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BREEDING DOGS.

Dogs Considered as Fine Stock. Their Improvement and Breeding as conducted at the Topeka Kennel.

By many who catch the head of this article, it will be said, what next? But when reflection is brought to bear upon the true meaning and intent, it will be ascertained that the improvement of the domestic animals has advanced just as fast as has the refinements and civilization of the race of man. The more we are brought in contact with the animals we control, the stronger is the desire to have these animals improve, and become not only a source of profit but a source from which a pleasure is derived in seeing the real advancement of the species. Looking at it in this light, one can readily divine the reason why men of ability have made dog raising their hobby, if I may so term it. They have endeavored the past few years to improve the canine race—to improve them in looks and by education to make them agreeable and useful companions. In England it is no new thing, for there for twenty years past, the dog has been looked upon as an animal of great value and fabulous prices have been paid for the different species in their purity, but it is only recently that America has awakened in the matter.

With the belief that American dogs could by careful and judicious breeding, be brought to the same standard of excellence that has so long characterized the English and Irish setters and pointers, Messrs. Waddell and Irwin of this city organized the first breeding kennel in the state, and have spared neither money nor pains to make it the finest one this side the water. The former gentleman, started in New Jersey, some six years ago, the first enterprise of the kind in America. He is a son of Coventry Waddell, of New York city, prominent as holding important positions under the government during the Jackson administration, and at the present time.

Mr. W. T. Irwin, is a gentleman in active business at Topeka, being Treasurer of the Kansas Loan & Trust Company located at Topeka. Both these gentlemen have a real desire for field sports; have gone into the business and we should judge from the quality of their dogs, know very well what a good dog is. Breeding with them is a study and to improve they are continually making additions to their kennel of imported stock.

In order to see the working of this novel business I accepted Mr. W.'s invitation and visited the kennel with him. The dog first to attract the sportsman's eye would be "Brussels," a "Llewellyn" field trial setter. He is black, white and tan. The white being speckled with black spots, giving them a bluish tint; namely a blue belton. He is a grand dog to look at and well speaks the good reputation this breed has as surpassing all others, in the field and on the show bench. They command high prices, numbers having been sold for \$500 cash, during the past few years. Next of the setters is the large Irish dog "Shamrock." He is of the deepest mahogany red in color, and conceded one of the very best in the field. He looks as if he needed a master, as his watch dog traits are fully displayed whilst on the chain. But Mr. Waddell tells me he is all right and kind when in the field.

Next stands the beautiful pointer dog "Sleaford," imported for his rare blood, being a close descendant of the very choicest strains in England. We do not remember to have ever seen a dog so well put together for strength, and I am told his progeny take after him. The above three dogs "Brussels," "Shamrock" and "Sleaford" are in the stud, and to be appreciated fully they must be seen. Three such animals as these must naturally improve the stock of dogs in this country, and bred on the best of our natives cannot help but produce first-class field dogs. I cannot conclude my article after so pleasant a visit, without going further and making mention of the brood animals with their little ones; one of the prettiest sights, in fact the most interesting of all.

First is the pointer "Fan," with her seven pups, sired by Sleaford, they are very handsome. Fan has taken numerous first prizes at the shows and is said to have no superior in the field. Next is "Lady," a deep liver-colored pointer, of large size. She has five little beauties by her, sired by Sleaford. Going to the setters department we find "Fanny Dainty's" family of six large, fat healthy looking pups, eight weeks

old. From their size they look much older. They show the markings of Brussels, their sire—have long fine ears and must make companionable dogs in the field or out of it.

"France," a Laverack setter has four nice ones also, by Brussels. Many more of different ages were shown me, in truth I became lost in wondering how a man could keep track of them all and know each one's pedigree as Messrs. Irwin and Waddell do, but it is from the great care they take that the blood is kept pure and, from the constant attention given the kennel by Mr. Waddell, a guarantee is obtained of the purity, and characteristics of each individual one. This is what commands the price, and it should, as much as it does with cattle and horses. These gentlemen have secured a farm near the city and will fit up their houses in April. At present they have the dogs comfortably fixed at the fair ground.

On returning from the fair grounds I accompanied Mr. Waddell to his room in the city, when opening the door out bounded his two "Bardette" cockers, his room-mates he tells me. They are black and tan in color, and are the most beautiful small dogs ever seen. So active that they are all over you and out of doors at the same time. Mr. W., is very much attached to them; they are a very rare breed and truly beautiful. Taking it all round the visit to the Topeka kennel was time well spent and will be long remembered. F. S. P.

Hedge Culture.

It has been a long time since I saw anything in your paper from Sumner. Plowing has begun, some oats sowed, stock looking well, peaches about half killed, emigration pouring in.

Our county is composed of very fertile, smooth agricultural land. W. W. Cone, your traveling agent and correspondent, says Sumner county has the largest body of good land and is the levellest county in the state. The census in '75 showed less than 5,000 population, in '76 between 7,000 and 8,000, in '77 10,000, in '78 12,000. We expect the census of this spring to show 15,000. In '74 we had but 1,500 acres in wheat, in '75, 15,000, in '76 32,000, in '77 50,000, in '78 81,000. The report of the State Board of Agriculture places the winter wheat product of Sumner county at 1,664,020 bushels for 1878. We think there is not another county in this state that can, without a railroad, and doubt if at all, make so good a show in the increase of population and production in the same length of time.

We have been promised an extension of the Wichita branch of the A. T. & S. F. R. R. next summer, in time to put off our next wheat crop. If we get a railroad we expect our wheat crop to loom up towards 200,000 acres in the next 2 or 3 years; but if we do not get a railroad it will hardly increase much more. Any one going to change location and wanting a farm of good, cheap land, we invite to come and look at our county before locating elsewhere.

While I have spoken of the wheat crop alone it must not be inferred that we have nothing else. Corn, oats, rye and vegetables of all sorts do well, also small fruits and peaches do well. We have no bearing apple orchards.

I see an article on hedge growing signed E. R. in the FARMER of the 19th of February. I differ with Mr. E. R. in some respects very much. I have planted several miles of hedge in this county, and have tried fall preparing and spring preparing of rows and plowed up rows fresh and planted. I say never plant in a fresh plowed row. My reasons are these: You cannot get a furrow so straight, deep and clean as when well settled, the ground dries out more and plants will be from 10 to 14 days longer in starting. I prefer to prepare the ground in the fall by plowing as deep as possible, if 10 or 12 inches, or even more, all the better (the same will hold good to set any sort of trees) then harrowing well lay until ready to set. Stake out your row and furrow out 10 to 15 inches deep, owing to length of plants; take a good plow, run back and forth setting the plow a notch or two deeper each time, until you get the desired depth. Set the plants in on straight side furrow, pull in a little soil over roots to hold them in place and keep roots from drying; and if tramped a little so much the better. When a few rods is set in, in this way, follow with the plow to fill up the furrow, and tramp down well on both sides, always leaving the end of the plant above ground. Always sort the plants in two or three sizes and plant each size separate. Use a five toothed cultivator to cultivate as you can get right up against the plants and not hurt them. If used in time you will not need to hoe but if weeds get the start take them out by pulling or hoeing. Cultivate often. If the ground gets too hard, use the mould board plow, first throwing

dirt away from the plants and then back in two or three days. The furrow next the hedge do not run so deep, always aim to keep the ground level. A wheat drill makes a good cultivator for the first year while you can straddle the row. Set teeth six inches apart. There is a great variety of opinion as to the train in. I prefer to let grow until the largest plants get to be 1 1/2 to 2 inches in diameter, then trim off and lay down at an angle sufficient to make a good tight fence at the bottom, and kept trimmed to suit the fancy.

If any one has red cedars, 12 to 18 or 24 inches in height, I would like to see them advertised in the FARMER. I have been wanting some for years but cannot find them. I have written to several nurseries in years passed. In advertising they should give size and price by the dozen or hundred. Wm. FENK.

Wilmington, Sumner county, Kas.

Cultivating Wheat.

In the winter of 1876, I noticed an article on the use of Thomas' smoothing-harrow for wheat in early spring to loosen the ground for seeding. As a matter of experiment I went seven miles to secure the use of one. I applied it pretty thoroughly, as the ground was very closely packed (it being the spring of 1877, after the heavy fall of snow, and the wheat was badly killed by the snow-drifts), and I applied a heavy cable-chain, so as to make the harrow do its work and mellow up the ground enough to secure a good catch of clover, if it destroyed the feeble remnant of wheat, as I value a good catch of clover more than one crop of poor wheat. The results are as follows: I received a good catch of clover, while a neighbor, who ridiculed my movements, has plowed his ground this spring for another crop. He seeded in the same manner, the same kind of soil without harrowing.

I was so well pleased with my success that I renewed my practice again, last spring. It happened to be quite early and the ground was not yet settled, and neighbor D. came into the field and said: "Why, Adams, what are you doing? I would not have my field treated in this manner for twenty-five dollars; you have covered up considerable besides dragging it out." I said to him, "I would rather lose the rest than to lose my catch of clover." His farm joins mine on the north side. His field looked full as promising at the time of our conversation. My field will yield fully one-third more than his, from the appearance of the stalks, and my catch of clover is nearly as thick again as his.

Last year I left two or three bouts to try the experiment. The place left unharrowed is filled with sorrel instead of clover. I think the bouts left unharrowed last year, yielded fully one-third less, and the difference in color while growing could be seen at eighty rods distant.

I do not fully endorse the sentiment of the writer in the article referred to, in drilling so far apart. I think we could sow less seed per acre and cultivate more and get a larger crop. We need an implement adapted for cultivating between the drills, and when the question of harrowing wheat is thoroughly developed, some one will make a fortune by inventing a machine perfectly adapted to this work. Let us use the Thomas smoothing harrow until the more perfect implement is brought before us. Where the ground is very hard to work up, hitch to the back end, as the teeth incline at an angle of about 25 degrees. It makes quite a difference which end we hitch to.—J. N. Adams, in American Rural Home.

Propagation, Planting and Culture of Forest Trees.

To prepare the soil for the reception of tree seeds, or when the trees are to remain, the ground should be deeply plowed and rendered mellow. To do this, it is best when practicable, to fall plow the ground very deep, and then in spring to re-plow, but not so deep, for the purpose of mellowing the soil. Then if well harrowed and carefully rolled the ground will be in as fine a condition as it well can be.

The ground may then be marked out exactly the same as for corn. This gives the best available chance for thorough after culture. If tall straight timber is wanted, trees may be planted thickly in rows, only one way, but must be thinned out, as their growth requires. It is best to sow or plant the seeds of some varieties, as early in the spring as the ground can be well prepared.

