the newer two-storied front joined it, on either side, were closets in the wall. They had been wainscoted, instead of plastered, and one of them had been given to Polly in her babyhood as a dollhouse. After reaching Woodstock, Polly had begged her father for a sliding panel in this closet, opening into the cuddy under the eaves of the old house.

Mrs. Cunningham had protested, saying it would only be a rat-hole and do Polly no good, but her husband had laughed and yielded. "It was as good as any other toy," he said, and under Polly's supervision a country carpenter had done the job, so cleverly that no one not in the secret would have suspected the existence of the panel or found the spot, looking like a knot in the wood, which concealed the spring.

Frank, visiting the house as a boy, had often teased little Polly about her secret chamber, and, like her brothers, had begged vainly to be shown the spring; but it had passed from his mind until now, when, opening the closet, she pressed back the panel and showed him the cuddy as a place of refuge. A moment more and the panel shot back into place; the closet door was shut, and he heard her quick footsteps flying down stairs. The cuddy was dark as a pocket, but larger than he had imagined, and the smell of provisions gave token that it was used as a place of storage in view of frequent foraging parties from both sides.

Polly found two United States officers in the hall down stairs, talking to mammy, who was barefacedly declaring that there was no one in the house but her mistress, her young mistress and herself.

As Polly entered the lieutenant in command of the squad turned to her. "Good afternoon, Missy. We have reason to believe that the notorious scout and spy, Twyneman, is in this house. We captured his horse down there in the bushes, and we must search the house."

Polly paled, but she answered steadily. "Of course, you can do so if you choose, but you will find nobody here! May I ask you to make no unnecessary noise; my mother is ill, and I don't want her frightened. Mammy, go stay with her please."

But mammy stood her ground. "No, chile, I tole her dey was comin', and she tole me to stay wid you."

The searching party indoors looked in every room, in wardrobes, closets, under beds, everywhere that a cat might hide, while outside their comrades kept guard over doors and windows. Polly's closet was opened wide, among the others, but the presence of the panel was not suspected, and she kept her face as immovable as that of the sphinx. Once she flared up. "This is an outrage, sir," she said, when she found that her mother's room was to be searched. "Our orders are imperative," answered the lieutenant, calmly. "Boys, stay outside. Excuse me, madam, but we are looking for Twyneman, and cannot leave any possible hiding place unsearched."

"Very well," answered Mrs. Cunningham, rising to her feet, in spite of the blinding pain. "When you are sure that he is not on the lounge I should like to lie down again. Be quiet, Polly; don't you know they are only doing their duty?" and so the soldiers withdrew, baffled and disappointed.

"He has got off, somehow, boys; but I believe he was in the house, all the same. He's as slippery as an eel, that fellow," said the lieutenant, as they walked to their horses. But they rode away, going in two or three different directions, as though to pursue the fugitive.

When they were out of sight Polly released the imprisoned scout and led him to her mother's room, where Mrs. Cunningham, in spite of her aching nerves, insisted upon seeing him and hearing in person all he could tell of her loved ones.

They were still talking together, and Polly was writing a letter to her father, when Mrs. Cunningham's ears, sharpened by pain, heard horses' feet and voices outside. "Hark!" she said, and almost on the instant the soldiers were inside the house.

There was no time to get to the closet; whether or no the searching party had left one of their number behind, who had noiselessly admitted them, they never knew, but it was plain that the soldiers were coming up stairs. Twyneman took a package from his pocket and was handing it to Polly. "Dispatches," he whispered.

"No, no," she breathed; "quick—my room, back there—the roof."

He understood her. It was the old part of the house, and the roof of the veranda came up under the eaves of the sloping roof. There was a wooden trough at the edge which did duty as a gutter, and eaves and gutter together ex-



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tended out for perhaps twelve inches. He had used it as a hiding place many times in games of hide and seek. He was slender, and it was dusk now; any way, the chance was worth trying, and in less time than it takes to tell it he had darted across the hall into Polly's room and out of the window before the enemy had reached the head of the staircase; luckily, the front one.

Mammy was heard protesting as they came up. "Dat Frank Twyneman? Yes, sah, I don' like him nohow; I never did, an' I wish you could ketch him, so I does, but he ain' here as I knows on, 'deed he ain't."

Polly met them as they came up; candle in hand, holding the light so that her shadow fell darkly along the hall. "Well?" she asked sharply.

"We must search this house again. One of our men saw Twyneman enter, and he cannot have escaped."

"As you please. He is not in the house, however," she answered. "Come on," and once more she went with them through every room, while they explored every nook and corner. Her heart came into her mouth when the lieutenant raised the window in her room and leaned out, looking on the veranda roof. The wind blew fresh, and she held her hand to shade the candle, so contriving that its feeble ray made the outside darkness blacker.

"No, he isn't here; where has he gone?"

They kept watch on the house all night, and Polly, in her mother's chamber, had but little sleep. In the first gray dawn she stole to peep at Frank's hiding place, but he was gone, and though they heard that he made his escape it was not until many weeks afterward that she learned how he had slid down the rain spout within ten feet of a sentinel and stolen away in the darkness.—Mrs. Moses P. Handy, in Chicago Inter Ocean.

She Was Healed in Twelve Days.

Bellefonte, Hendricks Co., Ind.,
November 5, 1898.

To Whom It May Concern:

This is to certify that for three years I had a skin cancer, the size of a ten cent piece, on the left temple near the eye. I was very much alarmed, for fear that it might spread into my eye, as it began to show symptoms of growing. I heard of Dr. Rinehart's New Treatment for cancer, and placed myself under his care, being convinced that he is a perfect gentleman, and his treatment, which is both local and constitutional, was sensible and thorough. I am pleased to say that on the eleventh day after I begun treatment the cancer dropped out, not causing me, at any time during treatment, the slightest pain or discomfort, and no loss of sleep or rest. On the twelfth day I went home, thoroughly convinced of a cure. I will answer any inquiries, if stamped, addressed envelope is enclosed.

MRS. MARY CALLAHAN.

Persons afflicted can have home treatment sent at moderate prices. No burning plasters used. For full information send for a free Book to Dr. Rinehart, Lock Box 221, Indianapolis, Ind.

Secrets of Hotel Registers.

A gentleman, who had been scrutinizing the register at one of the hotels, looked up in disappointment. "I see that Mr. Smith, of Smithville, isn't here yet," he remarked to the clerk.

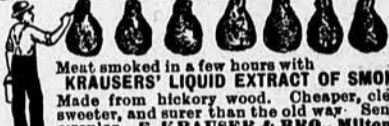
"Oh, yes, he is," replied that dignitary, "and, by the by, he's expecting you. Here! front! show the gentleman to Mr. Jones—41,144." Afterward he explained to a reporter.

"It's a common thing," he said, "for guests to register under an assumed

name, and the reasons are generally quite practical. Mr. Smith, for instance, is a clothing drummer, handling a special line of fine overcoats. He wants to keep his presence here as quiet as possible to have a clear field. If he was known to be in town, other overcoat drummers would swoop down and maybe get some of his trade. Hence, he registers as Jones, and lets me know privately whom he cares to see. It's an old trick with traveling men. Sometimes they have slipped over to the city for a bit of relaxation when they ought to be in another territory, and then they are anxious to keep "the house" from smelling a rat. See?

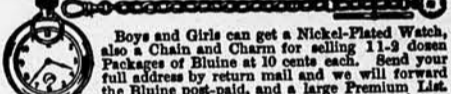
"And drummers are not the only people who find such innocent strategy handy. Any guest may have private reasons for desiring to remain incog., and we assume it's all right unless we know better. I remember one case, though, in which the scheme worked rather disastrously. A Chattanooga lawyer, who was looking up evidence in some important litigation, put a fake name on the register and foolishly neglected to advise the clerk. Next day his house burned down and the telegram apprising him of the fact lay here undelivered for almost a week. When he saw the news in the paper he nearly had a fit."—New Orleans Times-Democrat.

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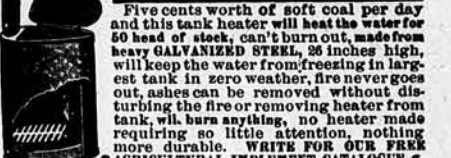
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KANSAS FARMER

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DEDICATION OF KANSAS DOMESTIC SCIENCE HALL.

"What shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed?" are questions which, in part or whole, have to be answered, three times daily, by the great majority of mankind. Savage man takes his chances of subsistence from the gratuitous gifts of nature, making little provision for the future, and little preparation of what he obtains. Civilized man has long studied means of assuring himself of regular supplies. Of late, great schools of agriculture and mechanic arts have been established to teach the best methods of producing food and fiber, and of performing the mechanical work incident to production and distribution of these. Later still, have been established, at public expense, experiment stations, whose work is to discover whatever they may that is new and better than the old in all the realm of producing raw food and clothing materials and in all the mechanical processes in any way connected with such production.

Until very recently it has been assumed that the preparation of these raw materials can be sufficiently learned by each generation from the mothers of that generation, and that no public effort in this direction is necessary. Almost the newest departure in public instruction is the addition of domestic economy to the course of instruction in a few of the most progressive schools. Kansas is perhaps the first State to provide a complete and well appointed building devoted exclusively to domestic science. Such a building, which cost the modest sum of \$16,000, has been erected at the Kansas State Agricultural College. The appropriation for this building was made two years ago, with the expectation that it would be presided over by Mrs. Nellie S. Kedzie, who was then professor of domestic economy in the college, and who will never be forgotten in Kansas as long as there shall remain one of the hundreds of girls who came under her instruction and care.

This building was dedicated last Friday. The exercises of the afternoon were conducted in the college chapel. They consisted in an address by the head of the department of domestic economy, Miss Minnie A. Stoner. In this, Professor Stoner gave a comprehensive review of the purposes and scope of her department. She was followed by President Taylor, of the Kansas State Normal, and by Chancellor McClain, of the Nebraska State University. The evening exercises began with a banquet in the spacious dining hall of the domestic science department. Adjournment was taken to the spacious parlors of the department, where toasts were given by many distinguished officers and friends of the college. These abounded in wit and wisdom, and not in one was there incorporated an element that the most exacting Republican, Democrat, Populist, Socialist, Communist, or even Anarchist, could have wished to strike out.

But it is a remarkable fact that, among all the brilliant addresses of the afternoon and the evening, in all of the eloquence of the day, none save the lady who stands at the head of the department

rose to a conception of the true dignity and meaning of a department of domestic science. The ordinary conception of such a department is, that it begins and ends with teaching what is known of cooking and sewing. It is fortunate for Kansas that Professor Stoner knows that it includes these, and knows, also, that domestic science has before it as much of a field of discovery as has the science of producing any kind of raw material or the finished result of any manufacturing process.

