

Agricultural Matters.

EXPERIENCE WITH CLOVER IN EASTERN KANSAS.

By Bradford Miller, Topeka, at the twenty-seventh annual meeting of the Kansas State Board of Agriculture.

My experience in raising clover in Kansas commenced in 1875, upon the Shawnee county farm on which I now reside. When I located in the State, in 1868, I came loaded with the Ohio idea of both the importance and value of raising clover in order to make farming successful, and brought with me fixed views of the manner in which it could be profitably done, many of which were materially modified or changed as my Kansas experience increased.

The choice location for clover sowing was with a growing field of rye, to be sown in the spring, either on the last snow or when the ground was frozen. My rye field I sowed about the middle of March, using equal parts of clover and timothy seed. I obtained a very fair stand, but the pesky grasshopper came along in the month of June and cleaned out the young timothy, but did not disturb the clover. After the rye was cut, I had a very fair field of clover, which for the following two years raised a fair crop of clover hay. The next seeding was on growing wheat, which, owing to dry weather and shallow sowing, did not succeed well. Another cause that worked against the clover was that I had a heavy stand of wheat, which dwarfed the growth of the clover, so that after the wheat was cut the clover suffered very much from the warm sun, and most of it perished. In looking for causes of the failure, I found that in this climate the seed should be sown deeper than had been done in Ohio, so that it might the better withstand the effects of those dry spells which in the summer were so frequent, as well as have a thinner nurse crop. This could not be successfully done on ground that had been sown to wheat the fall before, nor would it do to sow the clover seed in September, when the wheat was sown, as it would come up, make a tender growth, and be incapable of withstanding the cold winter weather.

THIS PLAN SUCCESSFUL.

After numerous trials, with occasional successes and frequent failures, I settled upon a course which for some years has been quite successful. In the spring of the year I select a well-cultivated field, plow the ground from four to five inches deep, thoroughly harrow it until I have secured a choice seed-bed, using a good heavy roller if necessary to obtain a finely pulverized soil. After the ground is in thorough order, I drill in from three-fourths of a bushel to one bushel of choice, clean oats to the acre; at the same time I use the grass seed attachment to the drill, and sow from twelve to fifteen pounds of choice, fresh clover seed to the acre. I discard poor, cheap seed, and use only the best. Soon after drilling, I run a good heavy roller over the ground sown, which makes the seed-bed more compact, holds and retains the moisture better, and at the same time leaves the surface in fine condition for the reaper and mowing machine.

The oats are not so thick on the ground as to interfere with the rapid and strong growth of the young grass, and afford shelter and protection for the young plants while growing.

Cut the oats before fully ripe and have them hauled off the ground as soon as cured, as the young grass is likely to be smothered by shocked oats standing on the ground any length of time.

The oats having been thin on the ground, does not subject the grass to the severe test from the heat of the sun that it would had the oats been heavier and the grass dwarfed and stunted in its growth.

The oats will not be as heavy as if sown thicker, but the crop grown is usually finely developed, with a plumper berry than when sown thicker, and amply repays with the straw, which makes a good feed when properly cared for, for the trouble of sowing and cutting the oats instead of having no nurse crop; besides, the growing of the oats keeps back the growth of weeds which would come up and grow with the clover.

I have not found broadcast sowing of clover profitable on account of the difficulty in getting it covered sufficiently deep to withstand dry weather, as well as in getting the seed at about a uniform depth.

Many failures in growing clover come from a desire to have a full crop of grain from the nurse crop, in addition to a good stand of young grass. In from

five to eight weeks after the nurse crop has been cut the young grass should be mowed, which in dry weather may be left on the ground as a mulch to the young grass, or, if the weather is seasonable, may be cured for feed. The young clover should not be pastured during the first fall after sowing; indeed, I think I have never been profited by pasturing my clover meadows at any time, and incline very strongly to the opinion that meadows are very much injured by allowing stock to run on them at any season of the year.

HARVESTING.

The growth of clover after cutting affords an excellent mulch, which accounts for itself in the succeeding crop. The seasons of growth vary, owing to favorable or unfavorable conditions, so that no time can be fixed when the cutting should be done. The general practice is to cut it too late to get the best results in hay.

I have obtained the best hay by cutting when about one-third of the heads were turned brown. The mowing should be done after the dew is off, and the clover soon turned with a good tedder, which assists the curing very much. With favorable weather, it is ready for raking into windrows shortly after noon. The old rule, that clover is not ready to be put in the barn until it would rattle like a lady's silk dress, has given way to the practice of getting it under shelter before the evening dew falls upon it; if fairly well wilted, the rest of the curing is done in the mow, to the benefit of the new hay.

Where the roof of the barn has good ventilators, no special risk is taken on

(Sister)," I notice that the consensus of the opinion of cattle feeders' experience places alfalfa 5 1/4 per cent. better than clover. What influence the enthusiasm of the new crop has exerted in arriving at this result, I do not, at this time, pretend to say.

CLOVER AS A FERTILIZER.

This brings us to one of the chief values of clover, and one which especially commends itself to the most thorough and practiced farmers of our State. I refer to the beneficial effects the growing of clover has upon the soil. It is claimed very generally by clover growers that a field upon which a good crop of clover is grown for two successive years will, when replowed and planted to corn, yield from fifteen to twenty-five bushels more corn per acre than it did before sown to clover, or than similar land by its side will which has not been thus treated. The percentage of increase is quite as large in raising wheat, oats, potatoes and other crops. To explain just how this is done is not the purpose of this paper, but to speak of the fact, which has been fully established both in this State and elsewhere. The plant draws nitrogen from the air and stores it in the soil for the use of succeeding crops. The roots of the clover penetrate to a great depth in the unplowed subsoil, drawing nutriment therefrom, assisting in holding moisture, which, when the roots die and decay, increases the fertility of the soil as well as the storing capacity for moisture, and with its sister, alfalfa, has justly earned the name of the "silent subsoiler," whose success and efficiency are generally admitted and admired.

Let us Suppose.



Suppose you had an investment that was losing you money every day, wouldn't you cut it off? Without the use of the modern cream separator you are losing butter fat (money) daily. Stop it. It can best be done by the use of a

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productive value of every acre so treated from 20 to 40 per cent. for other crops, and at the same time reduce the cost of producing, maintaining and fitting our stock for market? Let us not stop here. What shall be said of the thousands and thousands of acres of "corn-sick" land which has been planted, planted and replanted successively from fifteen to thirty years to nothing but corn, until the corn scarcely pays the cost of production? Shall we turn a deaf ear to its cry for a clover tonic?

And what is to be done with the countless acres of prairie grass which have been eaten and tramped out until rag weeds and other various weeds have taken the place of the nutritious prairie



Fine Arts Building at the Trans-Mississippi Exposition.

account of heating and causing fire. When put into the mow in this condition it cures nicely, and comes out in a bright and sweet condition the following winter.

THE SEED CROP.

The second crop for the same season may either be cut for seed or for feed; if for feed, the cutting should be done before the seed is ripe. The second crop is usually of a finer growth and makes most excellent feed for young stock. If this crop is cut for seed, the cutting should be done before too ripe.

While the seed does not shatter badly, if very ripe, when dried, the stems of the clover break easily and the head is lost. The same trouble is encountered if the crop is cut with a mowing machine and subsequently raked and bunched for handling. A preferable way is to cut with a machine having a side delivery, which lays the clover off in bunches, where it cures without handling, and when ready is hauled away to be stacked or threshed. If cut before too ripe, and properly cared for, the straw, after threshing, makes a good feed for cattle. While the seed may not yield as much as when cut later, the straw compensates for the difference.

The cost of threshing (\$1 per bushel for the machine) is too much, with the price of the seed at from \$3 to \$4 per bushel, but probably cannot be helped until the quantity raised is largely increased, but the desirability of having good, fresh seed adds to the inducement of raising your own. Clover hay should be kept under shelter, and as a feed, when properly made and cared for, for most kinds of stock, I place it second to none other.

In reading "The Beef Steer (and his

CLOVER AS FEED.

From "The Beef Steer (and his Sister)" (page 5) is given the relative value of different feeds: Prairie hay, \$2 per ton; red clover, \$3.80 per ton; alfalfa, \$4 per ton; millet, \$2.90 per ton; sorghum and Kafir corn grown in hills with seed, \$3 per ton; the same sown broadcast or in drills, \$2.50 per ton; oats straw, \$1.70 per ton, and wheat straw, \$1.05 per ton, the estimates of which for present purposes are accepted.

The acreage of clover grown in the State for 1897 was 138,785 acres, in fifty-one counties; of alfalfa, 171,334 acres, raised in 101 counties—making 310,119 acres in the aggregate. I combine the two, as they are the silent subsoilers, the renovators and reinforcers of our soil.

For feeding purposes, there were raised in the State, in 1897, 352,528 acres of sorghum, 379,159 acres of millet and Hungarian, 371,838 acres of Kafir corn, 10,420 acres of milo maize, and 8,407 acres of Jerusalem corn, making a total of 1,122,352 acres, which are plowed, harrowed, seed furnished and sowed annually for forage. What a tremendous expense each season, which eats like a canker worm at the profits of stock-growing, and in exhausting the fertility of the soil! It is not claimed, I think, that the raising of any of these crops is of special benefit to the soil, except that which comes from thorough tillage. How long shall this soil robbing continue without calling a halt? May we not, profitably, turn our attention to an increased raising of clover, which is a biennial plant, or alfalfa, a perennial, which does not need renewing so often; and, in addition to raising a better and more valuable forage crop, increase the

grass? Is there not a pressing need of subduing these pests and compelling those broad acres to contribute to the wants and comforts of man? And is there a better way than to make a judicious use of all the fertilizers obtainable, and by a liberal growing of clover and alfalfa, and improved tillage, maintain and increase the fertility of our soil? Give us more "Cow Culture," and more "Beef Steer (and his Sister)," both of which are powerful factors in the production of fertilizers that, when combined with the growing of clover and alfalfa, will assist in stopping soil robbing, make for us better homes, and contribute to our prosperity and happiness.

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The Stock Interest.

FEEDING EXPERIMENTS WITH PEANUTS.

By J. F. Duggar, Agriculturist Alabama Experiment Station.

PASTURING PEANUTS.

A lot of six Poland-China pigs, immediately after weaning, were enclosed with a portable fence in a field of Spanish peanuts. The aim was to ascertain the amount of pork that could be produced by a given area of this crop.

The pigs were not allowed to range over the entire field, but were kept on a small area until all the peanuts were eaten, the inclosure being moved as often as necessary. Shelled corn was fed daily, so as to make growth more rapid.

From the first day the nuts were eaten with great relish, and as long as the vines remained green and tender a large proportion of the leaves were also eaten. The pigs were placed on the peanuts September 8, when the crop of nuts was not yet fully matured. The peanuts had been planted May 5.

Before beginning to weigh the pigs a week was allowed for them to become thoroughly accustomed to their food. Afterward weekly weighings were made.

At the beginning of the experiment the six pigs weighed 184.3 pounds; at the end of the experiment, six weeks later, they weighed 380.7 pounds, having more than doubled their weight in six weeks.

The gain was 196.4 pounds. To produce this growth there were eaten 373 pounds of shelled corn, and all of the peanuts and some of the leaflets on an area of 7,673 square feet, which is a little more than one-sixth of an acre.

The following is the financial statement of the above result, valuing pork at 3 cents per pound gross and corn at 40 cents per bushel:

	DR.	CR.
By 196 4 lbs. pork at 3c.....		\$5.89
To 373 lbs. corn at 40c per bu.....	\$2.66	
To balance; value of 7,673 sq. ft. in peanuts.....	3.23	
	\$5.89	\$5.89

A profit of \$3.23 on 7,673 square feet is at the rate of \$18.34 per acre. If corn were valued at 50 cents per bushel the net return for an acre of peanuts would be reduced to \$14.86 after subtracting the value of the corn.

Here we have over \$18 per acre as the return for peanuts converted into pork. It should also be remembered that the land was enriched not only by the manure but by the peanut vines, for the peanut is a soil-improving plant, drawing part of its nitrogen, like the cow pea, from the air. The nuts on a part of the patch were dug, and the yield was at the rate of 1,565 pounds (62.6 bushels) of dry nuts per acre.

Thus we have as the total food required to produce one pound of gain 1.4 pounds of peanuts and 1.9 pounds of corn, or a total of 3.3 pounds of concentrated food and an indefinite amount of leaflets.

To put the matter in another way, one acre of peanuts, supplemented by 2,117 pounds of corn, or 37.8 bushels, afforded 1,115 pounds of pork.

This piece of poor sandy upland which gave a return of over \$18 per acre of peanut pork would not have produced, with same fertilizers, over 200 pounds of lint cotton per acre, worth \$10 to \$12. The expense of cultivating these peanuts was much less than the cost of a similar area in cotton.

PEANUT PASTURAGE VS. CORN MEAL.

On another field of fertility about equal to the preceding, Spanish peanuts were planted June 24, following wheat, which had been harvested about a month before. An exceptionally dry summer was the cause of a very poor stand. The plants on a number of rows were counted, and instead of the usual average of one plant for every eighteen or twenty inches of drill, the average distance between the plants was nearly four feet.

In this field another experiment was made in pasturing peanuts. Nine Essex pigs, of similar breeding, and from two litters differing in age by only three days, were used. They had been recently weaned and were decidedly inferior in feeding qualities to the Poland-Chinas used in the preceding experiment. They were divided into three lots of three pigs each.

Lot V. was hurdled on the above-mentioned peanuts, and in addition was given daily what corn meal the pigs would eat. Lot VI. was also hurdled as before, but received no grain. Lot VII. was confined in a dry lot and given all the ground corn they would eat, and nothing else.

The experiment proper began Novem-

ber 4, after a week of preliminary feeding. During the next four weeks the gains made were as follows:

The lot pastured on peanuts and given corn gained 38.6 pounds.

The lot pastured on peanuts gained 21.1 pounds.

The lot receiving only corn lost 5.1 pounds.

Lot V. ate 2.06 pounds of corn for every pound of growth made, and during four weeks grazed on an area of 2,025 square feet planted in peanuts.

This is at the rate of 840 pounds of growth from one acre of peanuts (with less than half a stand) and 1,710 pounds (35.6 bushels) of corn meal. With pork at 3 cents per pound and corn meal at 40 cents per bushel of forty-eight pounds this is a gross return of \$25.20 and a net return (after subtracting the value of the meal) of \$10.94 per acre of peanuts.

Lot VI., on peanuts without grain, pastured an area of 3,517 square feet, and the gain made was 21.1 pounds, which is at the rate of 261 pounds of pork per acre. At 3 cents per pound gross for pork this gives a value of \$7.83 to the acre of peanuts on which there was only half a stand of plants.

Bearing in mind the defective stand in this field, it is safe to conclude that pigs under 100 pounds should convert an acre of peanuts into pork worth from at least \$12 to \$20, the higher net value of an acre of peanuts being obtainable when the pigs receive in addition a moderate allowance of corn or corn meal.

The peanut is certainly worthy of a foremost place in the list of hog crops. The Spanish variety can be used for the early crop, and also for planting after oats; the common running variety for the late fall crop. It is highly desirable to arrange a succession of peanut crops rather than to have large areas ripen at the same time, for in wet weather Spanish peanuts will not remain long in the ground after maturity without sprouting.

PEANUTS VS. CORN MEAL.

A more accurate measure of the nutritive value of the nuts was desired than could be obtained in grazing experiments.

Hence for a further period of six weeks all three lots were fed in pens on weighed quantities of food.

Lot V. received an equal weight of corn meal and unhulled Spanish peanuts; Lot VI., peanuts alone; and Lot VII., now reduced to two pigs by the removal of the most unthrifty at the end of the pasturage experiment, continued to receive only corn meal.

During the period of six weeks ending January 13, 1898, the results were as follows:

	Lbs. Gain.	Lbs. of Food per lb. Gain.
Lot V.—One-half peanuts, one-half corn meal.....	84.0	3.7
Lot VI.—Peanuts.....	59.5	2.8
Lot VII.—Corn meal.....	8.6	10.7

In this experiment a pound of peanuts, including hulls, was worth more for young pigs than a pound of corn meal. These young pigs were able to make a growth of nine pounds per bushel of Spanish peanuts when no other food was allowed. This gives a food value of 27 cents to a bushel of Spanish peanuts when pork is worth 3 cents per pound, gross, and 31½ cents when pork is worth 3½ cents per pound.

The unfavorable effects of long-continued feeding of an exclusive corn ration to young pigs is shown in the above table. The unthrifty appearance of the pigs eating nothing but corn was a startling commentary on the financial loss following such a course.

The addition of corn to the peanut ration increased the total gain, but it required more of the mixed food than of the peanuts to produce a pound of increase.

A Model Stock Farm.

In describing a model stock farm, the Abilene Monitor uses as an illustration that of a stock breeder who is well known to readers of the Kansas Farmer. It says:

"Twenty-three years ago last August there lived at Hamilton, Ontario, Mr. D. Trott, a gentleman of culture and a leader in musical circles, commanding as choir leader a salary of \$1,500 per year. Ill health at that time caused him to give up his calling and remove to a climate better qualified to give him back his former valuable health. He moved with his family to Dickinson county, near Abilene, and still lives on the same place he located on nearly a quarter of a century ago.

"In his youth Mr. Trott's father taught him the rudiments of breeding fine swine, his father being a breeder of the then noted Berkshires, etc. This training was the primary cause of Mr. Trott's early seeing the necessity in

the West of better stock. As a farmer, too, he studied the climate and productions, and after careful study of the question he chose the breeding of the Poland-China hogs.

"This slender, weakly man, by applying his efforts intelligently, soon made himself felt all over the West and South. He laid out his farm into small fields, sowed alfalfa, rye and other hardy grasses, fitted up good but inexpensive farm houses, sheds and wind-breaks, bought more land and soon found himself famous and on the road to wealth. This gentleman is to-day one of the foremost breeders of the splendid line of red hogs, the Duroc-Jerseys. Mr. Trott is the pioneer breeder of the reds in Kansas. His ideal is a beautiful dark cherry-red color, short neck, long body and slightly arched back. Many of his animals are the direct progeny of World's Fair winners of great medals. The reds have proven the very best of breeders in producing number, vitality and in making flesh quickly. Very noticeable features are their great capacity to withstand disease, and the great proportion of finely-formed pigs that are saved from the farrowing pens. Many breeders in the East send to Mr. Trott for new blood to add to their herds of thoroughbreds.

"When at Mr. Trott's farm recently our reporter saw direct progeny of the great Poland-China hog, King Perfection, a Kansas production that sold for \$1,000, grandsons and daughters of Chief Tecumseh 2d, the same relatives of Look Me Over, who sold for \$4,600, and of Klever's Model, who sold for \$5,100; also many splendid descendants in direct line of the old Black U. S. Mr. Trott is a member of the National Swine Breeders' Association, pedigrees all his animals and gives a pedigree with each when sold.

"Mr. Trott has also for several years turned his attention to poultry, and his farm is graced with some extra fine Plymouth Rocks of excellent breeding, large and vigorous. With advancement of health and worldly prosperity Mr. Trott has not neglected his mental welfare; plenty of good books and an active personal interest in the education of his five children has kept his active mind fully employed. A visit to his farm is a treat to any one. We cannot help but believe a farmer's life is the most independent, and his home can be made comfortable and refined by intelligent effort."

Sheep Department.

Conducted by J. CLARENCE NORTON, Moran, Kas., to whom all letters should be addressed.

Sheep Talk.

I received a sample of wool four and a half inches long taken from a Dickinson county Delaine Merino ewe lamb, 14 months old, that sheared a fleece weighing twelve pounds. The wool is very fine and of a good color and will bring the top of the market, which is only 15 cents in St. Louis, at present. The wool was sent in by J. N. Grau, of Asherville, Kas.

N. J. Shepherd, of Eldon, Mo., writes: "It is an item to supply the sheep with good pasturage all through the season, but it is not very good economy to have the pasture grow feed that is wasted. If the sheep do not keep the grass down entirely and even all over the pasture, and some of the grass begins to get too tall, it is best to change the pasture for the sheep and put cattle in the pasture. Sheep eat the grass down much closer than the cattle do, and if the pasture is too plentiful the sheep will leave a part of the grass to make growth and will keep the other eaten down too closely. Generally it is a good plan to allow the sheep to follow the cattle, changing the cattle onto new pastures. In this way the most can be made out of the pasture and the stock kept thrifty."

