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Work—the Way to Wealth.

BY JOHN D. KNOX.

"Why stand ye here all the day idle?"—Matt. 20, vi.

"Hell is paved with good intentions."

"The will is the soul of the work."—German.

Reward is for work done: Good intentions have their place, but they should ripen into fruitful and meritorious action. It is said: "Hopes go to hell;" and we know it is written in the Book of Books: "Work out your own salvation."

This is a land of toil; and gold, and fruits, and wheat, come from work.

Paul thus wrote to the Thessalonians: Your satisfaction is not to come when you have enough for your own individual wants and those of your family, but you are to have something over. Paul enjoined this as a religious duty, saying: "Let him that stole, steal no more, but rather let him labor, working with his hands the thing which is good, that he may have to give to him that needeth."—Eph. 4, 28. Also, "That ye may walk honestly toward them that are without, and that ye may have lack of nothing."—1 Thes. 4, 11-12.

Idleness is the deadly poison of civilization. It pampers lust, it rusts, corrodes and destroys the powers of man. It will bring the grandest temple into ruin. Labor builds up; idleness silently yet surely tears down. Young man, shake thyself from all stupidity and indolence and let no lazy bone grow in your body.

Word is the life of an age—we might say it is the life of life—as without it all dies. Nature is never still. Amidst the rigors of winter the work goes on, and through the preparations are made for the beautiful and budding life of spring, the growth of summer and the fruit of autumn. Work is the monitor, keeping in play all the mechanism of the social and commercial systems that surround us.

Carlyle says: "Show me a people energetically busy, heaving, struggling, all shoulders at the wheel, their hearts pulsating, every heart swelling with man's energy and will, and I will show you a people of whom great good is already predicable—to whom all manner of good is yet certain, if their energy endure." Labor is an essential element in human happiness and success. The individual who spends his days without work leads but a wretched existence at best. His days must be devoid of sunshine; his garden paths must miss the bordering of bright flowers. Not many songs of life can touch his heart, nor is his home one of quiet contentment.

"With peace embosomed in Indian bowers! Remote from life's bewildered way."

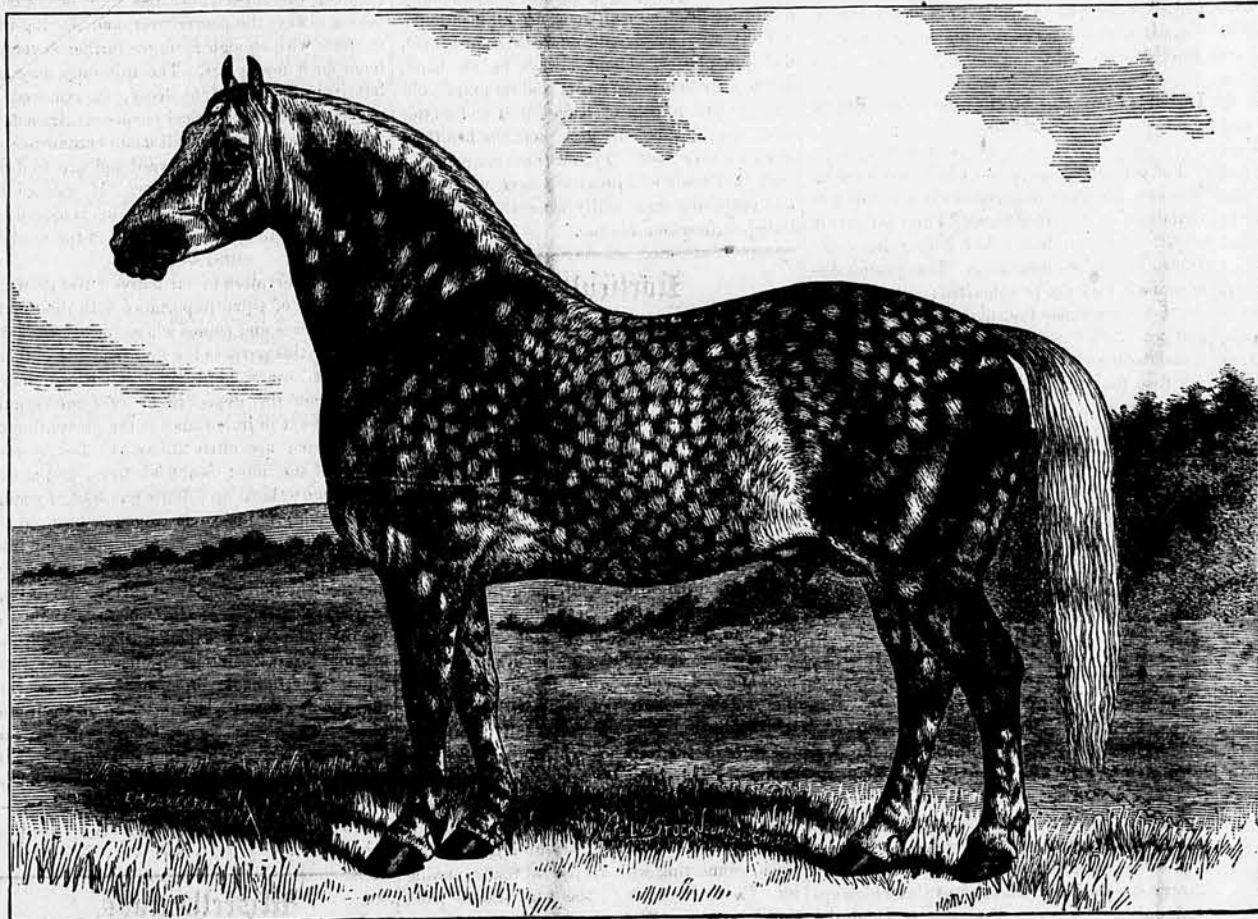
Labor is a demand of nature upon man. It is a debt he owes, and if he shuns it, a moral as well as physical bankruptcy will result. Channing has very forcibly said: "I have faith in labor, and I see the goodness of God in placing us in a world where labor can keep us alive." He further says: "Manual labor is a school in which men are placed to get energy of purpose and character."

You should learn the happy art of doing whatever duty requires—or in other words all that God demands of you to accomplish your high destiny. When well learned and well pursued it becomes a joyful work, as well as healthful and profitable.

Luck is work.
It never pays to fret and growl
When fortune seems our foe;
The better bred will push ahead
And strike the braver blow.
For luck is work, and the who shirk
Should not lament their doom,
But yield the play and clear the way,
That better men have room.

Nature and Providence are never the foe of the honest, prudent and industrious worker. All the seasons smile upon him—all things work together for his good. Just and true are the ways of God. It becomes you, then, to learn to work. The Jews of Europe see to it that their children, the girls as well as the boys, are taught a trade, an art, or some profession by which they may earn their living. Not long since the daughter of the Baron Rothschild, one of the richest men in the world, passed an examination and received an official certificate of her fitness for the position of a teacher.

Says a writer: "Every child, whether rich or poor, should learn to work. A practical knowledge of some industrial pursuit favors intellectual as well as physical culture. The son



PERCHERON-NORMAN STALLION, ROMULUS,

Winner of First Prize and Gold Medal at Paris Exposition, 1878. Imported with 35 others by M. W. DUNHAM, Wayne, Du Page County, Illinois.

of affluence, who is conscious that he can maintain himself by honest labor, can the better use his wealth, as well as appreciate the conditions and needs of the poor."

Loafers pollute the air, corrupt good manners, clog the wheels of industry and drink the lubricating oil. Keep away from them. Keep them away from you. There is a fitness in the notice on a fresco discovered in Pompeii, on a wall of which was probably a workshop of some kind, the translation of which reads: "This place is not for the lazy. Loafers, depart." This inscription is as good for industrial establishments of modern times as it was for ancient Pompeii.

Time is money, and others should not be permitted to waste your time. Human nature has been the same from the beginning, and lazy folks and loafers have infested all lands, intruding into workshops, wasting the time or dividing the attention of the workmen, until it becomes necessary to put up inscriptions giving a general warning to all such to depart.

It is dangerous to dwell near the Ups tree. The habit of lounging so soon confirms itself into a chronic disease that the beginnings must be resisted with a will that conquers."

"Laziness begins in cobwebs and ends in iron chains." You have a great work to do, a work at once demanding all your best energies and activities. Every fleeting moment of life is related to some serious duty you owe to God, yourself, or a dying world.

Then, why stand ye here all the day idle? Are you a fool on the edge of some steep precipice? Are you a knave regardless of law and duty? Are you stupid, blind, deaf and dumb? Every angel in heaven and every fiend in hell, is surprised at your being idle when there is so much work for you to do, and the results of labor are so abundant, pacifying and lasting. Let it be your meat and drink to do and be doing the work of life.

"Wealth gotten by vanity shall be diminished; but he that gathereth by labor shall increase."—Solomon.
Topeka, Kansas.

Will the Breeding of Percheron-Norman Horses Pay as a Future Business?

The people throughout the whole country begin to turn their attention toward the production of large horses, from both necessity and profit. They no longer find sale for the kind of horses they bred a few years ago, while there is an active demand for large, compactly formed horses at splendid prices.

Every man knows this to be a fact, but we doubt whether many have taken the trouble to inquire into the cause. The fact that large

horses are readily sold at highly remunerative prices seems to be sufficient to warrant men in breeding to first-class stallions, yet a man who intends to invest very much money in the business should look for some more substantial reason than the mere fact of a good present demand. If small horses are low, and large ones are high, there is some good reason why it is so. Whatever the causes are that have contributed to produce this effect, we ought to know, in order to intelligently direct our future course of breeding. On investigation, we find this condition of the horse market is not confined to the United States alone, for go to what country we will—England, Ireland, Scotland, France, Belgium, or Germany—you find that draft horses, during the last twenty-five years, have doubled and trebled in value. Many men who have come from Europe within that time will remember that a good work-horse would only command from £25 to £30—\$125 to \$150; and now \$300 to \$400 is looked upon as only a fair price for a good, serviceable, large horse, and often \$500 is realized. But a short time since the entire lot of work horses upon a farm were sold at auction at a trifle over \$500 each. This advance in price is not because they are breeding less of the large kind—quite the contrary; for under the stimulus of constantly increasing prices, their production has been largely increased, and many of the most practical men of the time have become interested in the improvement and breeding of them; besides, in some of the countries, the governments have adopted an organized system of encouragement. Yet, notwithstanding their rapidly increasing numbers, the prices continue to advance, plainly showing that the supply is not adequate to the demand, and that there are needed and being used a larger number of draft horses than ever before.