The writer visited, during the day, the pigpens, and was interested in the highly important investigations in progress for determining the best and cheapest balanced rations for pigs. New materials and new combinations of materials are experimented with and several lots of 10 pigs each are being questioned as to the value of these rations. Splendid work is in progress and it promises to give us healthier hogs and meat at less cost to the farmer than we have heretofore known. The wheat fields were visited. In the middle of a large field there were hundreds of stakes. These mark 3,000 experiments in cross-breeding wheat. No more valuable or important experimental work has ever been undertaken. In it lie possibilities of bigger yields, hardier plants, richer grains, better food for man. In the bacteriological laboratory were found the finished results of successful experimentation in the production of a virus for making cattle immune from blackleg and another virus for making hogs immune from cholera. These splendid experiments all lead to improvements in the production of the raw materials from which foods are prepared. A domestic science investigator has before her a no less inviting field for research. There are possibilities of discoveries, important to mankind, awaiting attention in the domestic science laboratory. Perhaps it may be well to cite an illustration here:

The human animal requires in his food a liberal percentage of protein in easily digestible form. He gets some of this in his bread, some in certain vegetables; but his richest supplies are taken in animal products, as meat, milk, and eggs. These are expensive, so expensive that their procurement is a great burden to people in limited circumstances. The lower animals which furnish these products obtain the protein from the plants they eat. Query: Is it possible to prepare, in palatable and digestible form, foods containing the required amounts of protein without passing them through the stomach of the cow, sheep, swine, or chicken? Sugar is obtained from cane, or beets, without aid from the lower animals. It is also obtained from milk, and may once have found its chief source through the cow. In looking over the list of cultivated plants one may find some which contain almost as large a percentage of protein as cane contains of sugar. Alfalfa is one of them and is produced readily and in great abundance. People eat alfalfa only after some animal has digested it and stored the protein in its tissues, or in one of its maternal products. It is not impossible, however, that the protein of alfalfa may be separated by a process of diffusion, and may be concentrated into digestible form, and may be made acceptable to the palate by contributions from aromatic and delicately flavored herbs and fruits. Possibly our domestic science people may not form for us a balanced ration in which fluid extract of alfalfa shall form an essential ingredient, but the domestic science laboratory has at its doors a field without limits. Its raw materials are the finished products of other experimentalists. Its results come directly to the individual.

It is fortunate for Kansas that we have, at the head of this department, a woman who is alive to the opportunities before her, equipped with natural ability and scientific training and imbued with the enthusiasm and steady purpose which propel to action and achievement.

Kansas changed State officers last Monday. The retirement of the Populist administration and the installation of the Republican, took place in the presence of a large gathering of people. Handing over the reins of government was a simple act, performed without ostentation. A few office-holders retire to private life, a few private citizens step into the official rank, and the functions of government proceed without interruption. The willingness with which the mandate of the sovereign people is obeyed illustrates the complete dominance of the idea expressed in the Declaration of Independence, that governments derive their just powers from the consent of the governed.

A PLAN FOR IRRIGATING.

Secretary Coburn, of the State Board of Agriculture, has referred the following letter to the Kansas Farmer for answer:

Hon. F. D. Coburn—Dear Sir: I am thinking of irrigating, and would like all available information upon this subject. I am located four miles north of Wakefield. My plan is to construct a dam across a dry branch or gulch. During heavy rains an immense amount of water passes through this. The dam would be about 50 feet long and 14 feet high, and would be constructed of earth. This would give me a pond or lake about one and one-half acres in extent, and over 10 feet deep. The overflow or surplus water would escape at another place, not over the dam.

It would be necessary to pump or in some way raise this water about 20 feet. I am quite sure this could be done by means of an irrigation pump and an over-draft windmill. Twenty or twenty-five acres of best bottom land could be irrigated in this way, if it is feasible. Please let me know if irrigation is a success in this part of the State. I would be very much obliged to you for any other information that would be likely to be of benefit to me.

Yours truly,

MELVIN L. GATES.

Wakefield, Kans., January 2, 1899.

The plan proposed is practicable.

In a paper prepared by the writer for the United States Geological Survey publications of 1897, occurs the following on

RESERVOIRS FOR STORM WATERS.

"Artificial reservoirs have been found a necessity in the irrigation of the plains. Storm waters can not be controlled or directed upon the land as they fall. They run off from the hard, sun-baked prairies in torrents, especially in those portions of the country where reliance must be placed chiefly on such waters. For the storage of this water reservoir sites are easily found, and are usually selected with a view to impounding the water from a considerable drainage area. The retaining dams are of various sizes, according to the needs and the means of the persons constructing them. A reservoir to contain an acre or so of water is easily made by placing an earthen dam across the outlet of the drainage area, even though the slopes may be very gradual. The dam has not usually to be built very high, and the principal precaution necessary is to provide against washing out in time of freshet. The larger reservoirs differ in no essential from the smaller, except that the sites must be selected with reference to larger areas of drainage, and the dams usually require more work, both as to engineering and construction.

"A typical example of this kind is the reservoir of George M. Munger, of Greenwood County, Kansas. Mr. Munger is engaged extensively in orcharding, having 500 acres of fruit trees ready to bear. Notwithstanding his location near the ninety-sixth meridian, far within what is usually designated as the "rain belt," he has concluded, after careful investigation of the subject, that the realization of the expected profits of his orchard is dependent to a large extent upon the artificial application of water. There are no surface streams near from which to obtain water in the usual way. There is on his farm, however, an eligible site for a storm-water reservoir. But most of his orchard and farming land is at a higher level than the reservoir site, so that, after collecting the water, he is obliged to pump it.

"The ravine in which the dam is placed runs diagonally through the farm. The sides of it have a gentle slope, thus necessitating the construction of a dam of considerable length. In order to provide a safe and sufficient spillway, it was necessary to build the dam to considerably larger dimensions than would otherwise have been essential. The topography is such that water could be wasted over a natural ridge having a breadth of about 1,000 feet. It was, therefore, decided to carry the dam to a sufficient height above this ridge to hold in check any freshet of unusual size and turn it over the crest of this depression.

"The watershed above the point at which the dam is located is about 800 acres in extent. The valley shows by watermarks that the high floods spread out to the width of about 300 feet. The dam is 2,582 feet long, 192 feet broad at the widest part of the base, and a little less than 40 feet at the highest point above the bottom of the valley. The estimated area of water when full is 160 acres, and the estimated capacity 1,600 acre-feet.* It was expected that two

*Irrigating a 500-acre orchard, by George M. Munger: Report of the Kansas State Board of Agriculture for the quarter ending March 31, 1896, pages 66-71.

years of average run-off would fill the reservoir.

"In the construction of the dam, which was built exclusively of earth, the sod was entirely removed and placed at the rear face. The old water channel was thoroughly cleansed of the washed-in gravel, and the work begun with new earth. The soil is a heavy clay with the usual variations, including probably a full supply of gumbo and alkali.

"The matter of seepage through the dam and the method of correcting it was considered by Mr. Munger, who states in general terms that while the authorities on the construction of earthen dams recommended that the earth be especially selected for the face, and a puddle trench be placed in the heart of the work, it seemed difficult to formulate a scheme for so doing that did not involve too great expense. Earth was taken as it came in the borrow pits, and in each successive pit was used as deep as it could readily be obtained. All earth was taken from inside the work, except where it could not be had without too great a haul. Several smaller dams had been previously constructed on the place, and in each and every place there was a seepage along the toe of the dam, but in no case was it sufficient to endanger the stability of the work. The same trouble developed in this work, and on account of the magnitude of the dam it was deemed expedient to correct it. This was accomplished by running a permanent stone drain along the toe of the dam, grading it to the lowest point possible, and running laterals to every seepy spot that showed. The result was very satisfactory, there having been a small stream running from the drain constantly since its construction, but now materially reduced in volume.

"The original estimate shows about 100,000 cubic yards as the earth contents of the dam, but, on account of the action of the waves on the surface of the dam, it was found that the estimate was considerably exceeded. It was found impracticable to prevent, by riprapping, the water from bringing the face of the dam to the natural grade, so that no protection had been provided against the action of the waves until the grade determined by the water was made, when the face of the dam was riprapped to prevent further loss of earth from the action of the waves.

"Except for the fact that Mr. Munger has many hundreds of acres of land to irrigate, so large a construction would not be advisable, but the plan of this reservoir and the methods pursued in its construction may well be taken as models by those whose requirements demand reservoirs of only moderate size. Water may be drawn through a flume for the irrigation of considerable areas of Mr. Munger's farm which lie at a lower level than that of the water in the reservoir, but for most of the farm it is necessary to raise water. This is done by two compound, duplex, direct-acting steam pumps of a daily capacity of about 4,000,000 gallons, which forward the water rapidly enough to make unnecessary a distributing reservoir from which to draw the water when supplying it to the land."

The question of pumping by windmill is not so definitely settled. The wind is a capricious power, and, while it works for nothing, it is not careful for the preservation of the tools with which it applies its energy. The greatest destruction of windmill pumping machinery results from the violent action of the apparatus in very high winds. This destruction would not be so great were it not for the intermittent action of the pump which starts the entire column of water in the pump at every stroke. When the pumping is rapid the shock of this sudden starting has much the effect of heavy sledge-hammer blows upon the working parts of the mill and connecting machinery. If there were an efficient rotary pump which could be satisfactorily operated by a windmill this difficulty would disappear.

But if Mr. Gates will make the pipes which deliver water to his pump cylinder of as large diameter as the cylinder and will provide ample room for the discharge of the water, he will greatly decrease the destructive shock.

The success of irrigation, as of other kinds of farming, depends upon how well it is done. It is high-class farming and is held by most people to be too costly to admit of general application to farm crops. For truck farming and orcharding it is coming into favor. There are those, also, who irrigate alfalfa and other field crops with profit. It will be well for every beginner to write to Mr. F. H. Newell, hydrographer of the United States Geological Survey, Washington, D. C., asking for such literature as will be helpful in practical irrigation. Begin in a small way and develop as experience shall be gained.

GUILFORD DUDLEY FOR REGENT.

Among the appointments which Governor Leedy sent to the Senate for confirmation, and which failed of confirmation on account of the lateness of the hour at which they were received, that of Col. Guilford Dudley, for regent of the Kansas State Agricultural College, deserves especial mention. Since Colonel Dudley was named for the place to which the editor of the Kansas Farmer had previously been appointed but had declined, we may be pardoned a few suggestions as to this place.

There are two tolerably distinct lines of work of the college. The first and largest work is that of a school of science and art, especially as related to agriculture and mechanical pursuits. To give the young men and young women the broad education to which everyone is entitled and which everyone must have to be properly equipped for the battle of life and to fill his place in society, branches which go to make up a liberal education are taught. Foreign and dead languages are not included in the course, although there has been a demand for them.

The second work to come under control of the regents is that of the agricultural experiment station. This undertakes original experimental work for the determination of various problems of husbandry.