A Kansas Farmer reader in Bloomington, Ill., writes: "I am much interested in the Sheep Department of the Kansas Farmer. I have lately bought the Jewett ranch, in Sedgewick county, Kansas, and I intend putting on sheep. I would like to get the opinion of the many readers of this paper as to how many sheep I can keep on a section of land, one-half pasture and one-half cultivated; or how many sheep per acre can be pastured through the season? Could cane hay be fed through August and September if the pasture should get short? This is for fenced pasture. Now, will some of our Western flockmasters try to answer this question? The conditions differ some in this part of the State, also it makes a difference what kind of sheep are kept, as it is claimed that three small Merinos can

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"I was a pale, puny, sickly woman, weighing less than 90 pounds. I was never well. I had female troubles and a bad throat trouble. I came across an advertisement of Hood's Sarsaparilla and had faith in the medicine at once. I began taking it and soon felt better. I kept on until I was cured. I now weigh 103 pounds, and never have any sickness. Hood's Sarsaparilla will not cure. My blood is pure, complexion good and face free from eruptions." MRS. LUNA FARNUM, Box 116, Hills Grove, Rhode Island.

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be pastured on the same grass as two of the larger mutton breeds. As a rule, 1,000 pounds of sheep equal a cow or steer of 1,000 pounds in weight, and the feed for the steer will feed ten 100-pound sheep or twenty fifty-pound sheep, as the case may be. I pasture fifty grown sheep and their forty to fifty lambs, seven cows and four mares and their colts on fifty-five acres of pasture, and have never yet had to feed them in summer. Generally each farm has a stubble field that the sheep begin to run in early in the fall that helps out the pasture some.

Dipping Sheep for Ticks.

The injury inflicted by the sheep tick upon the flocks of this State can only be roughly estimated. Ticks do not cause death directly nor injure the wool, but cause untold torment by their biting and wandering about over the body. This saps the vigor of the old sheep, retards the growth of the lambs, and makes both susceptible to disease. The tick is a wingless fly about a quarter of an inch long, having a large, strong, reddish-gray body, and six legs. The most opportune time for killing ticks is just after shearing, as the ease of handling and the cost of dip is reduced to the minimum. Nearly all the ticks will leave the sheep for the lambs, so that the work will be very effective if only the lambs are dipped. It is better, however, to dip both old and young. The sheep should be examined carefully about three weeks after dipping and if any eggs escape destruction the sheep should be redipped.

The apparatus necessary may consist of only a box or barrel, into which the animal may be submerged, and a table upon which they may be allowed to drain. Such temporary arrangements necessitate considerable labor and loss of dip. A special tank may be purchased or built if a large number are to be handled, as one will soon be repaid for its use. The tank should be about eight feet long at the top and two feet wide. It should be four and a half feet high and one end made vertical. The sides should slant so that the bottom will be from five to eight inches wide. The bottom should be about three and a half feet long and one end made to slant so that the sheep may walk out. The tank should be set into the ground and a chute made so that the sheep may be driven into the tank. On the whole it is more economical and satisfactory to use some of the good sheep dips offered upon the market. These dips usually contain arsenic, extract of tobacco, or products obtained from creosote or tar as the destroying agent. As the latter dips are effective and less dangerous in the hands of most people they are to be preferred. The following is highly recommended and may be prepared by any one: Tobacco leaves, 50 pounds; sulphur, 10 pounds; water 100 gallons. The tobacco is steeped for an hour and a half, the leaves are strained off and the sulphur added and again boiled for an hour. Keep well stirred and use while warm.—A. W. Biting, D. V. S., Indiana Experiment Station.

DIP YOUR SHEEP with Cannon's Sheep Dip (liquid and non-poisonous), easiest to use, cheapest and best made. Cures scab, kills ticks, lice, fleas and maggots. Used by the largest and best breeders. Satisfaction guaranteed. Write to the Cannon Chemical Co., St. Louis, Mo., wholesale agents, for circulars and prices.

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WEEKLY WEATHER-CROP BULLETIN.

Weekly Weather-Crop Bulletin of the Kansas Weather Service, for week ending May 23, 1898, prepared by T. B. Jennings, Section Director.

GENERAL CONDITIONS.

Much warmer, but a wet week. Less than half an inch of rain fell in Grant, Morton, Stanton, Stevens and Wallace, while over the larger part of the State the rainfall was more than one inch. Two inches and upward fell across Russell and Mitchell, in the northeastern counties and most of the counties south of the Kaw, over three inches in the northern half of Greenwood and southern half of Chase, from the northern part of Neosho to the central portion of Franklin, and in Leavenworth, Atchison and southern part of Doniphan. Hail storms occurred in Kearny, Finney, Rush, Barton, Osborne, Reno, Sedgwick, Harvey, McPherson, Saline, Dickinson, Marion, Cowley, Brown, Shawnee, Labette and Woodson.

RESULTS.

EASTERN DIVISION.

The rains have prevented work in the fields this week. Wheat is growing very rank and has begun to head as far north as the Kaw river. Corn is coming up unevenly and the fields are getting weedy; in the central counties not over half the corn ground is yet planted. Grass generally making a good growth, but pasture ground is too soft for cattle. Gardens are doing well. Fruit is in fine condition, though apples are falling badly in some orchards.

Allen county.—No farm work done; the corn crop has yet to be planted; washouts, stock drowned and fences destroyed by Sunday night's rain; fruit damaged by high winds.

Anderson.—Continued wet weather,

work stopped; corn grows slowly, needs cultivation; wheat heading out in fine condition; all other crops doing well.

Jefferson.—Impossible to get into the fields, so wet; corn will have to be replanted; wheat, oats and grass doing fairly well; fruit prospects good.

Labette.—Corn planting not finished and plowing stopped—too wet; strawberries rotting on the vines; chinch bugs getting on wheat.

Leavenworth.—Excessive rains stopping cultivation; wheat showing fine heads; oats fair, growing well; corn scarce, must be replanted; potatoes growing, land foul; grasses medium, pastures good.

Lyon.—Rain excessive; much corn not yet planted; grass too full of water for best results with cattle; many insect pests; ash trees suffer.

Marshall.—Good growing weather; small grain made remarkable growth; much corn planted first half of week, stopped by rains last half; corn coming up well, with a good stand.

Montgomery.—Too wet for field work; wheat getting very rank; oats improving rapidly; cherry crop light; stock in good condition.

Neosho.—An excess of rain; no field work; streams have become rivers; bridges and fences washed away; much corn ground to be plowed and planted yet; wheat looks well; pastures fine but soft; orchards look well; small fruit damaged by rain.

Osage.—Very wet; farming at a standstill; grass growing rapidly; strawberries half a crop; gardens doing finely; apples, cherries and peaches a medium crop.

Pottawatomie.—Rainy; about half the corn crop planted, some to be replanted; wheat heading; sweet potato planting begun; pastures good.

Riley.—Too much cloudy and wet

ing cultivated and doing fairly well; wheat and rye doing finely.

Cloud.—An excellent week for all crops.

Cowley.—A cool, wet week; corn at a standstill; listed corn badly damaged by heavy rains; wheat looking well; some damage, locally, by hail.

Dickinson.—Hail on 19th; too cool and cloudy for crops to grow, but none injured; much corn ground still to be planted; grass abundant.

Edwards.—Fine growing week; ground in good condition; corn planting done; corn a good stand and being cultivated; wheat heading; a fine prospect for all kinds of crops.

Ellis.—Weather still favorable for growing crops; rye in the head.

Harvey.—Wheat and rye looking finely and heading well; oats doing fairly well, some oats ground will be put in corn on account of weeds; some local injury by hail.

Kingman.—Perfect wheat and oats weather; wheat is heading; corn is backward and some replanting being done.

Marion.—Wheat, oats and grass growing finely; corn not doing well, too wet and cold, much will be replanted.

McPherson.—Wheat is heading and is in excellent condition; corn coming up in good shape, much yet to plant and more to replant; alfalfa doing finely.

Mitchell.—All growing crops apparently in good condition; rust is appearing in some wheat fields, with clear weather the injury will be slight.

Osborne.—Good growing weather for crops; wheat is looking finely; early corn is up, late corn nearly all planted.

Ottawa.—Cloudy, damp week; wheat on bottom lands making a rank growth; corn doing well, with a fair stand; much corn yet to plant; oats improving; apples sparsely set on trees; cherries abundant; peaches fair; pastures good; strawberries fine.

Pawnee.—Wheat, oats and barley growing rapidly; rye headed; corn only fair; feed crops being put in.

Phillips.—Everything in fine growing condition, though rather cool for corn.

Reno.—Wheat heading, in fine condition; oats poor; corn growing slowly, rather poor stand, much has been replanted; millet, cane and Kaffir sowing in progress; strawberries beginning to ripen; hail damaged wheat and fruit in localities.

Republic.—Wheat in fine condition and beginning to head; corn planting nearly finished in southern part, about half done in northern.

Rush.—Favorable for wheat and potatoes; too cool and wet for corn.

Russell.—Corn planting nearly completed and corn coming up nicely; wheat looks perfect; potatoes and gardens in fine condition; plenty of rain.

Saline.—Wheat heading fast and indicating a large yield; oats improving; corn planting about done; alfalfa splendid; cherry trees loaded; early potatoes fine.

Sedgwick.—Wheat heading; alfalfa about ready to cut; corn generally looks poorly, much has been drowned; apples not doing well.

Stafford.—Fine weather for all crops; corn is a fine stand and cultivation has begun; wheat heading and promises a heavy crop; oats and barley promise a fine crop.

Sumner.—Half the wheat is headed out and in good condition; all crops growing well; too wet to work.

Washington.—Cloudy, rainy week, too wet for corn; some corn up, some will have to be replanted; wheat and oats doing well in northern part, wheat rusting some in southern.

WESTERN DIVISION.

A fine growing week. The range grass is in as fine condition as it has ever been since the settlement of the country and cattle are fattening on it. Wheat is in excellent condition, and the early-sown is beginning to head in Sheridan. Alfalfa is a fine crop and is nearly ready to cut. Corn is coming up and presents a good stand. Cherries give the best promise among the fruits.

Clark.—Splendid rains have helped all crops.

Decatur.—A good week for wheat—cool, cloudy and wet—but many acres of fall wheat have been put in corn, yet a good crop is promised; corn planting nearly finished and prospects first-class.

Finney.—Cool and cloudy; good growing weather; alfalfa, wheat and range grass doing well; hail damaged fruit considerably, alfalfa some.

Ford.—Wheat cannot be improved; oats, barley and all other crops in equally good condition; range grass was never better.

Gove.—Wheat, corn, grass and everything all right.

Graham.—Corn doing well, considering the wet weather; very little, if any, rotting.



One of a healthy woman's principal charms is her vivacity of carriage—the dainty, springy steps with which she walks. The woman who suffers from weakness and disease of the distinctly feminine organism, who is troubled with backaches, stitches in the sides, dragging down or burning sensations, sick headaches and the multitude of other ills that accompany these disorders, cannot have the dainty, bounding carriage of a healthy woman. She will show in every movement

that she is a sufferer.

There is a wonderful medicine for troubles of this description, that has stood the test for thirty years, and has been used successfully by many thousands of women. It is Dr. Pierce's Favorite Prescription. It acts directly on the delicate and important organs concerned and makes them strong, healthy and vigorous. It allays inflammation, heals ulceration and soothes pain. It tones and builds up the nerves. It is the discovery of Dr. R. V. Pierce, an eminent and skillful specialist, for thirty years chief consulting physician to the Invalids' Hotel and Surgical Institute, at Buffalo, N. Y. This is one of the greatest medical institutions in the whole world. During the thirty years that Dr. Pierce has been at its head he has gained the unbounded respect of his fellow citizens at Buffalo, and they showed it by making him their representative in the National Congress, from which position he resigned to give the remainder of his life to the practice of his chosen profession. He will cheerfully answer, free of charge, any letters written to him by suffering women. Address, as above.

"A few years ago," writes Mrs. W. R. Bates, of Dilworth, Trumbull Co., Ohio, "I took Doctor Pierce's Favorite Prescription, which has been a great benefit to me. I am in excellent health now. I hope that every woman, who is troubled with 'women's ills,' will try the 'Prescription' and be benefited as I have been."

Grant.—Cold and cloudy; grass growing nicely but other crops not so well; ground in fair condition and planting going on rapidly.

Gray.—Wheat never looked better; range good and cattle in best condition; alfalfa fine; not much fruit, except cherries, with which trees are loaded.

Greeley.—Misty, showery weather, cool for season; grain germinating slowly; grass luxuriant; stock doing finely; farmers busy listing.

Hamilton.—Splendid growing weather and ground in fine order; grass good and cattle doing well on the range; all crops growing fast.

Kearny.—Good growing weather; wheat and pasture looking well; all crops doing well; cattle and sheep in splendid condition; plowing and planting still going on.

Logan.—Ground in splendid condition and all crops are looking well.

Morton.—Maize and rice corn planted coming up promptly, cane and broom-corn going in next; fruit prospect thin.

Ness.—Much warmer and very favorable for all kinds of vegetation; wheat and rye growing fast, rye beginning to head; corn worked over once; forage crop planting well under way; range grass best for a number of years; gardens never looked better.

Sheridan.—Early-sown wheat and rye heading, later-sown doing well except where weedy; spring grain could not be better; early-planted corn coming up, good stand generally, 90 per cent. of crop planted; fruit never more promising; gardens fine.

Sherman.—Good growing week; ground well soaked and in fine condition; wheat, oats and barley in excellent condition; corn coming up, a good stand, more being planted; alfalfa and range grass in excellent condition; stock doing finely.

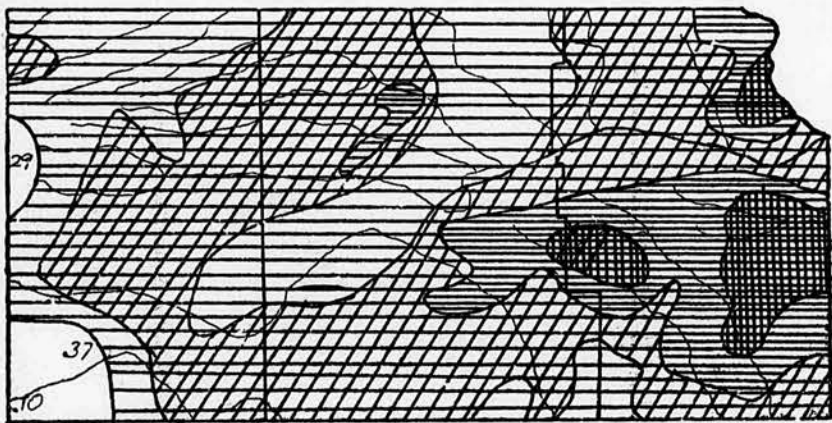
Thomas.—Very favorable for wheat, oats and barley; corn coming up, a good stand, but too cool to grow fast; wheat in very good condition; grass never better; potatoes coming up finely; unfavorable for gardens.

Trego.—Prime wheat weather; nights cool for corn; forage crops being largely planted.

Wallace.—Cool, damp week; alfalfa nearly ready to cut; wheat fine; barley doing finely; range grass fine; apple trees in bloom.

Ottawa Chautauqua Assembly,

Forest Park, Ottawa, Kas., June 13 to 24, 1898. Tickets on sale June 11 to 24, inclusive, at one fare, \$1.50, for round trip, good for return until June 27, 1898. If proximity of station to grounds and perfect train service are inducements, your ticket will read over the Santa Fe. Ask W. C. Garvey, Agent, A. T. & S. F. Ry., about it. W. J. Black, G. P. A.



ACTUAL RAINFALL FOR WEEK ENDING MAY 21, 1898.

field work impossible; corn prospects very poor; grass and small grain making rank growth, but would be benefited by dry weather and sunshine.

Atchison.—No farm work done; ground very soft; stock damaging pastures; meadows and small grain doing well; corn coming up poorly, much replanting necessary; complaint of rust on some wheat; fruit prospect first-class.

Bourbon.—Season very backward; farmers' late crops slow; all work suspended; oats look fine and promise a large crop; grass making fine growth.

Brown.—Too wet; much of the corn washed; oats and grass doing well; wheat very rank growth; earliest-planted corn a poor stand; some damage by hail.

Chase.—Too wet to get into the fields and no work done; wheat rank; oats and grass doing well.

Chautauqua.—Wheat heading, and is showing some rust; corn good stand and growing nicely, but ground too wet for cultivation; oats and grass doing well; fruits promise a fair crop; potatoes looking well.

Cherokee.—Too wet to work in fields; corn weedy and stand uneven, much to be replanted; wheat looking well and has increased percentage of crop.

Coffey.—Too wet, no work done; corn in bad condition; flax looking well; grass slow; some apples blighting and falling; wind damaged some orchards.

Doniphan.—Almost one continuous rain and no work done; about 30 per cent. of the corn crop planted, but will have to be replanted; rust on some wheat.

Douglas.—Ground too wet to plow or plant; fruit falling off badly; wheat doing well; grass growing slowly; much of the corn planted is water-killed.

Elk.—Need sunshine badly; some work being done in the fields.

Franklin.—Work on crops suspended—too wet.

Greenwood.—Ground saturated and

weather for corn, very low ground will have to be replanted; corn comes up well.

Shawnee.—Wheat doing well where not drowned out; oats slow but color good; corn growing slowly, some replanting to be done, much yet to be planted; fruit all right.

Wilson.—Too wet for field work, but a fair week for growing crops; wheat heading; early blackberries in bloom.

Woodson.—Too wet for work; corn growing slowly, much replanting to be done; corn not a good stand; grass growing well; potatoes and gardens doing well.

Wyandotte.—Wheat heading; pastures fine; what corn is up looks sickly; blackberries in bloom.

MIDDLE DIVISION.

The weather has generally been too wet for field work. Wheat is in fine condition and is heading as far north as the Smoky Hill river, some even beginning to head in Republic. Corn planting is nearing completion; corn is coming up and shows a better stand than in the eastern division. The first crop of alfalfa is ready to cut in the southern counties, and is a fine crop. Cherry trees are full of fruit, but apples are not so promising. Pastures are good and cattle are fattening on them.

Barber.—Crop conditions never better; wheat and rye heading; alfalfa ready to cut; owing to heavy rains in the southwestern and southeastern parts of the county corn, cane and Kaffir will be replanted; cattle in best possible condition.

Barton.—Wheat heading and looks well; apples not doing well; but few peaches and apricots; garden truck plenty; cattle doing well on pasture.

Butler.—Twenty townships have planted corn without much delay; half the corn planted before April 16 will be replanted; much replanting to do; replanted corn coming up; some corn be-

GLADSTONE.

Eighty-eight are the years that he numbered, but a million is needed to sum up his deeds for the good of mankind. Among the greatest of earth's great men, with a masterful tongue and pen, he swayed a forest of Britons and the hosts of all other lands.

In one very important sense he was the greatest of all England's great men. His was the strength in morals that Napoleon's was in battles and sieges. Moral greatness is the prize quality of all truly great men; and that was Gladstone's distinguishing characteristic. All his life long he faced and forced the cohorts of expediency and polity. Alexander, Caesar, Zinghis and Napoleon gave their colossal energies to bending mankind to their own selfish purposes—to the establishment of dynasties and monarchies, and the overthrow of personal rights and liberties. Gladstone's gigantic energies were from the first given over wholly, like Washington's and Lincoln's, to stripping the crowns from the heads of usurpers and political malefactors and to bending all things to the lines of moral greatness, moral rectitude, moral altitude and amplitude, and to that end he bent himself with the same unflinching will with which he bent others. At once a task and a triumph.

Alexander flung his shattering legions

and fail. She had over and over proffered him titles and honors such as royalty has to bestow, and, unmoved, she had seen him turn from the proffer and leave knighthood and earldom and go back like a king to his people. And when on more than one occasion he had been divested of authority and sent back to the people they sent him up to Parliament House, again reinvested with that of which he had been divested, and reinforced by such a following as to make the throne tremble and knights and earls hurry to honor his mandates.

So sturdy and faithful was his loyalty to the cause of the masses that they loved him more than a king, and gave him the loftier title, "The Grand Old Man." He was nobler than any titular nobility and grander than any grandee. Time and the tussle of nations but added new vigor to qualities masterful always, and Gladstone grew daily in greatness. And when the new issues arose they found him already awaiting their coming ready to give them adhesion or thunderbolts, whichever best suited their merits. Again and again he stood facing the popular clamor and silenced its rage for some unwise departure. And then with a hand like a woman's for gentleness he led his people away from some danger toward which they had struggled like madmen.

He was a man of infinite mental resources, the most ready debater in the

his habitual high-standing collar made a great transformation which the keen eye of Furniss caught first. He gave a nervous start, another gave a titter, and then all broke out in a roar of laughter that was hardly ended till dinner was over. But the picture of a great party leader concealed in a towering shirt collar disappeared from the paper, never more to be seen. The funny artist had been conquered without a word from Gladstone.

In 1832 Mr. Gladstone, fresh from college with a "double-first" diploma, entered Parliament, where his political career began, and in 1892, just sixty years later, he carried the general elections and was made Prime Minister of England for the fourth time. What a triumphant career was his! What an example to the young men of the present age! One purpose in life and the grand triumphant fulfillment thereof!