Why is it? A few words will tell. From the commencement of the application of steam as a motive power, a new commercial era began, which has changed all things. Railroads have superseded the stage coach and diligence, and gradually thrown out of employment a vast number of small horses. The breeders of these were forced to find markets in other directions. The enlarged facilities for rapid, safe and cheap transportation has swelled commerce to an extent never dreamed of under the old order of things, and opened a hundred new channels for the use of the heavy, muscular and active horses. In the great cities, railroad centers, factories, foundries, mills, machine shops, quarries, and the lumber woods, thousands more are now annually purchased than were needed years ago. The American farmers are also beginning to find deep tillage and a more systematic and

economical method of cultivation necessary, in which a larger class of horses are indispensable. Thus on every hand we see the plane of usefulness of the large, strong work-horse extending, while that of the smaller family is yearly becoming narrower.

Our late war partially relieved us of our light stock, and for a time restored the confidence of light breeders, who permitted themselves to believe that if they could introduce the element of speed they would still be in the ascendancy. They have found to their sorrow their mistake, and thousands of farmers are to-day doing their work with animals utterly incapable of performing their labor properly, and if, from any chance, they have a large horse, he is sold, not from choice, but because he will sell and the others will not. This practice must soon cease, for all feel that it is a ruinous economy, and will gladly welcome its end. The people are now ready for the change, and if we are not mistaken in our conclusions, they are right in demanding it. If in Europe, where every country has a basis of pure-bred draft stock to breed from—encouraged by high prices, fostered by powerful private enterprise and governmental patronage—they are unable to keep pace with the increasing demand of the country, how much less will we here, in our own country, without any fixed types of draft blood of our own, dependent largely upon foreign importation for our supply of the necessary stallions for breeding purposes, we say, how much less chance have we of being able, for years to come, to supply our own wants on our farms, and have sufficient numbers left to meet the demands from all other sources.

There is nothing that we as farmers can do that seems to give promise of better returns than from breeding to the best Percheron-Norman stallions that can be found, possessing size, symmetry and action, and with the energy of our people turned in the right direction, as it is, we will, in a few years, possess the finest class of general purpose horses in the world.

Seed Men Take Notice.

We are having inquiries for Alfalfa seed.

The Sheep.

Separate breeding ewes from rams and wethers during the winter. The latter are rough customers, butt and knock the ewes about, often injuring them seriously. Provide sheds with southern exposure for your flocks in winter and a sunny, dry yard for them in fair weather. Feed the ewes some oats along with their corn, and for coarse fodder clover hay is most rel-

ished by sheep. If you have roots, feed them when the weather is not freezing, or in the middle of the day, in a warm, sunny spot. Stock do not relish roots in cold, freezing weather, and will often throw them out of the feeding troughs with their noses.

During the lambing season the most watchful care is demanded. The ewes should be housed at night when there is the least appearance of storm, or be in a yard accessible to sheds, where they can find protection from the sleet or snow. Last winter Mr. C. P. Allison, who has a fine sheep farm in the southern part of Jackson county, and 1,000 of the best bred Merino sheep, mostly ewes, lost a large number of lambs in one night, by a sleet storm coming up suddenly. The ewes and lambs had not been housed, and in the confusion of getting so large a flock under shelter in the dark, after the storm had set in, a large number of lambs were separated from their mothers, which never could be united; and those which perished from the effects of the storm, and those which were cut off from their mothers and died from want of proper nourishment during the cold weather, was a serious loss. The same misfortune is liable to occur in any large flock, and is a potent reason for dividing the breeding ewes into small flocks of about a hundred in each bunch. This would cause some trouble in providing different accommodations, but on the whole would pay the flock owner well. The weaker sheep and those lowest in condition, can be divided from the strong and have a little extra feed, and they will be sure to receive the benefit of their feed, no master sheep being present to beat them off from the feeding troughs. The owner should watch after the weaklings of his flock while feeding. The strong will take care of themselves.

Seed Corn.

J. A. Patterson in *Western Rural*, recommends a special lot set apart for the purpose of raising seed corn:

To insure good seed a field or small piece of land should be selected not near other corn, and cultivated carefully, and any stock not likely to produce a good ear should be cut out before the pollen or blossom falls to inoculate the seed to be selected, for if the blossom falls on the silk of the stock on which the ear is selected, although the variety may not show in the ear selected, it certainly will in the coming crop. This is why corn gets so much mixed that it is a very rare thing to find a crib of corn of anything like even kind or one variety of corn. Even at the fairs we find specimen of corn entered for premiums, in many instances there will be no ears the same and no appearance of having been cultivated carefully with an eye to the production of a pure variety of one kind of corn.

To save seed that will grow so easy that any farmer not having reliable seed is inexcusable. If corn is picked before any frost and kept from freezing and heating it is certain to grow, but it must not heat or be kept where any grain is that is heating or even going through what is usually called a sweating process, and it must be kept where there is plenty of pure air until it is thoroughly dry, and if kept dry there is no danger of its not growing if properly planted. It should be similar in color. If white, a pure white and if yellow a deep bright yellow and not mixed colors. Another essential thing is to have it of even sized grains to insure a regular and proper stand in a hill. If carefully selected of even sized grains a corn planter that will not drop about the proper number, say three or four grains in a hill, is not fit for use, but if uneven, but if uneven in size it is very difficult to get a good corn stand.

I am using a deep grained early, yellow corn, with twenty rows on a small cob selected carefully and cultivated carefully for seed, which I have been improving so long that I get the same variety and fully seventy bushels per acre where forty was considered a fair average crop.

If it pays to purchase costly agricultural implements, it certainly pays to take care of them, now that they are to be laid by for six months. The time to care for all farm tools is now. Put them in complete order that they may be ready for use when needed in the spring, and time presses. This is trite advice, readers, but we all stand in need of it.

Farm Stock.

Teething of the Horse.

In connecting the teeth with diseased eyes, we are not following the foolish prejudice which attributes all troubles of sight to the wolf-teeth. These teeth are harmless enough; yet the popular prejudice has a foundation which it would be well for horsemen not to ignore. Most diseases of the eyes occur at that period of life when the milk-teeth are being most rapidly shed, and the permanent teeth are coming up. To suppose that a horse suffers nothing in cutting his teeth, is a great mistake, as is shown by the frequently slow and painful mastication of some young animals, by the occasional dropping of food in a half-chewed condition, and by the heat, redness, and swelling of the palate and gums. That red, swollen, and tender state of the roof of the mouth behind the front teeth, familiarly known as "lampas," is but an indication of this teething trouble; and in not a few instances it renders the animal feverish, weak, and, by virtue of the general congestion of the head, strongly predisposed to inflammation of the eyes. The wolf-teeth are in the mouth during the greater part of this period of teething, and are usually shed towards its completion; so that once it is hinted that these are the cause of the trouble with the eyes, the owner, looking into the mouth, seems to find ample confirmation of the statement. The wolf-teeth are, however, the most harmless in the mouth, having long ago reached their full development, and are but slightly inserted in their sockets; while the great and dangerous irritation attends on the cutting of the large grinding teeth, and, in the male, of the tusks. The presence of the wolf-teeth in the mouth at this time, is an accident, and not an injury. The temporary recovery often following their removal would have taken place all the same had they been left in the mouth, and a later attack is just as likely as if they were present. The excitement attendant on teething is natural; what we should guard against is its excess. Any costiveness of the bowels should be corrected by the feeding, or, if necessary, by one oz. Glauber's salts daily. Teeth pressing painfully beneath tense, resistant, painful gums indicate the need of the lancet; teeth entangled on the crowns of their successors should be removed; all excessive swelling, redness and tenderness of the gums demand lancing; and, finally, all unnecessary excitement or exhaustion should be avoided.—*Nat. Live-Stock Journal.*

Worth Knowing.

It frequently happens (especially in the winter) that a horse receives a severe sprain, and it is not always convenient to call in a veterinary surgeon. At such a time a certain cure that is possible to every one to possess, is worth something surely. Bathe the limb in strong salt and water as hot as the hand can bear; then bandage and let it dry; (don't wet the bandage). When dry rub very thoroughly with the following liniment:

One oz. powdered camphor gum, 2 oz. laudanum, 1 oz. oil of turpentine, 1 oz. ammonia, 1 oz. oil of hemlock; all dissolved in 1 pint of alcohol. Shake before using. Give the animal perfect rest if possible. After two or three days, or when the swelling and heat are gone, the hot fomentations and bandage may be discontinued, but continue to use the liniment, even after the horse appears well, for a joint or cord that has been sprained is very liable to be again. If the case is an obstinate one you must be the more persevering. A regular "horse doctor" would charge five dollars for the very same treatment. Apply the liniment as often as twice a day. It is as good for human sprains and bruises as for animal ills.—*American Farm Journal.*

Fall Calves.

If the farmer has warm and comfortable stabling for his stock, he will certainly find that fall calves can be raised more cheaply and with less risk than those dropped at any other time. We took occasion to urge this idea in these columns some two years ago. Since then we have been forced, by circumstances, to raise a good many calves at other seasons; and we have become more than ever convinced that the ideas then advanced were correct. We prefer calves dropped in September to any other month, for the very good reasons that calves then escape the intense heats of summer; and during the winter season they can be "pushed" with grain, and in the spring are ready for the young grass as soon as it appears. The professional breeder likes fall calves, too, but for the additional reason that they "show" at the September fairs as "calves," when, in reality, they are only a few days short of a year old, and as "yearlings," when they are really close to two years old. It would seem that there are tricks even in the farmer's trade.—*Prof. Shelton, in Industrialist.*

Cars for Stock Transportation.

In response to the offer by the American Humane Association of \$5,000 for an improved stock-car for the transportation of animals, a car has been patented which to a certain extent meets the requirements of the association. It

does not, however, provide any facilities for feeding or watering the animals while being transported. The size of the car is eight by thirty feet in the clear. It contains a series of movable bars, capable of being moved up and down at pleasure. After the car is loaded and the doors closed, the bars are let down from the outside between the animals, partitioning them off separately or in pairs, as may be desired. The car will accommodate sixteen steers, giving each animal a separate stall. Hogs may be partitioned off in like manner, with from fifteen to eighteen in each pen, thus preventing them from piling on one another and smothering. There is a tank underneath the car holding ten barrels of water. This is connected with a pump on the roof of the car, completely filling it with a fine spray, which, when continued for a few minutes, amounts to a shower bath. This is designed to allay thirst and internal heat by being inhaled, and to allay heat, fever and disease by keeping the pores of the skin open. The inventor claims that it is better to keep animals thus refreshed than to allow them to take large draughts of water through the stomach while in transit. But he pronounces the refusal of rest to them as nothing but inhuman.—*Mass. Ploughman.*

Importance of Soundness in Brood Mares.

The greater our experience in horse-breeding becomes, the more importance do we attach to soundness in the broodmare. There is scarcely an ill to which horse flesh is heir that is not transmissible by inheritance. The precise disease itself may not be inherited; but the constitutional weakness that makes this or that organ peculiarly susceptible to disease is clearly a transmissible quality. No one will pretend to say that flatulent colic is an inherited disease; but we have the very best of evidence that some horses are more subject to this disease than others, and that they transmit that tendency to their offspring. Acute laminitis may not be a constitutional infirmity; but the peculiar formation of joint that falls an easy prey to this disease is as clearly transmissible as are color and form.—*Nat. Live-Stock Journal.*

Poultry.