The funds available for the experiment station are the Congressional appropriation of \$15,000 annually and such other amounts as may be appropriated by the State legislature. The annual income of the college, apart from the experiment station, consists of the interest from the invested endowment of \$500,000, and the Congressional appropriation which is this year \$24,000, and will hereafter be \$25,000 per year. In addition to these items, the State provides buildings and equipments, and the school has grown so great that additional maintenance funds have to be appropriated. It is thus apparent that large business ability is needed for the proper care and application of the funds.

Colonel Dudley's qualifications for the work here suggested consist in a liberal education, supplemented by years of mature study of the sciences related to agriculture; in a genius for, and experience with, the work of an agricultural experimenter; in being a practical and successful farmer; and in his wide experience as a successful business man. It has been said of him that in his own affairs he never undertakes anything which he fails to make pay. Governor Stanley will make no mistake if he shall make Colonel Dudley a regent of the Agricultural College.

On Drilling Wheat.

Editor Kansas Farmer:—I should be glad if you would allow space in the Kansas Farmer for some discussion on grain drills. It is a question of vital interest to growers of winter wheat.

I have been longing, for a number of years, for a grain drill to be put on the market that would plant the wheat in deep enough furrows to protect it from winterkilling. We have, of late years, had many improvements and entirely new inventions in the way of grain drills, but none, so far as I have seen, that will answer the purpose. It is true the climate in Kansas' winter wheat regions differs from that of other winter wheat regions, in that the soil, on the average, is drier during winter, but wheat rows in a trifle deeper furrows will be protected from the cold winds, correspondingly, everywhere. The average winter, with us in central Kansas, is dry. We very seldom have hard freezing when ground is soaked with water, and yet wheat quite frequently winterkills. It simply freezes to death. The cold wind from the north sweeps down on it and strikes it hardest where it touches most, and the smoother the surface of the field, the more it is killed. It is always most killed at the ridges or elevated spots, and less killed in the hollow spots.

I think furrows 2 inches deep from the top of the ridges, after the ground has been settled by a shower or two, will protect the wheat in the hardest winter, if drilled east and west. Even the small furrows that our common drills make help considerably. They average in depth at this time of year about 1½ inches. For the reason that those furrows help, good farmers avoid pasturing their wheat fields to the extent that the surface is leveled much by tramping. Wheat would be a sure crop, though not always a full crop, out here in central Kansas, if we could put it in so that it would never winterkill. Of course there are some farmers that will make it winterkill most any winter, but I am talking of good farmers and good farming. Our

soil is well adapted to wheat, and although it is winterkilled badly many years, I cannot remember one year when it was a total failure, and I have farmed here since 1870. During these twenty-nine years I have seen total failures of corn, broom corn, sorghum, Kaffir corn, millet, oats, potatoes, etc.

Owing to the fact that wheat matures early, it is less affected by injurious insects than other crops; and the July drought has nothing to do with it, for wheat is harvested before it comes. Even in those years gone by, when wheat sold for 40 cents and less per bushel, our main dependence was on wheat, because of its being more certain than any other crop.

But now to the drill. How should it be made in order to sow the wheat in such a way that it will not winterkill? I should like to hear suggestions from my brother farmers. I will venture one suggestion: The hoe drill should, in my opinion, have shovels on the hoes pretty much the size and shape of those on a five-tooth harrow, and far enough apart to admit of higher ridges, say about 12 inches apart, and a press wheel after each hoe, to press the ground in the wheat rows. The disk drill should have disks shaped so as to make deeper furrows and be far enough apart to admit of higher ridges, and should also have press wheels. The shoe drill, or press drill, would be better if they could make deeper furrows and higher ridges. I have seen a drill on the market that had listers instead of hoes; although it looked like opening furrows deeper than needed, it would be all right if it could be made to scour in plowed ground. I have of late seen double-disk drills with press wheels. If those disks were made to open deeper furrows and make higher ridges they would allow the rows of wheat closer together than any other make, from the fact that those disks can ridge the dirt up better than any other form. But, having the rows close together is not essential, for wheat will claim the ground and utilize all of it and yield just as well if rows are 12 or even 16 inches apart as if they are 8, such having been tried by actual test at our Agricultural College farm.

The ground will be a trifle rougher by this mode of drilling but rain will level it off considerably. It will, however, hardly be rough enough to make it perceptible when running over it with the reaping machine. If ground is well prepared it will not be near as rough as a badly prepared wheat field is to-day. But should it be necessary, or should we desire to make it more level, it can easily be done with a harrow early in spring, which, by the way, will be a beneficial cultivation to the wheat.

Brother farmers, I invite your attention to this truth, that deeper furrows and pressing will protect the wheat from winterkilling. It is to us a matter of one-fourth of a crop in most years. How can we who make our living by raising wheat ignore it? I earnestly invite your suggestions. I should be pleased to see this matter thoroughly discussed. The manufacturers of drills will not know what we want until we tell them.

S. O. THOMPSON.

McPherson, Kans.

Shawnee Horticulturists

There was an enthusiastic meeting at the State Horticultural rooms last Thursday, by the Shawnee County Horticultural Society. All the new officers were present and took their places, as follows: President, B. F. Van Orsdal, Silver Lake; vice president, Frank L. Peacock, Topeka; secretary, B. B. Smyth, Topeka; treasurer, J. F. Cecil, North Topeka.

Standing committees were appointed as follows: Executive committee, A. E. Dickinson, A. B. Smith, T. W. Harrison; committee on nomenclature, A. H. Buckman, G. W. Van Orsdal, A. L. Entsminger.

The treasurer made report, showing a balance on hand of \$8.50, which is an increase over last year.

The following is the program for the next meeting, which takes place February 2 at the State Horticultural rooms: "Physiology of Plants," B. B. Smyth; "A Discussion on Pruning," J. S. Jordan, A. E. Dickinson, S. H. Howe; "Training of Girls for Home-making," Mrs. J. G. Otis.

Reseeding to Grass—Johnson Grass.

Editor Kansas Farmer:—If you have not had an answer to the man who wanted to know what kind of crop to sow when prairie has been killed out by cultivation, also how to sow it, look for Prof. Georgeson's letter to me, published in Kansas Farmer in November or December, 1896. Johnson grass is worthless. It is simply a slough grass.

Bloomington, Ill. A. E. HARMON.

The Potato-Stalk Weevil.

Press Bulletin Kansas Experiment Station.

The potato-stalk weevil, *Trichobaris trinotata*, though unfamiliar to many potato growers, is by no means a new pest. Its presence in this State has been known since the year 1873. Though quite common, there is no record of any extensive or continuous injury sustained from its attacks till the year 1897, when there seems to have been a special onslaught by the insect. In June of that year there were many complaints of serious damage to the potato crops by this insect. During the spring of 1898 the insect was found in large numbers in Riley County. Investigations that were carried on during the same year reveal the fact that the insect is pretty well distributed over the eastern and east central parts of the State. It was found as far west as Dickinson and Saline counties.

The attacks of the weevil are not confined to the potatoes alone, as the insect is to be found in as large if not greater numbers in certain weeds which seem to be the original host-plants of the insect. The horse-nettle, *Solanum Carolinense*; cocklebur, *Xanthium Canadense*; stinkweed, *Datura Stramonium*; bull-nettle, *Solanum rostratum*; ground cherry, *Physalis longifolia*; are all subject to more or less attack by this insect. In several of the weeds, particularly in the ground cherry, the insect is more numerous than in the potato. As many as eight adults have been taken from the stalk of one ground cherry, while in the potato vines we have never found them so numerous, but only one specimen in the root and from one to five in the upper parts of the plant. Whenever the above mentioned weeds are allowed to grow wild in any large numbers they are a constant menace to potato culture, in that they support the insect in large numbers to infest adjoining potato fields in the spring.

The adult is a small snout-beetle about one-fifth of an inch in length. It is an ashy gray color, and marked with three black spots at the base of the wing covers.

The weevil passes the winter in the adult stage, remaining till spring in the same plant in which it has passed through its transformations. About May the weevils emerge from their winter quarters and pass to the young growing potato plants, where they spend some time feeding. By June the female adult commences to deposit eggs. She first makes in the stalk a small slit about one-twelfth of an inch long, in which she deposits one egg. In the same way eggs are deposited in the main and secondary branches. In about a week the larva or grub hatches out and commences to work downward towards the root of the stalk. As it develops in size its channel becomes larger and more conspicuous. After channeling down a distance the larva turns around and commences to enlarge its old channel for at least a part of the way. It is this mining of the pith and the wood by the several larvae in the stalks and branches that impairs the vitality of the plant.

The larva when first hatched is a small, footless and whitish grub. At maturity it averages from six to eight-sixteenths of an inch in length, with a brown head and with dark-colored mouth parts. The body bears a few light-colored hairs.

Just before pupating the larva constructs a cocoon of fibers in which it pupates. The pupal stage lasts from eight to eleven days. By July 22 a large number of the larvae had pupated and by August many were complete beetles.

REMEDIES.

As the adult passes the winter in the same plant in which it has gone through its transformation, the best remedy to use in combating the insect is to destroy the vines as soon as the crop is gathered. It is also a good plan to destroy in the fall all the above mentioned weeds upon the farm. They should be pulled up with a good portion of their roots and destroyed. If pulling them should be too expensive an operation they should be cut down while young and allowed to dry up. By this means many of the immature larvae will be destroyed for want of proper food.

Promote a vigorous growth in the plants by clean cultivation and fertilizers. A healthy vine does not suffer so severely from the attacks of the pest. The greatest injury is seen in the vines of low vitality which have suffered from the attacks of other insects, heat, and drought.

According to Henry Clews, the disbursements on account of "interest and dividends on securities" made last week—chiefly at New York—amounted to \$110,000,000. This is, on the average, about \$1.50 from each man, woman and child in the United States.

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The Curtis Publishing Company
Philadelphia, Pa.

Shelled Corn and Straw for Cattle.

Editor Kansas Farmer:—I am full feeding on shelled corn 130 head of 2-year steers and am short on roughness. I have two large ricks of wheat straw that is bright and good. Will it do to turn my steers to these straw stacks without any other roughness? Please answer through your columns.

Perry, Okla. C. F. COLCORD.

Wheat straw is excellent roughness. The cattle will not eat too much of it if turned in to the ricks. It would be desirable to feed other forage, such as corn fodder, hay, sorghum or Kaffir corn fodder, etc., but if none of these are to be had, at least let the cattle have all the good bright wheat straw they will eat. The ration made of corn and straw is not a balanced ration, even for fattening steers. A little alfalfa or cow pea hay or any feed containing a liberal percentage of protein, if obtainable at reasonable prices, will increase the thrift of the animals and probably add to the profits.

A discussion of this subject by practical feeders is invited.

Publishers' Paragraphs.

The annual catalogue and guide just issued by the Reliable Incubator and Brooder Co., of Quincy, Ill., is one of the finest productions of this class that has reached our table this year. It contains 228 pages, with a four-page supplement, and seems to us to cover most thoroughly every essential detail of information needed by the poultryman. If you are interested in this line, look up their advertisement and write them for one.