Ring the bell, and let the curtain drop! Gladstone has ended the last act in the grand drama of life, and the whole world mourns his departure while exulting over his unmatched achievements! Ring the bell, and let the curtain drop! Ring the bell and swing wide the gates beyond, the conquering hero comes!

Not in the mail of Mars,
Not with a Caesar's sword,
But in triumphant peace,
The servant of the Lord!

DR. HENRY W. ROBY.

Gossip About Stock.

Don't forget the closing-out sale of Poland-China hogs at Wamego, on May 28, by C. J. Huggins. Bids sent to Col. S. A. Sawyer, the auctioneer, will receive proper attention. There will also be a chance to buy a few Chester-White hogs.

Swine breeders generally throughout Kansas report unusual success with their spring pig crop. D. Trott, Abilene, says: "I am having good luck with spring pigs; litters large and strong and doing well on alfalfa. Have already many inquiries for spring pigs. I expect a very good trade this season."

The Trans-Mississippi exposition at Omaha offers \$35,000 in cash prizes for live stock, and the numerous specials will make the purses aggregate at least \$50,000. The Kansas commission will probably give from \$2,000 to \$3,000 in specials to Kansas exhibitors. In view of the liberal prizes and the importance of a great Western show, Kansas breeders should be out in force and get their share of the money. Intending Kansas exhibitors should notify Kansas Farmer.

We are in receipt of a copy of the breeding of the new young herd boar owned by Miles Bros., Peabody, Kas., which they purchased of Lambing & Son, of Iowa. His sire is Best on Earth by Eclipse, out of Butler Queen; his dam, Annie Chief by Chief I Know, out of Black Beauty. This male, they say, is "sure a crackerjack. He is the kind of a pig that crossed on our Look Me Over gilts will surely make the stuff that up-to-date breeders are looking for. Our Look Me Over gilts and boars of last fall's farrowing are a grand lot and should all be taken soon at the low prices at which we are offering them. Our spring pigs are the best ever farrowed for us."

In speaking of the catalogue of the herd of thoroughbred Jerseys to be closed out at auction at Deer Park farm, Topeka, May 31, Secretary Coburn, of the Board of Agriculture, suggests that it surely must be an unusual opportunity for Kansas cow men. "The rapid growth of intelligent interest in dairying," he says, "makes apparent the importance of better and more dairy blood in our Kansas herds, and this sale of such a large number of animals of the best breeding, here at our doors, should not fail to be taken advantage of. No doubt some choice bargains will be secured, and if I were to whisper a word of counsel in the ears of my farmer and dairy-men friends it would be not to overlook such an offering of acclimated and high-class stock. We need these and a thousand times as many more distributed through our herds and pastures for lifting the per cent. of butter fat up to what it by rights should be."

"Concerning the pigs we are offering at a bargain," write Wait & East, of Altoona, Kas., "we can honestly say that they are the best lot that we ever had to offer, as our fall pigs have done extra well and we have culled very close and expect to do so in the future. We have some good show stuff that we could furnish any one filling out a show herd for a very little more than fat hog prices. We are compelled to get rid of them soon to make room for over 200 head of spring pigs that are coming on. We will have about fifty pigs sired by Black Stop Chief, the undefeated prize-

winner. About fifty by Corwin I Am, a grandson of Chief I Am on sire's side and of Sir Charles Corwin on dam's, and a show hog from end to end. Then we have one litter by the sensational pig, Missouri's Black Chief by Black Chief's Rival. Dam of this litter is by Chief I Am. Then we have pigs sired by Vernon Free Trade, and by Chief's Rival, as good a yearling as there is in the State to-day. We will show the boys this fall a few litters by U. S. Wilkes and one each by Perfection U. S. and by King Hadley, the hog that took second prize at the Missouri State Swine Breeders' Show last winter. Our hogs are in the pink of condition and no disease in the county."

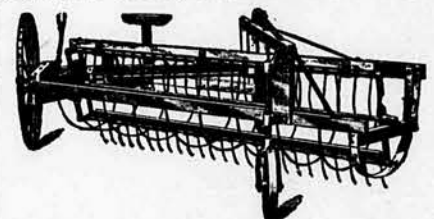
A good microscope will magnify about 5,000 diameters, and it reveals some very queer things when it is intelligently used. The accumulation on the teeth is found to consist of very minute organisms of life. In a hog, a cow or a chicken that is suffering from what is usually called pneumonia, cholera, or any other germ disease, an immense number of these little fellows are flourishing, and they increase so rapidly that you may readily see the whole process under the glass. If they are killed off the animal gets well. There is a preparation sold by the West Disinfecting Co., of 206-208 East Fifty-seventh street, New York city, that has the peculiar property of killing them without injuring the animal at all. It will destroy lice on chickens, scab, screw worms and foot rot in sheep—all of them the work of these little germs. It is called Chloro-Naphtoleum, and is very easily applied.

M. H. Alberty, Cherokee, Kas., is of the opinion that he has the best lot of Duroc-Jersey pigs ever raised in Kansas. If that is the case he should not fail to be at the Trans-Mississippi exposition at Omaha next October.

M. F. Tatman, Rossville, Kas., reports to us as follows: "The Kaw Valley herd was never in better shape than at present. My new boar, Tat's Chief I Know, bought last year, from the looks of his pigs, is going to reproduce himself. I have about fifty pigs from him to date that I am perfectly delighted with, and a number of litters from Tat's Dream and Tat's Latest that are coming to the front in great shape, although the season has been the worst I ever saw on young pigs. My sows have saved their pigs better than ever before; in fact, they have broken all former records, as I have had but two pigs killed in the whole outfit by the sows overlaying them."

A New Hay Rake.

We present herewith a cut of a new side delivery hay rake, the "Keystone Chief," manufactured by the Keystone Manufacturing Company, of Sterling, Ill. This new machine possesses more than ordinary advantages to the farmer who has more than the ordinary quantity of hay to make, or who happens to be short of help. As no dumping is required, any child that can drive a team of horses can rake hay equally as well as a man. Among other advantages are these: This rake makes clean hay, as the teeth do not touch the ground, taking up trash, stubble or manure; the hay is not rolled over and over, or "roped," as with the ordinary rake, but is left in a light, airy windrow in nice shape for curing or loading as the wish may be; it rakes a space nine feet wide and leaves the hay in a continuous straight



windrow; it is of special value where a hay loader is used, as it leaves the hay in the best possible shape for taking up by the loader; as the rows are continuous it avoids all turning with wagon and loader; in a majority of all cases it dispenses entirely with the use of a tedder, for the reason that it turns the hay completely over in the act of raking; thus, when the hay is sufficiently dried on top the rake may be started, as the undried portion will be left on top of the windrow exposed to the sun and air; it operates easily and is all made of good material and strong and durable. These people also make the famous Keystone Hay Loader, which will successfully handle clover and alfalfa without loss. Its principle of construction is such that it does not knock or jar off the leaves of clover in loading. Write them for circulars and prices before buying. Please mention that you saw this in the Kansas Farmer.

Among the Ozarks,

The Land of Big Red Apples, is an attractive and interesting book, with views of south Missouri scenery. It pertains to fruit raising in that great fruit belt of America, the southern slope of the Ozarks, and is of interest to fruit growers and to every farmer and homeseeker looking for a farm and a home. Mailed free. Address J. E. Lockwood, Kansas City, Mo.



WILLIAM EWART GLADSTONE.

against every citadel that opposed his selfish purposes, and Gladstone led the reconquering hosts of the world against all the strongholds of oppression and tyranny set up by all the masterful monarchs preceding his time and occasion, and he roused to new activities all the impulses of goodness and justice that crouched or slumbered anywhere on the planet.

No man but Gladstone ever was and probably never will be four times the Prime Minister of England. Greater than Walpole, greater than Peel, greater than Disraeli, he came and went through the doorway of power as no man ever did in the history of a great nation.

Because of his leaning to liberty and freedom, because of his advocacy of justice and mercy, royalty hated him from every throne in the college of nations, and, hating him, it was yet compelled again and again to bow to his masterful will. On one occasion when the country stood face to face with a serious crisis and there was a difference between royalty and the realm, Mr. Gladstone said to the Queen: "You must take this action." Instantly, with flashing eyes and swelling rage, Victoria said: "Must! Do you say must? Do you know, sir, who I am?" And coolly the great commoner, with no show of emotion, said: "You are the Queen of England. But do you know who I am? I am the people of England, and in this emergency the people say must!" On that day the people prevailed and Gladstone reigned in Great Britain. Victoria knew the Grand Old Man could neither be bullied nor bought. She had seen both devices tried

realm, and the most cogent off-hand reasoner that ever broke silence in the halls of legislation. He never made a pun or a jest, never gave utterance to a strain of levity, but, like Jove, always kept a fagot of thunderbolts ready for men who might dare assail him. In debate he displayed that terrible earnestness and enthusiasm of purpose that at once carried his friends whithersoever he led and compelled the serious respect and attention of his adversaries.

The political caricaturists who made their living by drawing grotesque sketches of public men for Punch, often sat up nights to think out some new and comical representation of Mr. Gladstone's versatile genius. One of them would reset the lights and shadows of caricature about one phase of his life work, and another and another would each work out some quaint conceit of the great man and keep the world in a roar of merriment. It was Mr. Furniss who always pictured the great Liberal leader in a standing collar so high that only a small island of head could be seen above a sea of collar. Every week the artists and writers on Punch were invited to dine with the editor and arrange for the work of the coming week. And to one of these dinners Mr. Gladstone was invited. Then Mr. Furniss was in a sweat. He had harried the great man enough to anger a saint, and everybody was on the qui vive to see what would come of the meeting between caricaturist and caricatured. Mr. Gladstone walked into the dinner in the lowest and most retiring turn-down collar he could find in London. The absence of

The Home Circle.

RILEY'S LUCK.

Riley was a lazy fellow,
Never worked a bit.
All day long in some store corner
On a chair he'd sit.
Never talked much—too much trouble—
Tired his jaws, you see.
All of us were making money;
"Jest my luck!" says he.

Some one offered him ten dollars
If he'd work two days;
Riley crossed his legs and looked up
At the sun's hot rays.
Then he leaned back in the shadow,
Sadly shook his head;
"Never asked me till hot weather;
Jest my luck!" he said.

Riley courted Sally Hopkins
In his lazy way;
When he saw Jim Dawson kiss her,
"Jest my luck!" he'd say.
Leap year came, and Mandy Perkins
Sought his company;
Riley sighed, and married Mandy;
"Jest my luck!" says he.

Riley took his wife out fishing
In a little boat.
Storm blew up and turned them over;
Mandy wouldn't float.
Riley sprang into the river,
Seized her by the hair,
Swam a mile unto the shore, where
Friends pulled out the pair.

Mandy was so full of water
Seemed she'd surely die;
Doctors worked with her two hours
Ere she moved an eye.
They told Riley she was better;
Doctors were in glee;
Riley chewed an old pine splinter;
"Jest my luck!" says he.

—Detroit Free Press.

"REMEMBER THE ALAMO."

Sixty-two years ago, on March 6, 1836, the very bravest episode in American history occurred at an abandoned old Franciscan mission building—the Alamo—in San Antonio, Texas. Writers of American history have told of the heroism of our country's seamen in three wars, have dwelt with fervid patriotism upon the unflinching courage of American soldiers in the face of tremendous odds at the Heights of Abraham, Saratoga, New Orleans and Shiloh, but no writer has yet adequately spoken of the determined, supreme heroism of a handful of our countrymen at the Alamo. Sidney Lanier has sung the song in intense poesy, and Sergeant S. Prentiss, in his most splendid oratory, has thrillingly told the matchless bravery of the Texans at the Alamo. And still the theme remains superior to the skill of genius.

No less a person than Lord Macaulay said that the Americans who died at the Alamo were the most heroic in modern times. The episode has been compared to that at Thermopylae. But a score of heroes survived the Persian horde, and were long pointed out as living examples for the Spartan youth. The charge of the 600 at Balaklava has won the admiration of the world, but some of the soldiers in the charge lived for years to tell the heroism of their comrades. Not one soldier survived the battle at the Alamo, and every one joined hands days before the final onslaught and agreed to die rather than to surrender.

The Mission del Alamo was established at San Antonio in 1723 by the Franciscan monks. The name Alamo signifies poplar, and the mission took its name from a grove of poplars among which the Franciscans built their stone mission church. The building was used for religious purposes for over sixty years. It is still a strong structure of heavy stone walls and nine rooms. The largest room was on the ground floor, where public services were held by the monks. At about 1823 the mission was abandoned, and the Franciscans moved the scene of their labors southward to the valley of the Rio Grande. For twelve years the old building was used at times by the Mexican government as a sort of base of military supplies. In 1835 the Americans in Texas were in rebellion with the government of Mexico (as the Cubans have been with parental Spain for several years) and in the winter of 1835-36 the rebellion grew into open armed warfare. The Texans were under the leadership of brave, bluff Gen. Sam Houston, as President of the new republic of Texas and as commander-in-chief of their little army of volunteers. It was a daring undertaking for a scant 2,000 men to attempt to wrest the established government from Mexico, with its 15,000 drilled troops, but the Texans, led by such men as Sam Houston, Davy Crockett, William Travis and John Haydon, knew no failure.

Early in February General Santa Anna set out from the Rio Grande to march northward to quickly conquer and punish the rebellious Texans. His army numbered between 6,000 and 7,000 men, and his purpose was to first crush the

rebellion at San Antonio, and then proceed to the new capital of the republic of Texas, at Washington, Texas. The hardships and privations of the march of nearly 600 miles, across a desolate and uninhabited country, often destitute of water, told heavily upon his men.

The garrison at San Antonio was totally unprepared for Santa Anna's coming, the first tidings of his approach being given by the sentinels posted on the roof of the mission. It numbered about 185 men, under command of Colonel William Travis. Travis was a native of North Carolina, a very handsome, scholarly and brilliant young man, who loved adventure and had sterling courage.

When the news of General Santa Anna's approach reached Travis he ordered every man available into the Alamo, hoping to make good its defense until reinforcements could arrive. With him were Col. James Bowie, whose name is always associated with his famous knife, and Davy Crockett, the noted frontiersman and hunter of history, romance and song. They had a few pieces of artillery, little ammunition, ninety bushels of corn and thirty beef cattle were collected at the last moment and hurried within the inclosure, which had no provisions for a siege nor adequate means of defense.

Santa Anna demanded immediate surrender, to which Travis returned a defiant refusal, emphasized by a cannon shot. A blood-red flag, signifying no quarter, was immediately raised above the Mexican camp, and their batteries opened upon the garrison.

Meanwhile Travis had dispatched messengers to Houston and to Washington, Texas, ninety-five miles away, appealing for assistance to battle with the advancing Mexicans. The news reached Houston and the other Texans at Washington too late for them to get to the beleaguered men, and the historic struggle of a mere squad of men inside the Alamo with a great army of vindictive Mexicans without began.

Santa Anna's army began the siege at dawn, February 6. The batteries attempted a breach in the walls of the stone mission. For hours every day the Mexicans continued the siege and the garrison fought desperately with its huge foe. For instance, on the last morning in February a hot fire was opened upon the garrison, some of the bombs falling close to the spot where Davy Crockett lay. He sprang up and made his way to the ramparts just as the gunner was in the act of firing. Before he could do so, Crockett shot him dead. A comrade caught up the match and came forward, but already a fresh rifle had been passed up to the Tennesseean, who picked off the second man as he had the first, as well as a third, and a fourth, and a fifth, and, for a time, at least, the gun was silenced.

On March 3 Colonel Travis called the garrison about him. He made a brief speech, telling his comrades that longer hope for assistance was useless. That the Alamo should be surrendered or it should be fought for until death came to every one there. He drew a line with his sword on the adobe floor and said:

"I propose to stay here until I am killed. All who will be with me will come to this side of the line; all who wish to surrender will remain on that side."

Almost as he spoke every man in the file before him crossed the line. Davy Crockett leaped across it with a triumphant wave of his cap.

On the morning of the 6th of March Santa Anna determined to take the Alamo by assault. The band struck up "Duguelo" (assassin), and amid a boom of cannon, ladders were brought, the walls of the building were scaled by 2,000 cavalymen with sabers, while battering rams beat in the doors. So Alamo fell. It was a frightful slaughter. When the doors were burst in about fifty Texans remained uninjured, and the savage mob of soldiers rushed upon the little band and shot and hacked to death every one of them.

From that day the words "Remember the Alamo" were the slogan of the campaign throughout Texas. In less than two weeks over 600 frontiersmen, maddened at the awful affair at the Alamo, joined Sam Houston's army. "Remember the Alamo" was hourly the shout of the camp. A month later Houston, with a force of 700 Texans, faced Santa Anna with 2,000 soldiers on the banks of the San Jacinto. The battle was but an hour long. The Texas force, with a mighty and exultant yell, "Remember the Alamo," began fighting. The hardy riflemen remembered; the cavalymen with sabers remembered, and Sam Houston remembered. It was a fight at very close range. The Mexicans surrendered. They had 580 men among the dead and wounded. The Texans had 113 killed, and but sixty-one wounded. Santa Anna

THE EDGE OF A DOLLAR

doesn't look so big as the face of it.
—the woman who buys soap for house-cleaning loses sight of economy—she looks at her money edgewise. The woman who values her money as well as her strength uses

GOLD DUST

Washing Powder.

and has something to show for her labor beside a worn face and a pair of rough hands.
Largest package—greatest economy.

The N. K. Fairbank Company,
Chicago, St. Louis, New York,
Boston, Philadelphia.

was captured and barely escaped brutal death at the hands of the incensed Texans.

Nearly all the information that historians have had concerning the events inside the Alamo during the siege has come from Senora Dona Andrea Castañon de Villanueva, whom the Texans knew as Mme. Candelaria. She is the sole survivor of the people within the Alamo. The State of Texas has pensioned her for forty years. She is over 90 years old, and while physically feeble and almost blind, her memory concerning events in early life is clear. She has told the story of her experiences in the Alamo so often that her narration has become somewhat mechanical, but for all that the story is so thrilling that residents of San Antonio, where she lives, who have heard it many times, say they are always moved by it. Mme. Candelaria lives in a ramshackle building on the outskirts of San Antonio. Her granddaughter, a middle-aged woman, is her attendant, and helps at translating from Spanish and broken English the aged woman's wonderful tale.

"Ah, yes, indeed, I'm glad to tell about the Alamo," said Mme. Candelaria, one day last October, when several visitors from California, who were spending the day in San Antonio, called upon her, and she had been made comfortable in her cushioned chair, and her faithful granddaughter had seated herself close at hand. "I am the only one who lived to tell about the brave men who died in the Alamo. I was a widow, living over there about 500 yards east of the Alamo, when the Texans were fighting for independence from Mexico. I had lived in Texas fifteen years and had learned the language, and I had as many friends among the Americans as among my own people, the Mexicans. I knew Col. Davy Crockett well and entertained him at my home at meals several times. I was something of a nurse, and I earned my livelihood by nursing people in this locality.

"All through 1835 the Texans were getting ready for war with Mexico. In January the Mexicans decided to crush the rebellion. At about February we heard that Santa Anna and 6,000 soldiers were coming northward from Rio Grande to fight the Texans at San Antonio. Colonel Travis and 184 men were at the old Alamo. They made that their arsenal and garrison. I used to see them drilling about there for weeks before Santa Anna came.

"On February 24 Col. James Bowie sent for me to come and nurse him at the Alamo. He was ill with typhoid fever. I went there, never suspecting that it would be the object of an awful siege. Colonel Bowie lay sick on a cot in the little north room of the Alamo. I did not want the work, but Colonel Crockett urged me to help the sick man, and said that without my help Texas would lose one of her best men. I accepted the charge and I never faltered in my duty to that man until he died. He was not killed by a blow with an axe, as has been said. He died with fever, and amid awful excitement and carnage, several hours before the Mexicans broke into the building.

"When the advance of Santa Anna's men could be seen by the pickets, who stood on the Alamo roof with spy-glasses, the garrison became wildly excited. The Alamo was the strongest building in town, so I was then glad to be there. When I saw the Texans flying about and working like mad to strengthen their fortification, I began to understand that the battle would be fought there. On February 26 doors and windows were bolted and barred, bags of sand had been heaped up behind

the doors and windows, and beams had been brought in to brace against the doors.