A Happy Suggestion.

"D." in the N. Y. Tribune, makes the following eminently wise suggestion:

"Why should not a chicken's standard of excellence be determined by its size, vigor, precocity, egg-record, toothlessness as a table-bird—its practical value—rather than by an arbitrary standard of artificial qualities which appeal only to the eye, and to secure which the practical qualities are impaired or ignored? Is the good time ever coming when a cow or a fowl may be beautiful, but must be useful? Would it not be well for poultry-breeders to have an eye to the aims and proceedings of the men who will meet in New York, December 9th, to organize an association to reform the matter of the cow fancy? Will poultry-fanciers please take notice that the every-day poultry-keeper wants a practical 'business chicken,' whose points of excellence shall combine size, vigor, precocity, thriftiness, productiveness, and such qualities, irrespective of any particular excellence of plumage, comb, claws, style, 'symmetry,' etc.? 'Handsome is that handsome does' is as true of a fowl as of a cow. If the dairymen can change the standard of excellence for the cow, why can't the poultrymen do the same thing for the fowl, and put fancying on a rational, common-sense basis?"

Killing and Dressing Poultry for Market.

Almost every locality has its own system, but I may advert to a few facts on this subject. Poultry, when bled to death, is much whiter in flesh. I should advise the following plan as the best, causing instant death without pain or disfigurement:

Open the beak of the fowl, then with a pointed and narrow knife make an incision at the back of the roof, which will divide the vertebrae and cause immediate death; after which hang the fowl up by the legs until the bleeding ceases, then rinse the beak out with vinegar and water. Fowls killed in this manner keep longer, and do not present the unsightly external marks as those killed by the ordinary system of wringing the neck. When the entrails are drawn immediately after death, and the fowl stuffed, as they do in France, with paper shavings or short cocoon fibers to preserve their shape, they will keep much longer fresh. Some breeders cram their poultry before killing to make them appear heavy; this is a most injudicious plan, as the undigested food soon enters into fermentation, and putrefaction takes place, as is evident by quantity of greenish, putrid-looking fowls that are seen in the markets.

Eggs in Winter.

We often hear farmers and others complain that they never get any eggs in winter. With proper feeding, comfortable hen-houses and good drinking water, there is no reason why a good supply of eggs cannot be had in winter as well as summer. Of course, this necessarily will be a little more trouble than throwing out "lots of corn" to "em" in the snow, mud or slush; yet when eggs are worth three times (or more) as much as they are in summer, won't a little extra trouble be a good investment—especially when the farmer is not so hard pushed for time?

A correspondent writes, asking: "How can

I get eggs in winter?" "How must I feed, etc?" First, then, much will depend upon the breed; but of any variety select early pullets and a few hens of the previous year's hatch. Commence feeding extra during the moult. Mornings use corn meal and heavy middlings, (shorts), two-thirds of the former to one of the latter, and always mix with boiling water and feed it while warm; at noon utilize your table scraps, potato parings, etc.; pound up the beef-steak bones; occasionally freely sprinkle red pepper in morning feed. At night mixed grains is the best feed. The following is the proportion I prefer. Corn two quarts, oats five quarts, rye one quart, wheat three quarts, buckwheat two quarts; mix thoroughly and feed amount required. Corn alone is a very inferior egg-producing food; but in extreme cold weather its qualities as a warming and fattening food render it a staple article of food. Rye is inferior to the other grains, and fowls do not seem to care for it. Warm milk is excellent, and the trouble of warming it will be well paid for by the increase in eggs. In the way of green food, apple parings or cores, occasionally a cabbage head, a turnip, etc., are all good. An old box with powdered oyster-shells, or gravel, old lime-plaster, should always be on hand. Keep your hen-house clean, and on extra cold days empty a bag of leaves in it and scatter some grain; this will give them the healthful exercise they need. Follow these simple rules and your fowls will prove a source of pleasure and profit that will really astonish the uninitiated.—*American Farmer.*

Horticulture.

Storing Sugar Beets.

The Maine Beet Sugar Company have fifty men at work on the right hand side of the transfer station at Portland trenching some ten acres of upland. The upland is of sandy soil and the men are gridironing it with trenches seven feet wide, thirty inches deep, and one hundred feet long. The beets are delivered from the cars right alongside of these pits, which are then filled with them. The beets are heaped up thirty inches high above the surface, and slanting toward the side of the pits, and are then covered to a few inches depth with hay, and six inches of soil. Before the freezing weather comes the beets will be covered with eighteen inches additional soil taken from the sides of the trenches, which are thoroughly drained. The trenches are also ventilated every fifteen feet so as to cast the moisture off from the beets. The idea of these trenches is to keep the beets cool and dry until needed. A track, connecting with all the railroads running into Portland, runs to the sugar-house from these trenches. When these trenches are being prepared the beets are coming in in great quantities by the wagons and vessels, and are taken directly to the washing-machines. The reports from the country show that a crop of beets at the rate of two hundred tons a day will be provided, sufficient to run the factory one hundred days, and possibly three or four months.—*Portland Press.*

Forest Tree Culture.

DISTANCE.

There has been a great difference in practice among those who have planted and discussed the subject as to the proper distance to set trees in a timber plantation. Many have erred by planting too wide, few by setting them too closely. In the matured natural forest the trees are often widely separated it is true, but in the young forest they are often closely crowded together, but where so crowded the finest timber trees will be the result. When scattered, the trees branch low and spread out their limbs like apple trees in an orchard. By close planting we may avoid the great expense of trimming them into shape, since they are forced to grow upright to reach the air and light.

A want of practical knowledge on this point prevailed in the legislatures of some of the states, when providing a bounty for timber planting, in which "the trees should not be more than one rod apart,"—a distance sometimes adopted by orchardists in prairie regions with eminently satisfactory results. Many of the older plantations were set at this distance, and more were planted at eight feet, but the best practice is to plant closely. Five feet, and five by six, is still recommended by some planters, but four by four feet is better, and some advise still less.

CULTIVATION.

When planted in arable land the young trees should be thoroughly cultivated, at least during the early part of the season. A few weeds toward fall may help to protect them in the winter, but a better protection will be derived from a light furrow with the turning plow thrown against the trees late in the autumn. While small, the plantation may be tended with the sulky or two-horse cultivator, but after the first year the common double shovel will be found the best tool. In most soils the hoe will be needed among the trees, as well as the plow or cultivator, the first summer, but in after years the weeds will have little chance in a thickly-set plantation.

TRIMMING.

When the plantation is made thick enough, there will be little need for trimming the young trees. Nature will effect this sufficiently by her own process of smothering. It will often happen, however, that some species will produce double leaders, one of which should always be shortened, or moved entirely. The side branches soon die and fall off, when the tops form a canopy overhead. This is not the case

with wide planting. If they have room to spread, the trees will be branching, and it often happens that several of these branches will strive for the mastery. When this occurs, all but one should be shortened, or, if small, removed. In selecting the leader among these, it is not necessary that it be upright, but even if inclined away from the stem it will become erect and make a good leader.

THINNING.

This is a matter that will ever require the exercise of good judgment; nor can it be directed by set rules, indicating days and years when it shall be performed. The object of thick planting is to give the trees an upright growth, without side branches; but when this has been attained, we must watch lest the plants become too much crowded and choke one another. The period when thinning may become necessary will depend upon the variety planted and on the rapidity of the growth. Some trees will need it sooner than others, but as a general rule the plantation should be thinned before the trees are much drawn. If in drills, closely planted, the supernumeraries must be cut out, taking always the poorer trees, and leaving the stronger with enough room for further development for a few years. The thinnings may be left upon the ground to decay, or removed if needed for any economical purposes. In a few years the same process will again become necessary, as the trees grow upward and are in danger of crowding one another. If planted in squares the alternate trees may be removed at the first thinning, alternate rows at the second.

PRESERVATION.

The preservation of our native forest growths is a matter of equal importance with the planting of groves and copses where they do not exist. For this purpose the first requisite is their inclosure, (or a herd law), so as to preserve them from the depredations of domestic animals. Next in importance is the prevention of fires, which are often allowed to destroy vast tracts of the most beautiful trees, and at the same time to burn up infinite numbers of young plants that, if not so destroyed or browsed off by the cattle, would be ready to spring up into new forest growths whenever the trees already matured should be cut away. It is interesting to observe that this second growth of timber is usually composed of different species from the original forest, giving us an idea of natural rotation of crops. It often happens, however, that the new forest is not made up of desirable kinds. These must be cut out to make room for those most valuable; but the native growth is never so completely under our control as those trees which we plant for our forests.—*Dr. John A. Warder, before the Kansas Board of Agriculture.*

Miscellaneous.

Worker Bees.

All labor devolves on the workers (except laying eggs). These are provided with a sac or bag for gathering honey, and basket-like cavities on their posterior legs in which to pack the pollen of the flowers in little pellets for carrying it home to the hive. They range the fields for honey and pollen, secrete wax, construct combs, prepare food to nurse the young, bring water, obtain propolis to seal up all cracks and crevices about the hive, and stand guard to keep out intruders.

For the defence of their treasures and themselves, they are provided with a sting and a virulent poison, but will not use it when abroad, if unmolested. They volunteer an attack only when near the hive. They are all females with undeveloped organs of generation, yet they possess enough of the maternal instinct to make them good nurses for the brood of the real mother. For upwards of two weeks after the young worker emerges from its cell, it is almost exclusively engaged within the hive; thereafter it assists in collecting stores. I have often thought when watching my bees, what a lesson we might receive from these little industrious insects. Every fine day a portion of them are off unbidden to search for stores, and are very often martyrs to their own industry.—*M. R., in Canadian Farmer.*

Can Kansas Grow Its Own Sugar?

The belief and expectation of many that the beet would be made to yield in this country, as in France and Germany, sugar of good quality, and in sufficient abundance, and at a sufficiently low cost, to take the place eventually of the imported sugar produced from the tropical cane, had not been realized, and the increase in price of sugar and syrups suggests to the thinking farmer the inquiry if there is not some way whereby we can raise our own sugar and cut off the heavy drainage on our purses of money, that is required to supply our sweetening.

Many have resorted to the raising of sorghum, taking whatever kind of seed they could most handily get hold of, planting, and hauling to a neighboring mill from two to ten miles, and receiving in return a small quantity of poor, sour, inferior sorghum, not paying for labor even at fifty cents per gallon.

But why need this be so, when it has been demonstrated by Messrs. Kenney & Miller, of Rice county, Minnesota, that excellent sugar can be made from what is called "Minnesota Early Amber." More or less sugar has been obtained from this cane since 1875. During the past season some 15,000 gallons of syrup have been produced in Rice county, Minnesota, and the amount of sugar produced from the Early Amber cane is from five to six pounds from a gallon of syrup weighing 13½ pounds. The yield per acre in Minnesota varies from 125 to 150 gallons of syrup.