Some varieties of tree seeds vegetate at a very low temperature, and it is desirable that the plants should be growing well before hot dry

weather occurs, and especially hot dry winds which we sometimes have here in Kansas. I can give no better direction for cultivation than to cultivate the same as you would corn. As corn cultivation, to insure success, must be thorough, so must it be for forest trees. I beg you never to try to raise forest trees, but if you can faithfully raise a good crop of corn, you can as surely raise a good grove of timber so far as cultivation is concerned. Forest trees differ greatly in the rapidity of their growth, consequently, it is best to plant them separately. When mixed promiscuously the more rapid growers overtop the weaker ones and destroy them. The seeds of the Oaks and the Black Walnuts, Butternut and Hickory's, most of which do not transplant and succeed, should be planted where the trees are to remain.

Trees that make but little growth the first year, may be grown in seed-beds, and may remain there until large enough to transplant and which perhaps had better be done before they are more than two or three years old.

For raising cottonwoods and willows from cuttings the slips should not be less than eight inches long, nor less than one third of an inch in diameter. They are best cut in autumn, tie in small bundles and may be buried in a dry spot of ground, or packed in sand and put in a cool place, or they may be cut at any time in winter or early spring, when the wood is free of frost. As early in spring as practicable they should be planted in a trench, made with the plow or otherwise, placing them as nearly upright as possible, pressing the earth compactly around the lower part, and leaving only an inch or two above ground.

In selecting a variety for cuttings do not scorn the cottonwood, and especially is this the case if fuel or windbreaks are wanted soon. I saw a grove in Nemaha county, Nebraska, which was but six years old from cuttings, and the trees would average twenty-five feet high and eighteen inches in circumference.

White or grey willows will also grow rapidly from cuttings. Often along sand-bar on river bottoms one may find seedlings from six to fifteen inches high of cottonwood and soft maple. These are as good or better to plant than cuttings and should be taken up in the fall, as at that season the water is low. In spring the water is apt to submerge them until too late to set out. L.

Lawndale, Kas.

Stone Against Hedge.

By permission I will speak to Mr. Peck about hedge fence. A gentleman of my acquaintance, tried his best to perfect a fence of Osage orange for 14 years in Kansas, and failed to make it all he wanted. He spared no care or expense. Last year I put up for him 1 1/2 miles of stone fence, and he had other 1 1/2 miles put up by other parties, he being a man of good understanding, when living, but am sorry to say he has departed this life a short time ago. Others also, that I could mention give the best to stone fences at all times. Where your property is within a good stone wall you are in a good way of safety from fires etc.

Osage orange will extend their roots for 40 feet and more away from their line. Stone will not move, if properly put up, and will cost no more than the first putting up and any amount of trees can be grown inside of the wall to great satisfaction. I have seen a deal of hedge row, and never yet saw it so close as to stop rabbits or hogs, and the older it gets the worse the bottom gets all the time. I mean hedge that is over ten years old without the bottom of the fence being filled with the splashing and that is a "job," I do not like. You can fence your land with stone in less time and more effectually than you can grow a hedge. There is a fence required to keep the cattle off the hedge while growing; there is no need of that for stone.

JOHN THOMAS.
Carbondale, Osage County, Kas. Feb. 24, 1879.

The Heart Cherry.

If any of the readers of the Kansas FARMER have tried to raise the Heart cherry, they have probably failed. There is one bearing tree in Lawrence, Some years ago a man in Douglas county sent east and got pits of the Mazard—a variety that reproduces itself without budding, and planted them. He has trees from them fifteen or twenty feet high. Some have died; some bear moderately but do not look thrifty.

Three out of four writers on fruit culture, that I have read, advise not to try the Heart cherry on the prairies. Elliot says it may succeed on poor soil without cultivation. It does well in the valley of the Connecticut, on Long

Island, on the Mohawk, and in Alleghany county, New York; why not here? Certainly not because the climate is too severe. Some may think it is owing to sun-scaled.

I thought to make an experiment with a couple of trees, and, after two or three years' growth, the bark split and dried up on the trunk and larger branches on the side from the sun. One died and the other almost.

I have seen the explanation that in prairie soils the growth continues vigorous, and the sap does not harden into wood and bark until late in the fall, and often the sap breaks and bursts the bark, the air gets in, the bark peels, and the tree is spoiled.

The remedy suggested was, that after a frost, or at least in November, an examination should be made, and wherever the bark is cracked, wax applied.

It has occurred to me that it would be well to wind the trees with hay-bands, or cloth, before frost comes. Suppose some of us set a few trees this spring and make the trial. If we succeed it will pay the cost. J. H. C.

German Millet.

In your issue of February 19th, I find an inquiry from Mr. Amos Carpenter, in regard to German Millet. In reply I would say: We grew it last year for the first time, and we cheerfully give the result, hoping that it may benefit many of the readers of your valuable paper. We sowed on sod ground the 15th of June, one half bushel to the acre. It was too thick, one peck is sufficient. We threshed it, and realized thirty bushels to the acre. We are satisfied that if sown earlier, and only seed one peck, that one can safely calculate on fifty bushels to the acre. We used a heavy brush instead of harrow. By so doing it did not disturb the sod. The stalks are round and the leaves resemble corn blades.

Horses and cattle eat the straw in preference to oat straw or hay, and we regard it the richest and best feed we ever fed.

WATROUS BROTHERS.

Woodson County, Kas.

Hopper-Proof Trees.

I have been cultivating forest trees here since 1873. The box-elder, if well cultivated, is a good tree to grow, and so far as I know, is never injured by the "hoppers." But a grove of black-walnut trees I consider the most profitable for this country. If W. G. R. will visit the railroad forest here, or my nursery, he can observe what kind of trees have done best, and thus be prepared to decide on what kind of trees to plant. C. BISHOP.

Hutchinson, Kansas.

Weather Report for February, 1879.

Prepared by Prof. F. H. Snow, of the State University.

STATION—Lawrence, Kansas, corner of Tennessee and Flinchey streets; elevation of barometer and thermometer 575 feet above sea level, and 14 feet above the ground; anemometer on the University building, 105 feet above the ground.

Mean temperature, 34.06 degrees, which is .89 degrees above the February average for the eleven preceding years. Highest temperature 74 degrees on the 24th; lowest, 5 degrees on the 23th; range of temperature 69 degrees. Mean temperature at 7 a. m., 26.63 degrees; at 2 p. m., 41.46 degrees; at 9 p. m., 34.12 degrees.

Rain and melted snow 0.41 inches, which is 0.64 inch below the February average. Either rain or snow fell on four days. The entire depth of snow was 4 1/2 inches, all of which fell on the 15th. The entire depth of snow for the winter has been 23.35 inches.

Mean cloudiness, 39.04 per cent. of the sky, the month being 8.57 per cent. clearer than usual. Number of clear days, 15 (entirely clear, 4); half clear, 7; cloudy, 6 (entirely cloudy, 2). The mean cloudiness at 7 a. m. was 39.28 per cent., at 2 p. m., 43.21 per cent.; at 9 p. m., 34.64 per cent.

Wind: N. W. 37 times; S. W. 26 times; S. 9 times; S. E., 8 times; E., 3 times; N., once. The entire distance traveled by the wind was 10,097 miles, which gives a mean daily velocity of 360.61 miles, and a mean hourly velocity of 15.04 miles. The highest velocity was 60 miles an hour, on the 25th.

Mean height of barometer, 29.19 in.; at 7 a. m., 29.228 in.; at 2 p. m., 29.182 in.; at 9 p. m., 29.187 in.; maximum 29.621 in., on the 20th; minimum, 28.609 in., on the 24th, monthly range 1.012 inches.

Relative humidity: Mean for the month, 64.7; at 7 a. m., 74.4; at 2 p. m., 46.04; at 9 p. m., 73.9; maximum, 88.7 on the 17th; minimum, 23.3 on the 23d. There was no fog.

Farm Stock.

If You Have Lice.

Lice on any of your farm stock will take off flesh and strength faster than you can replace it, even with an abundance of good feed, and this is just the time of year, when it is probable you can find them in myriads on the necks and fore quarters of poverty-stricken young cattle and colts.

It appears to be a fact that the poorer in flesh and less able an animal is to withstand their attacks the letter these pestiferous vermin like to go for it, making its hair and hide a general rendezvous and propagating ground, while the blood and juices of its system are energetically sucked out for their sustenance.

There are two distinct varieties, each of which is divided into several sub-varieties, and taken collectively they never fail if unmolested to almost devour their host alive.

The variety designated by naturalists as *hematophagus* have long narrow heads with long trunk-like sucking tubes and are known as blood-suckers, and troublesome especially to cattle, horses, swine and dogs. The other variety, *trichodeles*, having large, broad heads and strong biting jaws are known as bird-lice and infest cattle, horses, sheep and poultry.

Nobody pretends to understand positively how they originate, but every observing stock raiser understands they do not originate on his thrifty, best-cared-for animals. It is also an exploded notion that white or light colored animals are more liable to be lousy than darker ones, and doubtless first became popular from the fact that on light skin or hair the insects show more plainly, and to a careless observer would appear much the most numerous on such. I think the louiest animal I ever saw was a black-brindle two year old heifer.

It is but a few years since the dangerous and somewhat expensive mercurial ointment was considered the only reliable antidote for such vermin; now it is becoming generally known—or should be—that any kind of grease or oil is sure death to a louse! If any reader is disposed to doubt this a sample trial will convince him that the poorest quantity of lard is as perfect a knock-out-stuff as any preparation from the apothecaries that may cost at the rate of three or five dollars per pound.

Choose a summer day and apply with a brush or otherwise the lard well warmed along the back, sides and neck, especially the neck, as there is where they appear to congregate first and most, gradually working their way back as they become more numerous. If the weather is cold mix half as much kerosene with the warm lard which will assist the lard to spread and penetrate to all the little wrinkles and out-of-the-way places where the vermin love to gather. Shortly after doing this you cannot fail to notice that a sort of Russian plague seems to have overtaken the whole tribe. Kerosene alone is sure destruction to the lice and their eggs, but applied clear on cattle or horses it causes lice and hair both to come off, much as if the animal had been scalded. In some localities hogs are greatly troubled with lice and attention to their presence will first be attracted by numbers of buff-colored nits attached to the hair on their necks and behind their shoulders. Liberal applications of either clear kerosene or the crude petroleum will destroy the vermin, and do no injury to the swine. Their nests and bedding should be burned and a second oiling be given in about a fortnight to make thorough work.