"Santa Anna sent demands for surrender and promised no consideration for the Texans. I remember how the men in the Alamo ridiculed the idea of surrender. They were the most courageous men from the start you can imagine. The first real assault on the Alamo was on the morning of March 1. The cannon boomed and crashed. It seemed as if the walls would crack open and totter to the ground. It frightened me so that I could not speak. I grew used to the cannonading as the siege continued. The subsequent daily scenes of dying and bleeding men and the savagery of the combat made the early scenes within the besieged Alamo more of a blur in my memory. For several days the Texans believed that help would come from General Houston. Colonel Bowie, sick as he was, asked every hour for a few days what news there was about Houston. Some one watched constantly away off across the plain for indications of the approach of help. Colonel Travis was constantly on his feet until he was shot during the final assault. Very few men slept even one hour in twenty-four, and food was snatched up and excitedly devoured by the desperate men. Colonel Crockett was very cool. I can see his tall frame now as he peered through the peep-holes between the bags of sand and through the chinks in the doors for a chance to shoot down an assaulting Mexican. Poor Colonel Bowie moaned in his burning fever and talked incessantly when delirious. We all knew that his case was hopeless—sick as he was and without proper medical attention.

"Yes; all the men saw several days before the Alamo fell and they were massacred that their death was inevitable. They saw their ammunition lessening each day, and they felt their increasing weakness from hour to hour, while the Mexicans without were growing bolder, louder and more furious. Some men inside the garrison, I don't know how many, were killed every day by the bullets and cannon balls that came crashing in. I, too, expected to be slain, but by the untellable excitement, by loss of sleep for a week and the constant sight of human blood and association with desperate, begrimed, haggard men, I became sullenly hardened to any horrible fate.

"I remember the afternoon that the men agreed to stay with the fort and to sell their lives as dearly as possible. Oh, of course, they all knew that it meant death within a few days at the most. I believe there were about 130 of the men left alive at that time. The dead were piled up in the southeast room downstairs, and a dozen or so wounded men lay or sat about with their wounds unattended to. I never saw the corpses, except now and then one as it lay on the floor, where the brave fellow fell with a hole in his head or body, before he was carried to the dead room. The story about how Colonel Travis drew a line on the earthen floor and told all who wished to stay by the fort until death to go to that side of the line is all true. He traced the line with his sword and his voice never wavered. He was a young, blue-eyed, light, curly-haired man. If ever there were heroes, he and Crockett were. Colonel Bowie heard in his little room the speech that Colonel Travis made, saying that death to all in the Alamo was sure and relief by Houston impossible. Colonel Bowie feebly asked two men who stood near to pick up his cot and carry it over the line. It was done, and then the sick man on the cot was carried back to the little room to

tion, and they realized how few were their remaining hours of life. They were blackened with gunpowder, they looked wild from lack of sleep and food for over a week, and, as I recollect them in later years, they seemed like ghosts on the edge of the other world. They seldom spoke, and all their words and acts were those of men most terribly in earnest. The sole idea of each was to sell his life as dearly as possible.

"No one can imagine, much less tell, the horrors of the morning of the fall of the Alamo—March 6, 1836. The cannonading began at daybreak. It was evident that the Mexicans were determined to conquer at any hazard. We could hear their yells and shrieks between the volleys.

"At the time I was in the little room where Colonel Bowie's corpse was growing cold and stiff. In the other rooms I could hear the surviving Texans—about 100 of them, I think—shooting from loopholes at the thousands of Mexicans without. There were volleys of muskets by the Mexicans and a firing of guns like the snapping of firecrackers in the hands of the Texans. It took time to load and ram a musket in those days. When the cannon boomed and the cannon balls came against the stone walls the building shook.

"There were gaps in the barricade at the doors and windows and bullets came through these. I looked out several times from the room where Colonel Bowie's body and I were. I saw dead men on the floor, and tiny streams of blood trickled from them. One man nearest me had his head partly blown away. Still the living Texans were protecting themselves behind their bags of sand and timbers, and were shooting carefully among the Mexicans. The noise was deafening and the air was stifling with the smell of warm blood and gunpowder smoke.

"Suddenly there was a mighty shout, and the cannonading ceased. The Texans rammed and loaded their guns even more vigorously. They saw through their peep-holes that the Mexicans had brought ladders, and the officers were ordering the common soldiers to ascend to the roof of the Alamo.

"The Texans ran upstairs to the roof, where several cannons had been stationed. As fast as the Mexicans climbed to the roof they were stabbed, slashed and cut by the Texans, and the ladders overturned. It was simply a fearful hand-to-hand fight.

"Meanwhile the Mexican riflemen on the ground shot down the Texans on the roof, and there was a battle with muskets going on between the Mexicans and a few Texans who stayed on guard behind the barricade.

"In an hour—perhaps less—the Mexicans had overpowered the Texans, and were swarming to the roof. The Texans retreated down the stairs to the lower rooms of the building, fighting every inch of the way. Then the doors below were beaten down with huge timbers, and with a yell the frenzied maniacs of soldiers poured in the opening at the door. The little band of Texans was pitifully insignificant by the side of the horde of Mexicans. The Texans were overpowered. To load and ram a gun surrounded by a mob of maniacs a few feet away was impossible. The Alamo was thronged by hundreds of Santa Anna's soldiers. They swarmed like hounds about the knots of Texans here and there. There were yells and screams, gunshots and groans in one long hideous chorus. The Texans fought like wildcats with their army of conquerors. Not one of them sank to his death until he had exhausted all his strength upon his oppressors. I was told that Colonel Crockett stood in a corner of the main room, and with a cutlass struck right and left with all the strength he could command. His shirt was soaked with his blood and his face was cut, while a bullet had pierced his cheek. He was deliberately shot by a man in front of him, and he lunged forward, still selling his life as dearly as possible. One young Texan was cut and slashed with a saber by several Mexicans, who had penned him in a corner of a room, and he fought while even an arm had been cut away. Colonel Travis was shot through the head

while he was defending the stairs from the incoming Mexicans.

"Every room in the Alamo was entered by the Mexicans. They broke in the door where I was with the body of Colonel Bowie. I cried out in Spanish that I was a Mexican woman, and that I had nursed a man who had just died. So frenzied and thirsty for blood were the men that one of them knocked me down and another jabbed me in the cheek with a bayonet. That scar there now came from that wound. Colonel Bowie's cold body was hauled from the cot, and when it was seen that he was really dead it was dragged downstairs by the howling mob of soldiers and thrown among the heaps of bleeding dead. If I had been an American I would surely have been stabbed to death with bayonets.

"None of the Texans were spared, and every one of them sank to the floor fighting as best he could. There are many stories that I could tell, if I had the time, of how the Texans fought with sabers and cutlasses while they were jabbed to death with bayonets and streams of blood gushed from their gunshot wounds.

"I have never had a good recollection of the scenes in the Alamo after the last Texan had been slaughtered in his tracks. The wound in my cheek, my awful fright, and the horrible excitement after over a week of no sleep and little food overcame me. I fell unconscious in the room of the Alamo where Bowie died, and the next I knew it was a week later and I was at a home near the Alamo. The facts, however, are that the bodies of the Texans were carried from the Alamo to vacant land over west of where the main business street of San Antonio now is, and there chaparral and timber were heaped over and about the dead men. Then all was fired and the corpses were cremated. There was later a good deal of angry talk at that way of disposing of the dead, but Santa Anna offered as an excuse the reason that the weather was warm and some of the bodies had been dead several days, so that they could not well be left for burial in that weather."

—Henry G. Tinsley, in the San Francisco Chronicle.

The Young Folks.

THE OLD, OLD STORY.

I chose him out from all the rest—
My Tom—he had three lovely brothers;
But—well—he seemed to like me best
Of all the girls. Oh, there were others
That wanted him, but, somehow, he,
Right from the first, kept after me.

midable hooks, which, by clinging to any passer-by, is conveyed to situations where its seed may find suitable conditions for growth. Sir John Lubbock says it has been known to kill lions.

The "vegetable python," which is known to the naturalist as the clusia or fig, is the strangler of trees. The seeds of the clusia, being provided with a pulp and very pleasant to the tropical birds which feed thereon, are carried from tree to tree and deposited on the branches. Here germination begins. The leafy stem slowly rises, while the roots flow, as it were, down the trunk until the soil is reached. Here and there they branch, changing their course according to the direction of any obstructions met with. Meanwhile, from these rootlets leafy branches have been developed, which, pushing themselves through the canopy above, get into the light and enormously increase their growth.

Now a metamorphosis takes place. For the hitherto soft aerial roots begin to harden and spread wider and wider, throwing out side branches, which flow into and amalgamate with each other until the whole tree trunk is bound in a series of irregular living hoops. From this time on it is a struggle of life and death between the forest giant and the entwining clusia. Like an athlete, the tree tries to expand and burst its fetters, causing the bark to bulge between every interlacing; but success and freedom are not for the captive tree, for the monster clusia has made its bands very numerous and wide. Not allowed expansion, the tree soon withers and dies, and the strangler is soon expanded into a great bush, almost as large as the mass of branches and foliage it has effaced. It is truly a tragedy in the world of vegetation.—Rural Californian.

A Curious Alaskan Lake.

The rich placers of the Klondike are not the only curiosities of the country through which the Yukon runs, according to the Revue Francaise de l'Etranger (Paris), which tells us:

"There is in Alaska, not far from Dawson City, a truly extraordinary lake, to which has been given the name of Salawik by its discoverer, Father Tosti, a missionary to the Indians of Alaska. This lake, which is sixty miles broad, is, perhaps, the only one in the extreme North which does not freeze in winter. It is not known to have any communication with the sea, and yet when the tide rises on the shore of the Arctic ocean the water rises in the lake, and lowers as soon as the tide in the ocean falls.

"This sympathy with the sea, however, does not go so far as to make the water of Lake Salawik salty. On the contrary, it is excellent for drinking. Another astonishing peculiarity of the lake is that the temperature rises in the winter and falls in summer. Thus, when all the water-courses in its neighborhood are frozen solid, the water of the lake becomes so warm that it is really pleasant to bathe in it. On the contrary, in summer it is so cold that it chills you.

"This peculiarity causes the lake to be in winter the Mecca of the tribe of fishes who travel thither from all the water-courses which empty into it. The number of fish is so great that you can catch them with your hands and kill a considerable quantity of them with a stick. Thus there is opened to miners a considerable supply of provisions, on which they had not counted, and which will diminish greatly, without doubt, the cost of living in winter in those inhospitable regions. In an hour a man can supply himself with fish enough to last him a month, and fish of an excellent kind, too, as, for instance, salmon of the best quality. It will not be astonishing, says L'Evenement, of Quebec, if some fine day there is built on the shores of Lake Salawik one of those fashionable hotels which are the glory of American watering places."—Translated for the Literary Digest.

Who Can Say?

"Fate has some devious ways of doing business," mused the old bachelor. "I would have been a married man at the head of a family now but for an intervention that may or may not have been providential. You can't tell which it was.

"Twenty years ago I met a most charming girl and decided to make her my wife if it was in the cards. I met her at a quiet country resort where she had a little cottage with an aunt and a housekeeper. I always met her in her ramble or when she consented to meet me on a boat ride, for the aunt was a man-hater and had solemnly promised the girl's parents to return her to them heart-ree as when she left them. There was

BAD BREATH

"I have been using CASCARETS and as a mild and effective laxative they are simply wonderful. My daughter and I were bothered with sick stomachs and our breath was very bad. After taking a few doses of Cascarets we have improved wonderfully. They are a great help in the family."

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no possible chance of making terms with the aunt and I carefully concealed from her the fact of my existence. I finally proposed an elopement as the only solution of the problem, and the dear girl consented.

"I met her by appointment in the afternoon. It was just for a moment during which I said that I would have a ladder at her window at midnight and requested that she have everything packed so that it could be hurriedly removed. That was all, but it appears that the aunt was on the other side of the little copse and within earshot. She only heard a strange voice. There had been several robberies at the little resort. Burglars had planned an attack. She hastened home to tell the housekeeper of the plot. They would not tell the girl and frighten her, but act for themselves. I approached stealthily through the garden at midnight. Suddenly from within there was a deafening din. It was created with hammers and tinware, but it impressed me with the idea that the world must be coming to an end, and I fled. When she learned how I had been put to flight by two old women when she was the prize I was after she declined ever to see me again. I wonder whether it was hard luck."—Detroit Free Press.

Aphorisms.

She neglects her heart who studies her glass.—Lavater.

Dare to do your duty always; this is the height of true valor.—Simmons.

If we cannot live so as to be happy, let us at least live so as to deserve it.—Fitch.

It is a kind of good deed to say well; and yet words are no deeds.—Shakespeare.

It has ever been my experience that folks who have no vices have very few virtues.—Lincoln.

We are always on the forge or on the anvil; by trials God is shaping us for higher things.—Beecher.

The way of truth is like a great road. It is not difficult to know it.—Me-

Never borrow trouble. If the evil is not to come, it is useless, and so much waste; if it is to come, best keep all your strength to meet it.—Tryon Edwards.

Every man stamps his value on himself. The price we challenge for ourselves is given us by others. Man is made great or little by his own will.—Schiller.

Let no man be sorry he has done good, because others have done evil. If a man has acted right, he has done well, though alone; if wrong, the sanction of all mankind will not justify him.—Fielding.

Educate Your Bowels With Cascarets.

Candy Cathartic, cure constipation forever. 10c, 25c. If C. C. C. fail, druggists refund money.



for Men, Women, Girls & Boys. Complete line. All brand new models. \$75 "Oakwood" for \$52.50 \$90 "Arlington" " \$64.50
No Money in Advance. Others at \$15, \$17 and \$20
WRITE TODAY for SPECIAL OFFER. Juveniles \$7.00 to \$12.50
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Large Illus. Catalogue Free. CASH BUYERS' UNION,
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Mothers! Mothers!! Mothers!!!

MRS. WINSLOW'S SOOTHING SYRUP has been used for over FIFTY YEARS by MILLIONS OF MOTHERS for their CHILDREN while TEETHING, with PERFECT SUCCESS. IT SOOTHES the CHILD, SOFTENS the GUMS, ALLAYS all PAIN; CURES WIND, COLIC, and is the best remedy for DIARRHŒA. Sold by Druggists in every part of the world. Be sure and ask for "Mrs. Winslow's Soothing Syrup," and take no other kind. Twenty-five cents a bottle.

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All advertising intended for the current week should reach this office not later than Monday.
Every advertiser will receive a copy of the paper free during the publication of the advertisement.
Address all orders—
KANSAS FARMER CO., Topeka, Kas.

Owing to the long-continued wet weather, the summer meeting of the Horticultural Society, which was to have been held at Sabetha, has been indefinitely postponed.

The Kansas troops are sent on different routes. One regiment is at San Francisco and is to go to the Philippines. One regiment is at Chattanooga and is to go to Cuba. The other regiment is ordered to a point in Virginia, near Washington, and will probably accompany General Lee to Cuba.

There is an absolute dearth of news as to the movements of our navy. We have two fleets pursuing the Spanish flotilla. Either of these is presumed to be capable of destroying or capturing the enemy. It is thought the Spanish admiral must be short of coal, and reports say provisions and ammunition are also sorely needed. The situation in Cuba is reported to be daily growing worse. If landing is much longer delayed the people for whom we took up arms will probably be all dead from starvation. But our army and navy will doubtless drive Spanish rule from the island so that the shocking atrocities of the past and present cannot in the future be re-enacted in the Pearl of the Antilles.

The temperance fight in Kansas is one for the enforcement of the law. It may rapidly become a contest for the retention of prohibition as a part of our system. The enforcement of the law depends to a large degree upon the faithfulness and ability of one officer in each county to be elected next fall. That officer is the County Attorney. Those who desire to violate the law so fully appreciate this that their efforts to nominate, elect and control the County Attorney are made. People who favor good government must be equally vigilant. In Shawnee county Mr. H. G. Larimer is a candidate for nomination for County Attorney on the distinct understanding that joints and other disreputable places will receive their just deserts under the law. Mr. Larimer is well known in the county. His ability, integrity and energy need no indorsement and there should be no doubt about law-breakers having him to reckon with after the next election. There will be no doubt about it if every temperance man in his party acts wisely and promptly.

One fare for the round trip to Ottawa via the Missouri Pacific railway for the Chautauqua, June 13 to 24. Train leaves Topeka at 8 a. m.

Opening Day.

Greatly reduced rates to Omaha via the Union Pacific for the opening day of the Trans-Mississippi exposition, June 1, 1898.

Cheap Rates to Denver Col., in June via the Missouri Pacific.

Account of annual meeting American Medical Association, June 7 to 12, at Denver, the Missouri Pacific will sell tickets from all Kansas points at rate of one fare for the round trip, plus \$2. Tickets will be on sale June 5 and 6, and limited to return until July 6. See nearest agent for information regarding diverse routes for returning and side trips from Denver to Colorado points, or write H. C. Townsend, G. P. & T. A., St. Louis, Mo.
F. E. NIPPS,
Agent, Topeka, Kas.

WHEAT.

Questions as to the world's wheat supply are rapidly assuming an importance greater than has been known by this generation. The world's markets have become so unified that any but a broad view is deceptive and misleading. The fact that the wheat belt of Kansas has at present the greatest prospect ever enjoyed by this phenomenal wheat region need not be taken as conclusive that there will be an oversupply on the markets of the coming cereal year. The fact that Kansas last year and on one other occasion harvested more wheat than any other State, and that she is likely this year to distance them all, need not argue that the markets for Kansas wheat will be overstocked. Quite the reverse is likely to be true, even though Kansas may produce 80,000,000 bushels and can consume but a small portion of this amount.

The world's wheat crops of recent years have been estimated as follows:

	Bushels.
1883	2,081,306,250
1884	2,287,592,500
1885	2,106,560,000
1886	2,128,408,750
1887	2,367,042,500
1888	2,268,581,250
1889	2,156,216,250
1890	2,041,075,627
1891	2,352,537,497
1892	2,481,805,000
1893	2,562,913,000
1894	2,676,651,000
1895	2,546,494,000
1896	2,430,497,000
1897	2,139,549,168

Average of the last five years, 2,471,220,834 bushels.

Of this great aggregate, Kansas' 1897 crop of 47,988,152 bushels forms but a small part.

On a map of the Eastern hemisphere Europe appears to be a comparatively unimportant extension of the continent of Asia. But she is a great wheat producer and consumer. The average production of wheat for the last five years is resolvable into several parts. Thus:

	Bushels.
World	2,471,220,834
Europe	1,414,015,600
North America	516,367,434
Asia	378,212,200
South America	83,923,600
Africa	42,465,000
Australasia	36,237,000

Europe produces far more than half of the wheat of the world and consumes far more than she produces. The variation of the European crop from year to year is greater than the greatest crop ever produced in Kansas. The European country whose demand most influences the trade of the world is the United Kingdom. There the demand for wheat and flour is nearly three times the production. The Liverpool market is the regulator of the wheat markets of the world. In exporting countries the price is the Liverpool price less transportation, insurance, dealers' profits, etc. Kansas never consumes, for both bread and seed, half of her most deficient wheat crop. Dealers in Kansas pay no more than can be afforded on a basis of shipment to Liverpool. The only exception to this is when, from unduly rapid marketing during a portion of the season, local millers run short of immediate supplies. The Kansas wheat-grower need not be alarmed if there is produced in this State an unusual crop of wheat. The market is neither made nor unmade by such quantities as we can contribute. The world is actually short on wheat, according to the estimates of the most careful statisticians. Moreover, the bread-eaters have recently been consuming each year more than the production of that year, so that the remainders of former excessive crops have disappeared. The number of bread-eaters have not failed to increase, even though the production of wheat has not been enlarged, but on the contrary has shown a rapid diminution for the last four years.

The question of the amount of wheat required for each person for one year is one as to which the efforts of the statisticians afford very unsatisfactory answers. The plan is to subtract from the official estimates of production the official exports and to divide the remainder by the number of inhabitants of the country under consideration. If there are imports these are added to production. The results obtained are exceedingly variable and show that crop statistics lack much of scientific accuracy. For 1897 the figures for the United States are as follows: Population, 72,807,000; wheat produced, 427,684,346 bushels; imports, 38,096 bushels; exports, 145,127,972 bushels; available for consumption, 282,596,470 bushels; consumption per capita, 3.88 bushels. Results for

other countries show consumption per capita as follows: Canada, 6.24 bushels; Argentina, 10.8; Chile, 2.5; Uruguay, 6; Austria-Hungary, 6.5; Belgium, 8.5; Bulgaria, 7; Denmark, 3; France, 9.1; Germany, 3; Greece, 3.7; Italy, 5; Russia, 2.7; Spain, 4.8; Sweden, 1.9; Norway, 1.2; Switzerland, 6.8; United Kingdom, 5.6.

Doubtless the small consumption shown by the computation for the United States results from failure to take properly into account the large amount left over from previous years and exported and consumed during the year for which the computation was made.