The stripping of the cane is dispensed with as useless. It is asserted that the leaves speedily die out and do not affect the quality of the juice. It is stated that the juice is subjected to no chemical treatment, and in manufacturing the process of evaporation does not differ from that commonly pursued in the common crude syrup from other varieties of cane.

In the growing of this variety it is found that a high, clay loam of a rather loose or sandy nature is the best. The application of barnyard manure is said to dilute and injure the juice. New land is regarded as preferable to old land for the perfection of this variety. The ground should be plowed immediately before planting and thoroughly pulverized with the harrow. May 15th is about the time to plow. Either drill in rows four feet apart, or in hills with seven to ten seeds in each, the hills three feet six to ten inches each way. The seed should be covered with half an inch of soil if the earth is moist, or one inch if it is dry. The rows should be straight, and as soon as the young plants appear, the ground must be stirred close to the cane. The ground must be cultivated until the leaves shade the surface sufficiently to prevent the weeds from gathering. And here the question is raised, Why can not we raise our own sugar from this variety, in this our sunny Kansas, where nearly everything else grows almost spontaneously?

F. F. Downs.

East Pleasant Valley, Kansas.

Notes From the Agricultural Press.

It is possible that some eastern railroad magnates have had a hand in "the pot." It seems now to be generally understood that railway freights are to be advanced to absorb the bulk of the profits arising from the extraordinary demand in Europe for our surplus grain. It seems evident that the future price of grain in Chicago, until the opening of navigation, will be the price in Europe, less the cost of transportation there. That eastern railways will bleed the last possible cent out of the grain carried, seems certain.—*Prairie Farmer.*

If you want to send a hundred weight of grain from Chicago to New York, you will please pay forty cents a hundred pounds for doing it. In July last you might have sent it for fifteen cents a hundred. It is just as likely as not that you will say, it costs no more to transport a hundred pounds from this city to New York now than it did in July, and that you are unable to see why you should pay more. We do not know why you should, but you are, and it is going to do you no good to make such a remark. When a highwayman puts his pistol to your head, and says, "money or life," there is no chance for argument. He means business, and it is a good deal better not to irritate him with argument, but to comply with his energetic request and hand over your money. So with this freight matter. The roads have got the pistol to your head, and the only thing for you to do, so far as the present is concerned, is to comply with the demand. You will only irritate them, if you go to arguing, and you will make a fool of yourself if you go to pleading.—*Western Rural.*

Under present systems of farming, New England is badly beaten by the west in grain growing, cattle husbandry, dairy products, and other branches of agriculture. Whether this is due to unjust railway discriminations, unfavorable comparisons in soil, climate or other conditions, it is all the same in its disastrous effect upon the eastern farmer. Something is needed besides market gardening, milk production, fruit culture and poultry raising to give value to our broad acres, remuneration to our hardy farmers, and comfort and prosperity to our rural districts. Just in the hour of our greatest apparent need the sugar-beet industry appears, court investigation, attracting labor and capital, securing the recognition and bounty of state governments. Each step in its progress has been watched with anxious eyes, yet giving the most gratifying results.—*Cultivator.*

My experience is, that proper cultivation of and, if it is cultivated every year, reduces the fertility very little compared with the everlasting tramp, tramp, of animals over it when it is soft and wet. Many farmers think it a great saving to husk the corn in the field and then pasture the stalks, rather than cut the corn and feed the fodder in the stable or some good feed lot, and they will pasture their stalks until there is nothing left but mere stubs, except what has been sunk beneath the surface by the feet of the animals.

There are several advantages in preventing stock from roaming at will over the land during a greater portion of the winter. Where food is properly prepared and the animals housed, it adds wonderfully to the manure heap, and even if not housed, if kept in some good feed lot, convenient to water, with plenty of litter, an abundance of manure is made. Stock also will do much better on a less amount of food if fed at regular intervals, than when running at large, sometimes getting too much and sometimes not enough. But the greatest advantage is in letting the ground have its winter rest, letting the frost penetrate and work it up so as to make it light and porous, and not have it like a flapjack that has never raised.—*J. G. Over, in Ohio Farmer.*

Good crops, thrift in the flocks and herds, and wise care in handling the avails, are essential to profitable farming. All these must come as the products of careful—even skillful—management and faithful labor in season. They are never mere happenings; they are sure results of certain forces applied, exactly as the growth of grass and grain crops is dependent on moisture and warmth.—*Husbandman.*

POPULATION OF KANSAS.

From Report of Hon. A. Gray, Secretary State Board of Agriculture.

Tables showing the population of Kansas, by counties, and principal cities, as returned by the assessors, through the County Clerks, to the State Board of Agriculture, March 1, 1879.

POPULATION BY COUNTIES.

Counties.	Enumerated in 1870.	Enumerated in 1879.	Increase.	Decrease.
Allen	8,964	10,116	1,152	
Anderson	6,000	6,616	616	
Atchison	20,229	21,791	1,562	
Barbour	1,333	2,016	683	
Barton	8,251	22,333	14,082	
Bourbon	17,741	18,310	569	
Brown	10,446	10,790	344	
Butler	14,131	17,006	2,875	
Chautauque	9,246	10,587	1,341	
Chase	3,798	4,748	950	
Cherokee	17,770	18,533	763	
Cheyenne	4,700	10,658	5,958	
Cloud	10,183	12,656	2,473	
Coffey	8,559	10,077	1,518	
Cowley	15,390	16,157	767	
Crawford	18,770	19,781	1,011	
DeWitt	13,322	14,587	1,265	
Dickinson	10,850	13,005	2,155	
Douglas	15,122	16,459	1,337	
Edwards	8,851	20,520	11,669	
Ellis	18,139	18,012	127	
Ellsworth	2,437	5,240	2,803	
Franklin	12,381	14,073	1,692	
Greenwood	7,648	8,204	556	
Harper	13,58	13,58	2,158	
Haskell	8,107	10,440	2,333	
Hodgeman	7,930	7,930	1,738	
Jackson	12,471	13,872	1,401	
Jefferson	13,388	14,161	773	
Johnson	18,139	18,012	2,595	
Kearney	17,196	18,171	975	
Leavenworth	28,544	30,283	1,739	
Lincoln	4,700	14,448	9,748	
Linn	13,228	14,896	1,668	
Lyon	13,634	15,073	1,439	
Marion	8,306	10,154	1,848	
Marshall	12,270	17,129	4,859	
McPherson	11,242	14,139	2,897	
Miami	14,488	15,161	673	
Mitchell	8,673	14,034	5,361	
Montgomery	16,468	15,979	489	
Morris	5,556	7,197	1,641	
Nemaha	8,876	10,267	1,391	
Neosho	11,053	13,504	2,451	
Norton	1,855	4,797	2,942	
Osage	12,618	15,389	2,771	
Osborne	6,123	9,445	3,322	
Ottawa	6,664	8,757	2,093	
Pawnee	6,114	7,023	909	
Phillips	5,436	7,354	1,918	
Pottawatomie	11,136	13,136	2,000	
Pratt	11,528	12,042	514	
Republic	10,132	12,193	2,061	
Rice	10,314	14,149	3,835	
Riley	7,419	7,419	1,352	
Rooks	2,100	5,104	3,004	
Rush	2,794	5,232	2,438	
Russell	3,829	6,321	2,492	
Saline	9,339	12,434	3,095	
Sedgewick	15,220	17,613	2,393	
Shawnee	19,114	22,632	3,518	
Smith	8,315	11,498	3,183	
Stafford	12,078	15,090	3,012	
Sumner	12,078	15,090	3,012	
Trego	12,078	15,090	3,012	
Wabasha	5,386	6,245	859	
Washington	10,314	11,900	1,586	
Wilson	11,769	11,901	141	
Woodson	5,514	6,058	544	
Wyandotte	13,161	15,046	1,885	
Unorganized	8,500	15,000	6,500	
Total	708,497	849,978	141,481	2,616

Actual increase during the year ending March 1, 1879; 141,481.

*Estimated by assessors.
*Harper organized August 5th, 1878; Hodgeman organized March 29th, 1879; Sumner organized June 29th, 1879; Pratt organized July 25th, 1879; Trego organized June 1st, 1879—these accounts for no official returns for 1878.

(a) In 1878, Pratt county, then unorganized, was attached to Reno as a township thereof, and to which the enumeration was made. Population, March 1st, 1878, 2,180.

(b) At the time of the reorganization of Stafford county, by decision of the Supreme Court, June 1879, Barton county extended to the south line of township 23. By said decision, twelve townships were taken from the south part of Barton and added to Stafford. As the enumeration of inhabitants for Barton was taken March 1st, 1879, the returns for said twelve townships appear in the Barton county returns, and show a population of 2,387, from that of Stafford county (4,731) we have left 2,344 for the remainder of the territory of Stafford county.

Table showing, by counties, the number of inhabitants to each one hundred and sixty acres of cultivated land in Kansas, for the year 1879, in the organized counties:

Counties.	No. inhabitants to each 160 acres of cultivated land.	Counties.	No. inhabitants to each 160 acres of cultivated land.
Allen	16.0	Douglas	23.1
Anderson	17.0	Edwards	20.5
Atchison	25.2	Ellis	31.5
Barbour	10.0	Ellsworth	15.1
Barton	14.4	Ford	46.2
Bourbon	19.6	Franklin	17.5
Brown	10.3	Greenwood	17.1
Butler	25.3	Harper	37.1
Chautauque	15.0	Harvey	14.7
Chase	19.2	Jackson	13.8
Cherokee	15.0	Jefferson	15.2
Cheyenne	13.5	Jewell	13.3
Cloud	20.2	Kingman	22.1
Coffey	16.9	Labette	16.4
Cowley	15.0	Leavenworth	28.8
Crawford	15.0	Lincoln	19.9
Davis	18.4	Linn	14.7
Dickinson	11.2	Republic	16.3
Douglas	17.9	Rice	13.9
Edwards	22.4	Riley	16.7
Ellis	14.0	Rooks	40.9
Ellsworth	10.6	Rush	19.9
Franklin	12.8	Russell	13.5
Greenwood	17.1	Saline	13.2
Harper	19.9	Sedgewick	13.2
Harvey	17.2	Shawnee	32.4
Haskell	13.8	Smith	17.3
Hodgeman	13.5	Sumner	10.9
Hodgeman	20.5	Wabasha	14.1
Hodgeman	20.9	Washington	17.4
Hodgeman	15.1	Woodson	13.4
Hodgeman	16.0	Wyandotte	14.3
Hodgeman	17.0	Unorganized	47.6
Hodgeman	36.3	For State	17.5
Hodgeman	13.8		

It will be noticed that the oldest and youngest counties show the largest number of inhabitants to each quarter-section of cultivated acreage. Wyandotte county leads the state, with 47.6 persons to each 160 cultivated acres. A very large proportion of the population in Wyandotte city and Kansas City, Kansas, is engaged in commercial and manufacturing interests. The same is true of Atchison, Leavenworth, Douglas, Shawnee and Lyon, among the older counties. Ford county, on the frontier, follows Wyandotte with 46.2 persons per cultivated quarter-section, but the situation is the extreme of Wyandotte. Ford is a new county, and so rapidly has immigration rushed

in, that the settlers have not had time to break up and improve their farms. Although the population is much more exclusively an agricultural one than in Wyandotte county. Barbour, Ellis, Harper, Kingman, Norton, Pratt, Rooks and Russell, all new counties, show a like condition of affairs with Ford county. In due course of time, as their people put in the plow, plant their orchards and raise their crops of grain, etc., the situation will change, and these new counties will show a decrease in population to the cultivated area; not because of any falling-off in prosperity and progress, but the reverse—a steady advancement in the improvement and cultivation of the soil—the farmers getting their farms broken up, and each season putting more of the wild prairie land under the plow.