Sheep sometimes lose wool and flesh rapidly from being lousy, and when in that condition may be treated with a decoction of tobacco as for ticks, or as follows: Take Stavesacre seeds 16 ounces, and White Hellebore four ounces and boil in 4 gallons of water until but 2 gallons remain, when cooled apply with brush or sponge in furrows in the wool two inches apart over the entire body. If very lousy repeat in two weeks and renovate their quarters by cleansing and white washing. F. D. CONRAN.

Pomona, Kas. Feb. 28th.

Sheep vs. Dogs.

A correspondent of the *Indiana Farmer* prefers to protect his sheep without the intervention of law. He writes:

"It may seem to be for the interest of farmers generally, to have the danger from dogs killing their sheep reduced to a minimum, and to have a fund to resort to to repay in some degree the losses suffered from the depredations of worthless dogs. Yet I believe that, for myself, the less of this protection there is the better. I want to keep sheep and I find it will pay to do so. I have learned how to take care of them and to keep the dogs from harming them, and the more difficulty there is in keeping sheep, the better for me. If others find the business discouraging, the less competition I shall have, and the less the competition the more chances for profit. I can do quite well if sheep are scarce and mutton and wool are high. I do not ask for dogs to be destroyed that I may keep sheep. I have learned a lesson, also, in my potato-bug experience. Potato bugs are considered a nuisance and a pest, but they have been a great help to me, for I have made money by raising potatoes in spite of them, and have sold them at a good round price when others have thought it was too much trouble to fight the bugs. Dogs and potato bugs have been good friends to me although I want to keep them at a safe distance. If you say I talk selfishly on this matter, I say that I have no patent right for the protection of sheep or of potatoes, and what I can do any one else can do."

This man evidently uses his brain in his business. He takes care of his sheep by penning

them in a dog-proof enclosure at night, and distributing bells among his flock; and he is not afraid of being poisoned by sprinkling his potato tops with paris green.

There is nothing easier of accomplishment on the farm than protecting sheep from dogs and potatoes from the Colorado beetle. We have never known a dog-law that was a particle of use in protecting sheep. We lived in a county where a stringent dog-law was in force for twenty years, and kept sheep.

Apiary.

The Bee-Keeping Industry.

For those in search of employment on the farm, requiring skilled labor, and rather more than the average intelligence, the Rev. J. W. Shearer makes the following suggestions in the *Bee-Keepers' Magazine*. They include a branch of that co-operative industry which is being earnestly advocated for the farm. We copy below the main points of the parson's suggestions. The plan might be applied to more branches of farm industry than bee-keeping.

"We do not propose in this article to consider the importance of this industry, either in the matter of statistics, the vast amount of honey-producing flora, or the increasing development of apiaries all over the land. Our intention is for a moment to consider the proper mode of development on the farms all over our land. It is a practical question as to ways and means. We contend that there should be bees on every farm where the farms are so large as to contain a hundred acres or more, and where the farms are smaller in proportion to the territory. This industry is very different from manufactures of any kind. Here large amounts of any needed product can be produced in a small space, or in a few factories, and distributed through the arteries of trade wherever needed. Not so with the production of honey. The material lies scattered all over the land, and there is need for hives of industrious insects all over the land to secure it. A large number of small apiaries are much more effective than a few very large ones. One who enters largely into the business must have his bees scattered over large territory in different apiaries.

We believe that the time is coming and has now arrived, when, for the practical development of this industry in our land, there is just as much need for the "bee man" in every neighborhood as there is for the blacksmith or wheelwright. A farmer may learn to make his own wagon or to shoe his own horse, yet we know that practically very few can, and those who are able to do so are so fully occupied with their special work that they find it most convenient and profitable to hire the blacksmith to shoe his horse, the shoemaker to make his shoes, and the wheelwright to do special work in his line. Division of labor is found most profitable for all, and by it each can most successfully follow his own pursuit. We believe that these facts are no less true with reference to improved bee culture. The farmer, fully taken up with his farm, cannot find time to give that attention to his bees which their best interest requires; and, if so, he is often afraid of the bees or else ignorant of improved modes and appliances. Even if he succeeds in securing some honey for sale it is in unmarketable shape. He has no information, time, ability or machinery to prepare hives, boxes shipping cases and appurtenances now needed to successfully enter upon this industry. Should the honey be lost for lack of information? We think not. We believe that the time has come for the development of this industry through the assistance of the local bee-man, who will attend to these items, and who will prove no less important than the blacksmith or the shoemaker in the community.

The bee-man or apiarian, then, will be one whose business will be to attend to the bees of his patron in a community. Every farmer can fence off a small space to keep his bees secure from stock and molestation, hive swarms when they issue, and furnish storage for hives, frames and honey as needed. The apiarian can keep some bees for himself, make hives, boxes, frames and appliances. By this way the honey industry may be almost indefinitely increased. He can have an eye to the hives, putting on and taking off boxes, perform artificial swarming, and, in fine, instruct and guide in the business and share the profits. He would assist in developing apiarians among the sons of farmers and greatly forward this industry. There are many now looking for new fields of work. This one is promising, and opens to enterprise in almost any community."

To Prevent Worms in Celery.

The best preventive for worms in celery is to mix plenty of salt, soot, and fine lime with the manure that is to be employed in trenches. This should be added to the manure some weeks before it is used, during which time it should be turned now and then. The mixture above named also benefits the growth of the celery, which will lift clean and spotless compared with that grown in the ordinary way.

Horticulture.

An Enemy in the Quince Orchard.

A World correspondent, writing from Fairfield, Conn., states that his quince orchards have been for the past two years affected with knots forming near the ends of the twigs; each knot upon being opened discloses a grub or worm; the ends of the twigs die and the trees are gradually degenerating. The effects of the disease are most apparent during the months of July and August, and last season brought an in-

crease in the number of twigs affected over those of the previous year.

The diseased slips accompanying this correspondent's communication were referred to Dr. E. Ware Sylvester, of Lyons, N. Y., one of the largest and most successful quince-growers in the state, for examination. He pronounced the trouble a new one in quince plantations and analogous to the plum-tree wart or black knot, the cause of which is still a matter of uncertainty.

As a preventive to further spreading of this disease, Dr. Sylvester advises, when practicable, cutting out all the diseased branches close to the sound wood and burning them. When a branch necessary to the symmetry of the tree is affected, and when the knots are too generally distributed to cut out, his plan would be to scrape away the excrescences with a knife, as in a case of black knot, and brush over the diseased parts with spirits of turpentine. In addition to these precautions wash the trunks of all the trees and as far up into the branches as possible with lime whitewash impregnated with sulphur—which wash, by the way, is the one recommended by William Saunders, superintendent of the agricultural grounds at Washington.

The Best Forest Trees to Plant.

ANSWER TO W. G. K. OF RENO COUNTY.

The best forest tree for this county is the box elder. It is, I believe, the only variety that went through the grasshopper raid without injury. I consider it "hopper" proof. They are easily propagated as they can be grown from the seed planted in early spring, or good one year old plants can be procured from nurserymen at from two to three dollars per thousand. The only objection I have to them is their tendency to head low, sending out branches near the ground. But this fault is easily remedied by setting the trees closely together, say not more than three feet apart each way. Cottonwood, lombard, poplar and gray willow are the most rapid growing trees, and can be easily grown by using cuttings. The black walnut does well in this county but has the same fault as the box elder and the same remedy to make an upright growth. It has a long tap root and should be planted where it is expected to remain. Hackberry, soft maple, catalpa, and alianthus all have their advocates. Most of the hard wood trees have been planted in such limited quantities that I have not been enabled to form an opinion regarding their growth or liability to do well in this locality. I have been in Reno county seven years and know whereof I speak.

A. M. SWITZER.

Shelter in Orchards.

Ira J. Blackwell tells the readers of the *Gardener's Monthly* that, if they would set the trees at regular distances for orchard planting, in any state of the United States, and then let the trees branch low, where hot suns prevail, I would advocate not higher than one foot. I think it is the best and only shelter needed to protect from sun or cold. There is another advantage of low trees in early bearing, and on trees properly trained the fruit will be as fine and high flavored as trees trained high.

Miscellaneous.

White Russian Spring Wheat.

Seeing the White Russian Spring Wheat extensively advertised and learning that there is considerable inquiry among farmers in this state for it, I will give the result of two years experience with it in Illinois, and one year in this state, and hope it may save a little investment for more profitable use.

In the spring of 1876 I sowed one-half bushel which cost me \$2.07½, including express. From this I saved about ¾ of one bushel, but as the quality was good, and other varieties of spring wheat failed, I thought favorably of it. I sowed this seed on three-fifths of an acre and harvested 4½ bushels of excellent quality, which I brought to this state last spring and drilled into ¾ acres of ground.

I harvested it and threshed one bushel, and finding it did not pay the expense, I quit and am now feeding it out in the sheaf. It would probably have made two bushels per acre, while Odessa in the same field yielded about six. In short I have expended in three years on this wheat about \$18.00, and have received from the same about the equivalent of one ton of prairie hay.

It is but just, however, to add that the quality of the wheat is all that can be desired, but it is not suited to the 40° of latitude in Illinois and is even less at home here in latitude 38.

J. M. FOY.

Butler county, Kan., Feb. 23.

Harrowing Wheat.

A correspondent asks the *Country Gentleman* for explicit directions as to the time of the year and number of times that it should be practiced, and receives the following reply:

We repeat the directions we have often given, to harrow wheat in spring as soon as the ground is dry enough to bear the team. This breaks the crust, destroys the small weeds and gives the plants a start. It may be repeated every week or two, until the wheat is a foot high or more, if the smoothing harrow is used. Timothy sown with the wheat last autumn, if several inches high, will not be injured, but rather benefited by the passing of this implement. It is only small plants and weeds which are destroyed. Clover seed sown at the last harrowing and slightly covered will usually germinate quite as well as when sown earlier without harrowing.

Brazilian Artichokes.

I stated before the Indiana Swine Breeders' Association of 1877, that I thought every farmer should have at least one acre of these tubers. This amount planted in rich ground (the richer the better) would produce from 400 to 1,000 bushels, sufficient for a herd of fifty hogs. They are equally as good for horses, cattle and sheep, as hogs. In short all stock eat them with a relish. My herd of thirty head of Poland-Chinas have almost wintered on them and are in first-class condition. They need not be dug for them, as they root them up. During the severe cold weather we have had, my hogs could be seen rooting under the deep snow and breaking through an inch or two of frozen ground and securing all they wanted. When fed to other stock you will have to plow them out, and hill, or put in cellars or fruit houses.

Freezing does not hurt them, but you cannot feed them frozen. I have dug them in April, put them in barrels and set them in an out-house and kept them until the last of June. After keeping them this long I found my spring pigs, that had never tasted of a tuber, would eat them greedily.