High prices just now are bringing out the reserves to a remarkable extent, and it is gratifying to see that much of the money realized for wheat is going into farmers' pockets. Evidently the bins of the world are very nearly empty now. A full harvest from the acreage sown will no more than meet the demands for the coming year. Possibly prices may be depressed by rapid marketing after the later harvests shall have been secured, but the fact that Kansas and Oklahoma have growing the greatest crops in their history can have but little influence on the hungry market with which the early threshers will be met.

KANSAS AT OMAHA.

The Trans-Mississippi and International exposition, which will be held at Omaha from June to November, is the most important exposition, so far as the West is concerned, ever held in the United States. It is distinctively a Western institution, and as such, owing to the prosperous conditions now existing, will attract more Eastern people desiring to become familiar with the West than all the previous national shows.

It is important that Kansas be creditably represented in all departments of exhibits, because of future benefits to the State. Our commissioners have luckily secured the very best location in each of the main buildings for Kansas displays; also have an exceptionally fine location for the Kansas building.

Every county should have the County Commissioners advance the amount assigned, which will undoubtedly be returned by the State next winter by appropriation from the Legislature. Quite a number of counties have already advanced the commission this amount.

The live stock interests are well provided for now. The Omaha management gives \$35,000 in cash, the stock yards \$1,000 more, and the Kansas commissioners propose to appropriate \$2,000 to \$3,000 for Kansas exhibitors.

The West Prosperous.

R. G. Dun & Co.'s Weekly Review of Trade of last Saturday said:

"Growing accustomed to war possibilities, which are mostly far from probabilities of evil, and finding the nation moving along steadily in its industries, people are grasping the idea that it is throwing away some months of active and profitable life to wait until war clouds have passed.

"Western prosperity has so greatly overbalanced timidity of Eastern capital that actual business done increases.

"Railroad earnings promise better for May than a month ago for April, and payments through clearing houses for the week in May show a gain of 36 per cent. over last year and 7.5 per cent. over 1892, while a month ago the increase over last year was 33.6 per cent., and, compared with 1892, there was a decrease of 7.2 per cent. Several large contracts kept back for some weeks because of hostilities have now been placed, and instead of works closing or reducing force, returns show the starting of some works long idle, and increase of force or hours at others. Government work occupies many establishments, but it counts for little compared with other demands.

"The key of the situation is the prosperity of the West, which altogether unprecedented marketing of breadstuffs has caused, with the prospect of good crops to come.

"These prospects and actual receipts of wheat amounting to 5,876,716 bushels for the week, against 2,439,169 bushels last year, with advances also in other grain and cattle, have produced a demand for rails, cars, car material, agricultural implements, boots and shoes and all textile goods, which was not anticipated from Eastern indications. Exports of wheat do not diminish, but in three weeks from Atlantic ports, flour included, have been 7,955,586 bushels, against 4,778,742 bushels last year, and from Pacific ports, 1,738,123 bushels, against 610,637 bushels last year. The price of May wheat fell 4½ cents on Saturday, rose 7 cents on Tuesday and closed 5½ cents higher for the week.

"In iron, notwithstanding the greatest output ever known, the demand had caused some advances in Bessemer pig, with only a slight decline in the price of gray forge at Pittsburgh, but full quotations are obtained at Chicago and Philadelphia. In bars and sheets, the markets are dull, but at the West are strongly sustained by demands for car building, tin plate manufacture and other uses. In plates and structural forms all the works are fully employed and generally crowded for months ahead. One contract for 6,000 tons of armor plate for Great Britain has been taken by works far inland with another of smaller quantity, showing that the export demand, in spite of higher ocean freights, is not yet arrested. This is sustained at \$14.50 by large consumption and lake copper at 12 cents, in spite of American production amounting to 22,909 tons for the month, 10 per cent. larger than last year, with a slight decrease in the production of foreign mines.

"The textile works are doing rather better; even the cotton mills, in spite of their overproduction, for some of large importance have recently started again, and print cloths are a sixteenth higher. Numerous woolen mills have been pushed to new activity by government orders, and prices for a few grades of goods are better, with a stronger tone in the market generally, although some mills of importance have stopped as their orders for the season have run out. While sales of wool are small, 6,338,900 pounds for the three weeks past, against 27,663,700 pounds last year, the manufacturers have ample stocks, although some are obliged by government orders to seek in the market grades of wool which they had not expected to require.

"Failures for the week have been 250 in the United States against 248 last year, and 19 in Canada, against 35 last year."

The old fashioned cramped up little garden is a nuisance. Plant the garden where you can cultivate it with the horse.

Government Seed Tests.

By Secretary James Wilson.

The act of Congress making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1899, under the heading "Botanical Investigations and Experiments, Division of Botany," contains the following clause:

"The Secretary of Agriculture is hereby authorized to purchase samples of seeds in open market, test same, and when found not up to standard he may, at his discretion, publish the results of these tests, together with the names of the seedsmen by whom the seeds were sold."

The purchase of seeds for the tests authorized under this act will begin July 1, 1898.

The following standards are the basis for the decisions of the department:

The seed must be true to name, and practically free from smut, bunt, ergot, insects or their eggs or larvae, and the seeds of dodder (*Cuscuta* spp.), wild mustard (*Brassica* spp.), wild flax (*Camelina* spp.), Russian thistle (*Salsola kali* tragus), Canada thistle (*Carduus arvensis*), cockle (*Agrostemma githago*), chess (*Bromus secalinus*), quack grass (*Agropyron repens*), penny cress (*Thlaspi arvense*), wild oat (*Avena fatua*), and the bulblets of wild onion (*Allium vineale*). It must not contain more than 1 per cent. of other weed seeds, and should come up to the percentages of purity (this means purity of grain, not purity of stock), and germination given in the following table:

Kind of seed.	Purity. Per cent. ¹	Germination. Per cent.
Alfalfa	98	85-90
Asparagus	99	75-80
Barley	99	90-95
Beans	99	90-95
Beet ²	99	140-150
Blue grass, Canadian	90	45-50
Blue grass, Kentucky	90	45-50
Brome, awnless	90	70-75
Buckwheat	99	90-95
Cabbage	99	90-95
Carrot	95	80-85
Cauliflower	99	80-85
Celery	98	60-65
Clover, alsike	95	75-80
Clover, crimson	98	80-85
Clover, red	98	85-90
Clover, white	95	75-80
Collard	99	90-95
Corn, field	99	90-95
Corn, sweet	99	85-90
Cotton	99	85-90
Cow pea	99	85-90
Cucumber	99	85-90
Egg plant	99	75-80
Fescue, meadow	95	85-90
Lettuce	99	85-90
Kaffir corn	98	85-90
Melon, musk	99	85-90
Melon, water	99	80-85
Millet, common (<i>Chaetochloa italica</i>)	98	85-90
Millet, hog (<i>Panicum miliaceum</i>)	99	85-90
Millet, pearl	99	85-90
Oats	99	90-95
Okra	99	80-85
Onion	99	75-80
Parsley	99	70-75
Parsnip	95	70-75
Peas	99	90-95
Pumpkin	99	85-90
Radish	99	90-95
Rape	99	85-90
Rye	99	90-95
Salsify	98	75-80
Sorghum	98	85-90
Spinach	99	75-80
Squash	99	85-90
Timothy	98	85-90
Tomato	98	85-90
Turnip	99	90-95
Tobacco	98	75-80
Vetch, hairy	95	70-75
Vetch, kidney	95	85-90
Wheat	99	90-95

¹Impurity allowed refers to inert matter and 1 per cent. (only) of weed seeds other than those practically prohibited, as above noted.

²Each beet fruit, or "ball," is likely to contain from two to seven seeds. One hundred balls should yield 150 sprouts.

It will be the aim of the Department of Agriculture in carrying out this law to put a stop to the sale of seed so poor as to make probable a positive injury and loss to the purchaser, thus giving protection on the one hand to the farmer and gardener and on the other hand to the honorable seedsmen and seed dealer.

The purchase and testing of seeds will be carried on under the supervision of the botanist of the department, Mr. Frederick V. Coville, and in the immediate charge of Mr. Gilbert H. Hicks, assistant botanist.

Seeds showing a test as high as these standards are considered of high grade. Seeds falling five points below the standard in purity, or containing an appreciable amount of the prohibited seeds or more than 1 per cent. of other weed seeds, or falling twenty points below the maximum percentage in germination⁴ are, in general, considered unfit for sale as first-class seed, and if sold as such the results of the tests are liable to publication. Furthermore, if seeds sold as of lower grade are found to contain a large amount of weed seeds or show a very low germination, so as to render them practically valueless or seriously injurious, the results of these tests also are liable to publication. It is recognized, however, that in certain

cases, as in highly-bred varieties or growth and harvest under unfavorable seasonal conditions, seeds may show a germination lower than the normal, and due allowance will be made.

³A margin of 10 points is allowed in the clovers—except crimson clover—grasses and carrot.

⁴A margin of 50 points is allowed in beet, and only 15 points in the blue grasses.

A Nebraska Holiday.

Governor Holcomb, of Nebraska, has issued the following proclamation:

"To the People of the State of Nebraska: The beginning of a new epoch in the history of the trans-Mississippi country, and especially of Nebraska, will be marked by the opening of the Trans-Mississippi and International Exposition at Omaha, the first day of June, the present year.

"This great enterprise had its inception in the action of the Trans-Mississippi Congress of 1895, attended by accredited delegates from twenty-four States and Territories. To the end that friendly ties and closer commercial relations might be promoted between the different States and Territories, and that the progress of this great section of our country and its marvelous opportunities might be displayed advantageously, it was determined to hold an exposition of the products and resources, the manufactures, arts and industries of the West at Omaha during the present year. With a high appreciation of the responsibility imposed, as well as the honor conferred,

by the selection of its metropolis as the place of exhibition, the people of Nebraska, and especially of the city of Omaha, have spared neither effort nor money in doing their part to make the exposition a success. The State, by legislative appropriation, and citizens, by generous contributions, have made possible the wonderful achievements in making this enterprise, as it will be, one of the great expositions held on American soil. A new city has sprung up as if by magic on the outskirts of the Nebraska metropolis and for five months its wonders will attract visitors from every section of our country, from every quarter of the globe. The gates are ready to be thrown open.

"Now, therefore, I, Silas A. Holcomb, Governor of the State of Nebraska, do hereby designate and proclaim Wednesday, June 1, A. D. 1898, a public holiday, and denominate it Exposition day. To the ceremonies attending the opening of the magnificent display of the progress of the trans-Mississippi country, it is hoped many people from throughout the country will come, and especially do I request and urge that citizens of Nebraska, who may conveniently do so, be in attendance on this occasion, by their presence showing their interest in the enterprise, and assisting in making the day memorable in the history of the State. The importance of the exposition, and the responsibility resting upon every citizen of the State to support it to the extent of his ability is, I am confident, fully appreciated by all.

"SILAS A. HOLCOMB."

The Ladies' Home Journal and The Saturday Evening Post from now until January 1, 1899 for ONE DOLLAR



THE LADIES' HOME JOURNAL MONTHLY

In these numbers the JOURNAL will give:

"Ian Maclaren's" New Series of Articles. Mary E. Wilkins' new novel. A new novel by the author of "A Minister of the World." The Anecdotal Side of Mark Twain and D. L. Moody. Lillian Bell's Letters from Russia. Marion Crawford's Thrilling Ghost Novellette. Ex-President Harrison on the Flag. And the superb President's Number—in honor of President McKinley.



THE SATURDAY EVENING POST WEEKLY

Founded in 1728 by Benjamin Franklin. 16 pages. Short Stories, Serials and Sketches. Half of each number given to the best fiction. "Publick Occurrences" that are Making History. The Post Series of Practical Sermons. Great Speeches of Famous Americans. Sketches of Celebrities. A strong Editorial Page. The Post will give the best original matter obtainable, and the best material selected from the Current Literature of the World. Handsomely illustrated.

The regular subscription price of THE SATURDAY EVENING POST is \$2.50 per year. To introduce our weekly publication with our well-known monthly, the above special offer is made. Never before has such an opportunity presented itself to secure so much that is best in literature and fine illustration for so little money. This advertisement appears but once.

THE CURTIS PUBLISHING COMPANY, PHILADELPHIA

Some Essentials in Beef Production.

Farmers' Bulletin No. 71, which is now in press and will shortly be issued by the United States Department of Agriculture, is entitled "Some Essentials in Beef Production." It is a bulletin of twenty-four pages and contains seventeen text illustrations, and was prepared by Charles F. Curtiss, Director of the Iowa Agricultural Experiment Station, and in succinct form describes the different types of beef cattle as distinguished from dairy cattle, and gives other information of interest to the breeder and feeder.

The qualities of practical excellence in beef cattle are briefly considered, and a score card showing a scale of points of a good beef type is given and commented on.

Beef characteristics are briefly defined, with illustrations of the wholesale and retail Chicago dealer's methods of cutting beef, showing the relative importance and value of the different parts.

Selection of store or stock cattle for feeding; breeding type versus the block; excellence for the block due to inherited quality rather than feed or grain; the types of beef cattle compared; early maturity, and the passing of the heavy-weight carcass are other subjects considered.

The bulletin concludes with a comparison of the gain in weight at different ages.

Peach pits for planting should not be taken from grafted trees.

Horticulture.

BLIGHT OF APPLE AND PEAR TREES.

By C. S. Grandall, Colorado Experiment Station.

Pear blight, apple blight, fire blight, twig blight, are all names for the same disease; a disease which has proven the most destructive of any of the plant maladies with which the horticulturist has ever had to deal. It is not a new disease; it has been known and dreaded for at least a hundred years. The early horticultural journals abound in articles on the subject, and horticultural societies, ever since their inception, have found it a constant subject for discussion. But writing about it and discussing it failed to eliminate the disease or to make plain its cause. Discussion became so barren of results that the Western New York Society resolved that the subject should not be broached unless some one had something entirely new concerning the disease to communicate.

As with all phenomena arising from causes unknown and therefore mysterious, pear blight offered abundant opportunity for the theorist. Theory after theory was put forth; some based upon the observations of practical men, and some on pure conceptions of the mind. Every theory as to the cause prescribed a remedy based upon the theory. These remedies were put to trial and reported on; reports varied. Two men would report the use of a remedy under similar circumstances; one with favorable results, the other with adverse results. The next season the same men using the same remedy in the same way would reverse their reports. Success one year would be counterbalanced by failure the next, and the remedy would be laid aside as useless.

Many of the successes with various remedies as reported in the older journals, we can now see were simply successes reasoned from negative results. A man has a tree affected with blight, he cuts off the blighted limbs, applies a wash of copperas over the tree, the blight progresses no further, and he reports a cure effected by washing with copperas. His experiment is worthless; had he allowed the blighted branches to remain on the tree, and applied the copperas, with an arrest of the disease as a result, then his report would have been warranted. But as he reported, might not his accredited cure have been due to the complete removal of the disease with the infested branches which he cut off? And just so with a great number of experiments tried with other remedies. They were of no value because conclusions were hastily drawn from only a part of the attending circumstances.

THEORETICAL CAUSES.

Among the numerous assigned causes of pear blight I may mention the following: (1) Electricity and atmospheric influences. (2) A stroke of the sun. (3) Old age, or a long duration of varieties. (4) A sudden freezing of the bark. (5) The freezing of the roots whereby absorption is prevented, and the supply of moisture being cut off, the evaporation from the branches caused blight. (6) Too high culture. (7) The absence of certain mineral matters in the soil. (8) Insects. (9) Fungi. (10) An epidemic transmitted from place to place by the air.

Each of the above theoretical causes had a following, but most of them were entertained for a brief period only, because observed facts made the theories untenable, and wherever any one of these theories was put to the test of actual experiment it was quickly shown to be fallacious.

DOWNING'S FROZEN SAP THEORY.

The most widely accepted of the early theories was that advanced by A. J. Downing in the first edition of his "Fruits and Fruit Trees of America," which appeared in 1845. The name "frozen sap blight" was there applied to the disease; the theory being that the disease was due to freezing and thawing of the sap, which thus lost its vitality, became dark and discolored, and poisonous to the plant. He says a damp, warm autumn, followed by a sudden and early winter, always precedes a summer when blight is very prevalent.

In enumerating the symptoms of the disease, Mr. Downing gives just those characteristic features with which every one who has come in contact with the disease is familiar. The thick, gummy exudation from diseased tissue, the dark, discolored areas of bark that follow attacks upon the trunk and branches, and the sudden blackening of growing extremities in early summer. No fault can be found with all that Mr. Downing says of symptoms, and of

circumstances attending the disease; but he was wrong in many of the conclusions drawn, and in the wide application he makes of conditions that prevailed only locally. Of remedies Mr. Downing says: "The most successful remedies for this disastrous blight, it is very evident, are chiefly preventive ones. * * * As a remedy for blight actually existing in a tree, we know of no other but that of freely cutting out the diseased branches, at the earliest moment after it appears."

In July, 1846, Mr. Downing began the publication of the Horticulturist, a monthly journal of "rural art and rural taste," and in the second, or August number, of that journal he writes at length of the blight, repeating the theory as advanced in his work of the year previous.

OBJECTIONS TO THE FROZEN SAP THEORY.

In the December number for the same year, place is given for an article by a correspondent from Terre Haute, Ind., who signs himself "S. B. G." This writer presents a number of observations which appear as valid objections to the frozen sap theory, some of which I desire to quote: "If this theory be true, why have its effects manifested themselves so recently? Our climate has undergone no change. The vicissitudes of weather have never been less than now. I have resided upon the Wabash for more than twenty-three years and have known no difference in this respect. I have known almost whole winters that the plow might have run, while others have been cold. Late spring frosts, and late, warm, humid fall weather have always marked our fitful climate, yet was the pear blight never heard of until recently?"

The prevalence of blight in 1845 was ascribed to a frost occurring on the 10th of May. This writer cites a much more severe frost on the same day of the year 1834, but there was no blight that year.

A further objection refers to the effect of frost upon sap. "The freezing of sap does not change its properties. That the freezing of vegetable matter in a certain state of development produces death may be admitted. * * * It may also be admitted that the freezing in winter may be so severe as to destroy the vital principle as well in vegetable as animal life. * * * Death thus produced is not occasioned by deleterious properties imparted to the sap, but by the mechanical force of the frost upon the cellular and woody tissues. * * * All our trees are frozen, except their trunks and large branches, every winter, especially the young and tender wood of the past summer's growth, and if an elaboration of the sap injurious in its consequences were thereby produced, no vegetable matter would survive a single winter. The economy of the vegetable world rests not on so insecure a basis as this would indicate." This writer here speaks of the spread of the disease in the individual plant, and cites a case of the production of the disease in a healthy tree by inoculation from a diseased tree.

Further he says: "There is no occasion to theorize upon this subject for the mere sake of theory, and I have none that I regard as certainly true; but I strongly incline to the belief that pear blight is an epidemic, that it prevails like other epidemics, and will pass off like them. The atmosphere is, I believe, generally admitted to be the medium by which they prevail, and are carried from place to place. What that subtle principle may be which pervades our atmosphere, by which infection is retained and transmitted, so that, like the Asiatic cholera, it makes the whole circuit of our earth, human science has not discovered, and perhaps never will; but that such a principle exists is sufficiently obvious from its effects."

Looking back in the light of what "human science" in the modern times has discovered, to those days when the germ theory was little more than a suggestion, the statement above quoted is of interest.

CAUSES SOUGHT IN ATMOSPHERIC AND SOIL CONDITIONS.

The writers for the agricultural press of fifty years ago were much inclined to look for the causes of the disease in the attendant atmospheric and soil conditions. One writer in 1851 says: "A fruit tree planted on a well-drained poor soil will seldom suffer from blight of any kind. Too much trimming, too much moisture, and too rich soils, are, in my opinion, some of the causes of blights in apple and pear trees. I believe there are several varieties of blights in apple trees, and probably in pear trees also. I think I am in possession of facts and observations which will explode all the blight theories

which I have seen published." This gentleman certainly observed some of the conditions which may aggravate blight, but his was as far from the true cause as any of the blight theories he thought himself able to explode.

FUNGI.

The man who introduced the theory of a fungous origin of the disease was for a considerable time quite safe from contradiction. Many fungi are very small; to learn anything of them beyond the fact of their existence requires a microscope. They had then received little attention, little was known of them, and it was impossible to prove or disprove their casual connection with the disease.

An investigator in 1872 ascribes the disease to a local fungous fermentation of the genus *Torula* and he observes that "every condition that will prevent the bark and shoots from ripening will foster under high temperatures, in the presence of organic acid and vegetable nitrogenous matter, one or more species of *Torulacei* fungi." And he further infers that contamination may come about by the absorption of the fungous germs by the roots, and in this case the fermentation proceeds from the sap wood to the exterior. Drainage, or the removal of the tree to a more favorable place, is recommended. The writer speaks of another form of the disease where the fermentation proceeds from the surface to the interior. This he calls atmospheric blight. Now beyond the fact of the presence of fungi in the diseased tissues this was all theory.