In 1876, according to the assessors' returns, we had 4,749,011.19 cultivated acres in the state, equal to 29,686.88 cultivated quarter-sections; a population of 529,742, or 17.8 persons to each quarter-section. In 1878, 6,558,727.85 cultivated acres, or 40,868.05—quarter-sections; a population of 708,497, or 16.0 cultivated acres to every 17.3 persons. This shows the progression of the state in cultivated area from 1875 to 1878 to have more than kept pace with the relative increase in population.

In 1879 we have 7,769,926.26 acres of cultivated territory, or 48,562.04 quarter-sections; 849,978 people, or 17.5 persons to every cultivated 160 acres, showing the increase in population from 1878 to 1879 to have been greater than the relative increase in cultivated area. The solution is an easy one. The thousands of people who immigrated to our state last year had their farms to select and locate, houses to build, stock, teams and farming implements to purchase, and in view of all these preliminaries, the average settler cannot do much the first year toward putting the wild prairie land under cultivation.

Counties.	State debt per capita.	State debt.	State taxes per capita.	State taxes.	Per cent. of increase.	Population.	Per cent. of increase.
Allen	\$1.01	\$1,011	\$1.01	\$1,011	1.01	10,116	1.01
Anderson	1.01	1,011	1.01	1,011	1.01	6,616	1.01
Atchison	1.01	1,011	1.01	1,011	1.01	21,791	1.01
Barbour	1.01	1,011	1.01	1,011	1.01	2,016	1.01
Barton	1.01	1,011	1.01	1,011	1.01	22,333	1.01
Bourbon	1.01	1,011	1.01	1,011	1.01	18,310	1.01
Brown	1.01	1,011	1.01	1,011	1.01	10,790	1.01
Butler	1.01	1,011	1.01	1,011	1.01	17,006	1.01
Chautauque	1.01	1,011	1.01	1,011	1.01	10,587	1.01
Chase	1.01	1,011	1.01	1,011	1.01	4,748	1.01
Cherokee	1.01	1,011	1.01	1,011	1.01	18,533	1.01
Cheyenne	1.01	1,011	1.01	1,011	1.01	10,658	1.01
Cloud	1.01	1,011	1.01	1,011	1.01	12,656	1.01
Coffey	1.01	1,011	1.01	1,011	1.01	10,077	1.01
Cowley	1.01	1,011	1.01	1,011	1.01	16,157	1.01
Crawford	1.01	1,011	1.01	1,011	1.01	19,781	1.01
DeWitt	1.01	1,011	1.01	1,011	1.01	14,587	1.01
Dickinson	1.01	1,011	1.01	1,011	1.01	13,005	1.01
Douglas	1.01	1,011	1.01	1,011	1.01	16,459	1.01
Edwards	1.01	1,011	1.01	1,011	1.01	20,520	1.01
Ellis	1.01	1,011	1.01	1,011	1.01	18,012	1.01
Ellsworth	1.01	1,011	1.01	1,011	1.01	5,240	1.01
Franklin	1.01	1,011	1.01	1,011	1.01	14,073	1.01
Greenwood	1.01	1,011	1.01	1,011	1.01	8,204	1.01
Harper	1.01	1,011	1.01	1,011	1.01	13,58	1.01
Haskell	1.01	1,011	1.01	1,011	1.01	10,440	1.01
Hodgeman	1.01	1,011	1.01	1,011	1.01	7,930	1.01
Jackson	1.01	1,011	1.01	1,011	1.01	13,872	1.01
Jefferson	1.01	1,011	1.01	1,011	1.01	14,161	1.01
Johnson	1.01	1,011	1.01	1,011	1.01	18,012	1.01
Kearney	1.01	1,011	1.01	1,011	1.01	18,171	1.01
Leavenworth	1.01	1,011	1.01	1,011	1.01	30,283	1.01
Lincoln	1.01	1,011	1.01	1,011	1.01	14,448	1.01
Linn	1.01	1,011	1.01	1,011	1.01	14,896	1.01
Lyon	1.01	1,011	1.01	1,011	1.01	15,073	1.01
Marion	1.01	1,011	1.01	1,011	1.01	10,154	1.01
Marshall	1.01	1,011	1.01	1,011	1.01	17,129	1.01
McPherson	1.01	1,011	1.01	1,011	1.01	14,139	1.01
Miami	1.01	1,011	1.01	1,011	1.01	15,161	1.01
Mitchell	1.01	1,011	1.01	1,011	1.01	14,034	1.01
Montgomery	1.01	1,011	1.01	1,011	1.01	15,979	1.01
Morris	1.01	1,011	1.01	1,011	1.01	7,197	1.01
Nemaha	1.01	1,011	1.01	1,011	1.01	10,267	1.01
Neosho	1.01	1,011	1.01	1,011	1.01	13,504	1.01
Norton	1.01	1,011	1.01	1,011	1.01	4,797	1.01
Osage	1.01	1,011	1.01	1,011	1.01	15,389	1.01
Osborne	1.01	1,011	1.01	1,011	1.01	9,445	1.01
Ottawa	1.01	1,011	1.01	1,011	1.01	8,757	1.01
Pawnee	1.01	1,011	1.01	1,011	1.01	7,023	1.01
Phillips	1.01	1,011	1.01	1,011	1.01	7,354	1.01
Pottawatomie	1.01	1,011	1.01	1,011	1.01	13,136	1.01
Pratt	1.01	1,011	1.01	1,011	1.01	12,042	1.01
Republic	1.01	1,011	1.01	1,011	1.01	12,193	1.01
Rice	1.01	1,011	1.01	1,011	1.01	14,149	1.01
Riley	1.01	1,011	1.01	1,011	1.01	7,419	1.01
Rooks	1.01	1,011	1.01	1,011	1.01	5,104	1.01
Rush	1.01	1,011	1.01	1,011	1.01	5,232	1.01
Russell	1.01	1,011	1.01	1,011	1.01	6,321	1.01
Saline	1.01	1,011	1.01	1,011	1.01	12,434	1.01
Sedgewick	1.01	1,011	1.01	1,011	1.01	17,613	1.01
Shawnee	1.01	1,011	1.01	1,011	1.01	22,632	1.01
Smith	1.01	1,011	1.01	1,011	1.01	11,498	1.01
Stafford	1.01	1,011	1.01	1,011	1.01	15,090	1.01
Sumner	1.01	1,011	1.01	1,011	1.01	15,090	1.01
Trego	1.01	1,011	1.01	1,011	1.01	2,310	1.01
Wabasha	1.01	1,011	1.01	1,011	1.01	6,245	1.01
Washington	1.01	1,011	1.01	1,011	1.01	11,900	1.01
Wilson	1.01	1,011	1.01	1,011	1.01	11,901	1.01
Woodson	1.01	1,011	1.01	1,011	1.01	6,058	1.01
Wyandotte	1.01	1,011	1.01	1,011	1.01	15,046	1.01
Unorganized	1.01	1,011	1.01	1,011	1.01	15,000	1.01
Total	1.01	1,011	1.01	1,011	1.01	849,978	1.01

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15: Ten subscribers, to one or more post-offices, for one year, (fifty-two weeks) for \$10, and an extra copy to the club agent. All names to be sent at one time. Money by registered letter, post-office order, or draft, at our risk. Any person can act as agent who will secure the names and forward the money. Sample copies and club list will be sent free to assist any person who will try to raise a club.

We ask our friends in every county, at every post-office, to give the FARMER the benefit of their active help. There are thousands of new citizens who are farming in the west for the first time, and to such the FARMER, containing as it does the practical experience of the oldest and best farmers, fruit growers and stock breeders, is just what they want and will be worth many times its cost to them. Bring it to their notice and we shall continue to make the paper worthy the most earnest support of its many friends throughout the west.

The President's message was delivered to Congress at noon, on Monday, and published throughout the country on Tuesday morning. The message is tiresomely long and commonplace. Much of it is devoted to the President's hobby, civil service. The great length of the message prevents its publication in the FARMER.

Speculation in Stocks.

There has recently been another great speculation in stocks, in that monster gambling hell of the United States, Wall Street, New York, scarcely less in magnitude than the famous Black Friday, when men were millionaires in the morning and beggars at night; when same men left their families in the morning and were taken home raving lunatics in the evening. Gold for many years was the greatest medium these gamblers used for their enterprises against the industry of the nation, and in numerous instances, during the rebellion, taxed the government to its utmost strength to maintain its position in the financial world. The gamblers lost no opportunity to put up the price of gold and lower the purchasing power of greenbacks and the national credit, when the army in the field met a reverse, or when a threatened one could be manufactured. The gold gambling in New York cost the people of this nation, there is scarcely a doubt, as much as the rebel armies. The two expenses are so closely blended as to be impossible of separation. And to the very last hour this great gambler's hall, the "Gold

Room" was maintained, till the credit of the government and the great resources of the country, fairly pushed it—with its gambling, betting crew, off the stage, by declaring that gold would be paid to any person holding a government note, without discount on the note. The gamblers then saw that their power at last was broken, and their glittering gold room was shut up, as a machine, that was no longer useful.

The gamblers held the government by the throat in those days and sucked the blood of the nation. But the nation is powerful enough now to break up that other twin brother of the gold room, stock gambling, and it should be relentlessly put down, by the severest penalties. What is known as "stock gambling" is prejudicial to the public interest, more than any other species of gambling, and equally detrimental and demoralizing to individual fortunes and character as the worst species of private gambling. A few years since lotteries were respectable devices for raising money. The lottery has fallen so low under an enlightened public principle, that it is classed along with the cards, dice, wheel of fortune and other similar gambling inventions; even the postoffice refuses to allow lottery dealers the use of the mails to transact their business. There is no doubt that lotteries bankrupted multitudes of industrious people and carried distress directly and indirectly into thousands of happy homes. Stock gambling is doing the same thing on a larger scale, and another step forward in public opinion is demanded to close up this nefarious business, or drive it into holes and corners to escape the clutches of the law.