They can be planted any time from early in spring until the first of June. I prefer the last of April or the first of May. Cut the tubers very small (only one eye to a piece) and plant in drills like Irish potatoes, one eye every twenty inches, and plow them two or three times. If the ground is very rich, and a large yield is desired, plant in rows eighteen or twenty inches apart, and harrow when they come up with a light harrow. This will be all the tending they will need. Five bushels will plant an acre, as indicated in first planting, and ten in second. They can be harvested, or stock turned on them after the first frost that will kill the tops. Brazilian artichokes can be had at one dollar a bushel.—*Cor. Indiana Farmer.*

Artichokes.

I wish I could impress all our farmers with the value of the Jerusalem artichoke. I raised a few last year as did some of my neighbors. We find them enormously productive, yielding, in some cases, at the rate of 1,000 bushels per acre. They are excellent food for all domestic stock, especially hogs and poultry. Many claim them to be an entire preventive of cholera.

Dig a pen in the fall for winter feed, and leave the remainder in the ground till spring. Let the hogs root them out; then harrow over well, and you may get another good crop.

They are easily killed out, by letting stock pasture off the tops all summer.

Four or five bushels of seed to the acre is planted and cultivated the same as potatoes.

Malcom, Iowa. J. W. FOOTZ.

Farmers would find it of great advantage to their stock to have some roots to feed to them on at intervals during warm spells in the winter, and in March. Roots serve the same purpose as young pasture; cleanse the blood, tone up the system, and place the animals in a healthy condition. Stock do not relish roots in freezing weather, unless fed warm, which is not practicable on most farms. If artichokes are the least trouble to raise and are most productive, it would be advisable to raise them.

Fall turnips produce largely if the season is favorable, and are excellent for stock. Mangels are probably the most productive of any roots, and are the least trouble to cultivate. They are among the best roots for stock that we know of. The farmer who has a store of roots buried, which he can open as spring approaches, when hard freezing is past, to feed to his stock, will be able to turn them out in the best of health, and in a most thrifty condition; and herein lies the strong point in favor of root feeding.

Culture of Broom-Corn.

W. H. White, in *Moore's Rural New-Yorker*, furnishes the following paper on cultivating broom-corn:

"To grow the finest and best brush for which broom-corn is grown, requires proper soil and thorough preparation, good seed, reasonable planting, clean culture, timely harvesting, with suitable preparation for market or working, requirements essential to the economical production of any farm crop.

"The tall-growing variety is the kind to which my experience and observation are limited, and it is the sort generally grown in New England. The dwarf form is as good, but having never seen it tested, I am not qualified to recommend it. I have heard it condemned as growing brush too slender, on some soils, which would be a serious objection. The seed should be selected from growing plants, previous to harvesting the general crop. Choose those plants which are the earliest and most healthy, with fine, long, thick and compact brush. Let the seed ripen before cutting from the stalk, if possible in the field, if not, cut at the roots and shelter from freezing; then cut, dry, and thresh it separate from the general crop, running it through a fanning-mill to clean it of all light and immature seed. Save it through the winter as you would any choice seed, when it will be free from vermin, moisture, or liability to heating, etc. Such a course of selection, continued for a term of years, will surely improve any variety, producing fine crops and those likely to escape early frosts.

"The soil proper for broom-corn should be dry; wet or moist soils do not answer at all. A rich and deep loam, or alluvial soil, is the best.

"To obtain the finest and best brush, the soil should have been cultivated to some hoed crop, one or more years from a sod, as a close sod is apt to grow a heavy, coarse, undesirable brush.

Work the ground deep; pulverize well, after allowing it to lie a few days to settle, etc., and plant to Indian corn, potatoes, or some other hoed crop, fertilizing the same in the hill or drill, the object being to reduce the sod. This treatment will do, and put the soil in fine condition to grow a good crop of broom-corn the following year, provided thorough, clean culture is given this first crop. Strong, or coarse manure applied the same season the crop is grown, is unfavorable to the production of fine, good brush; and the land needs a previous dressing to avoid the necessity of high manuring the season the crop is planted. If necessary to fertilize at all, a shovelful to the hill of fine, well-decayed farm manure, gives the corn a fine, early start, and a lively, fresh, green color.

An important item, to growing a good crop, is in plowing and pulverizing the soil preparatory thereto, and this is one which is apt to receive too little attention generally. Plow deep and make the soil fine by harrowing, etc. This should be done in the spring, about the same time that we plow and fit our ground for Indian corn. Strike out the rows, preferably north and south, as giving a better sun exposure, three feet apart, with a one-horse plow.

The seed should be planted in hills about thirty inches apart in these drills. I prefer hill to drill culture for convenience of tillage. It is essential that the plants start into a quick growth at once, as they are somewhat tender, having only a slight hold in the soil, and are easily affected by unfavorable weather. It is not best to plant until the soil gets warm, following Indian corn rather than going before.

"If the best seed is had, ten or twelve seeds to a hill are plenty to guard against accidents, etc. Drop the seed and cover with one-half inch of fine soil. I adapt these directions to small growers who wish to grow good crops; when forty to one hundred acres are grown with only limited help, other modes may be better, but no one should attempt to grow this crop in any such proportion to help if he expects to obtain the highest market price for his corn.

"As soon as the plants are up and the rows can be distinguished—which should be in twelve or fifteen days—begin to cultivate; don't wait for the weeds—it is the corn that wants the culture. Early culture gives the plants a start, and they grow all the better for it, follow the horse cultivator with the hand-hoe, carefully freshening the soil in and about the hills and plants. A second dressing needs to be given in ten to twelve days when the plants should be thinned to six or eight; no more than four to six should be allowed to mature in a hill. If the plants do not thrive to suit, give them a dressing of ashes and plaster—gypsum—mixed, about a tablespoonful to the hill, at or before the second hoeing. This dressing is a good one even when the young corn looks satisfactory.

"The after culture may be principally done with the horse-hoe, taking care to keep down all weeds, and to keep the crop thriving. As much as possible should be done by horse labor, but clean, thorough culture is essential, and special attention should be given while the plants are young and small."

Broom Corn—How to Raise It.

Broom-corn requires nearly the same quality of soil and mode of culture as Indian corn. It thrives best on flat, loamy, or river bottom land but will grow satisfactorily on any fertile soil. Corn stubble or clover sod precede it with advantage.

After thoroughly pulverizing the ground in the spring with the harrow, mark out the rows 3 1/2 or 4 feet apart, and if possible sow the seed with a common garden drill, or wanting that, drop the seed as evenly as possible by hand. When the plant is two inches high, run backwards and forwards between the rows with a two-horse harrow, to kill the weeds, loosen the soil, and give the corn a start. Most people plant too thick and hence no danger will follow if some of the spears are torn up. After this treat as ordinary corn.

The next thing is to prevent the brush falling down and growing crooked. This is done by bending down the corn as soon as the heads shoot out. Be careful not to bend the stalks so low that the tops will touch the ground, or so much that the joints fracture, else the corn will be ruined. Go over the ground and repeat the process until the heads are all out.

When the seed has matured, cutting must be gin. The brush should be cut just above the upper joint, and the leaf removed. Take two rows, and after cutting the brush, cut the stalks near the roots, and lay them crosswise between the rows to serve as a bed for the brush so as to keep it from mellowing on the ground. This bed will serve for all the brush taken from eight or ten rows, and protect it from the moisture of the earth. It will become dry after laying exposed to the sun two or three days. Then bundle and stack. Put about a dozen bundles in a stack. Cover with stalks in the manner of a conical tent, tight at the top and allowing a free circulation of air through the base to prevent heating. Let the stacks remain for two or three weeks, until the corn is perfectly dry. Then haul to the barn, and take off the seed by means of a common threshing machine. Reverse the motion of the cylinder, and hold over it while revolving, as much brush as can be grasped in the two hands. A man with a boy to hand him the brush can thus clean several hundred pounds of it in a day.

The evergreen variety of broom-corn is generally preferred to the other kinds. Its yield in brush and seed exceeds other varieties, and is in better demand. From two to four quarts of seed per acre should produce, on good soil, 700 or 800 pounds of brush and 40 bushels of seed. For feeding purposes, the seed is nearly equal to corn. The brush, when of good quality and in prime order, meets with a ready sale in the broom markets. The crop is easily managed and highly remunerative.—*Dirigo Rural*

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Professors of Agriculture.

It may be that the "hard times" are a blessing in disguise, a piece of true philosophy we are all familiar with, and a benediction that every one had rather see conferred on almost anyone else than his individual head. How to keep the boys on the farm probably comes nearer being solved by the pressure of the times than by any device yet discovered. The proverbial smart boy of the family has little inducement to seek the city and a clerkship, or cast himself and future fortunes into the struggling mass which choke the channels of professional life.

The farm is likely, at last, to receive its share of the best nerve and brain of the present generation, along with its portion of that higher and better education which the professions and arts have heretofore monopolized almost entirely. The graduates of colleges have come out filled with the mysteries of the dead languages, metaphysics, theology and law. The school man has floated up through the ages unable to free himself from the meshes of kingcraft and priestcraft, and the pupils he graduates are exact copies from one mold, having a foundation prepared fitted only for a superstructure of theology, law or medicine. Military schools have thoroughly taught the art of scientific murder; polytechnic schools have provided skillful engineers as assistants. Most scholars who have left their impress on the age in which they lived, have turned abruptly aside from the beaten path in which their school training had placed their feet, and have, by sheer force of character and natural parts, hewn the way in which they traveled to great usefulness.

In all this life struggle of the ages, agriculture has been constantly thrust aside with a fragmentary education, and used as a pack animal to bear the burthens of society: a society manufactured by the schools, and to a large extent wasteful and almost wholly non-producing.

But that patient mother of the race and nurturer of the arts and sciences, is now beginning to insist on a change in education, in which a fair share of the best brains shall be retained with her, and that schools shall be established from which graduates in Agriculture will issue. An education that can be measured by its money's worth, and that money's worth estimated by its producing power of that from which all life is evolved.

To this advanced position taken by agriculture, the able and earnest corps of agricultural journals has assisted more than any other force. Through them agriculture has made its most powerful appeals. Their irresistible logic and arguments for the rights of the farm have been heard in the high places of power and commanded attention. Slowly but surely the Chinese wall which kings and priests, through the ages, have built about the schools, have been penetrated, and the dummies set up to command the reverence of the multitude have been rudely thrust aside, and the age is demanding, with a power that will not longer be denied, that the fountain of knowledge shall be used to promote an education, the value of which shall be estimated by its producing power.