In 1875 Thomas Meehan, editor of the Gardener's Monthly, in speaking of the researches of Dr. Hunt, of Philadelphia, says he finds "that a very minute fungus germinates in the outer bark, enters the structure, destroying the cells as it goes, till it reaches the alburnum, and then it penetrates clear to the pith, by the way of the medullary rays, totally destroying the branch from center to circumference," and he adds, "there is no other conclusion here than that arrived at by Dr. H., that in the true fire blight fungi are the cause of the disease."

It was an easy matter to find fungi in the dead tissues of trees affected by blight, and their presence there was considered as sufficient evidence that they caused the disease. No crucial test was ever applied to prove that causal action. So in the absence of positive proof, all the claims of discovered cause made up to this time were valueless.

DISCOVERY OF THE TRUE CAUSE.

The first light shed upon what has since been proved to be the true cause of pear blight was in 1878, when Professor Burrill, of Illinois, announced to the Illinois State Horticultural Society the discovery of bacteria apparently connected with the disease. The germ theory of disease had been under discussion for several years, and, previous to this time Pasteur had (in 1869-70) demonstrated that a microbe caused the terrible silk worm disease, and later in 1876 that splenic fever and fowl cholera were also due to the action of specific microbes. Professor Burrill was the first to suggest that these low organisms might be connected with plant diseases. In his announcement in 1878 he made no positive assertion, but simply reported discoveries which were sufficient foundation for a very strong suspicion that these organisms did cause the disease. Continuing his investigations of the subject, in 1880 he had advanced far enough to announce before the American Association for the Advancement of Science that he had discovered the cause of pear blight; that the cause was a specific organism, for which he proposed the name *Micrococcus amylovorus*. Professor Burrill rested his claim upon the results obtained in a series of experiments. He inoculated healthy pear and apple trees with diseased tissue, and, in a large number of cases, blight followed the inoculation. The process of inoculation was both by the transfer of small pieces of diseased bark, and by pricking with a needle dipped in macerated diseased tissue. His results would seem to warrant his assertion that blight was caused by the organism which the microscope showed was present in large numbers. But in the light of modern methods of experiment, his proof could not be considered as absolute.

Investigators of the etiology of the contagious diseases of animals agree that in order to prove positively that any suspected organism is the specific cause of any particular disease, four steps are necessary. These steps, which were first recognized, enumerated and

published by Professor Cohen, are as follows:

1. To demonstrate the habitual presence of the organism in cases of the disease in question.
2. To find some medium outside the animal body in which this organism will live and multiply.
3. To cultivate the organism in this medium for a sufficient number of generations to insure the complete elimination of other organisms that may have been introduced into the first cultivation; in other words, to secure a pure cultivation of the organism.
4. To inoculate a healthy individual from the pure culture of the organism, and produce the original disease.

These steps, carefully followed, afford a means of proof that, it seems to me, must convince the most skeptical. This method of proof is just as applicable to plant diseases as to animal, and in the case of pear blight it remained for Professor Arthur, then of the New York Experiment Station at Geneva, to apply it. This he did during the seasons of 1884 and 1885.

WORK OF PROFESSOR ARTHUR.

Professor Arthur used as a culture medium a tea made by steeping corn meal in water and then filtering until a clear infusion was obtained. In this medium he cultivated the organism for a number of generations. Trees inoculated from his last culture, which contained *Micrococcus amylovorus*, and no other organism, developed the disease. Here was good proof that this specific organism caused pear blight; but there was one question that might be raised. Might not the liquid in which the organism lived be the exciting cause, instead of the organism? To prove this point, a culture containing the organism was filtered through porcelain. The clear liquid, which upon examination by the microscope was shown to be free from germs, failed in every case to communicate the disease, but the residue of germs, left after filtering, when used to inoculate healthy trees, readily produced the disease. Thus by the method of experiment has every doubtful point been covered, and the fact established beyond controversy that this particular organism, *Micrococcus amylovorus*, is the true cause of pear blight, or apple blight.

This demonstration did not at once meet with universal acceptance. Various objections were raised to it. There were many men who refused to accept as the exciting cause something they could not readily see, something which could not readily be made evident to the senses. The observation and study of these low organisms and of the tissue in which they live must be carried on under high powers of the microscope; they must be magnified at least 1,000 diameters. It is only men trained in the use of the microscope that can carry on observations under these conditions. The growth of an organism in a culture fluid is readily observed by the naked eye, by reason of its action on the fluid, and the results obtained by inoculation are easily seen. These two points must serve to inspire confidence in the statements of the microscopist regarding what takes place beyond the range of natural vision. The specific name, *amylovorus*, given by Professor Burrill to this organism, means starch-devouring, and was given because the removal of starch from the cells appears to be the work they perform. In the process, which is a true fermentation, carbon dioxide is given off, and butyric acid is formed.

(To be continued.)

The midsummer meeting of the Missouri State Horticultural Society will be held at West Plains, Mo., June 7, 8 and 9, 1898. Missouri is taking such a prominent place in the production of fruits that her horticultural meetings are among the most important in the entire country.

A COUGH, COLD OR SORE THROAT requires immediate attention. "Brown's Bronchial Troches" will invariably give relief.

1898 Bicycles Down to \$5.00.

New 1898 Model Ladies' and Gents' Bicycles are now being sold on easy conditions as low as \$5.00; others outright at \$15.95, and high-grade at \$19.95 and \$22.50, to be paid for after received. If you will cut this notice out and send to SARGENT, ROEBUCK & CO., Chicago, they will send you their 1898 Bicycle catalogue and full particulars.

It is advisable to plant chestnuts in the fall.

INSECTS

Will not touch trees treated with VITA-NOVA. One dollar's worth treats twenty-five trees; lasts four years. J. WILLIAMS BROS., Danville, Pa.

In the Dairy.

Conducted by A. E. JONES, of Oakland Dairy Farm.
Address all communications Topeka, Kas.

BUTTER-MAKING ON THE FARM.

How to make good butter on the farm during the warm months, and, in fact, throughout the larger part of the year, is a problem that should be of special interest to every farmer's wife who holds to the idea that home butter-making is more profitable than selling milk to the creamery. With those who are willing to learn and will make use of a good dairy paper, there is a prospect of some improvement, but with that class who think they "know it all" and try to make themselves believe that money invested in papers is a dead loss, the case is hopeless; and the "go as you please" butter-maker, like the poor, we will always have with us.

There is something totally wrong on the farm where butter is frequently made fit only to be exchanged for groceries and other goods. This butter is too poor to go to the large markets, and the local storekeeper finds no end of trouble in getting rid of the butter he is compelled to buy in order to hold the trade of his customers. The result is that the small farmers have no encouragement to make butter with the hope of securing better prices. The farmer who keeps six or eight cows should not submit to the old exchange system; he should acquaint himself with the methods of making a better article, pack it properly, and send it where cash and a higher price can be obtained. The results of such a method would be astonishing to many hard-working farmers to-day who are receiving only about half what they should get for their products. The work of butter-making should be made just as systematic on the small farm as at the creamery. Select such cows as will furnish rich milk and cream, keep them clean, healthy and well fed, and when they have passed their period of profitability let them go, and fill their places with younger animals.

It will pay any farmer to have the proper utensils for butter-making, and not thoroughly posted in their use, take a few lessons from some one who has made the business a special study. When the milk is brought in from the cows, take to a well-ventilated room, strain and aerate, then set at once for the cream to rise. Skim every twenty-four hours and add to the other cream, remembering to stir several times a day that all parts may ripen evenly, and avoid a loss of butter fat in churning. Churn about three times a week, or every other day, in a room where the temperature is about 60°, if possible.

The tendency of all butter is to get rancid sooner or later, but the badly-made article decomposes much sooner than butter made on correct principles, and is frequently "off flavor" when put on the market. Filth of any kind hastens the process of decay. There are certain natural laws that cannot be invaded unless we pay the penalty in some form. Impure surroundings breed typhus fever and other ailments in the human body; milk, cream and butter are susceptible to all manner of taint, and the simple result is contaminated dairy products. Uncleanliness in the different steps from the cow to the churn is responsible for nearly all strong butter. Wetting the cow's teats and milking with dirty hands is a habit that cannot be too strongly condemned. Buckets, strainers and cans that have been improperly washed and scalded are another source of infection. Leaving the milk in the barn or setting it where the air is laden with odors hastens the work of putrefaction. Cream that is allowed to remain on the milk in warm weather until it gets moldy, if only a small quantity, will affect an entire churning. Wooden buckets are unfit for milk; use tin, and everything that has contained milk should be rinsed with lukewarm water before being scalded.

To churn at a low temperature it is necessary to have rich, heavy cream; do not attempt to churn poor or thin cream under 58 or 60°, as there will be trouble in gathering the butter. To get a high-flavored butter cream should be only slightly soured, and salted three-fourths of an ounce to the pound. Farmers that cannot provide suitable fixtures for butter-making at home will be better off to patronize a creamery.

Where eight or ten cows are kept with the idea of making butter at home, much work can be saved and a better article of butter can be produced by using a separator. If the bowl is examined after running through 400 or 500

pounds of milk we begin to find what an amount of filth would have gone into the butter had the cream been raised in the ordinary way. The cleaner the surroundings and every little attention in the way of shutting out dirt has a tendency to improve the flavor of butter, whether the milk is kept at home or sent to the factory.

Separator Freaks.

Frank Bair, the De Laval Company's well-known expert, could fill a volume with stories of queer actions of separators. One in particular was of a bowl which would not skim clean in a certain creamery. It was taken to a neighboring factory, some fifteen miles away, set up, and skimmed to a trace. It was brought back again, set up in the original creamery, and would not skim clean. It was tried at still another creamery and skimmed all right. But it would not do good work at the factory where it belonged.

Another story is told of two separators—one of the new and the other of the old-style De Laval, which were at work down in Vermont, side by side. They were doing good work, skimming to a trace, until one day all at once the new machine showed a loss of .2 and the old one .4 fat. The butter-maker worked with them, but all to no purpose. They lost fat. Then experts came. Still they wouldn't do the old-time skimming. One day, however, when the mystery had just about been given up as unsolvable, they came back to their senses and began skimming clean again, and there has been no trouble with them since. Nothing that the experts did to them had any effect, and the only solution of the problem that possibly could be arrived at was the theory that there must have been some sick cows in the herds of some of the patrons, and the milk refused to skim clean as long as they were in that condition.

Changes in Butter Fat Caused by Excitement.

The Industrialist for May prints interesting results from experiments made at the Kansas Experiment Station, showing how changes in butter fat of milk are caused when cows are in a condition of excitement. In several cases very wide variations are noted and it is stated that similar results, though not so marked, have been noticed to result from exposing cows to storms and to rough speaking. The Industrialist says:

"The fact, not fully appreciated by many dairymen, of the changes in butter fat caused by excitement, was strongly shown in the milk from the cows recently purchased for our dairy school. These cows were loaded on the cars at Lincoln in the afternoon and came by rail to Manhattan, 100 miles, where they arrived at night, and were unloaded into large pens. At 4 o'clock in the morning they were driven to the college barn, one and one-half miles from the station, watered, fed and milked, being handled as gently as possible. Samples from the milk of each cow were taken for analysis at this milking, and from all succeeding milkings until the milk seemed to have become normal. The figures given below are the per cents of butter fat found in the milk at consecutive milkings:

"Cow No. 23—3.0, 7.2, 3.6, 2.6, 2.9, 3.4. This cow's milk shows that the milk

tested 3 per cent. butter fat in the morning and 7.2 per cent. butter fat at night, a change of 4.2 per cent. between milkings; and that it was not until the sixth milking that the milk became normal in regard to butter fat.

"Cow No. 25—3.2, 8.3, 6.0, 5.0, 4.2, 4.2, 3.6. Here, then, is a difference of 5.1 per cent. of butter fat between morning's and night's milk of the first day; and the milk did not reach the normal until the seventh milking.

"Cow No. 26—1.5, 2.0, 2.4, 3.8, 7.2, 11.1, 5.3, 4.7, 3.9. This cow's milk showed a very low butter fat content the first milking, gradually increasing in butter fat the next three milkings, and then suddenly increased to 7.2 per cent. on the morning of the third day, and to 11.1 on the evening of the third day—the latter amount about 7 per cent. above her normal. A gradual decrease followed until the ninth milking, when the fat content became normal.

"Cow No. 28—0.9, 3.9, 4.9, 3.4, 3.6, 3.7, 3.1, 3.3. This yield of 0.9 of 1 per cent. of butter fat for the first milking is the lowest amount we have ever found in whole milk. This cow's milk was apparently normal at the second milking and did not vary an unusual amount thereafter.

"Cow No. 29—1.2, 1.2, 3.4, 10.7, 4.1, 6.2, 3.4. These figures show a very low fat content for the milk the first day, normal the morning of the second day, and 10.7 per cent. butter fat the evening of the second day—an increase of 7.3 butter fat between the two milkings of a single day. This was followed by irregular fluctuations until on the morning of the fourth day the milk became normal.

"These cows were handled quietly and made as comfortable as possible from the hour they arrived at our barn. The excitement of shipping not only affected the butter fat in the milk but the yield was much reduced. At the end of ten days the cows had become reconciled to their change, their yield of milk had increased 40 per cent., and was increasing daily.

"Is further proof needed to emphasize the fact that any excitement seriously alters the fat content of the milk and reduces yield? We have found similar results, though not so marked, to come from exposing cows to storms and to rough speaking.

Good times have come to those whom Hood's Sarsaparilla has cured of scrofula, catarrh, dyspepsia, rheumatism, weak nerves, or some other form of impure blood.

Hood's Pills are the only pills to take with Hood's Sarsaparilla. Easy and yet efficient.

Don't Tobacco Spit and Smoke Your Life Away.

To quit tobacco easily and forever, be magnetic, full of life, nerve and vigor, take No-To-Bac, the wonder-worker, that makes weak men strong. All druggists, 50c or \$1. Cure guaranteed. Booklet and sample free. Address Sterling Remedy Co., Chicago or New York.

'ALPHA-DE LAVAL' CREAM SEPARATORS.



De Laval Alpha "Baby" Cream Separators were first and have ever been kept best and cheapest. They are guaranteed superior to all imitations and infringements. Endorsed by all authorities. More than 125,000 in use. Sales ten to one of all others combined. All styles and sizes—\$50. to \$225.—Save \$5. to \$10. per cow per year over any setting system, and \$3. to \$5. per cow per year over any imitating separator. New and improved machines for 1898. Send for new Catalogue containing a fund of up-to-date dairy information.

THE DE LAVAL SEPARATOR CO.
RANDOLPH & CANAL STS., CHICAGO. 74 CORTLANDT STREET, NEW YORK.

'AMERICAN' CREAM SEPARATOR

was awarded

FIRST PREMIUM

at St. Louis Fair, 1897,

as the

BEST

Farm Cream Separator.

Correspondence solicited.

FOR SALE BY

S. F. WICKER,

MADISON,

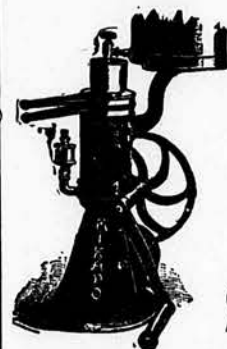
KANSAS



\$10 A DAY TO AGENTS
MURAT HALSTEAD'S GREAT WAR BOOK.
"Our Country in War." All about armies, navies, coast defenses, Maine Disaster, Cuba, Our War with Spain and relations with Foreign Nations. Nearly 500 pages, written since the Maine Disaster. Magnificent colored illustrations. Agents making \$10 to \$25 per day. No experience necessary. Most liberal terms guaranteed, 20 days' credit. Price low, freight paid. Handsome outfit free. Send 9 two cent stamps to pay postage. EDUCATIONAL UNION, 234 Dearborn St., CHICAGO.

HOUSE PAINTS

Victory Implement and Wagon Paints, Nonparell Carriage Paints. Home-made and the best made for all purposes. Window and Picture Glass, Hot-bed and Greenhouse Glass. If your dealer does not carry these goods send direct to CUTLER & NEILSON PAINT AND COLOR CO., Manufacturers and Jobbers, N.W. Cor. 11th and Mulberry Sts., Kansas City, Mo. Mention Kansas Farmer.



The
Empire
Cream
Separators.

The average dairyman can hardly judge the merits of a Cream Separator by its mechanical construction, but he can always safely judge of its work.

We would like to show you one of our Empire Cream Separators at work before you buy. Then you will know why they are superior to all others in closeness of skimming and ease of running.

All sizes for hand and power use at prices that will interest you. Agents wanted in territory where not represented. Write to-day for our 1898 catalogue. U. S. BUTTER EXTRACTOR CO., Newark, N. J.

C. E. HILL & CO., Western Agts., KANSAS CITY, MO.



Get More Money Out of Your Cows
By Getting More Cream Out of Their Milk.

This can be easily done with the

Improved U. S. Cream Separator.

Increase in yield 47 per cent.

LAGRANGE, ME., February 7, 1898.
The Improved U. S. Separator I have is doing fine work, having increased the yield 47 per cent. It makes excellent cows of those which I considered ordinary under the old system.

CLINTON KENNEY
(Chairman of Selectmen).

Send for Catalogues, free.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

Hodges "Lassie" Self Dump Hay Rake.

A good hay rake must be light, strong, have a large gathering capacity, dump easily and quickly and return quickly, etc.

These are among the prime features embodied in this rake. It is constructed entirely of steel except the shafts. It has a long main axle of 1 1/2" steel; quick, simple and positive foot trip for dumping; is mounted on our own make of steel bicycle wheels; has 22, 28 or 34 crucible steel oil tempered teeth; is made in three sizes, 8, 10 and 12 feet; teeth are flattened at ends in sled runner form to avoid taking up trash, manure, etc. This rake is also made in hand dump pattern. Manufacturers also of the Famous Hodges Header, Hodges Hercules Mower, Monarch and Acme Sweep Rakes and Acme Stackers. Write for what you want and don't buy until you get our new illustrated catalogue. We send it FREE.

ACME HARVESTER COMPANY, PEKIN, ILL.



The Apiary.

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

Locating an Apiary.

Some prefer to locate an apiary on an east or south slope with good wind-breaks on the north and west. This seems to be the general preference, although it may be more a matter of taste than anything else, as the different reports on this subject have not brought out unmistakable evidence that this method of locating has been more beneficial and profitable than any other.

Apiaries have been and are located in all conceivable ways and in every part of the country, in all kinds of climates. I have worked in apiaries that were located in dense shades, where the sun scarcely shone on the hives the year around. I have also worked in apiaries that stood out directly in the sun without the least particle of shade to strike the hives during the day. I have known apiaries located on north, east, south and west slopes, and while I have noticed some of the disadvantages in the different modes of locating, when we come to sum it all up, the one will balance the other, and after all it amounts to an opinion merely.

We undoubtedly receive some benefit from windbreaks both in winter and summer, but we want the windbreak on the side from which the most wind comes; but if we do not have any windbreaks, and have only a north slope, it would not deter us from keeping bees if we wished to do so.

Bees may be located anywhere that will admit of space to allow them to get in and out of their hives conveniently. Some have quite extensive apiaries in large cities on the roofs of large buildings. Some are kept in houses exclusively, and with the entrance facing any direction.

Bees do equally well, and extensive apiaries are kept in the extreme East, West, North and South. Large apiaries are made profitable in all the Northern States and also in Canada. Extreme west California is considered at the head of the States for honey production, while Florida in the South makes great claims also in this line. In the East, New York is at the head of the list, and numerous apiaries are located there, and some of the largest yields of honey per colony come from this State. The past year (1897) New York's report places her at the head of the States for honey production.

In cold climates, where heavy snows are prevalent, winter protection in the way of chaff hives is used, or the bees are placed in cellars or underground repositories.

Rules for Beginners in Bee-keeping.

When you purchase your first colony of bees, send to one who is an up-to-date bee-keeper. It will pay you to send a thousand miles, if need be, rather than buy bees from your nearest neighbor, unless he is a practical bee man and keeps up to the latest improvements and has the best stock of bees. When you secure bees from a practical bee-keeper you are absolutely certain that they are all right to begin with, that the hive or hives you get are right, and the instructions he gives you are also right.

Always buy a full colony to start with, and have the apiarist add the necessary fixings to accommodate the colony for the season. Buy full colonies in early spring—not earlier than April, not later than May.

When you get your first colony of bees always get a good bee smoker, as this article is indispensable with the beginner, and in it lies the great secret of mastership. It matters not who applies it, it always brings the answer. Do not smoke your bees to excess, just simply for the fun of it, but smoke them into subjection whenever they need it. When you receive your bees place them on the identical spot where you expect them to remain. Changing bees around to different locations about your premises frequently will ruin them, and this must be avoided. Learn the use of foundation comb. I would not think of keeping bees without using foundation honey comb, for it is one of the most valuable inventions.