Legitimate trade in stocks and stock gambling are as wide asunder as the poles, and easily and readily distinguishable. A gambler in railroad or other stocks simply bets that Northern Pacific, or any other stock will, in thirty days, or any other period he chooses to name, be worth, say 35 cents on the dollar, and enough money is deposited to cover the probable "margin." A few thousand dollars will suffice to purchase a large amount of stock when but a few cents in rise or fall is to be provided for. If the stock should be quoted at the expiration of the time named at only 32 cents this shambler, or more properly, better, will have to make the difference of three cents on each share good by paying that amount to the real owner of the stock, or more commonly to some other fictitious buyer, who has sold stock in the same way which he has never owned and is unable to own. Morally and practically there is not a particle of difference in thus putting up a sum called a "margin" depending on the rise or fall of stocks, than in putting up stakes on a horse race, a throw of dice, the turn of a card or any of the thousand and one games by which stealing another's property by betting is accomplished.

The system of stock gambling is carried into grain, meats, and a variety of other articles of commerce, and is constantly demoralizing the market, and causing fictitious prices which rob honest industry and legitimate business. Scheming "speculators" place their heads together, form a general fund and buy to be delivered on some day in advance. Every effort is made by false representations and fictitious purchases to advance or depress the price as suits them; and this is called making "corners" in grain, meat, or any other commodity. If their opponents are driven into a corner, then they are plundered to make good the "margin" one party loses and the other gains.

This system of transacting business is easily distinguishable from legitimate buying and selling and should be prohibited by the strong arm of law. A speculator in stocks has a moral and legal right to purchase as much stock as he is able to pay for, but when the purchase is made let the law see to it that the stock is a bonafide purchase and transfer. The real owner of stock cannot lose a great deal by the natural rise and fall in the market, uninfluenced by "bulls" and "bears." If betting and gambling on "margins" was broken up by severe penalties as the lottery business and other gambling is held in check, the occupation of "bull" and "bear" would be pretty much at an end, and legitimate business would prosper on the ruins of the gambler's chief occupation.

This same stock gambling is the fundamental cause of the great convulsions and loss among railroads and railroad stocks.

To this gambling in Wall street the Americans owe one-half of their national indebtedness, to the same cause is the present condition of our railways attributable. The watered stocks are all the dragon's teeth which have sprung from Wall street sowing, and the whole system draws from the soil through its thousand mouths the wealth it devours. If the system is traced back through its many ramifications, it will be found at last that the long tentacles of this moral devil fish is fostered in the soil, and the monster is feeding from the corn crib and wheat garner of the farmer. Hence the necessity that the farmer should become a student of political economy in order to save what he earns, as well as of practical agriculture, which teaches him to produce the wealth which others at present draw away from him by devices which he but imperfectly understands.

The Beet Sugar Industry.

In the last issue of the FARMER I was pleased to read your article on Beet Root Sugar. That is a move in the right direction, and I have been surprised that there has not been a greater effort to introduce its manufacture into the west. While passing some time in France my attention was called to this industry by seeing this sugar used in the households. It is nearly the only kind of sugar used in most of Europe, and is imported into England from France as

refined sugar. The French government pays a certain amount on every ton of sugar raised in France and exported out of the country. Beet sugar constitutes one-third of the sugar manufactured in the world. It is no untried theory, but its manufacture is an established fact. Why the Americans with their energy and enterprise have neglected it so far, astonishes me. I have raised mere sugar beets this season, for my cattle, than would supply me with sugar for the next dozen years. There is no crop that improves and enriches the soil more than beets; after extracting the 12 per cent of sugar, the remainder constitutes one of the best fattening and feeding articles known to farmers. In those sections where beet sugar factories are established, the price of real estate advances 50 per cent. I hope you will agitate this question this winter and try and secure legislative aid to stimulate action. The question of making sugar from sorghum is uncertain, but there is not a single doubt in respect to the making of beet root sugar, and there is no better country in the world to raise beets in than Kansas; and in fact the whole west.

MUSCATINE, IOWA, NOV. 27.

S. SINNETT.

We acknowledge the force of Mr. Sinnett's argument in favor of the beet sugar interest in this country, but the reason why sugar making has not become one of the industries of the west is obvious. It requires a larger capital to conduct the business, invested in expensive machinery and skilled labor. It is only recently that the particular kind of beets containing a sufficient percent of saccharine matter, has been produced in this country. And last, but not least, so many sources of employment are open to western farmers, requiring the minimum of capital to prosecute in this new and unsubdued country, that many years must elapse before beet sugar will be manufactured to any considerable extent. The eastern states are likely to take and maintain the lead in this business. In fact they seem impelled to this step from sheer necessity to do something that will return them some remuneration for their toil.

Sorghum, on the other hand, is comparatively an easy crop to grow and care for. It is very similar to corn in this respect, in the cultivation of which the western man is at home. Little capital is required in sorghum manufacture, and quite an advance seems to be making in improvement over old methods of making syrup from this species of cane.

We will endeavor to keep our readers posted in the progress of both the beet and sorghum industries, that they may become theoretically familiar with this branch of farming, and be ready to take advantage of future developments. As rich beets, and in as large quantities to the acre, could doubtless be raised in Kansas as in any of the European states. We have no doubt that the fertile soil and dry atmosphere of Kansas would produce beets very rich in sugar.

Cause for Thanksgiving in Kansas.

Since the last visit of the FARMER our great national day for returning thanks to the giver of every "good and perfect gift" has passed, and the heart of a grateful people have offered up thanks for the many blessings enjoyed by us as a nation and a people. From the tenor of our "farm letters" which come from every part of the state, the messengers of hope and cheerful content, we are persuaded that no part of this great country, has more cause for rejoicing and giving thanks than the favored state of Kansas. We have never known so much unanimity in the glowing prospect which the state presents for an abundant wheat crop next harvest. A large extent of winter wheat has been seeded, and all with one accord pronounce the present appearance of the young wheat as uncommonly fine, and the copious rains and protracted warm, autumn weather has put the crop and the ground in the very best condition for going into winter quarters. All who are familiar with wheat culture know how important it is that the plants should be well prepared for winter, and that a vigorous fall growth with plenty of moisture in the soil is the best possible condition for going into winter quarters. These essentials are preeminently the promising conditions of the future wheat crop of the state, and hence the farmers rejoice and give thanks for the promise of a bountiful harvest before them.

Lessons in Physical Geography.

BY C. W. JOHNSON.

I propose to present to the readers of the FARMER a series of papers on the laws which seem to me to control or greatly influence the weather. These papers are ready for publication, and will appear under the title "Weather Laws." Before entering upon them, it is desirable that some principles of physical geography,—obvious enough when stated, yet commonly overlooked, should be presented and fully understood, as well as the obvious deductions which flow from them.

1. Warm air is specifically lighter than cold air. Hence warm air flows toward the regions of cold, by an upper current, and cold air glides toward the hotter regions as surface currents.

2. Air laden with moisture is lighter than dry air of the same temperature. Hence the temperature of two regions being the same and no obstructions intervening the moist air by an upper current tends to flow toward the dryer regions, and the surface air of the dry region tends to flow into the wet region.

3. Ascending air by lifting the weight off of the mercury in the cup, permits the column in the tube to fall, while a descending current falls upon the mercury in the cup and causes a por-

tion to enter the barometer tube, causing it to rise.

4. Land heats more quickly than water, and cools more quickly also. Hence the sea will be warmer than the lands in winter and colder in the summer.

5. The waters of the ocean being mobile tend by circulation to equalize the temperature of the oceans, carrying heat from the equator polewards, and cold water from the poles toward the equator.

6. Air being mobile tends also to equalization in the same manner by the convection of heat.

7. A mobile fluid being thus acted on by heat at the equator and the cold of the poles will establish a circulation in which the warmer current will move poleward by an easterly trend and the cold current toward the equator with a westerly trend.

8. In the case of air there is a continual tendency for this circulation to change from a vertical plane: the cold side moving down that part of the surface which is coldest, and the warm side traversing the side that is warmest.

9. The land being the coldest in winter, the polar current goes down by land in winter, but the land being the hottest in summer, the equatorial current goes poleward, by land, and the pole current moves by sea.

10. In the fall and spring, when the temperatures are changing, these currents then move in a vertical plane, with frequent interference.

11. When the sea is warmer than the lands of the same latitude, there is a tendency for the warm air of the seas to rise upward and flow inland over a colder current then flowing from the land seaward as a ground current.

12. Such a current bears inland, the waters evaporated from the sea, and when they have moved inland far enough, radiation lowers the temperature to the saturation point, and we have rain and snow.

13. When the seas are colder than the lands: the heated inland air rises upward, flows seaward, bearing outward the evaporated water; where the cooler breezes of the sea blow inland, they do so with rising temperature, and take up rather than deposit water, reaching the center of the circulation, they ascend, and if producing rain, they merely have more water than they have picked up in their land travel. Hence the inland water supply is laid down when the average temperature of the land is below that of the contiguous seas.

14. Water runs down hill, and since all the water borne into a country above an amount sufficient to maintain a standard degree of saturation of air and earth, as a surplus flows out by the lowest channels, when sufficient to overflow at the lowest place, the flats, sinks and basins.

15. The amount of drainage exhibited upon a good map of any country, will indicate the relative volume of water discharged, and hence the relative amount received.

16. One or more intervals being established when the influx of water occurs, its volume detained in the country determines the relative humidity for the interval succeeding when the efflux of waters occurs, and hence where the intervals between influx are long, and the volume small, the air becomes during a portion of the interval, dry, and the aridity is proportional to the interval between the inflowing periods.

17. Since humid air is both the cause and effect of water distribution in inland countries, it becomes a cause and a sequence of rainfall; a cause during the inflowing period and an effect afterwards. In other words the extent of area and depth to which an inland country is wet up in the cooler months, determines the relative humidity of the air, and the number of rainfalls that occur in the period which would otherwise be rainless, viz. the hot months.

18. In the summer months, when the storms are of the whirling order, or "vortical," the winds are simply land winds, revolving about a local center, and in the depth of a continent. Such winds cannot add to the volume of water over the whole area, they simply affect the distribution, taking up the water evaporated from one land area, and dropping a portion of it elsewhere. We know this is so, because these summer storms, very rarely add anything appreciable to water flowing out of a mid continental region.

19. The character of these storms is determined by the inequalities of distribution both of heat and moisture at the opening of the thunder storm season. When the distribution is equal the storms are light, and when very unequal the storms are most violent. Thunder storms are the result, and not the cause of the wetting up of an inland region.

20. While the initial or primary distribution of water inland is the result of sidereal forces, the effect becomes cumulative or self causing. Rain causing rainfall in excess, drought exaggerating heat in summer and cold in winter, and hence the dryness of the air at either period.

21. Other things being equal, the farther removed from the seas a region is the less water it receives and the more extreme the whole range of meteorological phenomena is within the range of a water supply at all. The range of temperature in the year is extreme, from the cold of winter to the heat of summer. The secular range is extreme, from the coldest winter to the hottest summer. The precipitation range is also extreme; from flood to drought, is extreme; and the daily range in temperature is extreme; and in short, all its meteorological phenomena are exaggerated in range.