Keep the boys on the farm and give agriculture its fair share of the best brains of the growing generation, by establishing Colleges which will graduate Professors of Agriculture, who in the eyes of the multitude will be the peers of the D. D's, LL. D's, and M. D's, and the fond parents of the smart son will be less eager to thrust him into the "professions."

Keep a Few Sheep.

Every western farmer should have a flock of sheep as one of the leading branches of routine business of the farm. The number kept would depend upon circumstances, as the number of cattle or hogs that are found on a farm is governed by the ability of the owner, the capacity of the farm, and often by the inclination of the farmer. A farmer whose main dependence is in the plow, is pretty certain to have plenty of hard work before him, and drudgery for the household, with very small chance of much profit. On the other hand, those farmers who lay their plans judiciously and pursue the course marked out steadily, making stock of various kinds, their main dependence, and cultivating the soil as an adjunct or secondary measure, will increase their fortunes and improve their farms, while the plowman will inevitably fall behind in a term of years. This, we believe will prove true on examination, in all parts of the country. There is less hard labor and less ex-

pense in stock raising than in plow farming. The land instantly increases in productive capacity under the former, while it almost as surely decreases under a system of constant cropping.

Amongst farm stock there is no more reliable, and more easily handled than sheep. Sheep is a docile and harmless animal, requiring gentle, kindly treatment, and will not endure abuse and rough usage. Because of its robust and less able to stand knocking about by men than horses, mules and cattle, is no evidence that they are less hard and healthy. No rude, passionate, brutal man will ever be successful in raising any kind of stock. The successful breeder must feel a sympathy and tender regard for his dumb animals. They must be regarded as a part of his household, over which his paternal care and watchfulness is ever exercised.

It requires a practical education to manage stock of any kind to advantage and with profit, and no farmer who has not this training should embark largely in stock raising. But lack of knowledge need not deter him from all attempts to become a stock raiser. Begin with a few animals, and knowledge will be rapidly acquired. Let any farmer without experience, purchase a dozen or twenty ewes and a well bred buck or the strain he concludes to handle. Or he can hire the use of a buck and save the expense of purchase the first year or two. He must provide an enclosure surrounded by a high picket fence that no dog can scale, where the flock may be penned every night. The yard need not be large, but should not be far from the farm house. If a trough in which a supply of salt and wood ashes is kept be placed inside the yard, the sheep will come up in the evening and go in after having been driven up a few times. The owner will sleep soundly when he knows his flock is secure from midnight prowlers.

From a small beginning a large flock of improved sheep can, in a few years, be raised, although the keeper be an entire novice in the business at the start. His education and skill in handling his flock will keep pace with his increase, and the sure profit will naturally create a love for the business.

A correspondent in *Coleman's Rural*, writing on the status of wool and sheep, says:

"It requires good sheep, with good handling, to make the growing of wool profitable. With these two combined, wool growing is better, safer and faster than cattle, horses or hogs on a cheap land or on the best land. A gentleman in Bureau county, Illinois, on land worth eighty dollars per acre and grand improvements, said his twenty-five Cotswold ewes were the best paying stock on his farm. His sheep were near the barn, receiving his best care, while the Short-horns were taking in the stalk field, with the thermometer ten degrees below zero. He claimed, on land worth eighty dollars per acre, sheep were the very best stock to keep."

We would advise all farmers to keep a small flock of sheep, and learn to care properly for them, when the number may be increased to suit circumstances.

Transportation.

This question must retain its place as one of the leading questions for the people of Kansas and other of the more remote western states. Evidence accumulates with the experience of succeeding years, that all-rail transportation to the east cannot supply this want of the people of the great agricultural region lying between the Mississippi river and the Rocky Mountains. Last year Kansas alone produced twenty million bushels of wheat and one hundred million bushels of corn. With a population flowing into her borders yearly, equal to that which has marked the settlement of the state for the last two years, it is a reasonable approximation to quintuple in ten years the yield of last year in cereals, while the increase in live-stock will be equally great. Hundreds of mills and other manufacturing establishments will doubtless be built to partially consume this great increase of raw material, but with all these appliances but a partial condensation of this immense volume can be accomplished. It is plain that all the railroads which can be built to the east will not suffice to move the yearly increasing produce of this vast interior area, even if the cost of land transportation was not so insuperable an objection to this medium.

We are informed by shippers that there is at present \$500,000 worth of grain stored in Kansas City waiting the opening of navigation, the tariffs by rail being too high to ship in that way, while water transportation offers a medium so much cheaper. No corn has been shipped to Baltimore from Kansas for two years, freights being too high to permit, while the "pooling" arrangements which the great trunk lines have entered into, enables the railroads to keep up the rates and make large earnings by carrying other freight that will bear a higher rate of assessment than corn at its present low price in the eastern market. Land carriage is necessarily expensive, and subject to many drawbacks where long distances are to be traversed. Grain shipped by rail early in the winter from Kansas City, and invoiced for New York, has not reached its destination yet, owing to the roads having been snow-bound. Such hindrances to long lines of land transportation of heavy and bulky freights, are constantly occurring, and are liable always to occur. This must increase the expense, leaving out of sight the monopoly feature, inherent in the whole railroad system as now established in this country, and which is the cause of a chronic ill feeling between shippers and railroad companies, between the people and the corporations.

In view of these facts there seems to be but one solution to this question probable or practicable, which is the utilization of the great water-

ways which penetrate the heart of the continent from the Gulf of Mexico to British America. There is water sufficient in the Missouri and Mississippi rivers to float all the produce of the regions which are drained by them and their tributaries, to the ocean, thence to find its way to all parts of the habitable globe.

It is estimated that corn can be transported from Kansas City to New Orleans for six cents a bushel, when the system of barge lines is established which was tried last year and proved a successful experiment. With half a million dollars' worth of grain stored at Kansas City, awaiting the opening of navigation, we have pretty strong evidence of the confidence in the future success of water-carriage, by men best able to estimate its value.

Necessity will compel this outlet for bulky produce to be looked to in the future, and improved and enlarged yearly. Captain Eads has demonstrated to the public, the success of the jetty system in removing impediments to navigation, by deepening the South-pass of the Mississippi from seven or eight feet to a channel drawing twenty-three feet of water, allowing the passage of large ships. The evidence is conclusive that the system can be used to straighten the channel and insure safe navigation of the Mississippi for ocean steamers, as far up as St. Louis, at least. The public sentiment of the states comprising the great basin of the country lying between the Alleghany and Rocky Mountain ranges, has only to be instructed and crystallized in this belief to insure its accomplishment. The millions of dollars appropriated by Congress at every session, to dredge creeks in every member's district, and which is very nearly an entire loss without any resulting benefit, would, in a few years, if applied in extending the jetty system up the Mississippi river, make that stream navigable to the heart of the continent for the largest ocean shipping.

The agriculture of all this vast region has a much greater interest at stake in this question than any other; will it not combine to make its power felt at the capital, by impressing the men who go as representatives and senators of the states embraced in this territory, that they go there only on the one condition of making the navigation of the Mississippi the first and most important interest claiming their attention?

Farmers, here is a political field inviting your co-operation as a political unit, which has not only "millions in it" for you, but thousands of millions which will find their way directly into your pockets. With that waterway fitted for safe and reliable navigation, corn at the present low price in the Atlantic ports, would be worth ten to fifteen cents per bushel more at Kansas City than it is to-day, which on the corn crop of the last year would be equivalent to ten or fifteen millions of dollars in the pockets of the farmers of Kansas. Is there any political question that will pay them to study so well as this?

Percherons of Paris and the Prairies.

Wallace, in the February number of his *Monthly*, denounces the enormously heavy Percheron-Norman horses imported to America weighing 1,700 to 2,000 pounds, as "mastadons," and says they are nothing like the omnibus horses of Paris, true descendants of which they are represented to be by their importers, the Paris horse weighing from 1,100 to 1,200 pounds.

"A book has been written in which it is shown that a large number of our best American trotters are descended (?) from these same 'mastadons.' To sum it all up, many of the leading men in the business are simply 'sharpers,' and the enterprise rests very largely on misrepresentations and fraud."

In concluding the article, which is long and exhaustive, Wallace says:

"The talk about increasing the size of farm stock and producing therefrom the carriage horse, by crossing the Percheron on the small mares of the country is the worst kind of nonsense. The Percheron was made for a drudge and nothing but a drudge. In his form he is the very antipodes of what we designate as 'blood-like.' There is nothing of elegance or elasticity about him to commend him to the eye. In the very nature of things, horses resulting from such crosses, can only find a market in the street cars and dirt carts. They never can bring fancy prices for any quality except the quality of size and weight."

Information for Readers vs. Advertising.

All our readers must be fully aware of the fact that THE FARMER labors zealously to give the fullest, fairest and most reliable information, helpful and useful on every subject appropriate to its columns for the benefit of its readers. We believe we shall be pardoned in this connection for saying that the line which divides information of a general character appropriate as reading matter from advertising is when the information sought to be given is of special personal pecuniary value to the one who wishes such information published. Therefore when our readers have German millet, peach pits, apple trees, forest trees, seed corn, wheat or oats to sell, such information can only be conveyed through the advertising columns, for which our charges are reasonable.

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These pigs are No. 1, pure bred Berkshires bred by L. A. Knapp, Esq., of Dover, Shawnee county, Kansas, and are presented by him to be competed for by the agents of THE FARMER.

Editor's Rights.

Some good natured souls who have discovered that editors have no rights that anybody is bound to respect, send them postal cards asking ye editor to hunt up articles that have been published months since, and send them the number containing said articles. Others again of that amiable family prepare a catalogue of questions for ye editor to answer, said answers of no particular interest or profit to anybody else but these interrogators. Ye editor without rights that anybody should respect, is expected to hunt up back numbers, answer questions having no interest for the public, and mail them to those amiable persons at his own expense.

We are beginning slowly to be impressed with the sublime truth respecting editor's rights, but fear we will not be able to grasp it in all of its greatness this side of the grave.

When business men ask information of other business men by mail, they send stamp to pay return postage, but ye editor on a tripod is a non-descript, whose only business is to attend to other people's business, and pay the cost, so ply him with postals and queries and let him stop his grumbling.

Financial Report of Jefferson County Kansas.

This is a neat eight page pamphlet, recently issued from the Kansas Farmer printing House, Topeka, Kansas, prepared by J. N. Insley, county clerk, for the County Commissioners of Jefferson County, showing the financial condition of that county in comparison with that of seven other of the leading counties of the state. The pamphlet contains a table showing the various divisions of the general Revenue Fund, and the amount expended for each, during the last seven years.