It is all right for a bee-keeper of a few colonies to have an extractor; indeed, it is proper. You may think comb honey will suit your family better than extracted, but if you have honey all the time, which every bee-keeper should you will find that the extracted honey is the staple article, and the one that will remain in constant use with you. It is not near so complicated a matter to raise extracted honey as it is to produce

Horse Owners! Use



GOMBAULT'S
Caustic Balsam
A Safe Speedy and Positive Cure
The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scar or blemish. Every bottle sold is warranted to give satisfaction. Price, \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. THE LAWRENCE-WILLIAMS CO., Cleveland, O.

up-to-date honey in those little section boxes, but it is all right to raise both.

It is all right to make your own bee-hives, providing you can make them right; and if you cannot, it is certainly wrong. A good bee-hive cannot be made without good machinery, and with nothing short of a good foot-power buzz-saw can they be made on the smallest scale. You may not think so, but the least fraction of an inch will make a whole lot of difference in a bee-hive.

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.

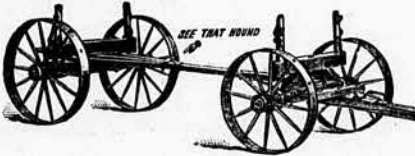
SWOLLEN HOCK.—I have a horse, 5 years old, that is becoming cap-hocked. When in barn stands on dirt floor. Has not done any work except some light driving. Have given no treatment. Clyde, Kas. A. S.

Answer.—Where is the swelling you refer to—at the top of the hock joint, behind, or below this point at each side? From your description I am unable to make out the case. In your reply state how long the condition has existed, whether the animal is lame or not, and whether he is vicious and kicks. In the meantime, if the hock seems to be inflamed and tender apply cold water bandages made with flannel cloths wrung out in cold water and then firmly wrapped around the affected part of the hock and covered with dry cloths to prevent too rapid evaporation. Change these bandages three or four times a day. If the animal is constipated give a pill made of one-half ounce Barbadoes aloes, one drachm mild chloride of mercury, half ounce of linseed meal, and sufficient water to make, when mixed, a stiff pill mass. Give animal complete rest during the whole treatment.

To raise onion sets the seed must be sown very thickly so that onions will not have room to grow.

A Low Wagon at a Low Price.

The money-making farmer of to-day wants a low built, easily loaded, easily unloaded, light draft, powerful short turn "Handy" farm wagon; a wagon that will save the farmer's own back, save his horses, save his hired labor and save his money.



This wagon is built by the Empire Manufacturing Co., Quincy, Ill. It is only 25 inches high with 4-inch tired wheels, and is sold for the low price of \$19.95. This firm also manufacture metal wheels any size, any width of tire, hubs to fit any sized axle. Write for catalogue.

Plum trees like rich soil and they grow well in a poultry yard where the fowls pick off the insects.

DEAD SHOT for HOG CHOLERA is guaranteed to cure and prevent cholera in hogs or fowls. Never fails. 25 and 50 cents per bottle, by all dealers, or the Cannon Chemical Co., St. Louis, Mo., wholesale agents.

Paris green is a dead shot to any insect that eats and kerosene emulsion will fix the sucking insects.

Publishers' Paragraphs.

War atlas showing the countries and islands involved in the present war and their relations to other countries, paper cover, to Kansas Farmer subscribers at 25 cents. Write to this office.

A Desirable Scale.—We take pleasure in referring our readers to the advertisement of the Osgood Scale Company, Binghamton, N. Y., whose familiar face appears in this issue among our advertising friends. This well-known company has a reputation for over forty years back of the goods they send out, and we believe it will pay all our readers to correspond with them before buying scales this season.

Besides the article on the causes of the failure of the Spanish Armada, by Captain Mahan, the June Century will contain "Ten Months With the Cuban Insurgents," the experiences of a major in the army under Garcia, and an article on "The Confederate Torpedo Service" by the electrician of the torpedo division in the Confederate navy who laid the mine which blew up the first gunboat ever destroyed by this means.

McClure's Magazine for June will be a special war number, with articles by General Miles and General Fitzhugh Lee; an account of the first cruise of the blockading fleet off Cuba, written by Mr. Stephen Bonsal, who was on the flagship, New York; a description of the marching of the volunteers, by William Allen White; some "Songs of the Ships of Steel," by James Barnes; an American account of his life in Manila; and other timely articles, and a great many pictures relating to the war.

Wonderland, '98.—The Northern Pacific railway has gotten out one of the most artistic and valuable books on the resources, picturesque scenery, lake resorts, etc., with which nature has so richly endowed the territory traversed by this famous railroad. The book is profusely illustrated, beside containing several maps and descriptive matter pertaining to the magnificent scenery and wonderful resources of the Northwest. While the publication is of special value to travelers and tourists, it is also valuable in the family for its general information, and in public schools as a geographical and historical compendium. It will be sent to the address of any of our readers upon receipt of 6 cents in stamps, by addressing Chas. S. Fee, General Passenger Agent, Northern Pacific Railway, St. Paul, Minn.

Wants Kansas Wool.

A. J. Child & Son, of St. Louis, place their annual wool commission card in this issue of the Kansas Farmer. In reference to this firm we will say that Colonel Child, the senior member of the firm, has been in the wool and sheep business for over forty years and has handled wool in the St. Louis market for over twenty-five years. All consignments made to his firm will receive his personal attention, also cash returns and the highest market prices. No wool-grower in Kansas need hesitate in sending wool to this firm for the St. Louis market.

Liquid manure is excellent for strawberries.

Take the Union Pacific

to Denver and attend the American Medical Association meeting, June 7-12, 1898. Low excursion rates for the round trip.

Special excursions arranged from Denver to mountain resorts; also to Salt Lake City points west.

For sleeping car reservations, rates, etc., call on F. A. Lewis, City Ticket Agent. J. C. Fulton, Depot Agent.



BEE SUPPLIES.

I have every thing that is needed in the Apiary. Send for CATALOGUE. B. W. DUNHAM, 106 1/2 W. 5th St., Topeka, Kansas

It costs you whether you continue the nerve-killing tobacco habit. **NO-TO-BAC** removes the desire for tobacco, without nervous distress, expels nicotine, purifies the blood, restores lost manhood, makes you strong in health, nerve and pocket. **STOP SMOKING**—1,000 cases cured. Buy **NO-TO-BAC** from your own druggist. He will vouch for us. Take it with a will, patiently, persistently. One box, \$1, usually cures; 3 boxes, \$2.50, guaranteed to cure, or we refund money. Sterling Kennedy Co., Chicago, Montreal, New York.



BLACKWELL'S CELEBRATED FISTULA CURE

For Horses. The only medicine in the world that will CURE YOUR HORSE WHILE IT WORKS. One box will cure the worst case. Price, \$1 a box. Manufactured, Sold and Guaranteed by Z. T. BLACKWELL, M. D., PRESTON, KANSAS

Spring Dipping

The Shearing Season will soon be upon us. This brings to mind the advantage and necessity of dipping all sheep as soon as the fleece is removed. Particularly should this be done with all ewes and lambs. Just after shearing is the best time to dip.

CHLORO-NAPHTHOLEUM

Is the best dip to use. It kills all lice, ticks and skin diseases. It produces a healthy condition of the skin and promotes the growth of the wool. You can get it from the nearest dealer.

WEST DISINFECTING CO. 206-8 E. 57th St., New York City

THE WAR ZENOLEUM

The Great Disinfectant, Insecticide and Germicide given internally in food or drink will do it. Those who have tried it report greatest success. Sprinkle in the pens, spray the walls, put it in the "wallow." Given internally it expels all stomach and intestinal worms, kills all disease germs, renovates the blood and promotes good health. Then too, it is cheap. Write for circulars, prices and directions. **SENT FREE.**

ZENNER-RAYMOND DISINFECTANT CO. 36 Atwater St., Detroit, Mich.

Richardson Drug Co., Agents, Omaha, Neb

BLACK LEG PREVENTED BY PASTEUR "VACCINE."

Write for particulars, prices and testimonials of thousands of American stockmen who have successfully "vaccinated" their stock during the past three years in Dakota, Nebraska, Wyoming, Colorado, Kansas, Texas, etc.

PASTEUR VACCINE CO., 52 Fifth Avenue, CHICAGO.

Kansas City Stock Yards

are the most complete and commodious in the West

and second largest in the world. The entire railroad systems of the West and Southwest centering at Kansas City have direct rail connection with these yards, with ample facilities for receiving and reshipping stock.

	Cattle and Calves.	Hogs.	Sheep.	Cars.
Official Receipts for 1897	1,921,962	3,350,796	1,134,236	123,047
Slaughtered in Kansas City	985,287	3,084,623	805,268	
Sold to feeders	645,615	341	151,389	
Sold to shippers	216,771	263,562	91,576	
Total Sold in Kansas City 1897	1,847,673	3,348,556	1,048,233	

CHARGES: YARDAGE—Cattle, 25 cents per head; Hogs, 8 cents per head; Sheep, 5 cents per head. HAY, 80c per 100 pounds. CORN, 60c per bushel. OATS, 60c per bushel.

NO YARDAGE CHARGED UNLESS THE STOCK IS SOLD OR WEIGHED.

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

MARKET REPORTS.

Kansas City Live Stock.

KANSAS CITY, May 23.—Cattle—Receipts since Saturday, 4,801; calves, 31; shipped Saturday, 578 cattle; 5 calves. The market was fairly active on light and medium grades of beef cattle, but extremely heavy grades were slow and weak. The following are representative sales:

No.	Ave. Price.	No.	Ave. Price.
129.....	1,583 \$4.70	40.....	1,303 \$4.60
20.....	1,518 4.65	23.....	1,227 4.55
45.....	1,198 4.50	28.....	1,190 4.40
4.....	1,157 4.25	2.....	1,025 4.00

WESTERN STEERS.

42.....	1,133 \$4.45	105 Ind.....	1,128 \$4.45
62 Tex.....	1,243 4.35	50 Tex.....	1,110 4.42½
33.....	1,166 4.25	58.....	1,038 4.20
2 Tex.....	840 3.85	92.....	1,057 4.22

NATIVE HEIFERS.

3.....	506 \$4.65	5.....	676 \$4.55
1.....	880 4.50	2.....	695 4.33
3.....	678 4.35	1.....	660 4.25
15 c & h.....	850 4.20	2.....	900 4.00

NATIVE COWS.

1.....	1,250 \$4.15	1.....	1,270 \$4.00
5.....	1,160 3.75	2.....	1,105 3.65
1.....	730 3.50	2.....	1,060 3.30
1.....	830 3.00	1.....	860 2.85

NATIVE FEEDERS.

7.....	1,171 \$4.50	14.....	1,075 \$4.40
2.....	905 4.40	19.....	821 4.30
2.....	910 4.25	22.....	1,101 4.30

NATIVE STOCKERS.

7.....	521 \$5.25	35.....	688 \$5.20
1.....	663 5.00	57.....	537 5.00
1.....	500 4.85	3.....	620 4.75
50.....	496 4.50	12.....	842 4.40

Hogs—Receipts since Saturday, 7,054; shipped Saturday, 3,300. The market opened 5 to 10c higher on choice offerings and closed with a weaker undertone on the inferior grades. The following are representative sales:

55.....	305 \$4.50	61.....	288 \$4.50	41.....	341 \$4.50
59.....	300 4.50	62.....	294 4.50	54.....	344 4.50
59.....	295 4.50	69.....	311 4.50	62.....	271 4.47½
64.....	344 4.45	63.....	249 4.45	57.....	305 4.45
70.....	237 4.42½	61.....	290 4.42½	06.....	281 4.42½
134.....	253 4.40	61.....	238 4.40	65.....	293 4.40
72.....	258 4.37½	50.....	242 4.37½	86.....	235 4.37½
121.....	237 4.35	91.....	208 4.35	78.....	242 4.35
79.....	209 4.32½	88.....	173 4.32½	50.....	283 4.32½
158.....	249 4.30	88.....	225 4.30	211.....	207 4.30
62.....	200 4.27½	93.....	204 4.25	87.....	178 4.25
68.....	185 4.22½	70.....	161 4.20	102.....	193 4.20
100.....	183 4.17½	94.....	183 4.15	81.....	190 4.15
89.....	181 4.10	81.....	179 4.10	91.....	180 4.10
69.....	227 4.05	102.....	180 4.02½	104.....	163 4.00
6.....	173 3.95	87.....	156 3.90	4.....	392 3.85
2.....	400 3.75	15.....	128 3.65	46.....	131 3.60
49.....	180 3.50	31.....	123 3.00	11.....	85 2.75

Sheep—Receipts since Saturday, 4,998; shipped Saturday, 240. The market was strong and active. The following are representative sales:

890 Col. lbs.....	70 \$5.45	26 clp. lbs.....	61 \$4.65
243 clp. lbs.....	64 4.25	17 clp. sh.....	74 4.25
195 clp. T. sh.....	84 4.20	3.2 clp. sw. s.....	61 3.85
343 clp. ew.....	75 3.80	112 clp. T.....	72 3.70

Horses and Mules—A moderate run of horses came in. There are plenty of buyers here who want good horses, but they complain of the common quality. Prices nominally steady. The mule market is quiet. The supply is fairly heavy and the market is unchanged.

St. Louis Live Stock.

ST. LOUIS, May 23.—Cattle—Receipts, 3,003; natives steady, Texans 10c lower; native shipping steers, \$4.50@5.15; light and dressed beef and butcher steers, \$3.95@4.80; stockers and feeders, \$3.25@4.60; cows and heifers, \$2.20@4.75; Texas and Indian steers, 3.75@4.65; cows and heifers, \$2.75@3.75.

Hogs—Receipts, 3,800; market 10c higher; yorkers, \$4.25@4.40; packers, \$4.25@4.45; butchers, \$4.40@4.55.

Sheep—Receipts, 1,500; market steady; native muttons, \$3.15@4.50; lambs, \$4.00@4.50; Texas sheep, \$4.10.

Chicago Live Stock.

CHICAGO, May 23.—Cattle—Receipts, 20,000; market weak and 10c lower; beefs, \$3.90@5.25; cows and heifers, \$2.00@4.65; Texas steers, \$3.80@4.40; stockers and feeders, \$3.90@4.85.

Hogs—Receipts, 39,000; market opened 5 to 10c higher, closed weak to 5c under the early average; light, \$3.90@4.35; mixed, \$4.20@4.60; heavy, \$4.25@4.65; rough, \$4.25@4.35.

Sheep—Receipts, 12,000; market firm and 10c higher; natives, \$3.25@4.60; western, \$3.90@4.50; lambs, \$4.00@5.70.

Chicago Grain and Provisions.

	May 23.	Opened	High'st	Low'st	Closing
Wht—May.....	1 54	1 65	1 54	1 65	
July.....	1 10½	1 14½	1 09½	1 12	
Sept.....	88½	89½	88½	89½	
Dec.....	83½	83½	83	83½	
Corn—May.....	34½	35	34½	34½	
July.....	35	35½	34½	35½	
Sept.....	36	36½	35½	36½	
Oats—May.....	29½	29½	29½	29½	
July.....	25½	26	25½	25½	
Sept.....	23½	23½	23	23½	
Pork—May.....	12 20	12 20	12 00	12 00	
July.....	12 20	12 20	12 00	12 15	
Sept.....	12 35	12 35	12 15	12 30	
Lard—May.....	6 42½	6 42½	6 32½	6 37½	
July.....	6 47½	6 47½	6 40	6 45	
Sept.....	6 17½	6 17½	6 07½	6 10	
Ribs—May.....	6 25	6 25	6 15	6 17½	

Kansas City Grain.

KANSAS CITY, May 23.—Wheat—Receipts here to-day were 195 cars; a week ago, 313 cars; a year ago, 26 cars. Sales by sample on track: Hard, No. 1, nominally \$1.23@1.27; No. 2 hard, \$1.23½@1.26½; No. 3 hard, \$1.21@1.24; No. 4 hard, \$1.19@1.21; rejected, hard, \$1.12@1.20. Soft, No. 1 red, nominally \$1.25@1.26; No. 2 red, \$1.23@1.25; No. 3 red, \$1.22@1.23; No. 4 red, nominally \$1.17@1.20; rejected red, nominally \$1.12@1.15. Spring, No. 2, \$1.22; No. 3 spring, \$1.20@1.20½; rejected spring, \$1.13.

Corn—Receipts here to-day were 216 cars; a week ago, 188 cars; a year ago, 354 cars. Sales by sample on track: Mixed, No. 2, \$33@33½; No. 3 mixed, \$33½; No. 4 mixed, nominally \$32; no grade, nominally \$30. White, No. 2, \$4¼@4½; No. 3 white, \$4; No. 4 white, \$3¾. Oats—Receipts here to-day were 17 cars; a week ago, 30 cars; a year ago, 21 cars. Sales by sample on track: Mixed, No. 2, \$30; No. 3 mixed, nominally \$29½; No. 4 mixed, nominally \$29½. White, No. 2, \$1@1½; No. 3 white, \$30c.

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Rakes and Stackers are in the lead, and have been for several years. Send for descriptive circular and cuts showing valuable improvements added this year, also our catalogue of Hay Presses, Etc., Kansas City Hay Press Co. KANSAS CITY MO.

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Prof. Whitsel's methods are the only in the world that teaches you HOW TO GAIT YOUR HORSE. Fox trot, running walk, trot, singlefoot and canter—either gait—in less than one hour, regardless of breeding. Besides, this book teaches the high school gait, march, high trot, Spanish walk, etc. Gives a full course to ladies and gentlemen in riding the saddle-horse; in fact, everything pertaining to the saddle-horse—every position and gait illustrated true to life by both sexes in actual practice. Price, postpaid, \$1. W. M. Whitsel, Kansas City, Mo. Reference—F. Weber Sons, Wholesale and Retail Harness and Saddlery, 1004-6 Walnut St., K. C., Mo.

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Is the right tool for cultivating corn, potatoes, cabbage, grapes, or for nursery. The share is similar to a lister share, with adjustable extension knives for different widths. It has small moldboards that fit knives and shares also. When knives are drawn out to their extreme length they cut about three feet wide, and when closed in as far as they go, they cut about two feet, and when removed altogether the share cuts sixteen inches. They will do as much cultivating in a day with one horse as a two-horse cultivator and do better work, because it runs shallow and therefore cuts no corn roots. Weeds cannot dodge it. It cuts them in the right place to kill. Address Perine's Plow Works for further particulars, Topeka, Kas.

LAKE CITY AUTOMATIC HOG WATERER.

PRICE \$3. Sent on trial. To be paid for if found satisfactory. As it costs nothing to try, send for one and test its merits. More pigs die from want of fresh water than from want of food or hog cholera. The Lake City waterer from 50 to 150 hogs daily. Easily attached to tank or barrel. No springs or floats. Now used by all fancy breeders and stock raisers. Agents and dealers wanted in every locality. Agents reordering everywhere. Address STOCK FOUNTAIN CO., Lake City, Iowa. Send us ten names and we will deduct 50 cents. Please mention this paper.

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Send One Dollar to C. E. KITTINGER, Ipswich, S. Dak.,

For ten rennets, with complete instruction for making and curing cheese at home with such simple apparatus as most farmers now have. Full cream factory cheese the kind made, and your money refunded if you fail.

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THE STRAY LIST.

FOR WEEK ENDING MAY 12, 1898

Montgomery County—D. S. James, Clerk.

HORSE—Taken up by W. B. Adams, in Faw Creek tp. (P. O. Coffeyville), April 16, 1898, one mare, 2 or 3 years old, 60 inches high, no mark brands except harness marks; valued at \$15.

MARE—Taken up by J. E. Canfield, in Fawn Creek tp. (P. O. Tyro), April 26, 1898, one dun mare, 4 or 5 years old, 15 hands high, no marks or brands; valued at \$15.

MARE—By same, one iron-gray mare, 4 years old, 14½ hands high, no marks or brands; valued at \$15.

HORSE—By same, one bay horse, 4 years old, 60 inches high, star in forehead; valued at \$15.

Labette County—E. H. Hughes, Clerk.

MARE—Taken up by J. D. Hite, in Mound Valley tp. (P. O. Mound Valley), April 25, 1898, one dark bay mare, 5 or 6 years old, white in forehead, legs black up to knees; valued at \$20.

FOR WEEK ENDING MAY 19, 1898.

Labette County—E. H. Hughes, Clerk.

TWO MARES—Taken up by C. Y. Davis, in Hackberry tp. (P. O. Bartlett), April 18, 1898, two bay mares, each 14 hands high, some white in face and on feet; valued at \$20.

Cherokee County—S. W. Swinney, Clerk.