TO OUR LADY READERS.—We desire to call special attention to the interesting advertisement of Boggs & Buhl, of Allegheny, Pa., which appears this week. It will pay to follow closely their advertisement, which is entirely new each week. This firm deserves a large Western patronage because of their enviable business record of thirty years in supplying desirable goods at moderate prices. They now have a growing, live, pushing business that most effectively demonstrates the popularity of their business methods.

The calendar crop is never short, as the postoffice people will testify. We always get our share, and begin the new year with a great assortment, but the one we select "for keeps" is that of N. W. Ayer & Son, the keeping-everlastingly-at-it advertising men of Philadelphia. This one spends the whole year in our company. It is a piece of fine printing, but its good looks do not constitute its sole charm. It is clear plain. Utility has been put first. It seeks the date can find it; he who may read. The matter on it more people every year, but it is limited. While they last, obtained, postpaid, by to the publishers.

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The Land of attractive and views of south tains to fruit belt of Amer! the Ozarks, growers and seeker look! Mailed free. Kansas Cl:

Horticulture.

HOME.

By Cora Wellhouse Bullard, read before the thirty-second annual meeting of Kansas State Horticultural Society.

The desire to realize happiness is the mainspring and incentive to all human action. Life's finest felicities are bestowed within the realm of home, and we rarely find a creature with a soul so dead that its heart will not throb responsive to wholesome, happy home-life. Yet, the world is full of running over with people chasing madly about in vain search for happiness, who win nothing for themselves but great burdens of care. We who neglect our homes do injury to future generations, our nation, our neighbors, and ourselves. In God's world the law of all things is continuity; there are no abrupt beginnings, no rude transitions, no to-day which is not based upon yesterday. The light from the distant stars started long before the rays reached the earth; and so it is in the home that grows under our hands to-day. We are making seedbeds that will bring fruitage to some home a century hence. In blindness and ignorance we may generate "a prologue to a tragedy" that will write its epilogue in the heart-blood of our children's children. The silken-haired baby boy, so dearly beloved by you, who laughs up into your face beside your heartstone to-day, may carry through the tragic links of far-stretching kinship, some hard entail of suffering to the fireside that he sits beside as lord and master after the sod has covered your hushed heart many years. Just why the innocent must suffer with the guilty through the long avenues of heredity is not clear to most of us, but we know that it is God's way, and the terrific seriousness of it should be a peremptory proclamation to every man and woman to institute a reform. It has been said by one who has learned life's lesson well, "thoughts are first, clouds, then rain, then harvest and food." When we so live and labor that that which comes to us as seed may go to the next generation as blossoms, and that which comes to us as blossoms may go to them as precious fruit, then shall we lay just claim to progress. Our most practical philanthropists point to the home as the true center of the social struggle of our times.

Pat and Bridget were arguing the question of their children's nationality, one day. Pat could not understand how they could be anything but Americans; "Fer, Biddy," he says, "it's in Ameriky the'r affthar being borned, and sure its where ye do be borned phwat makes ye phwat ye is." But Biddy's reply silenced Pat ever after on that score. "Gaw 'way wid ye," she said; "accordin' to ye, kitens borned in th' oven 'ud be biscuits." While our early environments can not do quite so much as Biddy suggests, few are the temperaments indeed that do not in a large measure draw from the home which environs them in childhood, elements that widen or narrow the web they weave through life. Sometimes we find a soul coming from foulness and degradation, pure and white as a lily springing from the ooze and slime of the lowlands; but so rarely is this the case, and so universally is the iniquitous home the spawning bed of vice, and the righteous home the nursery of all virtues, that little variety of opinion can be admitted. Few of us realize how closely our home-builders hold in their hands the power to make or mar the destiny of our country to-day, as well as the destinies of future generations. The homes of a nation are its strongest forts, says the Farm Journal. Home corruption is a danger a land like our has to fear far more than assault from any foreign power.

Amid the soft repose of prosperity, moral stamina becomes enfeebled, leaving an easy entrance through which prodigality and its legitimate concomitants, effeminacy, hypocrisy, splendid vice, and intemperance come in and gnaw out the nation's heart. In the sumptuous home the tendency is ever to seek ease before duty; to prostitute science to comfort; to court false, reasoned sensations; and to merge aims and civic obligations in pleasure. Our highest types of manhood are rarely trained here of luxury. You, moth-

look for you, do not forget this life holds no mission higher than yours. Of all the hearts that beat in various action through the wide drama of the world, it is the heart of the true mother and home-keeper that serves her country best. It is she who, on the constant changing chord of life, plays the great master score of charity, duty and love. It is the mother in her quiet task at home who may do more toward keeping this teeming, surging, American life sane and wholesome than the brilliant orator who lifts his audience to empyrean heights for an hour, or the illustrious statesman in legislative halls. Not that I wish to disparage the scintillations of either; we need both in their proper places, but we need most the tenderness, nobleness, and heroism of the mother in our homes, and more good every-day people. No mere arrangement of wealth will ultimately help the ills which beset us. Men and women, able to practice self-control and submit to the highest laws and duties of life, are the only refuge of humanity. So long as we have grasping, unbridled, self-indulgent men and shortsighted, imprudent, wasteful women, so long will we have social disease, disorder and distress. I think if we could look over God's records we would find in his list of heroes and heroines, more names from the rank and file of those who toil dutifully in obscurity for the support of loved ones, than among the galaxy of shining lights in public opinion. It requires more real fortitude to master animalism, appetite and passion and live daily a life, temperate, pure, and merciful, than it does to lead forth armies to fierce affray for a brief stormy space, then rest idly on the world's plaudits during long years of peace.

To me it seems we horticulturists have a finely qualified vocation to develop the best there is in life, both in a domestic and a commercial sense. Yet many of us grow discontented with our lot, believing there is just a little more drab-coloring and joyless issue in the pathway we tread than in most walks of life; and allow gregariousness, instinctive in most natures, to break forth in us, causing the peace and quiet of our homes to seem painfully dull and prosaic. As a wholesome correction for one who is a victim of this hallucination, I would suggest a visit to some large city, where the tenement houses are thickest, where people are packed like apples in a barrel, where the noise and smoke of factories rise in daily testimony of a life of idiotizing grind for the thousands. To such home means soot-smears walls and candlelight. The bare bricks that rim their narrow horizon of action, give no hint of the changing seasons, save in the temperature. Grandly spreading trees, beautiful bits of Kansas landscape, pure, sweet breaths of air which are your daily portion, come to them only in dreams. Surely after a day spent with the poor children of the factory, you will go back to your world, where the splendid sunshine crowns your home so many days in the year and nature has for you an illimitable school of wonderful intelligence, feeling thankful for the large share of sky and earth that is yours and willingly dig in the soil, and so gather health and wisdom. The power lies within the grasp of every horticulturist to create a spot amid the thorns and tangle in the jungle of life where, safe from the perplexities of the world, we may cull life's choicest blessings. If we fail to do this it is our own fault. Mother Earth stands by her secret treasury filled with riches, ready to pour to us her best for the price of intelligent and patient effort.

It does not require an impossible amount of capital for any one of us to have a beautiful home. The sweet enclosure of its walls may be only that of a cot, but we can make the setting of our jewel so lovely a king might envy us. We can spread our dooryard with a carpet of richest texture, which the seasons will wash and change from velvety green to brown for us. From Flora's casket we may have in season rarest and most fragrant gems to stud our walks. One might enumerate for hours the material nature has placed in rich profusion and easy of access wherewith to build for ourselves a beautiful habitation, where we may rear our children to strong useful manhood and womanhood and leave to them a blessed heritage—the remembrance of a happy boyhood and girlhood home.

Deep and singular emotions follow the track of our aged man's or woman's memory of childhood's home. Go to the noble-faced man, bent with age, in the arm-chair by the fireside, yonder; he may have forgotten much that happened in the noon of life, but ask him about his boyhood home and see how quickly sweet memories will start from their sleep. He will likely tell you of a farm house, deep sheltered in the heart of some Eastern State, and of how he

played in the shade of the chestnuts with fair-faced maidens and sturdy boys; of the abundance of orchard, meadow, and harvest field; how a favorite sister blushed as bride in the old parlor, with its quaint furnishings; how the sainted mother, sweet and pallid, was borne to her last rest, from the same dear old room. Through the magnifying atmosphere of the past, early recollections come to him doubly dear; they paint upon his brain a picture of priceless value.

Fathers, mothers, in horticulture, you should never forget that the picture of a childhood home which you are painting on the brains of the little ones who play around your door to-day will be reproduced in the twilight of their lives with peculiar vividness. What it will be rests with you; yours is the master hand. Will it come to them across all the turmoil of years as a benediction or a curse? Will it stand for them as an apotheosis of pure family life? Will its lights and shadows be blended into an un fading radiance, and the whole stand out as an emblem of all that is good and holy? Or, will they, with bitterness in their hearts, trace there some dark tendency which grew up in their lives as a poisonous black plant that in time turned their whole existence into a wretched lottery which brought forth nothing but blanks?

Most of us who claim the good of humanity at heart, have a great variety of "don'ts" for the home, which we preach much and practice—perhaps—little. So, to the husband I would say, don't let it be said that your wife's face is a title page to a volume of misery, or that those dear and once beautiful eyes were washed dim by the salt of bitterness of tears shed for you in the merciful silence of the night. There is a great deal of pain in the world that is noiseless, and vibrations that make agonies for woman-kind are often a mere ripple in the hurry and rush of man's existence. Wife, don't let it be said you are the means of spoiling your husband's life. If you are its dominant note, which you should be, see that you do not check his greatest efforts, and that his toil of limb and brain is not stunted to suit any littleness in you. Don't let a perennial state of mop-rag belligerency be the cause of his spending his leisure moments from home, where he may find a little more dirt but a deal more comfort. Do not let him pursue a widely divergent path from yours; let the pulse of your lives beat in common; study hard; inform yourself; strive to be a companion and a business partner to whom he may come for wise counsel. Keep him in close, warm touch with home life; never allow him to reach the supreme state, separateness, that the great artist reached, who replied, carelessly, when a servant ran to him in great fright, crying, "Master, master, the house is on fire." "Go tell my wife; you know I never meddle with domestic affairs." The nervous strain, consequent upon motherhood, good housekeeping, and the equation of income and expenditure, may at times leave something in the sweetness of your temper to be desired, and your handling of words may be unfortunate. These times come to every woman; but, wife and mother, when they do, help to smooth life's way for those you love best, by teaching them the real beauty of a hearty apology, and that it is abnormal self-love, stupid vanity, and not pardonable pride that restrain us from saying, "forgive me, dear," to those we needlessly wound. Teach them the sweet joy of humility and that it is only the greatest souls who are capable of bending the lowest. Husband, wife, father, mother, sister, brother, do not forget to translate your affection into words; feelings are valueless without expression.