This report shows exactly to the tax-payers how every cent of their money has been expended and what for, and the condition of the several funds at the close of the fiscal year. A very comprehensive understanding of the affairs of the county is had from this report, which is worthy of imitation by other counties. If every county had such a report published there would be less money expended than there is in some of them. The report shows Jefferson county to be on a most satisfactory financial basis with a very small debt, which is being very rapidly diminished.

Farmers' Great Loss.

If farmers could for a moment realize the magnitude of the loss they sustain in neglecting to book themselves up thoroughly in the most advanced knowledge in every department of their multifarious business, by the habitual reading and study of the papers, periodicals and books devoted to agriculture, they would become the most diligent students in the country. The profit they would derive from knowledge thus gained, bearing directly on their every day business, would scarcely surpass the pleasure afforded by their daily literary repast.

Dairying in the Southern States.

Our Southern friends in the dairy business are beginning to entertain sanguine expectations of the dairy center of the United States shifting from Iowa and New York to the cotton states, through the device of sub-earth ventilation, practiced by Prof. Wilkinson. The *Southern Live-Stock Journal*, published in Starkeyville, Mississippi, in a recent issue says on the subject of dairying in that state:

"The dairy of W. B. Montgomery, of this county, is built according to the plan of Mr. Wilkinson, and is a success. By means of S. E. V., Southern dairymen are independent of ice in summer. This grand system of controlling the temperature of the dairy, will be of untold value to our section, when its merits are more properly understood."

Protection in England.

We are under obligations to Mr. Joseph Nixon, of Osage City Kansas, for copies of a Leeds, (England) newspaper, which advocates strongly the policy of protection for England, as opposed to the Free Trade theory and practices of that country. Our shipments of farm produce is alarming the English farmer, as well as the competition which is meeting their manufacturers and underselling them in their own markets.

Mr. Wright, of Concordia, Kansas, in speaking of the recipe for cure of hog cholera, furnished the *Country Gentleman*, by Dr. A. C. Williams, and copied from that paper into the Kansas Farmer of the 12th inst., suggests that the constituent given as "madder," in the recipe, should read "mandrake," which is may-apple.

Over 100 families have come to Kansas from Franklin county, Ind., within the last two years.

The Kentucky Short-horn sales for 1879 will be as follows: July 30, A. J. Alexander; July 31, Vanneter & Hamilton; Aug. 1, T. J. Megibbon. The Kansas City Short-horn sales or 1879 will be May 21 and 22. The Hamiltons, Mt. Sterling, Ky., May 23, sheep, hogs and Alderney cows.

Pamphlets and Catalogues Received.

E. B. UNDERHILL, Poughkeepsie, N. Y. List of Berry Plants for 1879.
R. D. HAWLEY, Hartford, Conn. Catalogue and Price List of select Vegetables and farm Seeds. Illustrated.
W. B. JONES, Bridesville, Ga. Price List and Catalogue of choice acclimated Field and Garden Seeds.
R. GOODMAN, Jr., Lenox, Mass. List of Registered Jersey Cattle at Yokon Farm.

WOODSON & Co., Passaic, N. J. Descriptive Catalogue of Hard Perennial Plants and Price List.

SIX LECTURES ON AGRICULTURE, by Prof. M. George Ville, Professor of Vegetable Physiology, at the Museum of Natural History, Paris. This pamphlet is published under the direction of the Massachusetts Society for the promotion of Agriculture. It will prove of interest to persons who make high farming a study. Price, 25 cents. Address A. Williamson & Co., 283, Washington Street, Boston.

Why be distressed with headache, low spirits and nervousness when Ellert's Daylight Liver Pills will surely cure you.

Peevish children have worms. Dr. Jaques's German Worm Cakes will destroy the worms and make the children happy.

For every ache, pain and bruise on man or beast Uncle Sam's Nerve and Bone Liniment is the balm. Sold by all druggists.

Uncle Sam's Harness Oil put on your harness, will make the leather look new, and keep it soft and pliable. Give it a trial.

For pamphlet on electric treatment of chronic diseases with electricity, which will be sent free, address the McIntosh Electric Belt and Battery Co., 192 & 194 Jackson street, Chicago, Illinois.

Mother, when your dear baby suffers in teething, use Dr. Winchell's Teething Syrup. It regulates the bowels, soothes the pain and brings natural sleep. Sold by druggists at 25 cents a bottle.

For an irritated throat, cough, or cold, "Brown's Bronchial Troches" are offered with the fullest confidence in their efficiency. They maintain the good reputation they have justly acquired. 25 cents a box.

A very large percentage of the 300,000,000 pounds of cheese produced last year in the United States, was made in the Improved Cheese-Making Apparatus manufactured by H. H. Roe & Co., Madison, Ohio.

"A stitch in time saves nine" is not more true in mending clothes than in getting farm stock through the winter. An economical and sure help is Uncle Sam's Condition Powder. It restores the sick, strengthens the weak, improves the appetite, and will keep the stock in a thriving condition, for it supplies the valued qualities in grass. Sold by all druggists.

Bogus Certificates.

It is no vile drugged stuff, pretending to be made of wonderful foreign roots, barks, etc., and pulled up by long bogus certificates of pretended miraculous cures, but a simple, pure, effective medicine, made of well known valuable remedies, that furnish its own certificate by its cures. We refer to Hop Bitters, the purest and best of medicines. See "Truths" and "Proverbs," in another column.

Ladies, Delicate and Feeble.

Those languid, tiresome sensations, causing you to feel scarcely able to be on your feet; that constant drain that is taking from your system all its former elasticity, driving the bloom from your cheeks; that continual strain upon your vital forces, rendering you irritable and fretful, can easily be removed by the use of that marvelous remedy, Hop Bitters. Irregularities and obstructions of your system are relieved at once, while the special cause of periodical pain are permanently removed. Will you heed this? See "Truths."

The Rev. Henry Ward Beecher, in his lecture on "The wastes and burdens of society," claims "man's natural life to be eighty years, and as the average life is but thirty-three years, there must be a waste of forty-seven years." There is much of truth in this statement. If a man be unfortunate in business, it is attributed to the violation of some commercial law. Now, if a person be taken off in the prime of life, ought it not to be attributed to the violation of some physiological law? If people only knew better, they would live better and longer; but how can they profit by that which they know not of? The only popular work that meets this great want is Dr. Hecox's Common Sense Medical Adviser. In it the great problems of health and disease are fully discussed. The work contains over 900 pages and 250 colored plates and wood-cuts. Price, \$1.50 (post-paid). Address the author, R. V. Pierce, M. D., Buffalo, N. Y.

A Card to the Public.

We ask a careful reading and a thoughtful consideration of what follows. It is now over twelve years since a new cure for chronic diseases was discovered, known as "Compound Oxygen." The results which have followed its use up to this time have been so remarkable that it is beginning to attract the widest attention. Many intelligent physicians in various parts of the country have, after a careful investigation of its scientific and pathological claims, used it in cases where all other known remedies had failed, and with a success alike surprising to themselves and their patients. In consumption, catarrh, asthma, bronchitis, headache, dyspepsia, and the wide range of neuralgic disorders from which so many suffer life-long tortures, it has rarely failed to give relief, and in many cases has made permanent cures. It is not a drug, but a new combination of the two elements which make up our common air, giving oxygen in excess. It is taken by inhalation, and cures by natural and orderly processes—first, by eliminating the excess of carbon which has accumulated in the system; and secondly, by a revitalization of all the great nervous centers. In order to give the public an opportunity to learn all about this new treatment, we have prepared a carefully written treatise, in which is presented a history of the discovery of "Compound Oxygen," a statement of its scientific basis and mode of action, and large details of the results which have followed its administration. This is sent free by mail to any one who may desire to receive it. Address Drs. Starkey & Palen, 1112 Girard street, Philadelphia, Pa.

If people who suffer from the dull stupidity that meets us everywhere in spring, and too often in all seasons of the year, knew how quick it could be cured by taking Ayer's Sarsaparilla to purge the bile from their systems, we should have better neighbors as well as clearer heads to deal with.

The Cheese and Butter-making apparatus manufactured by H. H. Roe & Co., Madison, Ohio, is in operation in nearly every state and territory of the west and northwest.

Uncle Sam's Harness Oil put on your harness, will make the leather look new, and keep it soft and pliable. Give it a trial.

Mother, when your dear baby suffers in teething, use Dr. Winchell's Teething Syrup, it regulates the bowels, soothes the pain, and brings natural sleep. Sold by druggists at 25 cents a bottle.

8 and 9
Eight and nine per cent. interest on farm loans in Shawnee country.
Ten per cent. on city property.
All good bonds bought at sight.
For ready money and low interest, call on
A. PRESCOTT & Co.

For Coughs, Colds, Bronchitis and Consumption, use *Marsh's Golden Balsam*, the great throat and lung medicine. There is nothing equal to it. Try a sample bottle—price 10 cents. Two doses will benefit. A large bottle will do wonders. Regular sizes 50 cents and \$1. For sale by Swift and Holliday, Topeka, Kansas, and druggists everywhere.

Chew Jackson's best Sweet Navy Tobacco.

Money! Money!!
If you wish to borrow money upon Real Estate, and get your money without sending paper East, and at reasonable rates, go to the KANSAS LOAN AND TRUST CO., Topeka, Kansas.

A VERY large proportion of the cheese factories and dairies throughout the west and northwest use H. H. Roe & Co's improved apparatus for the manufacture of cheese. Their factories are located at Madison, Ohio.

For information concerning the treatment of chronic diseases with Electricity, send for a pamphlet on Electric treatment, which will be sent free, on application to the McIntosh Electric Belt and Battery Co., 192 & 194 Jackson St., Chicago, Ill.

Markets.

March 10, 1879.

New York Money Market.
GOVERNMENTS—Generally steady.
RAILROAD BONDS—Active.
STATE SECURITIES—Dull.
STOCKS—The Stock Market opened firm and a fraction higher, but subsequently declined 1/2 to 1% per cent. At the second board, the quotations current show a recovery of 1/2 to 1% per cent. from the lowest point, and the market continued firm to the close—the advance on prices from the lowest point ranging from 1/2 to 1% per cent.
MONEY—Active; 3/4 to 5 per cent.
DISCOUNTS—Prime mercantile paper, 3/4 to 5 per cent.