MARE—Taken up by G. W. Howell, in Lowell tp., May 14, 1898, one black mare, 12 years old, branded with letter "S" on both shoulders; valued at \$12.

MARE—By same, one dun mare, 12 years old, dimly branded; valued at \$12.

Elk County—J. A. Benson, Clerk.

MARE—Taken up by J. W. Bander (P. O. Howard), May 16, 1898, one gray mare, no marks or brands; valued at \$10.

MARE—By same, one bay mare, no marks or brands; valued at \$20.

COLT—By same, one sorrel colt, no marks or brands; valued at \$5.

FOR WEEK ENDING MAY 26, 1898.

Franklin County—J. A. Davenport, Jr., Clerk.

COW—Taken up by G. M. Broyles, in Hayes tp. (P. O. Norwood), one red cow, dehorned, with white face and branded on left side W. L., under-clip on right ear; valued at \$22.

Bourbon County—H. Frankenburger, Clerk.

MARE—Taken up by John W. Fairman, in Scott tp., four miles east of Fort Scott, one gray mare, 14½ hands high, about 8 years old; harness marks; valued at \$10.

HORSE—By same, one sorrel horse, 15 hands high, about 12 years old; white spots on right shoulder and on right jaw; valued at \$10.

Montgomery County—D. S. James, Clerk.

HEIFER—Taken up by B. S. Adams, in Rutland tp., on or about the first day of May, 1898, one black heifer, white line on back, crop and underbit in the left and slit in the right ear.

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L. A. ALLEN, Vice President.

H. S. BOIOE.

T. J. EAMAN, Sec'y and Treas.

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The Poultry Yard

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

Lice.

Destruction of lice is so important that we publish everything we can find on the subject. This from the Live Stock Inspector: "Early in the spring is the best time to destroy lice, and work in that line at that time will save a large amount of labor later. Burn a large amount of sulphur in the house after closing it as tight as possible. Three pounds of sulphur to a house ten by ten feet is none too much. After thoroughly using the sulphur, either with lime or liquid lice killer give it a thorough painting, and be particular to fill every crack and crevice with the preparation. Carbolic acid in a crude form and coal oil with a little oil of sassafras, is as good a liquid lice killer as there is made. This is cheap and effective, and should be used largely and liberally in the poultry houses by painting the entire inside of the same about once a month in summer."

Why Some Hens Don't Hatch.

It is a mystery to some why a hen that sticks closely to her nest does not hatch out a full brood, while another hen that seems to be off her nest a large portion of the time makes a hatch of a full brood of chicks. This matter is not difficult to understand if one will consider that the hen has nothing to do with the hatching of the chicks except to impart the heat, and that if she hatches at all she should bring out her full number of chicks. The fault in such cases is not with the hens but with the eggs, and the reason the attentive hen does not hatch is because she cannot bring out chicks from eggs that contain no germs. The inducement for one hen to remain on the nest while the other frequently comes off is that if the eggs contain no germs, or but few of them are fertile, the hen feels but a proportion of the animal heat that should be given off the eggs and consequently she sits on the nest in the endeavor to supply heat that is less than the amount required from her if she had a full quota of fertile eggs. On the contrary the other hen, having say a dozen fertile eggs, feels the animal heat after the first week, and it increases as the chicks develop in the eggs, until the warmth is too great and she comes off to cool the eggs. It is not the inclination of the hen to forsake or neglect her eggs, but to follow a natural instinct, for if she did not frequently cool the eggs they would become overheated and the chicks die in the shells, as happens when incubators are mismanaged. Now if any farmer or poultryman will observe two hens under such circumstances, it will be found that a hen may appear as an indifferent sitter at one time and when she becomes broody a few months after may prove a persistent sticker on the nest for the reason, as stated, that the disposition of a sitting hen on the nest depends on the eggs. It will be necessary, therefore, when using eggs for hatching to endeavor to select the best for the purpose. It is true that no one can select a fertile egg, but the egg should be as perfect form as possible, of normal size, and from healthy fowls that are not overfat.

--The Poultry Keeper.

The Egg.

This is a very curious organism. When we read descriptions of the formation of the egg, there always appears to be imperfections in human knowledge. People talk about germs, cells, secretions, etc. That is the best we can do. We see the article, and we examine the machine where it is made.

First, a minute germ was found, then gradually a nutritious substance is secreted in connection with the germ, which is called the yolk. This is not only for the purpose of affording nutriment to the germ as it becomes developed into a chick, but it has an important use when the chick is near hatching. The germ and yolk, inclosed in a delicate membrane, and forming nearly a round mass, descends when its turn comes into a passage, which is twenty-two inches long, more or less, and is called the oviduct. Just previous to this stage, fecundation takes place. As soon as the yolk enters the oviduct, there commences another secretion above it (the yolk), enveloping it in every part. It is albumen, and comes from the blood of the fowl, through a membrane which lines the oviduct. This secretion may not be constant, and is probably intermittent, as it appears to be added in lay-

ers. At the season of laying the oviduct is distended, the blood vessels being very full, indicating great activity in the organ; but at the season when the fowls are not laying it shrinks away and is comparatively small.

The yolk having been enveloped in "white" or albuminous substance, to an amount twice its bulk, the whole is enclosed in a strong skin composed of two layers, and which eventually is the lining of the shell. At the large end of the egg, between the layers of skin, is a bubble of air, and from this bubble it is said the chick first breathes, getting his bill in about the nineteenth day of incubation. This bubble seems one of the most wonderful parts of the contrivance. The last secretion the egg receives is a hard substance, forming a suitable protection, yet not entirely resisting air and water. It must in the end be broken, so it is made to break easily. Through it water may go, and it is necessary that a certain amount of dampness should be present that the membrane under the shell may not become too dry and tough. Admission of air through the shell is also important at the time of incubation. If the pores of the shell become closed the embryo chick dies. So we see the last "wrapping" of this wonderful little thing has certain qualities, making it just right for a certain end.

And now the egg is finished. It has passed through this duct in all its serpentine folds, receiving layer after layer, all from the blood of the fowl, and is ready to be expelled.--The Fancier.

Poultry Notes.

Clean out the feed troughs daily.

It is well to feed a mash at all seasons.

Never throw soft feed on the ground. When hot weather comes stop feeding corn.

Do not expect eggs from overcrowded flocks.

Underfed or overfed hens are poor layers.

Beans make a very excellent food for the hens.

Fermented food will kill chicks, and does kill many.

Serious consequences will result from not supplying grit to confined flocks.

If you want eggs and meat, too, the Plymouth Rock will do the business.

Feed-troughs should be large enough to give all the fowls opportunity to feed.

There is more in giving the chicks good care than there is in the kind of feed.

Keep your dust-box full of dry dust and keep it where the hens can get at it at will.

Clean that hen house from top to bottom. Do it thoroughly, and do not put it off another day.

Early moulting makes early layers. This is the advantage of saving the earliest-hatched pullets.

Milk, skimmed, sour or sweet, is an excellent food for poultry, especially when you have no ground bone to feed them.

Have you a barrel of lime handy? If not, get one. Make you a good stiff wash and add a little carbolic acid, then exercise yourself.

How many herders in this country use a shepherd's crook, and how many men are there who know how to make one? Any blacksmith of ordinary ingenuity can make one with a little instruction. Take a rod of spring steel five-sixteenths of an inch thick; weld it to the socket of an old hoe handle, for the reception of the wooden handle; bend it into a hook about four inches long, an inch wide on the inside at the bulge, and seven-eighths at the neck, so that it may spring open and close again on the leg; flatten it at the point and turn it out an inch or more and back, with a roll or knob on the end, to prevent laceration of the sheep's leg. The wooden handle should be six or



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FREE By using National Lead Co.'s Pure White Lead Tinting Colors, any desired shade is readily obtained. Pamphlet giving valuable information and card showing samples of colors free; also folder showing picture of house painted in different designs or various styles or combinations of shades forwarded upon application to those intending to paint.

seven feet long. With the sheep-hook in his hand the herder's labor is greatly lessened and simplified. If a ewe is to be caught it is clumsy and cruel to create an uproar and set all the other ewes and lambs to running about and trampling down the weakest. Instead of that let him quietly reach out with the hook and seize her by the leg, preferably a hind leg, and no great disturbance is created.

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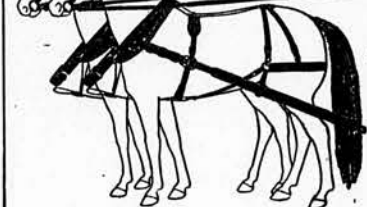


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DOUBLE FARM HARNESS, No. 1204 FOR \$11.10.



Three-fourth inch Bridles throughout, heavy leather team collars, varnished iron bound hames, 1 3/4 doubled and stitched traces with 3/4 ft. chain at end, flat leather pads, 1/4 inch back straps, 1/4 inch hip straps, 1/4 in. by 13 ft. leather lines.

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No farm rights, royalties or patent stays to buy. AGENTS WANTED. Write for circular.
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BUY FROM MANUFACTURER DIRECT.
Our No. 201, with one-inch trace, hame and collar, \$6 per set. Our No. 19, with one-inch trace, double hip strap, hame and collar, \$9 per set. Our No. 20, with one and one-quarter inch trace, single strap throughout, with curved breast collar, nickel or imitation rubber, at \$12 per set. Goods shipped anywhere on receipt of price, or C. O. D. if \$1.50 is sent with order. Mention size of collar. A. BURR, 2250 W. Jefferson, Louisville, Ky.

We make Steel Windmills, Steel Towers and Feed Grinders and are selling them cheaper than the cheapest. Our productions are standards; are first-class in every respect and are sold on trial. Send us a postal and we will tell you all about them.
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Pressure between burrs in grinding is carried on chilled roller bearings.
Large inside burr revolves twice to sweep's one. Ordinary length sweep.
DAIN DOUBLE MILL
Sold under an absolute guarantee to do double the amount of work of any other mill of same size or money refunded. Write for circulars and prices.
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The American Medical Association meets in Denver, Colo., June 7-12. The Santa Fe Route offers a round trip rate of **ONE FARE** (plus \$2.00) to Denver, Colorado Springs and Pueblo. Tickets on sale June 5 and 6. Open to everybody.
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Solid, dustless track, electric-lighted chair cars, luxurious Pullmans and Fred Harvey meal service.
Physicians and their friends should take the comfortable line and see for themselves what Colorado offers health-seekers and tourists.
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SQUIRTS tell the story
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Supply the maximum of power at the minimum of cost for fuel, time, attention and repairs. The fire box is surrounded with water, hence they are quick steamers. The fire box is so constructed and of convenient size to afford perfect combustion of all fuel.

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Special Want Column.

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

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

MEADOW BROOK HERD OF SHORT-HORNS.—Registered bulls for sale. F. C. Kingsley, Dover, Kas.

CABBAGE PLANTS.—Flat Dutch, Danish, Bald-head, 20 cents per 100—\$1.50 per 1,000. J. H. Shaw, market gardener, Florence, Kas.

SEED POTATOES.—To reliable Shawnee county farmer, choice Early Ohio, to be planted on the shares. Cope & Co., 117 Kansas avenue.

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HIGHEST GRADE BLACK LANGSHANS.—Winter layers, eggs all the year round. Settling of 15 eggs for 60 cents. Address Bonaventure Poultry Yards, 1012 Arch street, Topeka, Kas.

WANTED.—Energetic men who can sell lubricating oils for farm and other machinery to correspond with The Clinton Oil Co., Cleveland, O.

BERKSHIRES.—Choice bred sows by Imported Lord Comely, and boars ready for service. Wm. B. Sutton & Son, Russell, Kas.

ABERDEEN-ANGUS BULLS.—Three individuals of serviceable ages; registered. Wm. B. Sutton & Son, Russell, Kas.

EGGS.—Barred Plymouth Rocks 75 cents and \$1 per 15. D. Trot, Abilene, Kas.

PURE-BRED BOARS FOR SALE.—8 Poland-Chinas and 4 Chester-Whites, old enough for service; also a few gilts. Address at once for a bargain. A. E. Staley, Ottawa, Kas.

YEARLING SHORT-HORN AND GALLOWAY BULLS.—Registered and high grades, of Bates and Cruikshank stock, at bedrock prices, either by carload or singly, time or cash. J. W. Troutman, Comiskey, Kas. (Northern Lyon county, Mo. Pacific R. R.)

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FOR SALE.—Mammoth White Kafir, black hulled; greatly superior to common varieties; \$1 per bushel. M. Madison, Topeka, Kas.

MACLEAN FARMERS' SUPPLY CO., Kansas City, Mo. (Between Union Depot and Stock Yards.) Sell machinery and other supplies to farmers direct, saving the consumer middlemen's profits. Send now for 1898 Spring Price List.

FARM BEE-KEEPING.—Sample free. Busy Bee, St. Joseph, Mo.

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WE BUY Cane, Millet, Kafir Corn seed. Send samples. Hubbard's Seed Store, 520 Kansas Ave., Topeka, Kas.

PASTURE for 300 head of steers can be furnished at the rate of 25c per head per month by Conrad Krueger, Pfeiffer, Ellis county, Kas. The same party will also sell ranches and farm lands at reasonable prices.

CANNON'S LIQUID FRUIT PROTECTOR.—A safe and effective wash for trees, vineyards, etc., destroying insects, and will keep off rabbits, mice and borers. It is used by successful horticulturists everywhere. For sale by druggists or the Cannon Chemical Co., 11 N. Main St., St. Louis, Mo.

ARTICHOKES.—Cheapest and best of all hog feed. Often yield 1,000 bushels per acre. Price, single bushel, \$1. Cash with order. Write for prices and freight rates to all points. H. E. Shuler & Co., 2800 East Fifteenth St., Wichita, Kas., or H. E. Shuler & Co., Box 227, Topeka, Kas.

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WE MAKE A GOOD FARMER'S SPRING WAGON, two lazy-backs and let-down end-gate, for \$55. Warranted. We will ship on approval to responsible parties. Kinley & Lannan, 424-426 Jackson street, Topeka, Kas.

FOR SALE OR EXCHANGE.—Two Galloway bulls. Address W. Guy McCandless, Cottonwood Falls, Kas.

FOR SALE OR EXCHANGE.—One registered Holstein-Friesian bull, 3 years old, and one yearling, subject to register. Correspondence solicited. G. J. Coleman, Mound Valley, Kas.

640 ACRES ARKANSAS LAND.—Two miles from station, to trade on Kansas farm. Will pay balance or assume incumbrance. E. W. Melville, Eudora, Kas.

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

WANTED.—All the sheep-growers in the State of Kansas to ship us their wool for which we will remit promptly the highest market price, thereby saving you commission, freight and delay. We do all kinds of custom work. Make your wool into blankets, flannels or cassimeres. Topeka Woolen Mill Co., Topeka, Kas.

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VERNON COUNTY HERD OF REGISTERED POLAND-CHINAS.

125 head in herd. Herd boars, King Hadley 167668, and Turley's Chief Tecumseh 2d 17978 S. Forty-six head of fall pigs that would be considered "the best" in any herd in United States. Write for particulars. Prices right and stock guaranteed. J. M. TURLEY, Stotesbury, Vernon Co., Mo.

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BREEDER OF
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 28441, Black Joe 28603, World Beater and King Hadley. For Sale, an extra choice lot of richly-bred, well-marked pigs by these noted sires and out of thirty-five extra large, richly-bred sows. Inspection or correspondence invited.

Sir Charles Corwin 14520 and Darkness Wilkes 18150 HEADS OF HERD.

We have been in the show ring for the last three years, always winning the lion's share of the premiums. If you want prize-winners and pigs bred in the purple, we have them. All ages of Poland-China swine for sale. Write or come and see us. We have an office in the city—Rooms 1 and 2 Firebaugh Building.

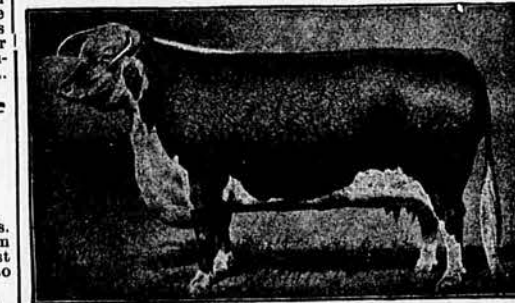
ELM BEACH FARM, Wichita, Kas.,
O. M. IRWIN. S. C. DUNCAN, Supt

FARM FOR SALE.—\$500 buys an eighty-acre farm in Edwards county, two miles north of Kinsley, Kas. A living stream of water runs over the farm. The buyer will get a clear deed of it and all tax receipts paid in full. A. L. Brundage, 30 West Twenty-fourth St., Chicago, Ill.

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SUNNY SLOPE HEREFORDS.



Fifty head of bulls for sale, from 6 to 24 months old, including the great breeding bull LOMOND. Two of his heifers, under two years old, brought \$1,075 at our sale. Also bred cows and unbred heifers for sale. Eight bulls in service—Wild Tom 51532 at the head of the herd, Archibald V 54433, Climax 90042, imported Keep On, Saxon and Pembroke, Sir Bartle Beau Real 61009, Climax 4th. One of the largest breeding establishments in America. Personal inspection and correspondence solicited. Address,

SUNNY SLOPE,
EMPORIA, LYON COUNTY, KANSAS.

Closing-out Sale of Wamego Herd Poland-Chinas SATURDAY, MAY 28, 1898, AT WAMEGO, KAS.

This offering includes all my brood sows, bred or to be bred by sale day. They are bred to Wamego Chief, out of Time Quality 3862, and by Chief of Louisville, bred at the state agricultural college. Among the aged sows are Fine Quality, Belle Wilkes, Daisy Wilkes, Madam Wilkes and Club-Foot Wilkes. The last four named are by Black Belle and Baron Wilkes. The thirty head offered are fine individuals and include a number of choice gilts, some of which will be bred and others sold open. Also a few choice spring pigs will be offered. Four Chester White boars, old enough for service, will also be included in the sale. Breeders from a distance by giving notice will be met at the train. Sale will be held at farm, two miles north of Wamego. Free lunch at noon. Sale to commence at 1 o'clock.

C. J. HUGGINS, Wamego, Kas.

COL. S. A. SAWYER, Auctioneer.

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JACKSONS EAR TAGS.**
ALWAYS BRIGHT, CAN'T COME OUT.
JACKSON, ST. FRANCIS, ARK.

NORTH TOPEKA, KAS., Nov. 11, 1897.
Geo. M. Jackson:—Send me some more ear markers. They are the best of all kinds I ever tried, and I am sure I have used all ever gotten up. I have the first one to lose out of ear yet, and they are so handy to put in.
O. P. UPDEGRAFF,
Secretary Kansas Swine Breeders' Association.

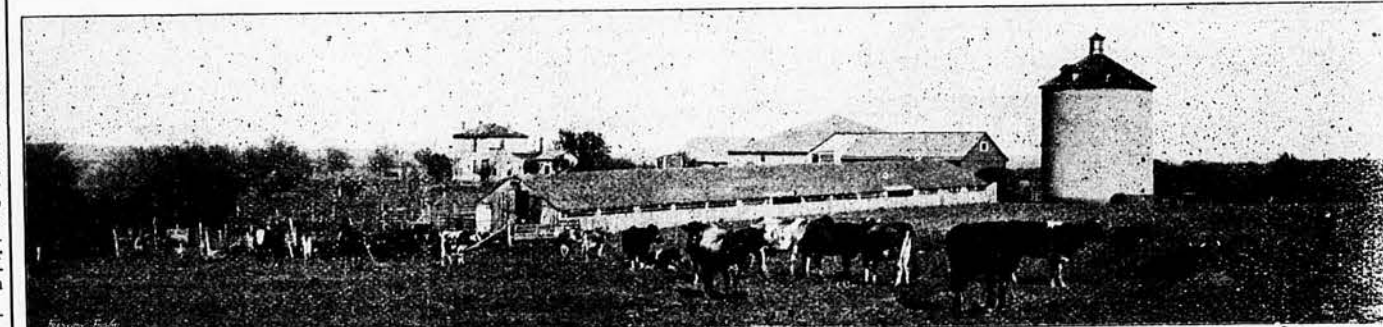


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Of highest quality, both as to form and ancestry, for sale—twenty cows and seven young bulls on hand.

J. C. CURRY, Prop., "Greenacres" Farm, Quenemo, Kas.

DEER PARK FARM PUBLIC SALE



50 HEAD

**REGISTERED JERSEY CATTLE,
HIGH-GRADE JERSEY COWS AND HEIFERS,
PURE-BRED POLAND-CHINA SWINE,**

Catalogue containing complete pedigrees sent on application.

Tuesday, May 31, 1898, at 10 a. m.,

DEER PARK FARM, TWO MILES EAST ON SIXTH STREET.

H. E. Ball, Topeka, Kas.

COL. S. A. SAWYER, Auc.