To grasp the good within our reach, is the great art of life. There is little excuse for dullness in our homes, even if we are shut in from the world by wintry blasts, and compelled to spend long evenings by the sitting-room fire. Cheap printing makes it possible for us to have, upon our book shelves, dearest and best friends, whose voices can never be stilled, and great music sounding from the blessed harps of the past, to

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In the Dairy.

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

GETTING THE MOST OUT OF SKIM-MILK.

Paper read before the Kansas State Dairy-men's Association, at Topeka, by W. F. Jensen, president and manager of the Jensen Creamery Company.

Whether it pays to milk cows is to a great extent dependent on the proper utilization of the skim-milk. More so than in any other business, where often the by-products constitute the only source of profit, should the skim-milk, the most bulky, and a very valuable part of the dairy, receive the farmer's attention and care. I may say that skim-milk is hardly receiving its full credit, which to some extent is due to the lack of knowledge of its value and the proper way of feeding it. The varieties of feed which we have in Kansas, with the exception of alfalfa, are distinctly fattening, and very deficient in muscle-making qualities. In skim-milk we have a feed that possesses the latter as its only distinction, and thus the first rule in feeding skim-milk should be to feed it to young stock only. Fed to young and growing animals with a proper mixture of heat-producing and fattening foods, we find skim-milk in its proper place—a muscle-making and easily digested food product, that for that purpose cannot be replaced with anything better. In countries where rain is more plentiful, crops attain a ranker growth, and for feed have more of the muscle-making properties. Here in Kansas the opposite is the rule, and I believe our farmers are just beginning to realize how indispensable skim-milk is to a properly balanced food ration for young stock.

Skim-milk probably brings the largest returns when used for human food. However, this has not come under my personal observation, and I will confine myself to the discussion of the proper methods of feeding skim-milk to calves and pigs, from an economical standpoint. It brings good returns when fed to cows, young colts, lambs and poultry, but I will not consider this phase of the subject here. As the first rule should be to feed skim-milk to young stock only, so the second rule should be to feed it moderately and regularly, to thrifty animals, and in a manner to keep the animals healthy and in good form. A calf, when three weeks old, can gradually be put on skim-milk, mixing it with whole milk at first, adding more skim-milk to a lesser amount of whole milk each day, and substituting for the butter fat a little corn meal or other easily digested fat substance. The skim-milk should be fed by itself, and the meal by itself, as the calf drinks the milk very rapidly. Each calf must have its proper amount, measured out and fed separately. The system some men have, of feeding skim-milk to calves in a trough, is not fair to the weaker occupants of the pen or pasture. A calf likes milk about the best of anything on earth, and the older and stronger ones are not apt to recognize the principle of just comradeship when it is left to themselves to measure out their beloved stimulant. A calf will easily over-feed on milk, if allowed to, and become scoured or constipated, according to the particular weakness of its stomach. It goes without saying that skim-milk should not be fed cold to calves. To get the most out of it, and have healthy calves, it will pay well to warm it so as to take the chill out of it. The old saying, "Food is fuel," is always worthy of consideration.

For all practical purposes, we are getting the most money out of skim-milk when it is used for the grand purpose of nursing a future Kansas cow or steer from a weak little baby calf to a self-confident, hustling yearling. It is not necessary to feed the calf skim-milk during the entire milking period of the cow, and thus we have skim-milk for other stock on the farm.

Next after the calf, in our estimation, as a money-making factor, comes the hog, which is most fittingly described by our Secretary of the State Board of Agriculture, Hon. F. D. Coburn. He says: "The hog in America, is essential to profitable agriculture; a contributor to prosperity, and promoter of progress. Appreciation of his merits co-ordinates with the advance of civilization." Skim-milk to-day is an essential in profitable hog raising. It gives to the shoit large bones, a big frame, and a healthy constitution. The exact value of skim-milk fed to young pigs and shoats can hardly be estimated, especially in districts where exclusive corn raising is predominant. With our many fattening foods

it makes a very good balanced ration, thus not alone making good gains for itself, but enabling us to realize more on the fattening foods as well. Skim-milk keeps the hogs healthy, and if you will notice events here in Kansas, as well as abroad, you will find the dairy districts very lightly touched, when in the exclusive corn districts nearly every hog is killed by cholera or shipped to the market. We have several experiments on the feeding value of skim-milk to hogs, showing that 100 pounds of skim-milk is worth 20 to 25 cents fed to hogs less than 150 or 200 pounds in weight, and worth from 10 to 15 cents for hogs over 200 pounds in weight.

Skim-milk fed to poultry will make them healthier, cause them to commence laying eggs earlier and lay more of them, and pay well as an investment.

Skim-milk should be sweet when fed to calves, and I would recommend that it be sterilized at the creamery. When treated in this manner it can be returned to the farmers pure and sweet, and the result from feeding it to calves will be very gratifying. I have no way of knowing whether it is an advantage to sterilize the skim-milk fed to hogs. In case of any disease being in the vicinity, it undoubtedly eliminates the danger of spreading it from that source.

Oleomargarine Fight.

By A. Jensen, manager of the Manhattan (Kans.) Creamery, in his December circular to his creamery patrons.

Few of our farmers realize what a detriment the sale of oleomargarine is to the dairy interests and butter-producing people, and I will briefly explain why and how. Oleo or butterine is made from the remnants from hogs and cattle at the big packing houses. It is boiled, boiled, boiled until all the dirt and filth looks nice and clear, when it is churned, colored and salted and sold on the market for dairy butter, ranch butter and creamery butter—in fact, any name to deceive the people. The product itself is naturally very cheap, and great means and money are spent and can be spent to have the sale of the stuff continued for butter.

As long as oleo or butterine is sold for butter, it certainly keeps lots of people from eating butter at all, and especially so the traveling class of people. I think there are thousands of pounds of butterine used in Manhattan alone per year, at least I see package after package at the depots in the mornings when the freight comes in. And this takes place right where good butter is made.

Just imagine yourself real hungry for a good meal, and stepping into a restaurant in Kansas City, Topeka, yes, even in Manhattan; your order is brought to you and you are wading in with all your might to satisfy your empty stomach. The first part of your meal tastes all right, but as you near the finish you naturally begin to criticize your meal, and as your criticism turns to the butter, you certainly wonder where it came from and whose cholera hogs were used in its manufacture—perhaps your neighbor's, perhaps your own—and, your meal is finished, you pay your 25 cents and would like to pay one dollar to be rid of the meal you just ate. Suppose some one invented a process to make good coffee out of old shoes, would that be all right to you, as long as you did not know of it?

At the late Dairy Association, \$1,000 was raised amongst the creamery-men of Kansas to be used in the next legislature towards securing a law prohibiting the coloring and sale of oleomargarine for butter. This does not exclude any one from eating oleo if he prefers it to pure butter, but it prevents all restaurants, boarding houses and hotels from serving oleo without telling you about it. I want all my patrons' influence when the legislature meets in January; and write your representative and senator now, and urge him to do his duty, and secure the pure law. I will perhaps call on you later on and may ask twenty or thirty farmers to go to Topeka when the final decision comes up. The \$1,000 raised by Kansas creamery-men does not go to buy votes, but merely to defray expenses, such as railroad fares, telegrams, etc.

A Problem in Creaming.

Dairy Editor Kansas Farmer:—I wish you would tell me why our cream doesn't rise. It is set in a dairy, about 3 or 4 feet below the surface of the ground. The cream is thin, without any consistency or thickness, and the milk is rich and looks as white as when milked. Any information you can give will be appreciated. MRS. I. D. Fame, Kans.

The difficulty you speak of is frequently met with in the fall of the year, when the cows are beginning to go dry

and are fed on dry feed. The butter fat in the milk is in the form of minute globules. These globules vary in size during the period of lactation, being larger when the cow is fresh and smaller as the cow begins to go dry. The larger these globules the more readily they separate from the milk and form the cream. Hence the cream will rise much easier from the milk of fresh cows than from those far advanced in lactation. Furthermore, the viscosity (the quality of being sticky) is considerably increased with the advance of the period of lactation. The feed also has considerable to do with the separation of the cream. Cows fed on dry feed will give milk that contains less water than those fed on watery or succulent feeds. The remedy in this case would be to give some succulent feed, as ensilage and roots, or if that is not possible, give some loosening feed, as alfalfa, sorghum hay, bran, soy bean meal, linseed meal or gluten meal.

It is quite probable that you could get your cream to separate easier if you would add a little warm water to your milk immediately after milking, before the milk has time to cool. This would help to lessen the viscosity of the milk, which, with quick cooling, would help the cream to rise. If this does not work, try warming the milk to about 160 degrees F. every twelve hours without stirring, and again cool it quickly. This sudden and repeated cooling of the milk will go a long way toward getting the cream to rise.

If you desire to know how much fat is left in your skim-milk we will be glad to test it for you free of charge if you will send us a sample. Be sure to stir the skim-milk well before taking the sample and then fill a small bottle so there will be no danger of it churning. D. H. O.

How to Care for the Dairy Cow.

Prize essay read at farmers' institute, Phillipsburg, Kans., by Albert Michelsen, age 18 years.

There is nothing on the farm more useful or profitable to the farmer than a good cow.

Our farmer should not stable his best cow on the south side of the wire fence or in a shed made of two poles and a ridge log, and then expect that cow to keep him in flour, sugar, tea, coffee and tobacco the year round. If he treats his cow in this manner I am afraid the good wife will have to count the grains of sugar that she puts into her coffee, but the man will always see that the cow keeps a supply of tobacco on hand.

Right here I should like to give this kind-hearted man some good advice, and I believe the good wife will not object:

First—The farmer should give his cow a comfortable stable and then see that this same stable is kept clean and well bedded with bright straw or fresh hay, and when the weather permits he should see that his cow is given plenty of exercise in the open air.

Second—The best feed that I know of for a Kansas cow is good alfalfa hay or millet hay. The animal should be fed all that she will eat up clean, but not allowed to waste any. She should also be grained twice a day regularly. What I mean by regularly, is that she should be fed at the same hour each day and not when the spirit moves this kind-hearted man, for his spirit may not move him more than once a day. As I have said, the cow should be grained twice a day, and this feed should consist of three quarts of corn and oats chopped together and mixed with a pint of oil cake.

Third—The cow should always be treated with great kindness, and under no circumstances should she be run or frightened by dogs. Right here pardon me if I give my personal experience in regard to milking. The cow should be milked every twelve hours regularly. Before I commence to milk I first wash my hands, then take a dry cloth and wipe the bag. I prefer the dry cloth to washing the bag, for this reason—water always causes the teats to chap and then crack.

A cow treated in this manner, when

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she is in her best I assure you will bring in from a dollar to a dollar and ten cents a day. Some of you may be inclined not to believe this, but home experience has proved this to be true.