STERLING—Dull; sixty days, 4 1/2 to 5; sight, 4 1/2 to 5.
GOVERNMENT BONDS.
Coupons of 1881 100%
Coupons of 1882 102%
Coupons of 1883 103%
New 4's (registered) 104%
New 4's (unregistered) 104%
New 4's (registered) 104%
New 4's (unregistered) 104%
Coupons 104%
Currency's 12 1/2%

New York Produce Market.
FLOUR—Light demand and unchanged.
WHEAT—Limited demand; ungraded spring, \$1.02; ungraded red winter, \$1.12 to \$1.14; No. 3 red winter, \$1.14 to \$1.16; No. 2, do., \$1.16 to \$1.18; ungraded amber, \$1.18 to \$1.20; ungraded white, \$1.20 to \$1.22; No. 2, do., \$1.22 to \$1.24.
RICE—Quiet; western, 60 to 65.
BARLEY—Dull.
CORN—Dull; ungraded, 45 to 46; No. 3, 46 to 47; No. 2, 47 to 48; white, 48 to 49.
OATS—Quiet; mixed western, 34 to 35; white, do., 36 to 37.
COFFEE—Quiet and steady.
SUGAR—Quiet and unchanged.
MOLASSES—Steady.
RICE—Fair demand and firm.
PORK—Quiet; western, 16 to 17; No. 2, 17 to 18; No. 1, 18 to 19; long clear western middles, 45 to 46; short clear, 36.
LARD—Firm; prime steam, 50 to 52; No. 2, 48 to 50; No. 1, 52 to 54.
BUTTER—Quiet; western, 77 to 78.
CHEESE—Nominally unchanged.
WHISKY—Dull and nominal; \$1.06 to \$1.07.

Kansas City Produce Market.
The Indicator reports:
FLOUR—Firm; fancy, \$2.50 to \$2.55; XXX, \$2.55 to \$2.60; XX, \$2.60 to \$2.65; X, \$2.65 to \$2.70; No. 1, \$2.70 to \$2.75; No. 2, \$2.75 to \$2.80; No. 3, \$2.80 to \$2.85; No. 4, \$2.85 to \$2.90; No. 5, \$2.90 to \$2.95; No. 6, \$2.95 to \$3.00; No. 7, \$3.00 to \$3.05; No. 8, \$3.05 to \$3.10; No. 9, \$3.10 to \$3.15; No. 10, \$3.15 to \$3.20; No. 11, \$3.20 to \$3.25; No. 12, \$3.25 to \$3.30; No. 13, \$3.30 to \$3.35; No. 14, \$3.35 to \$3.40; No. 15, \$3.40 to \$3.45; No. 16, \$3.45 to \$3.50; No. 17, \$3.50 to \$3.55; No. 18, \$3.55 to \$3.60; No. 19, \$3.60 to \$3.65; No. 20, \$3.65 to \$3.70; No. 21, \$3.70 to \$3.75; No. 22, \$3.75 to \$3.80; No. 23, \$3.80 to \$3.85; No. 24, \$3.85 to \$3.90; No. 25, \$3.90 to \$3.95; No. 26, \$3.95 to \$4.00; No. 27, \$4.00 to \$4.05; No. 28, \$4.05 to \$4.10; No. 29, \$4.10 to \$4.15; No. 30, \$4.15 to \$4.20; No. 31, \$4.20 to \$4.25; No. 32, \$4.25 to \$4.30; No. 33, \$4.30 to \$4.35; No. 34, \$4.35 to \$4.40; No. 35, \$4.40 to \$4.45; 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Literary and Domestic.

The Enemy of the Household.

Disease and death lurk near many a bright home, invading the happy household like a stroke of doom, unheralded, mysterious, appalling. Sometimes it is the mainstay of the family who is prostrated on a bed of sickness, when between life and death, for days the support and hope of that tortured household is suspended, as by a thread; and not infrequently the mother with a family of helpless children is left a widow to face the difficulties of a cold world. Sometimes the children are left motherless at that age when most needing her maternal care. And again parental hearts are wrung by the strokes of the pale king of terrors, falling thick and fast, taking one after another of the joy of the household, overwhelming the bereaved family with anguish.

Such a distressing calamity is pronounced by sympathizing friends, after the manner of wise and solemn tradition, "visitations of Providence," when, in truth, there is no mystery about it, nor any special visitation of Divine wrath, but simply a neglect of hygiene and a violation of nature's law, either through ignorance or carelessness. From that half-concealed mud-hole, cesspool, pigsty or sink, whose fetid matter, soaking the soil for years, perhaps, has at length found its way to the well, and secretly deposited germs of deadly poison in the water daily used by the family; or in the cold dews of the evening and morning, the poisonous malaria, rising from those festering plague spots, have defiled the air of the whole neighborhood and crept into the sleeping rooms, smiting the family with typhoid, scarlet fever, diphtheria, cholera, bilious and bowel diseases.

It has been authentically established by the research of the most eminent physicians, that there is no case of typhoid, that most deadly invader of the farm-house, that is not traceable to causes similar to those above-named. The atmosphere of large tracts of country, in some neighborhoods, is poisoned by malarial exhalations from marshes and decaying vegetation, which are often too extensive to be removed, but disease from this source may, in a great measure, be avoided by adhering strictly to well understood hygienic laws, but the local causes which bring disease and death into so many farm-houses, are traceable to damp, foul cellars, cesspools, filthy sinks, festering mud-holes, etc., near or within the farmer's dwelling.

An eminent physician claims that the major part of all the consumption which afflicts the families of New England, has its origin in damp dwellings. Dwellings built on low, sheltered sites, and surrounded with groves by which the sunlight and purest atmosphere are excluded, have been the once happy homes from which multitudes of consumptives have gone out with shattered health and enfeebled constitutions, to seek health, but too often to die in foreign and strange places.

The parents of these enfeebled and stricken consumptive families are often the most healthy and robust people; but the tender lungs of the children, breathing only a damp and tainted atmosphere, have, like a plant or animal, fed on weak and unwholesome food, grown immature and weak, a most acceptable seed-bed for disease.

We published a warning article in last week's FARMER, to settlers on new prairies, to avoid breaking the prairie directly south of their dwelling or building houses on the north side and in the vicinity of a creek or other considerable stream.

The miasma wafted by the prevailing south wind of summer, in such localities is sure to carry bilious sickness into the family.

Spring is now upon us and the warm weather will soon start decay in all such places as we have described. Let every farm-house in the land be cleared of all such danger. Keep disease, doctors' bills and possibly death itself away from the home, by banishing all such places.

Clean out cellars and give them a thorough whitewashing. If you would insure the blessings of health and therefore happiness, to your family, banish filth of all kinds from the neighborhood of the dwelling, for it is ever the forerunner of disease.

The Use and Abuse of Coffee.

The following excellent practical advice is from the *Manufacturer and Builder*:—"How strong should coffee be taken to an inquiry of much practical importance. How much should be taken at a meal is scarcely of less moment. Coffee, like any other beverage, may wholly ruin the health, the use of it tends to this, as certainly as does the use of wine, cider, beer or any other artificial, stimulating drink. There is only one safe plan of using coffee, and that is never, under any circumstances, except of an ordinary character, exceed in quantity, frequency or strength—take only one cup at the regular meal, and of a given unvarying strength. In this way it may be used every day for a life time, not only without injury, but with greater advantage than an equal amount of cold water, and for the simple reason that nothing cold should be drunk at a regular meal, except by persons in vigorous health. We have personally known of the case of a lady who was for a long time in poor health, to the mystification of several physicians whom she consulted, when at last we discovered that she made a most extravagant use of strong coffee many times a day—in fact, she had a pot of coffee always at hand. Following the advice to abstain from coffee resulted in an immediate end of her trouble. In regard to strength, it is maintained by some that one pound of the bean should make sixty

cups of the very best coffee. If a man takes coffee for breakfast only one pound should last two months or six pounds a year. One pound of coffee should be made to last a family of ten persons, young and old, one week. Put about two ounces of ground coffee in a quart of water, or rather divide the pound into seven portions, one for each breakfast in the week, and make a quart of coffee out of it, which will be sixty-four tablespoonfuls. Give the youngest two tablespoonfuls and the oldest a dozen, the remainder of the one cup being filled up with boiled milk. This will give a cup of coffee sufficiently strong for all healthful purposes for the respective ages; and for various reasons, pecuniary as well as physical, some such systematic plan as should be adopted in every family in the land. How to make the cup of coffee good is a third question. It is perhaps as good, and as easy a plan as any to buy the coffee unground, pick out those grains that are imperfect, wash it, parch as much as will last a day or two, with your eye upon it all the time, until it is of a rich brown, with no approach of black about it. Grind only enough for the day's use; grind it fine, for the greater the surface exposed to the hot water the more of the essence you will have; pour the boiling water on the coffee and close it up. Some boil it a little, others prefer not to boil it at all, but let it stand to clear ten minutes then use."

Annals, and How to Grow Them.

Wm. Rennie in *Ohio Farmer* teaches how to grow annals, which, by the way are the farmers' flowers, affording more gratification at less expense than the biennials and perennials:

"Annals are those plants which produce their flowers and mature their seeds the same season in which they are sown, and then perish. There is not one spot in the garden but can be made brilliant with some of them, because while some, like the portulacca, delight in the full sunshine, there are others again, as for instance the pansy, which prefer a shady situation. Another thing about annals is, the seed is so cheap as to make them within the reach of all.

To the annals we are mainly indebted for our brightest and best flowers in the late summer months, for then we have the brilliant phlox, the lovely striped and blotched petunias, and the asters which by the florist's skill have been made to produce so many different colors and varieties come in bloom when many of our pets are departing. Then suppose you have a vase, one of those really necessary adjuncts to the beauty of the garden, there is nothing better to fill it with than annals.

Just here let me tell you how to make a home-made vase. The materials are such as are to be found around every house, so the cost need be nothing but the labor. It is made of boxes of common boards, such as the soap boxes to be found at most country stores. A peach basket makes the vase. For such a basket the first base should be a square box the sides of which measure about a foot, with a depth of three or four inches. On this place the second base, a box with 7½ inch sides and 2½ inches deep. Now above these set up a secure column made out of a box about six inches high with sides of, say four or four and a half inches, and the stand is ready for the basket. Holes must be bored through the bottom of the basket, as well as through the boxes, to secure perfect drainage. When all are properly fastened together, paint them any color the taste may suggest, and you will have a pretty imitation of an expensive iron vase. The basket must be lined with moss to prevent the earth falling out.

Now for the plants. A canna, which you can raise from seed (only you must first soak them twenty-four hours in warm water to hasten germination), will make a pretty centerpiece, and around this you can plant petunias, which from their drooping habit will run over the sides. Then there is sweet alyssum with its pretty snow-white fragrant flowers, and santalvia with its little yellow ones. Maurandia, too, as a drooping vine, comes in here with excellent results. All these are annals, cheap and easily grown. Of all the annals, we like the verbenas and the pansy best, and we think all our friends will agree with us. Everybody knows the verbenas, but few know how easily it may be grown from seed, nor how much better seedlings are than the little plants usually sold in the spring. Verbenas grown from seed will grow faster, have finer flowers and more of them, and in every way give more satisfaction than plants raised from cuttings, and the flowers of verbenas, grown from seed are nearly always fragrant. Sow the seed in February, in the house. Use shallow boxes, about three inches deep. Fill these boxes to within half an inch of the top with light rich earth; leaf mold from the woods is the very best if it can be secured—if not, light, sandy soil, mixed with thoroughly decomposed stable manure, will do quite as well.