22. As the thermal range results from the variation of moisture in the air, thermal range cannot be the sole cause of the variation in humidity for that would make these variations re-

ciprocally the sole causes of each other which is absurd.

23. Whatever retains an increased volume of water out of the influx beyond its normal period of afflux, mitigates the extreme range of thermal phenomena; and also the aridity of the air, and augments the frequency of precipitation. This is important, and I here dwell upon it a little. The summer's heat and winter's cold, we are told by Tyndall, are favored by a dry air. The summer's sun rays fall upon the parched earth unobstructed by aqueous vapor, and overheat the soil and surface air, which having its capacity for moisture augmented, thereby becomes relatively dryer. In the winter when the soil receives less heat than it radiates the absence of the aqueous vapor in the air permits the freest radiation into space of the accumulated heat of summer. The lowest temperature by degrees brings down the water as frost or snow, and locks it from free escape into the air. But if we can maintain our soil wet in summer that will moisten the air by evaporation, and this will augment dews, fogs and rains, and thus an interchange of water between earth and air will be prolonged in time the longer we can keep the soil humid. Irrigation in Utah has spread the water of the streams over the soil, from the soil it has risen to the air, and from the air it goes back to the mountains, or falls in showers, and we get a most singular meteorological paradox; namely, that the more water is used in irrigating fields, the more water they have for irrigation. If the mountain snows, when melting had been suffered to flow out rapidly to the lake or seas, the rainless interval at midsummer would be prolonged, and the atmosphere attain its maximum degree of heat and aridity. It has been the breaking up of the system by which irrigation was carried to its greatest lengths in Asia Minor, Algeria, Spain, Assyria, Persia, etc., that has wrought the climatic change, which has destroyed the forests of those regions. It is the tillage of the plains that has converted a hard crust rapidly shedding water, into a porous, water holding sponge and has thereby wrought the marvellous climatic changes our tables will hereafter show.

The atmospheric humidity of the hot months, being thus augmented, droughts are mitigated, so are floods, hot summers and cold winters, cyclones and other extreme phenomena. Tree growing, and orcharding, as well as clover and the tame grasses advance westward, step by step with these favorable changes, and are the signs of the change and not as many believe the cause of it. Nature has some other capital devices for storing water out of the times of plenty against the times of scarcity. The great lakes are deep, vast reservoirs for water storage which are replenished at one season and for months thereafter maintain a local rainfall on the St. Lawrence basin. The flats and swamps and ponds of Illinois have in the past performed a similar service. But it is probable that cultivation as a whole in Illinois has hastened the escape of the water supply, thereby causing increased drought, summer's heat, winter's cold, etc., to the injury of the peach trees, pear trees. Culture of the lands in Illinois has increased the drainage rate and waters which were once detained months now escape in weeks, making streams torrents, at one time, and leaving them almost dry at others. The little lakes of Maine and Russia; those mountains which reach to the line of perpetual frost, govern moisture, and hold it back, from a too rapid return to the sea, letting it down gradually in the case of our own plains from the earliest spring at the south, to midsummer and often carrying over to next year a very respectable supply.

A country, where the lakes are undrained, or salt marshes, is dry, receiving no more water than evaporation can care for; on the other hand, a region covered with lakes from which streams flow, and emptying into many rivers, we know by inspecting a map, is a humid, rainy country. The rains first fill these catch waters, and the catch waters supply the rains at another season of the year.

24. The principles which determine the climate of any region, are applicable in determining the weather of any special period.

By this it is to be understood that the same laws which establish cold winters or hot summers for any region, may be invoked with safety to determine that any particular winter will be cold, or any particular summer hot, or any other period wet or dry, *pro tanto* as the principles are applicable. A wet winter will not be so cold as the same solar intensity would make it if dry. A dry summer is hotter than the same summer would be if wet, under the same solar intensity.

25. Since the diurnal and annual variations in the weather depend chiefly upon the intensity of the solar radiation received, it seems probable that similar variations also arise chiefly from similar variations in solar intensity.

The variations of these periods longer than one year, probably depart from strict periodicity to the same extent that diurnal and annual variations depart from strict periodicity. Test all readers may not understand me, I illustrate by saying: It is not strictly and invariably twenty-four hours from the hottest hour of one day to the hottest hour of the next; it is not strictly and invariably 365.25 days from the hottest period or coldest period of the year to the same period in the next year. So if a longer period should be established, it need not be expected to be invariable in length.

These twenty-five propositions do not embrace all the interesting laws of physical geography, but they appear to me now to embrace substantially all upon which I predicate a system of anticipating the general character of the seasons. In the articles to appear, some of them will be repeated, and some repetition will occur in the series—a condition of things inev-

THE STRAY LIST.

HOW TO POST A STRAY

BY AN ACT of the Legislature, approved Feb. 27, 1867, section 1, when the appraised value of a stray or strays exceeds ten dollars, the County Clerk is required, within ten days after receiving a certified description and appraisement, to forward by mail, notice containing a complete description of said strays, the day on which they were taken up, their present value, and the names and residences of the taker up, to the several townships, together with the sum of fifty cents for each animal contained in said notice.

How to post a Stray, the fees, fines and penalties for not posting.

Broken animals can be taken up at any time in the year.

Unbroken animals can only be taken up between the 1st day of November and the 1st day of April, except when found in the lawful enclosure of the taker-up.

No person, except citizens and householders, can take up a stray.

If an animal liable to be taken, shall come upon the premises of any person, and he fails for ten days, after being notified in writing of the fact, any other citizen and householder may take up the same.

Any person taking up an estray, must immediately advertise the same by posting three written notices in as many places in the township, giving a correct description of such stray.

If such stray is not proven up at the expiration of ten days, the taker-up shall be before any Justice of the Peace of the township, and file an affidavit stating that such stray was taken up on his premises, and he did not drive nor cause it to be driven there, that he has advertised it for ten days, that the marks and brands have not been altered, and he shall give a full description of the same, and the cash value. He shall also give a bond to the state of double the value of such stray.

The Justice of the Peace shall within twenty days from the time such stray was taken up, (ten days after posting) make out and return to the County Clerk, a certified copy of the description and value of such stray.

If such stray shall be valued at more than ten dollars, it shall be advertised in the KANSAS FARMER in three successive numbers.

The owner of any stray, may within twelve months from the time of taking up, prove the same by evidence before any Justice of the Peace of the county, having first notified the taker-up of the time when, and the Justice before whom proof will be offered. The stray shall be delivered to the owner, on the order of the Justice, and upon the payment of all charges and costs.

If the owner of a stray fails to prove ownership within twelve months after the time of taking, a complete title shall vest in the taker-up.

At the end of a year after a stray is taken up, the Justice of the Peace shall issue a summons to the taker-up to appear and settle such stray, summons to be served by the taker-up; if said appraiser, or two of them shall in all respects describe and truly value said stray, and make a sworn return of the same to the Justice.

They shall also determine the cost of keeping, and the benefits the taker-up may have had, and report the same on their appraisement.

In all cases where the title vests in the taker-up, he shall pay into the County Treasury, deducting all costs, the value of such stray, and one-half of the remainder of the value of such stray.

Any person who shall sell or dispose of a stray, or take the same out of the state before the title shall have vested in him, shall be guilty of a misdemeanor and shall forfeit double the value of such stray, and be subject to a fine of twenty dollars.

Fees as follows:

To taker-up, for each horse, mule or ass, \$5.00

To County Clerk, for recording each certificate \$2.50

and forwarding to KANSAS FARMER, \$2.50

To Kansas Farmer, for publication above mentioned, for each animal valued at more than \$10, \$1.00

Justice of the Peace for each affidavit of taker-up, for making out certificate of appraisement and all his services in connection therewith, \$2.50

Strays for the week ending December 3.

Atchison County—James H. Krebs, Clerk

PONY—Taken up by James Coughlin, Grasshopper tp, Kansas Co., Oct. 10, 1879, one bay horse, pony, collar marks, few white hairs on forehead, both hind feet white across the heels, about 12 hands high, 10 years old, valued at \$20.

COW—Taken up by Robert Hillier, Grasshopper tp, Muscatine Co., Nov. 4, 1879, one bay horse, cow, few white hairs on forehead, 2 years old, valued at \$15.

COW—Taken up by T. B. Tomlinson, Lancaster tp, Huron Co., Nov. 11, 1879, one iron grey horse, cow, right hind foot white, some white on left hind foot, dark mane and tail, about 2 years old, valued at \$15.

MULE—Taken up by William Porter, Grasshopper tp, Muscatine Co., Nov. 2, 1879, one black mare, mule, 2 years old, valued at \$20.

COW—Taken up by H. A. Newell, Grasshopper tp, Huron Co., Nov. 10, 1879, one iron grey cow, about 1 year old, valued at \$20.

STEER—Taken up by G. Taylor, Center tp, Pardee Co., Nov. 1, 1879, one roan steer, red neck, underbit, left ear cropped off right ear, slit in bracket, 1 year old, valued at \$15.

COW—Taken up by J. H. H. Reeder, Center tp, Pardee Co., Nov. 1, 1879, one iron grey cow, star on forehead, about 6 months old, valued at \$15.

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Farm Letters.

CRESSON, Rooks Co., Nov. 18.—As you have solicited correspondence from all parts of the state, I was desirous of asking some questions, so take the liberty as an invited correspondent. First, we are on the western border of Rooks county, and from what I can learn there was scarcely a furrow plowed, except a few miles west of Stockton, our county seat, prior to June, 1878, and very few claims taken. Now there is scarcely any vacant land, except some mounds, or extremely sandy plains, on the south fork of the Solomon. Some have good stone houses, mostly, however, sod. A very few have cut loose the anchor, and sailed back to the eastern states. We might say good riddance, but they were very harmless people, and we will not say it.

Wheat that was put in last spring, was on sod, and only harrowed, and some loosely sown and nothing done to it; four to eight bushels per acre was the crop, notwithstanding the off-spring. On old land, we had a fair supply of rain to insure average crops. We have most all got in more or less wheat; but the question arises, more money can we put in as a spring crop to realize in means, and it is a serious question. Can you enlighten us? Some are meditating sowing flax. Then, the question arises, where can we get the seed? In the eastern states (Wisconsin) parties keep the seed to let to farmers, one peck interest; that is, they contract to deliver the seed to the party furnishing, giving him the first chance to buy, and if any other party offers more, let it go, and pays the man furnishing seed to sow, the price he offered, and one-fourth more as interest. This is high interest, but better than going without. Is broom-corn considered a certain crop, and will it pay with average skill in handling and preparing for market? Sorghum is a safe crop, but so much is raised, and no market, unless success is attained in converting it into sugar. So we are casting about trying to get tight, and know of no safer or better way than to appeal to the standard agricultural paper of the state. Any hints you can give will be thankfully received by many who are in the same predicament.