Although I am only a boy, I think that some of you older heads need not take offense if I say unto you: "Go thou and do likewise."

\$52.42 Annual Income Per Cow, of Which \$46.42 is Profit.

Mrs. E. O. Fuller, of Ames, Kans., sends in a dairy report of her herd of five cows, from October 1, 1897, to September 30, 1898. These five cows produced 23,015 pounds of milk, which yielded 862 pounds of butter. Her financial account stands as follows:

Butter sold for cash.....	\$143.92
Butter sold to store (74 pounds).....	10.71
Butter for family use, 150 pounds, at 15 cents.....	22.50
Five calves, valued at.....	85.00
Total income from herd.....	\$262.13
Cost of bran and meal.....	30.00
	\$232.13

This gives an average annual income per cow of \$52.42, or a profit, not counting labor or interest on money invested, of \$46.42 per cow.

Mrs. Fuller says: "No note is made of roughness fed, as the milk received back from the creamery easily balanced that to feed pigs. The roughness fed consisted of alfalfa hay, corn fodder, sorghum, and oat straw. The cows were kept in the barn during cold weather."

Drying preparations simply develop dry catarrh; they dry up the secretions which adhere to the membrane and decompose, causing a far more serious trouble than the ordinary form of catarrh. Avoid all drying inhalants and use that which cleanses, soothes and heals. Ely's Cream Balm is such a remedy and will cure catarrh or cold in the head easily and pleasantly. A trial size will be mailed for 10 cents, large for 50 cents. All druggists keep it. Ely Brothers, 56 Warren Street, New York. The Balm cures without pain, does not irritate or cause sneezing. It spreads itself over an irritated and angry surface, relieving immediately the painful inflammation.

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Of course all of these reasons for using the color in export butter are just as pertinent for using it in butter sold in this country, and no one can be surprised to learn that fully 90 per cent of all the butter made here is colored with this standard color. The prize-winning butter-makers at the fairs and dairy conventions always use it, and it is endorsed by the best authorities on dairy matters. Its superior strength makes it the most economical color, for one bottle of this brand will color nearly as much as two bottles of the ordinary colors. If you are not using it, send six cents in stamps to Wells, Richardson & Co., Burlington, Vermont, to pay postage on a free sample, which will be sent you to prove by actual test, the reliability of this color.

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The Veterinarian.

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

I have a 5-year-old cow that has a swelling on her jaw. The swelling is rather solid. I have noticed it only recently and I supposed it was lump-jaw. Could you give me any information on this subject?
J. E. H.
Osage City, Kans.

Answer.—This is probably lump-jaw or actinomycosis. Numerous articles on this subject have already appeared in this column. I have directed that a bulletin on this subject be mailed to your address.

What is the disease affecting jack rabbits in Kansas, whereby most of them have watery abscesses containing firm white cells nearly one-sixteenth of an inch in diameter? I have fed some of these rabbits raw to my fowls. Is there any objection to doing so, and if so what is it?
E. P.
Arlington, Kans.

Answer.—These rabbits are affected with the cysts (larvae) of a tapeworm and the disease corresponds to what is known in pigs as measles, where the so-called measles are the cysts or immature forms of *Taenia solium*, the tapeworm of man. The mature form of these cysts in rabbits is a tapeworm (*Taenia serrata*) of dogs. Dogs become infected by eating the rabbits infected with the larvae. There is no direct danger in feeding such meat to fowls.

I have a bay horse, 5 years old. On level ground he travels fairly well, but when going down hill will stumble, often making quick, hopping movements with hind legs and almost falls; going up hill he takes long, slow steps, as though he were at hard work; in walking he strikes his front feet with the hind ones; in going up hill he rather drags his hind feet; in turning around he allows his hind feet to stand still as long as possible and reels to one side.

Answer.—This seems to be a complication of afflictions. The hopping movements are due to a painful affection of some joint, probably the hock, and would then indicate spavin. The other symptoms indicate paralysis of the muscles of the hind quarters. Both are affections that usually take a long time for recovery. If the horse is not a valuable one I would advise destroying him, otherwise I would procure the services of a veterinarian to make a personal examination and prescribe according to his diagnosis.

I wish to ask a question through the Veterinary column of the Kansas Farmer. I have a large bay mare, 5 years old, that raised a colt the past season. The colt was weaned last September, but the mare continues to give milk. I milked her once a day for three days and then let her go. There has never been the slightest signs of inflammation, but she falls to dry up. I have used camphor three times a day until I was satisfied that it did no good. When she is at work the milk runs out in streams. She is in fair working order and hearty. I feed her corn and hay. Please tell me what to do to dry her up, and oblige an old subscriber to the Kansas Farmer.
T. W. HOAG.

Answer.—The amount of milk produced by an animal depends on the amount and digestibility of the food consumed and the degree of stimulation to which the mammary glands are subjected. Take advantage of this by decreasing the amount of milk-making food; feed less grain particularly, give plenty of exercise and use no medicine. Do not milk the animal now.

(1) I have a bay horse, 5 years old, 17 hands high, that only weighs 1,500 pounds. He has bone and frame enough to carry 1,700 pounds, but I cannot get him to take on flesh. He eats heartily and feels and looks well. What can I give him that will make him take on flesh? (2) I have a yearling filly that was cut on barb wire, between the hoof and fetlock, last winter. It healed up, but left a hard callous. Can this latter be removed and how? (3) I have a 5-year-old horse that had an abscess on his front foot at the bone where the hair and

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hoof come together in front. This occurred in June and is not well yet. Every new growth of the hoof has a hole in it. I can find nothing in the foot that would cause lameness. I have had colts get sore hoofs that looked just like this one, but never had any trouble to their healing up. Please answer in the Kansas Farmer, and oblige a reader.
Edgerton, Kans. E. S. A.

Answer.—(1) This question is hard to answer definitely without a knowledge of the feed that the horse gets. Some horses are constitutionally thin and no amount of feed will fatten them. Most horses are thin either because they are overworked or underfed. The feed need not necessarily be too little, but the kind of feed may be improperly combined. Feed your animal flesh-producing and fat-producing food, corn and oats in abundance. Do not forget water and an occasional pinch of salt. (2) This callosity will probably remain permanent, but could have been avoided if the wound had been treated properly (by the use of antiseptics and bandages) in the first place. (3) The hoof of this animal will continue to be defective as long as the abscess remains. This abscess is located at the point where the new growth of the hoof takes place. Anything that interferes with the health of this horn-producing tissue will affect the character of the hoof horn. Pay no attention to the hoof, but treat the abscess by thoroughly cleansing it twice daily and applying a mixture of iodoform one part and tannic acid three parts; apply sufficient of this to cover the raw surface completely, protect with a small bunch of absorbent cotton and secure this by means of a bandage carefully applied. Do not forget to repeat this operation twice a day until the last sign of any secretion has disappeared.

Garden City Poultry Show.

Editor Kansas Farmer:—The Garden City Poultry and Pet Stock Association held its second annual show December 27-30, 1898. John C. Snyder, judge, placed the awards as follows:

Barred Plymouth Rocks.—Cock, Mrs. A. Meeks, first, score 85; Robert Johnson, second, 84. Hen, Geo. Eiler, first, 91; A. L. Liston, second, 86½. Cockerel, Geo. Eiler, first, 90½; A. L. Liston, second, 90¼. Pullet, Geo. Eiler, first, 91¼; Robert Johnson, second, 90.

White Plymouth Rocks.—Hen, John Craig, first, 95¼, and second, 95. Cockerel, A. S. Parson, first, 93¼; John Craig, second, 92¼. Pullet, John Craig, first, 96¼, and second, 96.

White Wyandottes.—Hen, J. D. Garlock, first, 93¼. Cockerel, same, first, 90. Pullet, same, first, 95¼; second, 94¼.

Light Brahmans.—Cock, C. J. Powers, first, 85¼. Cockerel, Mrs. A. Meeks, first, 88¼. Pullet, same, first, 78, and second, 77.

Dark Brahmans.—Cockerel, M. Hayes, first, 86. Pullet, same, first, 93, and second, 92.

White Cochins.—Cockerel, E. F. Leslie, first, 90. Pullet, same, 91.

Black Langshans.—Cockerel, A. S. Parson, first, 92½, and second, 92. Pullet, same, first, 95½, second, 93½.

Buff Cochins.—Cockerel, B. S. Simonds, first, 82. Pullet, same, first, 89, and second, 88½.

Black Minorcas.—Cockerel, B. F. Simonds, first, 86¼, and second, 82½. Pullet, same, first, 92, and second, 91. Cock, same, first, 89½. Hen, same, first, 94, and second, 92½.

S. C. W. Leghorns.—Cockerel, B. F. Simonds, first, 91. Pullet, same first, 97½.

R. C. B. Leghorns.—Cockerel, B. F. Neal, first, 92½. Pullet, same, first, 91, second, 90.

S. D. G. Bantams.—Cockerel, B. F. Simonds, first, 89. Pullet, same, first, 91¼, second, 89½.

R. P. G. Bantams.—Cockerel, B. F. Simonds, first, 90. Pullet, same, first, 96.

B. B. R. G. Bantams.—Cockerel, B. F. Simonds, first, 96, and second, 95. Hen,

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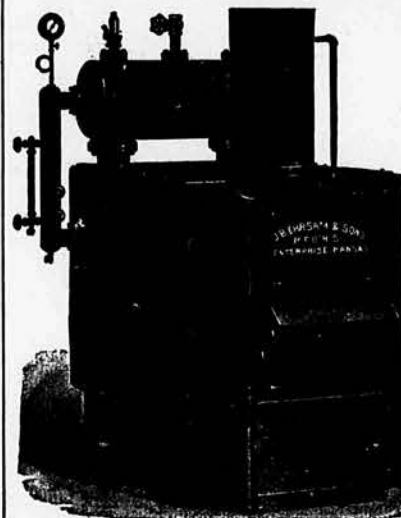


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same, first, 93, and second, 92. Pullet, same, first, 92; John Craig, second, 91.

Buff Cochins.—Cockerel, B. F. Simonds, first, 89½. Pullet, same, first, 87.

Black Cochins.—Cockerel, B. F. Simonds, first, 93½. Pullet, same, first, 91.

White Cochins.—Cockerel, B. F. Simonds, first, 91. Pullet, same, first, 91. A. S. PARSONS, Secretary.

Garden City, Kans.

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MARKET REPORTS.

Kansas City Live Stock. Kansas City, Jan. 9.—Cattle—Receipts since Saturday, 7,475; calves, 142; shipped Saturday, 405 cattle; no calves. Best fat cattle steady, others weak to 10c lower. The following are representative sales:

Table with columns: No., Ave. Price, No., Ave. Price. Rows include DRESSED BEEF AND SHIPPING STEERS, WESTERN STEERS, NATIVE COWS, NATIVE STOCKERS, NATIVE HEIFERS, and NATIVE FEEDERS.