Having filled your box with soil, level it with a smooth, flat board until it is quite even, then sow the seed over the surface, distributing it as evenly as possible. After this dust over just barely sufficient soil to cover the seed, then sprinkle with water; and now let me tell you something I have learned from experience—that is, seeds germinate much more quickly and evenly if kept in the dark. They should be in a temperature of, say, 55°, and do not give water until the surface appears dry. When germination has ensued, then move gradually to the light, and if you transplant the seedlings when in the second or rough leaf they will grow much stronger, and be thrifty stock plants to set out in the beds when the proper season arrives."

What's the Matter With the Butter?

Hon. S. E. Lewis, in a lecture before the New York State Agricultural Society, answers:

"In my opinion a great amount of butter is spoiled, 1st, by uncleanness in manufacture; 2d, by too much acid in the cream; 3d, by casein in a decomposed state in the butter; 4th, by too much friction on the butter in churning and working. Foul milking stables, impure water, odors from decomposing matter, all effect the quality of the milk.

"There is over a pound more sugar in a hundred pounds of milk than there is of butter. Sugar acid is the first sign of decomposition in the milk. It destroys the sugar. The second, or lactic acid, acts upon and destroys the oils that give butter its fine aroma. When these two acids are fully developed, destroying the sugar and aromatic properties, we have what may be called the natural oleo-margarine butter—it is scarcely better than the patent article. Cream should be churned while in the first or sugar acid. The best butter is made from sweet cream, but that made from sweet cream is more susceptible to odors than sour cream butter."

Sauer Kraut.

Although out of making season, yet I will in a short way give my. Cut the cabbage very fine, either with a slaw cutter, cutting-box or knife, put a bucket full of cut cabbage in a barrel, pound it solid; sprinkle little salt over, so keep on; use a small hand full of salt to every bucket full of kraut. When done press it well, no water. In four weeks it is ready to use.

IN MAKING SOAP

be sure to have your lye strong enough to carry an egg and you are sure to have soap. If I were appreciated, I would give my true and sure way of making both hard and soft soap.

Mrs. S. R. B.

Ruth's Legacy.

When Rodney Craig came home from the army with an empty sleeve, some people wondered if Ruth Gerrish would marry him. A man with one arm gone, and that his right one, they argued, was only a part of a man, and Ruth was a girl who could have her choice among the young men of her acquaintance, therefore—and what conclusions these persons arrived at you know well enough, I am sure, for you have seen these very persons. They live in every neighborhood.

But those who knew Ruth best never doubted what she would do for a moment.

"Of course she'll marry him," they said. "She wouldn't let the loss of an arm keep her from doing as she promised. She loves him and that settles the question."

When Craig told her that he would give her back her promise, she came and stood before him and looking straight into his with her earnest eyes, she said:

"Do you love me, Rodney?" "God knows I do, Ruth," he answered and then she put her hand in his and made reply:

"Then never mention this again. I told you I would be your wife, God willing, and if we love each other I see no reason why we should not do as we intended. I would marry you Rodney, if there was enough left of you to hold your heart."

After that he never spoke of breaking the engagement, but he would not consent to be a burden upon her, and it was agreed that the marriage should be postponed until he secured some employment. He had made application for a clerkship under the government, but it began to seem as if it were a modern case of *Jarndyce vs. Jarndyce*. Once in a while he got a letter from the department at Washington, saying that it was quite probable that he would secure the position, that the matter had been referred to such a bureau, or was now under consideration by such an official, etc.

And so the weeks lengthened into months, and he waited and hoped and heard nothing definite, and the time when he would be in a position to marry Ruth seemed to be very far off. She would have married him the next day if he had been willing. She would have been glad to work for him, because she loved him, and work for those we love is always pleasant. But he was too proud to consent to anything of that sort, as I have said.

One day Ruth got a letter from Aunt Martha Fielding. Aunt Martha lived in a thriving little village among the Berkshire hills, and all that Ruth could remember about her was that she always made her think of some of the old mountains to be seen from her windows, because she was so grim in aspect and seemed so unchangeable in all her ways. There had been some family trouble, and Aunt Martha had very little to do with any of her relatives. Therefore it is not to be wondered at that Ruth and her mother were surprised when this letter came, asking Ruth to come up and stop a month with her that summer.

"Shall I go," asked Ruth. "I think you had better," answered her mother. "She must be lonely there. Poor thing! she's had a good deal of trouble, off and on, but she has made the most of it herself. But I suppose she couldn't help it, it was her disposition."

"I can't see what she wants me to come for," said Ruth. "I haven't seen her since I was a little bit of a girl. I wonder she didn't send for some one of Aunt Lucy's girls."

"She's got some plan in her head," said Mrs. Gerrish; "she always has when she invites any of her relatives to visit her. Yes, Ruth, I think you had better go and do all you can to make it pleasant for her."

So Ruth went. Aunt Martha welcomed her in her usual grim fashion. Her kiss made

Ruth think of one of the old mountains departing from its usual dignity and saluting one of the hills.

Ruth wasn't long in finding out what Aunt Martha had invited her to visit her for. One of her nephews was coming next week—her favorite nephew, she told Ruth and the one to whom all her property would go when she was done with it, and she got the idea into her head that he ought to marry Ruth.

"I always liked you," she said in one of her confidential moods. "Now, when Lucy's girls were up here, I was completely disgusted with 'em. All they thought of was dress and parties. They were willing to see their mother slave herself half to death for 'em, and they wouldn't lift a finger to help her. But I've heard about you, and I know you're a good girl, and I know John'll like you."

He's sensible and I hope you are." When Ruth saw how determined she was to make a match between her and this expected nephew, she thought it time to tell her how matters stood.

"Aunt Martha," she said with a little frightened catch of her breath, for she was afraid the old lady would be mortally offended at the failure of her plans, "I'm engaged to be married." And then, the worst being over, she went on and told her all about it, and succeeded in making her lover into a great hero, in her estimation if not in Aunt Martha's.

"And so you are going to marry a man with one arm and as poor as poverty?" said the old lady, grimly.

"Yes, if nothing happens to prevent it," answered Ruth, bravely. "We love each other and we'll get along some way, and love's better than all the wealth in the world, I think, and so does Rodney."

"Humph," said Aunt Martha, and there the matter dropped.

Nephew John came, and he and Ruth were good friends at once, but neither of them ever dreamed of loving each other. One day Aunt Martha hinted her plan to him, and then had a long talk with Ruth which hadn't the least effect toward changing her mind.

"I have promised to marry Rodney," said Ruth, firmly. "I shall keep my promise. Not all the wealth in the world would tempt me to break my promise to him, because I love him."

That afternoon, when she and John were together, he told her what Aunt Martha had said in the morning, and then they had a good laugh over the old lady's plans, and before the interview was ended he showed her the picture of his girl, and Ruth told him all about Rodney. "It's almost too bad to disappoint her so," he said laughingly. "But I don't feel quite willing to give up my own plans for her's and I see you don't, so we don't seem able to gratify her by carrying out her pet project."

"I think not," answered Ruth. "I like you pretty well, John, but I like my Rodney better—in a different way you know, and I guess we shall have to run the risk of Aunt Martha's displeasure and take the consequences."

The matter was never mentioned by Aunt Martha again. When Ruth went home she kissed her after the same grim fashion of her welcome, and told her she should expect to see her next summer, if nothing happened.

But something did happen. It will happen to all of us sometime. Aunt Martha had not expected it so soon, and none of her relatives had thought of her dying for years to come. But the call came for her suddenly, and she went in the darkness of a winter night, and there was no coming back from a journey like her's.

Ruth and her mother were at the funeral. The lawyer invited all the relatives to tarry to the reading of her will. That had been her request.

To her nephew, John Hunt, she gave the sum of thirty thousand dollars; to her dear niece Ruth Gerrish, she gave her Bible with all the papers therein contained. That was the sum and substance of the document.

Ruth took her legacy, which was found in Aunt Martha's room, securely tied in a thick wrapper, with her name upon it, as the will had stated, and they went back home.

"I wonder who has the homestead?" said Mrs. Gerrish that evening. "All the property willed to John was in bonds and notes."

Rodney Craig came in and Ruth brought out her legacy to show him. She removed the wrapper and they sat down together to look the well-worn Bible over. A paper fluttered to the door. Ruth picked it up and read:

"MY DEAR NIECE RUTH:—I believe that the woman who is true to the man she loves, even if he is poor and hasn't but one arm, is an honor to her sex. If you had been willing to marry John, and give up your lover, I should have despised you. As it is I respect you, and as a token of my respect, I give you this old Bible and all you find in it, and pray that you will be happy, as you deserve to be."

MARTHA FIELDING.

Then, of course, Ruth had to tell Rodney all about it. She had told her mother before. How his eyes shined when he knew the sacrifice she had made for his sake. And he said something about it in a broken voice, but she stopped him.

"I made no sacrifice at all," she said, "and I didn't do it for your sake either; I did it for love's sake."

The Bible slipped from his knee to the floor, and several documents slipped to the carpet. He picked them up to replace them. Ruth took them from his hand to examine them.

"Oh, mother!—Rodney! She cried excitedly, 'they're deeds!'

"Sure enough they were. The old homestead in the village, and the farm a mile or two away, were left to "my dear niece, Ruth Gerrish," and Aunt Martha had the deeds made

out before her death. A slip of paper wrapped about them said that Mr. Jeffreys, her lawyer, could tell Ruth anything she wanted to know about the property. She could take possession at any time.

"Oh, we're rich!" cried Ruth, with happy eyes. "Dear Aunt Martha! Her heart was kinder than any of us thought. I hope she knows all about it. If she does, I'm sure she isn't sorry for what she's done."

"It never rains but it pours." Next day came a letter to Rodney from the publisher of the paper in the village where Aunt Martha's home had been. He wanted some one to take the position of editor, at a liberal salary, considering the amount of work to be done. Miss Martha Fielding had advised him some time ago to offer the position to him. Would he come up and talk the matter over?

Rodney went, and so did Ruth and her mother. And they are living there now, much happier, I think, than they would have been if Rodney had taken the clerkship, which appointment came when it was no longer needed. And Aunt Martha is not forgotten you may be sure.

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