We prize the FARMER very much, and think it is fast improving. Would value very highly one improvement, could it be made with trifling cost, viz: cut and pasted. Read and re-read, and with so many handling it, the paper gets occasionally torn and much soiled. Then it needs an index at the close of each year; then it would be perfect. In lieu of that, we cut out the most important articles and paste in a scrap-book, taking an old ledger, already paged, and arrange all articles, each under an appropriate heading—Agriculture, Horticulture, Travels, Bees, etc., and index them for reference. Now I will tell you how I make my paste, which is far superior to any prepared mucilage I ever saw: Take a tablespoonful flour, make it into a smooth paste, and put into one-half pint boiling water a lump of alum the size of a hickory nut, (alum makes paste white); then after being well shaken, add a few drops of oil of cloves. Put all into a wide-mouthed bottle, and with a flat, soft brush apply to the clipping (not to the scrap-book) and the job is done. In making, don't heap spoon too full, as paste would then be too thick. This paste may freeze; if so, heat it up and it is as good as ever.

Those taking the FARMER at our office, hope to see the list much enlarged after January 1st. D. H. BUDD.

Nothing would give us more pleasure than making the improvements (pasting and indexing) suggested by our correspondent, and if each one of our present subscribers, who could do so, will send us in a club of ten names, by the first of January next, we will make the improvement. With the co-operation of their earnest patrons, publishers can do a great deal in advancing the interest of their readers. Without a kindly effort on their part, their ability in this direction is materially circumscribed. Doubtless many of our frontier farmer readers could give valuable information to the inquiries of our correspondent. They have met and overcome the difficulties which are at present confronting the brave hearts who occupy the picket line of civilization on the frontier of Rooks county.—[Ed.]

How to Build a Small Ice-House.

In answer to the inquiry of a correspondent, the *Prairie Farmer* gives the following plan to build a small ice-house:

"An ice-house simply to keep ice in for summer use may be a very simple affair. If straw is used for filling, the walls should be at least two feet apart. The interstices should be packed tightly whatever the material used. Straw is one of the poorest non-conductors, easily obtained, and sawdust one of the best. If tan bark is used, from ten to twelve inch space between the walls is left to be filled.

"Two-by-four-inch scantling are securely fastened to bed pieces in two regular lines, and about two feet apart, and of the necessary distance asunder required for the filling material. To these, rough boards are securely nailed. A house twelve feet square and twelve feet high will hold plenty of ice for family use, and for an ordinary family dairy. No ventilation is required except at the top, over the ice. The roof may be of boards and the gables may be of the same, with a window at each end for ventilation. Doors must be made at one end of the sides or end to allow the ice to be put in, and afterward be closed and filled with tan bark. The bottom must be provided with perfect drainage to allow the water from the melting ice to pass away. The first course of ice may be laid on boards, loosely laid on beams, placed closely enough together to prevent sagging. Pack the ice in perfectly square cakes, as closely together as possible, and even with the plates. Cover with eighteen inches of slough hay, or twelve inches of fine wood shavings, and the ice should keep perfectly. Have no part of the ice-house underground. Any competent carpenter should be able to build it.

"If a cooling-room is required under the ice, it will be altogether better to apply to an architect, since it will involve a very strong and substantial building, with scientific ventilation

that cannot be very well explained in the limits of a newspaper article. In fact, except a rough building such as we have described, is to be built, and such a one will keep ice as well as the best, the work must be undertaken by a professional builder. A rough ice-house may be built by any one who can lay a foundation square, build vertical sides, saw boards square, and drive nails. For dairying or for farm use, we do not advise an expensive building with cooling-room underneath. An ample refrigerator according to the quality of goods required to be kept cool may be cheaply built, and temperature kept down, by the use of ice from the ice-house. In answer to your question as to the proper depth at which water-pipes are to be laid to prevent freezing, three feet will do, but three and a half feet will be better. Dig the ditch in which the pipes are to be laid, with vertical sides, and as narrow as possible, and pound the earth firmly, when it is filled up."

If a farmer, wanting to construct a small ice-house, happens to have a piece of sandy or gravelly subsoil, he will find an underground ice-house built in the following manner, better and much cheaper than the above. Unless in sandy or gravelly subsoil the underground house will not answer, as there would be no escape for the water from the melting ice.

On a piece of land having a porous subsoil, which will drain away the water as fast as it is precipitated from the melting ice, sink a hole ten or twelve feet square and ten feet deep. If the soil is of such a texture that there is no danger of caving, the pit need not be walled. If caving is apprehended, it should be walled. Rough stone, if convenient, is as good as any material for the wall and the cheapest. If walling is not required, lay rails or something similar on the bottom, and also set them on end round the sides about a foot apart. Cover the bottom with straw six or eight inches in thickness when well pressed down, and also line the sides with straw or cornstalks as the ice is filled in. Proceed to fill the pit by placing the cakes of ice as closely together as possible, so that the whole, when full, will contain a solid mass of ice, closely packed around the sides with straw, or similar substance, to exclude the air. Cover the whole with a thick layer of sawdust, if it can be had convenient, if not use straw. Lay a frame of logs around the top, on which build a tight board roof. A double roof is best, filled in with sawdust, tan bark, or if these non-conductors are not convenient use straw or chaff. If the ice is packed well and protected by a thick covering of straw, a single roof will be found to answer the purpose very well. Bank the earth around the top about the sills so as to turn away all rain and surface water, which must be led off by a drain. Fit a door tightly in the northern gable end, and such an ice-house will preserve ice through the summer as well, or better than the majority of expensive above-ground ice-houses. The ice-house should, if possible, be constructed where the shade of trees will protect the roof from the direct rays of the sun. If exposed to the sun's rays a double roof will be an advantage. Any farmer can construct such an ice-house at a less cost than it will require to fill it, and have the luxury of abundance of ice for use through the heat of summer. The value of ice in the dairy and for many purposes in the family, cannot be estimated without the experience of a season's supply. In case of sickness invading the home circle, ice will often be found invaluable.

Try A Man.

A lady correspondent of the *Ohio Farmer*, who writes herself down Sadie Ann, has been trying a man to handle the scrubbing brush and duster in house cleaning, and thinks well of him. This is what she says about her new "help."

"House-cleaning is now at hand, and if help is scarce in the house, get your men folks to help you, like I did. It seemed a little awkward at first, seeing my man whitewash, and scrub, and take the carpets up; but whatever I put him at he was just capital. Now I am sitting by a nice warm fire, cleaning all done—when with the help of a woman, I would not have been through for three weeks at least. Try a man's help once, if you have one that you can crack around any way. But they are not all alike; some are so mulish. If you have rusty stove-pipes or stoves, rub on coal oil with a rag, or pour oil in the joints of the pipe; it loosens it like a charm. If there is anything to put a man out of sorts just give him a rusty stove-pipe to fix. If you want a man to help you, I advise you not to begin on stove-pipes."

A wise farmer gives his successful method of keeping his sons on the farm, and contented: "My eldest son is near twenty-one years of age, and the other boys in the neighborhood younger than he have left their parents. Mine have stuck to me when I most needed their services, and I attribute this result to the fact that I have tried to make their home pleasant. I have furnished them with attractive and useful reading, and when night comes, and the day's work is ended, instead of running with other boys to the railroad station and adjoining towns, they gather around the great lamp, and become interested in their books and papers."

The monster orchard of Oliver C. Chapin, Ontario county, N. Y., containing over five thousand trees, was attacked by the canker worm in the interior part last year. The trees were showered with a mixture of paris green which brought the bugs dead to the ground in a few hours. The water was drawn in a box holding over two hundred gallons, in which was mixed two and a half pounds of paris green. A forcing pump and hose threw a stream high above each tree, where it broke into spray, and falling sprinkled every part.



"It feels like a ball of fire rolling up, and down the chest," is a common expression among sufferers from indigestion. Then use

Tarrant's Seltzer Aperient

get the system into a healthy condition, so that the digestive organs can do their legitimate work, and you won't be troubled after eating. Dyspepsia is the fruitful mother of many sad diseases resulting from the condition of the stomach, and this aperient carries off easily and pleasantly the cause, and this cures the disease.

SOLD BY ALL DRUGGISTS.

THE Weekly Capital.

The Dollar Family Newspaper.

Published at Topeka, Kansas, by

HUDSON & EWING.

The Weekly Capital, published at Topeka, Kansas, is sent postage paid, one year for \$1.00. It contains latest general telegraphic news, news from the principal cities of the state, and contributed and selected news from every county in Kansas. The decisions of the Supreme Court, proceedings of State meetings, conventions and such general literary miscellany and local intelligence from the State Capital as to make it desirable in every family. Send One Dollar by registered letter or post office order, and receive the paper one year.

SPECIAL ANNOUNCEMENT.

From and after January 1st, 1880 the Capital will be enlarged to a 32 column paper. Subscriptions taken at any time for one year, and the paper discontinued at the end of the time for which it is paid for. Sample copy sent free of charge to any applicant. In sending money for the Weekly Capital, mention the name of this paper, and write address plainly.

HUDSON & EWING,

Topeka, Kansas.

60 new styles chromo and floral cards in case 10c. 80 agents' samples 10c; Stevens Bros, Northford Ct.

VERY IMPORTANT TO SHEEP OWNERS.

The new (patented) Sheep Dip. Little's Chemical Fluid. Non-Poisonous. Non-Corrosive. Will not injure even the eyes of the sheep. Killed red lice ticks, scab insects, also ants and bugs and fleas on dogs. Cures gapes in chickens, improves growth and quality of wool. The first prize for wool given in London in June last, was awarded to wool from sheep that had been dipped in this fluid.

It is a Perfect Deodorizer and Disinfectant. Send stamp for prospectus and testimonials from Australia, New Zealand, South America, Europe, Africa and South Africa to T. W. Lawford, (General Agent) Baltimore, Md., or 15c for a sample. Agents wanted in every city and town. Terms liberal. Agents wanted over other dips is its perfect safety in cold weather. A gallon makes 100 gallons of dip. Perfectly safe in cold weather.

GRAPE VINES
Largest Stock in America. Prices Extraordinarily Low. Also Trees, Small Fruits, Strawberries, &c. Price and Descriptive List Free. T. S. Hubbard, Fredonia, N. Y.

STRAYED OR STOLEN.

About August 1st, 1879, the following stock, to wit: One bay mare, 3 years old, large blaze in face, saddle and collar marks, branded on shoulder and thigh with N, natural pacer. One iron grey or mouse colored mare, 2 years old, white feet, large blaze in face, small black spot over left eye, had on leather head halter, branded on shoulder and thigh with N. One bay mare 2 years old, white hind feet, branded on left shoulder with N. One sorrel mare, two years old, one hind foot white, branded on left shoulder with N. One bay horse 2 years old, few white hairs in forehead, branded on left shoulder with letter N. One iron grey yearling mare, star in forehead, branded on left shoulder with letter N.

A liberal reward will be paid for their return to us or for information leading to their recovery. Address Wilson & Norton, Cottonwood Falls, Chase Co, Kas.

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