Hogs—Receipts since Saturday, 11,676; shipped Saturday, none. The best heavy hogs were steady to strong and light weights were weak. The following are representative sales:

Table with columns: No., Price, No., Price. Rows include various hogs and sheep.

Sheep—Receipts since Saturday, 3,059; shipped Saturday, 287. The market was active and strong to a shade higher. The following are representative sales:

Table with columns: No., Price, No., Price. Rows include various sheep.

St. Louis Live Stock. St. Louis, Jan. 9.—Cattle—Receipts 4,500; market slow for natives with Texans easy to lower; native shipping steers, \$4.50@5.35; light and dressed beef and butcher steers, \$3.20@3.50; stockers and feeders, \$2.75@4.40; cows and heifers, \$2.00@4.50; Texas and Indian steers, \$2.90@4.40; cows and heifers, \$2.80@3.80.

Hogs—Receipts, 10,000; market 5c lower; pigs and lights, \$3.15@3.35; packers, \$3.2@3.5; butchers, \$3.45@3.65.

Sheep—Receipts, 1,000; market strong; native muttons, \$3.50@4.00; lambs, \$4.00@5.25.

Chicago Live Stock. Chicago, Jan. 9.—Cattle—Receipts, 15,070; best steady, others weaker; beefs, \$4.10@5.15; cows and heifers, \$2.00@4.85; Texas steers, \$3.30@4.65; stockers and feeders, \$2.85@4.40.

Hogs—Receipts, 38,090; market slow but firm; light, \$3.30@3.60; mixed, \$3.40@3.70; rough, \$3.40@3.45; heavy, \$3.40@3.70; yorkers, \$3.50@3.55.

Sheep—Receipts, 17,000; market steady; natives, \$2.70@4.20; westerns, \$3.00@4.15; lambs, \$3.75@5.20.

Chicago Grain and Provisions. Table with columns: Jan. 9, Opened, High'st, Low'st, Closing. Rows include Wheat, Corn, Oats, Pork, Lard, and Ribs.

Kansas City Grain. Kansas City, Jan. 9.—Wheat—Receipts here to-day were 230 cars; a week ago, holiday; a year ago, 85 cars. Sales by sample on track: Hard, No. 2, 64 1/2@68 1/2; No. 3 hard, 62@65; No. 4 hard, 58 1/2@64 1/2; Soft, No. 2, nominally 70@71; No. 3 red, 66 1/2; No. 4 red, 60@61; Spring, No. 2, 64 1/2; No. 3 spring, 62 1/2.

Corn—Receipts here to-day were 69 cars; a week ago, holiday; a year ago, 183 cars. Sales by sample on track: Mixed, No. 2, 33 1/2@33 1/2; No. 3 mixed, 33@33 1/2; No. 4 mixed, 32 1/2; no grade, nominally 31 1/2. White, No. 2, 34 1/2; No. 3 white, 34; No. 4 white, 32 1/2.

Oats—Receipts here to-day were 6 cars; a week ago, holiday; a year ago, 13 cars. Sales by sample on track: Mixed, No. 2, nominally 27 1/2; No. 3 mixed, nominally 29 1/2@27 1/2.

Swept by Fire. Burlington, Vt., Dec. 24.—Twelve acres containing 11,000,000 feet of lumber, a planing mill, with sheds and a large quantity of machinery, the property of the Shepard & Morse Lumber company, of Boston, and this city, were swept by fire to-day, causing a loss estimated at \$250,000.

Damage from Natural Gas Explosion. Key Key, Ind., Dec. 31.—An explosion of gas followed by a fire at the Ohio and Indiana Pipe Line company's compressing station near here, caused a loss estimated at \$100,000. Thirty or more towns will be deprived of natural gas by the destruction of the station.

THE STRAY LIST.

FOR WEEK ENDING DECEMBER 29, '98. Greenwood County—Perry Clemons, Clerk.

STEER—Taken up by James Rue, in Twin Grove tp., one red steer, with white belly and legs, with horns, short 2 years old, notch out of right ear; valued at \$20.

STEER—Taken up by J. D. Webb, in Bachelor tp., one dark red steer, 3 years old, branded with a heart on left hip and both shoulders; valued at \$30.

MARE—Taken up by E. N. Wertz, in Prairie tp. (P. O. Fredonia), November 29, 1898, one bay mare, about 3 years old, small white spot in forehead, no other marks or brands; valued at \$30.

TWO HORSES—Taken up by A. D. Goetehins, in Lookout tp., November 17, 1898, one dark bay horse, 7 years old, weight 1100 pounds, and one dark bay horse, 6 years old, weight 900 pounds; no marks or brands; valued at \$45.

THREE COWS—Taken up by Fred Hoffman, in Cottonwood tp. (P. O. Cedar Point), December 13, 1898, three cows, medium size, red, 6 to 8 years old, right ear cropped, some brand on right hip, looks like a letter V; valued at \$40.

HEIFER—Taken up by Ph. Immenshuh, (P. O. Louisville), September 14, 1898, one dark red heifer; valued at \$16.

HEIFER—Taken up by Gus Severson, in Empire tp. (P. O. Galva), November 29, 1898, one red two-year-old heifer, hole in left ear; valued at \$20.

MARE—Taken up by William Strickler, Lancaster tp. (P. O. Lancaster), light bay mare, 7 years old, 15 hands high, left ear slit, star in forehead, wire out on front legs.

STEER—Taken up by John T. Henley, in Chelsea tp., one two-year-old red steer, no brands; small white spots in forehead, white spots on both right and left flank, white under the forelegs; also in bush of tail; no horns; valued at \$22.

COW—Taken up by T. J. Bailey, in Eureka tp. (P. O. Eureka), one roan cow, one-quarter inch rope four feet long around neck, dehorned, underbit in left ear, brand on right hip but too dim to determine.

STEER—Taken up by Robt. Wiggins, in Bachelor tp. (P. O. Eureka), November 1, 1898, one red steer, branded O 1 on right hip and Z on left shoulder; square crop out of under part of left ear; square slit in under part of right ear.

TWO COWS—Taken up by C. C. Huntington in Eureka tp. (P. O. Eureka), two red cows, 5 years old, no marks or brands; valued at \$25 each.

COW—Taken up by Charles Martin, in Liberty tp. (P. O. Fall River, Greenwood county), on December 15, 1898, one black cow, weight about 700 pounds, crop and underbit out of each ear, branded D. G. on left hip; valued at \$20.

ITALIAN BEES.

Bred from queens imported from Italy. Full colonies; two, three and four frame nucleus shipped anywhere and safe arrival guaranteed. We ship bees any time from March to November. Queens, hives and supplies generally.

HATCH YOUR CHICKENS in an incubator, \$7.50. Raise them in a brooder, \$6.00. Stamp for Circular.

KANSAS ECONOMY INCUBATOR. Send for circular which describes my book on incubators and brooders. The book gives full details so that you can build your own incubators, brooders, incubator and brooder houses, poultry houses; also much other information on poultry, including diseases, their treatment and prevention. Price of book, \$1. Send to JACOB YOST, Lock Box 196, Arkansas City, Kas.

Climate Cure For Weak Lungs, Weak Throats, Weak Bodies. The Health Resorts of New Mexico and Arizona are unrivaled. Pure, dry air; an equable temperature, the right altitude, constant sunshine.

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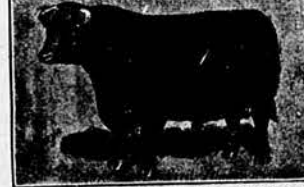
The Prize-winning Herd of the Great West. Seven prizes at the World's Fair; eleven firsts at the Kansas District fair, 1893; twelve firsts at Kansas State fair, 1894; ten first and seven second at Kansas State fair, 1895. The home of the greatest breeding and prize-winning boars in the West, such as Banner Boy 2841, Black Joe 28003, World Healer and King Hadley. For Sale, an extra choice lot of richly-bred, well-marked pigs by these noted sires and out of thirty-five extra large, richly-bred sows. Inspection or correspondence invited.

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VALLEY GROVE SHORT-HORNS.

THE SCOTCH BRED BULLS Lord Mayor 112727 and Laird of Linwood 127149 HEAD OF THE HERD.



LORD MAYOR was by the Baron Victor bull Baron Lavender 24, out of Imp. Lady of the Meadow and is one of the greatest breeding bulls of the age. Laird of Linwood was by Gallahad out of 11th Linwood Golden Drop. Lord Mayor heifers bred to Laird of Linwood for sale. Also breed Shetland ponies. Inspection invited. Correspondence solicited. A few young bulls sired by Lord Mayor for sale. Address T. P. BABST, PROP., DOVER, SHAWNEE CO., KAS.

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FOR SALE: 125 Bulls and 175 Females.

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WILD TOM 51592, The great son of the great sire, Beau Real 11055, heads the herd.

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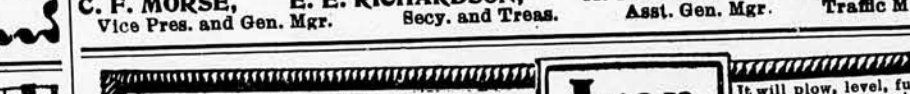
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Table with columns: Cattle and Calves, Hogs, Sheep. Rows: Official Receipts for 1898, Sold in Kansas City 1898.

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

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The Poultry Yard

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

KANSAS STATE POULTRY ASSOCIATION.
President, A. M. Story, Manhattan.
Secretary, J. W. F. Hughes, Topeka.

Poultry Show—At Topeka, January 9 to 14, 1899. C. H. Rhodes, Judge.

CONVENIENCES FOR THE POULTRY YARD.

One of the difficult problems for the poultryman to solve is, how to easily provide pure, fresh water for his fowls. Many patent fountains which are on the market are automatic and keep before the fowls a certain quantity of water. Under certain conditions these fountains serve an admirable purpose. Under more adverse conditions many of these patent contrivances fail to give satisfaction, for the simple reason that it is impossible to keep them clean and sweet.

If fowls were fed only whole grain and the weather was always cool, it would be a comparatively easy matter to provide satisfactory automatic drinking fountains, but as soft food forms a considerable portion of the diet for laying hens and fattening fowls, these fountains are more or less fouled, and in warm weather soon become unfit to use as drinking fountains on account of the tainted water and disagreeable odor.

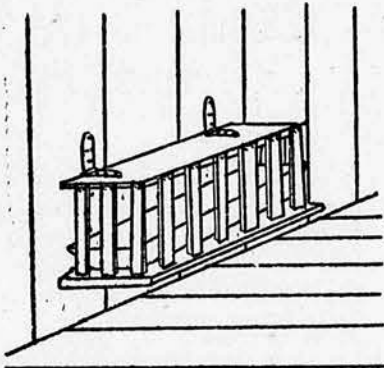


Fig. 1.—Drinking Fountain.

Fig. 1 shows a very simple and wholesome arrangement, which is made as follows: Place a shelf a few inches above the floor, long enough to hold the required size pan, or long, narrow dish—something like a tin bread-tray answers the purpose admirably. Over the pan is placed a board cover, hinged to the side of the house, on the front and ends of which are nailed narrow slats about eight inches long and, say, two inches apart, the bottom ends of these slats resting on the shelf. On this shelf, inside the slats, is placed the long, narrow pan to hold the milk or water. In order to drink from the pan it will be necessary for the fowls to insert their heads between the strips or slats, which, with the cover, prevent the fowls from soiling the water in any manner, except in the act of drinking. By hinging the cover to the side of the house, it is stationary, so it cannot be knocked off, and at the same time it can be tipped up in front for the removal of the pan or for filling it with water. Where drinking pans of this kind are used, it is an easy matter to cleanse and scald them with hot water as occasion demands.

One of the difficult problems for the amateur poultryman is to devise some means for feeding the little chickens so they can consume all the food without soiling it. If placed on the floor of the coop or brooder, or even in the brooder run, the larger part of the food will be trampled upon and will soon become unfit to eat.

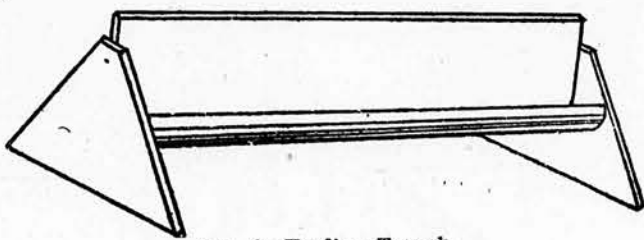


Fig. 2.—Feeding Trough.

Fig. 2 shows how a simple and efficient feeding trough may be made by tacking a piece of tin or galvanized iron, about 3 1/2 or 4 inches wide, along the edge of a half-inch board, so that the tin or iron projects about 1 1/2 or 2 inches on each side of the board, bending the

tin or iron so as to form a shallow trough, and fastening the board to blocks, which raise it from 1 to 2 inches from the floor. The trough may be made from 1 to 3 feet long, according to number of chicks. The food is in easy reach of the chicks and the trough is so narrow that they cannot stand upon the edges. Food placed in such feeding troughs can be kept clean until wholly consumed.

Poultry on the Farm.
Prof. Gilbert, of Ottawa, Canada, in

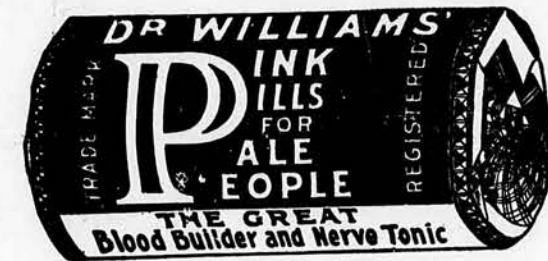
Healthy, Happy Girls

often, from no apparent cause, become languid and despondent in the early days of their womanhood. They drag along, always tired, never hungry, breathless and with a palpitating heart after slight exercise so that merely to walk up stairs is exhausting. Sometimes a short, dry cough leads to the fear that they are "going into consumption."

They are anæmic, doctors tell them, which means that they have too little blood. Are you like that? Have you too little blood?

More anæmic people have been made strong, hungry, energetic men and women by the use of Dr. Williams' Pink Pills for Pale People than by any other means. They are the best tonic in the world.

Miss Lulu Stevens, of Gasport, Niagara Co., N. Y., had been a very healthy girl until about a year ago, when she grew weak and pale. She lost her appetite, was as tired in the morning as on retiring, and lost flesh until she became so emaciated that her friends hardly knew her. The doctors declared the disease anæmia, and gave her up to die. A physician who was visiting in Gasport prevailed upon her to try Dr. Williams' Pink Pills for Pale People. She did so, and was benefited at once. She is now well and strong—the very picture of health.
—Buffalo (N. Y.) Courier.



CAUTION: Most druggists are reliable. Some are not. If a dealer tells you he has something "just as good" as Dr. Williams' Pink Pills for Pale People, he is unreliable. Insist on having the genuine. Sold only in packages like this.

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The Peerless brand of Crushed Oyster Shells, Bone Mills, Parred Roofing, poultry foods and remedies, Poultry Netting, etc., etc. Write for price list to T. Lee Adams, 417 Walnut street, Kansas City, Mo.

CHICKEN MONEY and how to get it, how to mate, breed, feed and market poultry. Cuts and plans for building poultry houses and cost of same. These and many other things together with **CYPHERS INCUBATOR** which is sent freight paid to every purchaser is contained in our Poultry Guide, 9¢ Sent for 10¢. The Cyphers Incb. Co. Box 84 Wayland, N.Y.

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Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE. GEO. ERTEL CO., QUINCY, ILL.

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THE END
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2. Because with intelligent management they ought to be all-year revenue producers with the exception of perhaps two months during the moulting period.

3. Because poultry will yield him a quicker return for his capital invested than any of the other departments of agriculture.

4. Because the manure from the poultry house will make a valuable compost for use in either a vegetable garden or orchard. The birds themselves, if allowed to run in plum or apple orchards, will destroy all injurious insect life.

5. Because while cereals and fruits can only be successfully grown in certain sections, poultry can be raised for table use or layers of eggs in all parts of the country.

6. Because poultry raising is an employment in which the farmer's wife and daughters can engage and leave him free to attend to other departments.

7. Because it will bring the best returns in the shape of new laid eggs—during the winter season—when the farmer has most time on his hands.

8. Because to start poultry raising on a farm requires little or no capital. Under any circumstances, with proper management, poultry can be made with the least cost a valuable adjunct to the farm.

Green Food for Winter.

If any one doubts that fowls need or wish some vegetable in their diet let them turn a flock from confinement in their quarters onto a plot of grass; even though there may be corn in abundance in plain view, they will tumble over that and each other in their haste and eagerness to get a nip of the grass. Where abundance of range can be had, the cheapest, best way to furnish green stuff is to let the fowls help themselves to that grass they wish.

It is claimed that ten geese require as much pasture as a cow, and 200 hens will consume or destroy the grass on an acre of ground. At any rate, it is a fact that where poultry is kept in large numbers, or where buildings will be so far apart as to do so much to the labor of caring for them that the profits will be reduced, or where the poultry will not do their best.

In short, the poultry-keeper must supply green vegetable food to his flock, if confined, or if very large, if he means to make money from them. If he is keeping them for pleasure he needs to, that they may be healthy, pretty and spry. How shall this be done?

Grass and clover stand first as regards cheapness and ease of supplying in summer, and if cut at the right stage and stored properly they make good winter feed. Green corn and young grain, cabbage, lettuce and fruits, come next for summer food. The vegetables, turnips, beets, potatoes, carrots, come in well for winter feed, as do cabbages and apples. Geese will do well upon a ration composed almost wholly of grass—fowls do not do as well if their ration is principally grass or other green food. Some is necessary to good health; too much is not conducive to their best welfare.

If fowls have not been accustomed to green food, especially in the winter time, they may be taught to eat it by mixing with their meal, at first. But if given them in cabbages they will hardly need to be taught. Loose heads, buried in the mill, will be much firmer when taken out the winter or spring. Hay made from nice grass or clover may be made nearly palatable as when fresh, by running through a cutter and then scalding or steaming. The same end may be accomplished with less work with silage. The refuse of the vegetable garden, peas and corn husks, may be run through a cutter and put into a silo and fed in winter. Whatever is cheapest and handiest is the "what" to use, but be sure and use something. If turnips are fed they should be chopped up fine. Cabbage and other tender vegetables will be readily eaten if they are simply cut in two and placed where the fowls can get at them.

In winter, when the flock is the least able to supply itself with green food, is when most farmers fail to provide it. A little thoughtfulness and time in the summer and fall will procure an abundant supply for what fowls are kept on the ordinary farm. If no provision has been made, at least a little hay or a few corn-stalks should be run through a cutter and thrown to the fowls two or three times a week.—Farm, Field and Fireside.

The Lyon County Poultry and Pet Stock Association will hold its ninth annual show at Emporia, January 24-28, 1899. For premium list and entry blanks, address the secretary, H. A. Spencer, Emporia, Kans.

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50% Waste Saved.

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Makers of "The Anchor Clamp" The Tie That Binds. Also dealers in Wire Fence Material. Gold medal awarded to Anchor Fence at the Trans-Mississippi Exposition, Omaha, 1898. The best wire fence on the market. Mention Kansas Farmer and write for full particulars.



SEND ONE DOLLAR

Cut this ad out and send to us, state number inches across top of your buggy seat in front, from outside to outside, and we will send you this Buggy Top by freight C. O. D. subject to examination. You can examine it at your freight depot, and if found perfectly satisfactory, the greatest bargain you ever saw, and equal to tops that retail at \$15.00, pay the freight agent our special price, \$6.90, less the \$1.00, or \$5.90 and freight charges. The freight charges will average about 30c. for 600 miles. THESE TOPS ARE BUILT TO FIT ANY BUGGY OR ROAD WAGON. You can sit them on in 20 minutes. Made from No. 14 best rubber drill, head and back stays lined with No. 14X cloth, side curtains unlined, 3 or 4 black japanned steel bows, japanned prop nuts, wrought iron shifting rail, patent buttons, which makes it adjustable; full length back curtain with glass window, valance front and rear. 2,000 WILL BE SOLD AT \$6.90. Order to-day. WRITE FOR FREE BUGGY CATALOGUE. Address: SEARS, ROEBUCK & CO. (Inc.) CHICAGO, ILL. (Sears, Roebuck & Co. are thoroughly reliable.—Editor.)



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\$7.45 BUYS A REGULAR \$15 FEED CUTTER.

SEND US \$1.00 and we will send you this Feed Cutter by freight, C. O. D., subject to examination. You can examine it at your freight depot, and if found perfectly satisfactory and the greatest value you ever saw or heard of, pay the freight agent the balance, \$6.45 and freight charges. This is the Celebrated Salem Cutter for cutting hay, straw or fodder; frame heavy solid seasoned hardwood, well finished, 11 1/4 inch genuine Eager silver steel knife, made with improved adjustments to cut 1/4, 1 1/4, or 3 inches, malleable hopper, extra heavy balance wheel, perfect adjustment, lightest running, largest capacity and most durable 165-pound cutter ever made. Write for Free Agricultural Implement Catalogue. Address: SEARS, ROEBUCK & CO. (Inc.), Chicago, Ill. (Sears, Roebuck & Co. are thoroughly reliable.—Editor.)



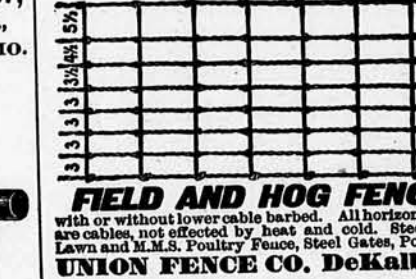
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